Modern approaches to physical activity promotion and measurement

Jurakić, Danijel; Rakovac, Marija; Greblo Jurakić, Zrinka; Sorić, Maroje; Podnar, Hrvoje; ...,


13TH ANNUAL MEETING
AND 8TH CONFERENCE
OF HEPA EUROPE
Conference theme:
MODERN APPROACHES TO
PHYSICAL ACTIVITY PROMOTION
AND MEASUREMENT

Modern approaches to physical activity promotion and measurement

FINAL PROGRAMME AND BOOK OF ABSTRACTS

University of Zagreb, Faculty of Kinesiology

Co-sponsored by: World Health Organization Europe

WELCOME NOTE

Dear friends and colleagues,

It is our utmost pleasure, on behalf of the organizer, the University of Zagreb, Faculty of Kinesiology, to warmly welcome you in Zagreb for the 13th Annual Meeting and 8th Conference of HEPA Europe. We are very pleased to inform you that with more than 200 abstracts and more than 300 registered participants this year's conference will be the best attended HEPA Europe conference so far.

The main topic of the conference is "Modern approaches to physical activity promotion and measurement". We are confident the conference will provide a great platform for exchanging knowledge and experiences between researchers and practitioners and, most importantly, for dissemination of emerging ideas in these areas.

Undoubtedly, many interesting new findings will be presented as part of the four cutting-edge keynote lectures, 21 parallel oral sessions, 9 symposia, poster sessions, two workshops, and a number of other conference events. We hope participation at the conference will be an intellectually enriching and fruitful experience for all attendees.

Our social programme will include an evening walking sightseeing tour, followed by a welcome reception at a venue with a panoramic view on the entire city of Zagreb, a morning sightseeing run, and the conference dinner at a famous club located at the central city square. Make sure not to miss the colourful autumn atmosphere in the old Zagreb's Upper Town and the busy downtown area.

We wish you to enjoy your stay in Zagreb and to have a great conference!

Marija Rakovac,
MD, PhD

Danijel Jurakić,
PhD

CONTENTS

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University of Zagreb, Faculty of Kinesiology

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GENERAL INFORMATION AND SOCIAL PROGRAMME

VENUE

Sheraton Zagreb Hotel, located in the city centre, is just a stroll away from the main attractions where Zagreb's history and tradition can be witnessed in museums and galleries, architecture, numerous theatres, lively cafés, and bars. Offering easy access to the city's main points of interest and close to public transport, Sheraton Zagreb is the hotel of choice for business and leisure travellers.

Sheraton Zagreb Hotel
Kneza Borne 2, 10000 Zagreb
http://www.sheratonzagreb.com/

REGISTRATION/INFORMATION DESK

The conference registration/information desk is located on the ground floor of the Sheraton Hotel, in front of the Section A room. All participants should register at the Registration/Information Desk upon their first arrival to the conference venue.

Registration/Information Desk opening hours:
Tuesday, 14 November, 08:30 – 20:00
Wednesday, 15 November, 07:15 – 18:15
Thursday, 16 November, 08:00 – 18:45
Friday, 17 November, 08:15 – 12.45

THE CONFERENCE FEE INCLUDES:

· Conference materials (bag, name tag, Final programme and Book of abstracts)
· Admission to all sessions of the scientific programme
· Admission to the Zagreb Sightseeing Tour
· Admission to the Welcome Reception
· Coffee breaks and lunches at the conference venue for the duration of the conference

NAME TAGS

Name tags will be issued when registering at the conference. For security purposes, the conference name tag must be worn at all times during the conference and social functions.

COFFEE BREAKS

Coffee breaks will be served in front of the room Section B (ground floor).

LUNCHES

Lunches that are included in the conference fee will be served in the restaurants Fontana and King Tomislav at the conference venue (ground floor). Lunch includes a buffet meal and one non-alcoholic beverage per person.

INTERNET ACCESS

Free wireless internet will be available at the conference venue (network name: Sheraton Guest; no password required).

CONFERENCE NEWS

Conference news are available at **http://hepaeurope2017.com/.**

CURRENCY

The official Croatian currency is Kuna (1 EUR ≈ 7.5 HRK).

CONFERENCE LANGUAGE

The official conference language is English.

TRANSPORTATION

Public transport

Numerous tram and bus services operate regularly during the daytime, whilst a limited number of lines are available during the night. To travel on Zagreb's trams and buses you will need to have a valid ticket that can be purchased on Tisak newsstands or directly on the coaches (Croatian Kuna needed; payment by credit card possible on Tisak newsstands, but not on the coaches). A single 90-minute valid ticket costs 10.0 HRK (≈ 1.3 EUR). A daily ticket costs 30.0 HRK (≈ 4 EUR). Tickets valid for 3 days (70.0 HRK (≈ 9.3 EUR)) or 7 days (150.0 HRK (≈ 20.0 EUR)) are available at ZET selling points (address: Frane Petrića 4, near the central square). More information about ticket options and prices can be found at: **https://goo.gl/LY3sUF**

Taxi

Several registered taxi companies offer their services in Zagreb. The prices usually range between 1 and 2 EUR per kilometre (plus a fixed start fee of 2-3 EUR), but this may vary across different taxi providers and depending on other factors, such as the time of the day, traffic, and type of the vehicle. For more information, please call:

Radio Taxi Zagreb (1717)
Taxi Cammeo (1212)
EKO Taxi (1414)
Taxi Zagreb 3628 (+385 (0) 91 570 64 55)
Taxi Zagreb (+385 (0) 99 193 36 50)

Transport to and from the airport

The International Zagreb Airport 'Franjo Tuđman' (previously known as 'Pleso') is located 17 kilometres (11 miles) from the city. The easiest way to get from the airport to your destination in Zagreb is by taxi. The prices may vary between 15 and 25 EUR. Another way to get to and from the Airport is by bus/airport shuttle "Pleso prijevoz". The airport shuttle "Pleso prijevoz" operates between the Airport and the Zagreb Central Bus Station (a 35-40 minute travel time), following a timetable which can be found here:

http://www.zagreb-airport.hr/en/passengers/to-from-the-airport/by-airport-shuttle/89.

A one-way ticket price is 30.0 HRK (≈ 4.0 EUR).

For more information, also see:

http://www.zagreb-airport.hr/en/passengers/to-from-the-airport/35.

How to reach the Conference venue

Sheraton Zagreb Hotel is located 15 minutes by foot from the central square in Zagreb (Trg Bana Josipa Jelačića). The hotel is also in close vicinity to the tram and bus stations. You simply cannot miss it; just ask for "Hotel Sheraton" and every taxi, tram or bus driver will be able to direct you straightaway.

Sheraton Zagreb Hotel is just 10-minute walk from the Zagreb Central Bus Station to the west. Tram lines 6 and 8 will take you directly to the venue. If taking a tram, exit at Branimir Centre station, and you will see the hotel on your right side. All other official Conference hotels are at walking distance from Sheraton Zagreb Hotel.

TOURIST INFORMATION

With a population of over 1.1 million in its metropolitan area, Zagreb is the Croatia's capital and largest city. Do not miss the opportunity to explore the medieval alleys of its 'Uppertown', and a number of iconic neo-Gothic, neo-Renaissance, and Secessionism buildings in the 'Downtown'. November is the most colourful month of the year, offering a plethora of beautiful sights in Zagreb's parks and botanical gardens. The people in Zagreb are warm-hearted, relaxed, and friendly, and are always happy to help you get around the city. We wish you a pleasant stay and many memorable moments in Zagreb!

http://www.infozagreb.hr/

SOCIAL PROGRAMME

Zagreb Sightseeing Tour: Wednesday, 15 November, at 19:15.

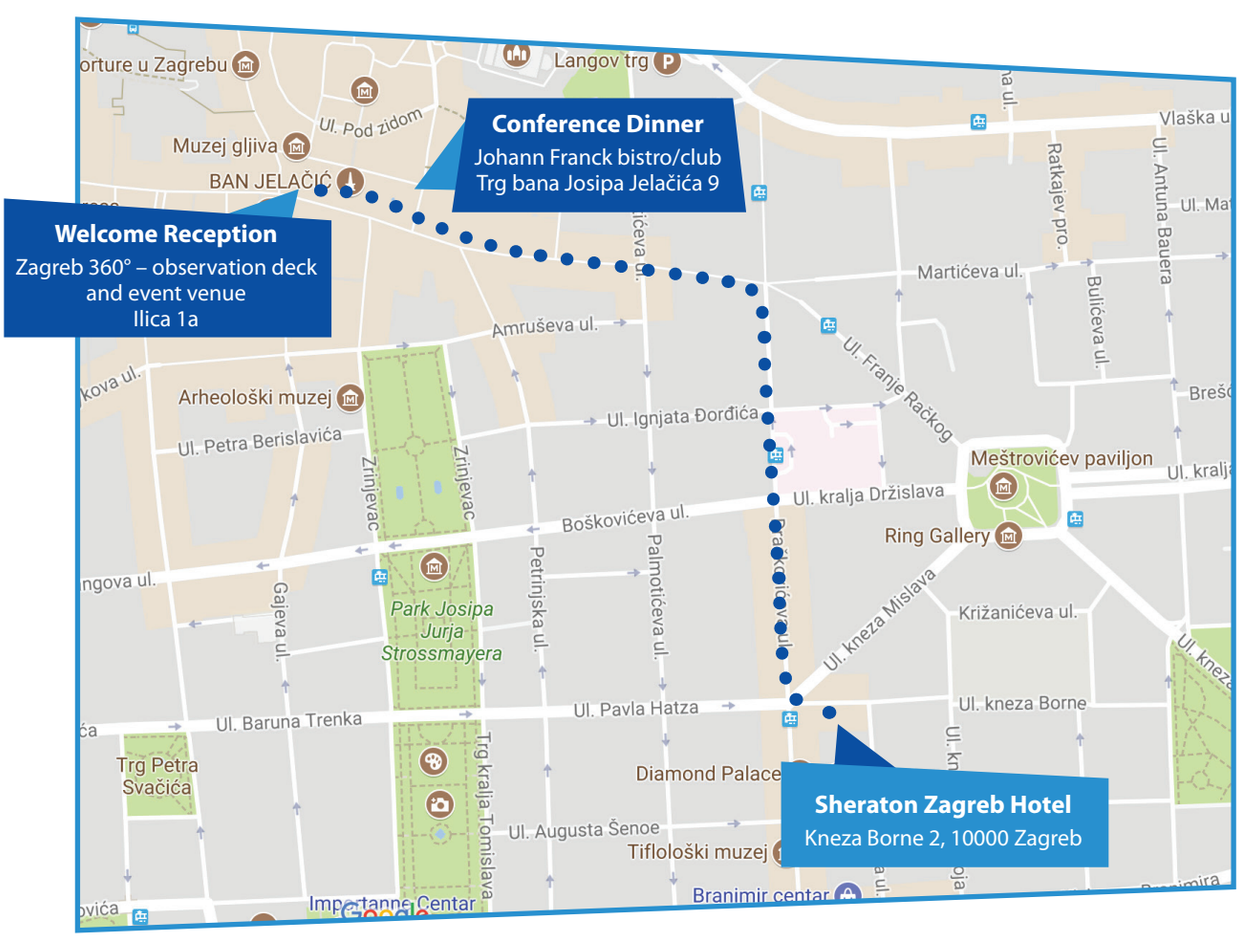
The meeting point – Sheraton Hotel main entrance. The tour will be immediately followed by the Welcome Reception.

Welcome Reception starting at 20:30 (welcome drinks), which will be held at the *Zagreb 360° – observation deck and event venue*, located next to the central square, Ilica 1a.
https://www.zagreb360.hr/en/

Conference dinner: Thursday, 16 November, starting at 21:00.

The conference dinner will take place in the *Johann Franck bistro/club*, located at the central square, Trg bana Josipa Jelačića 9. **http://johannfranck.hr/**

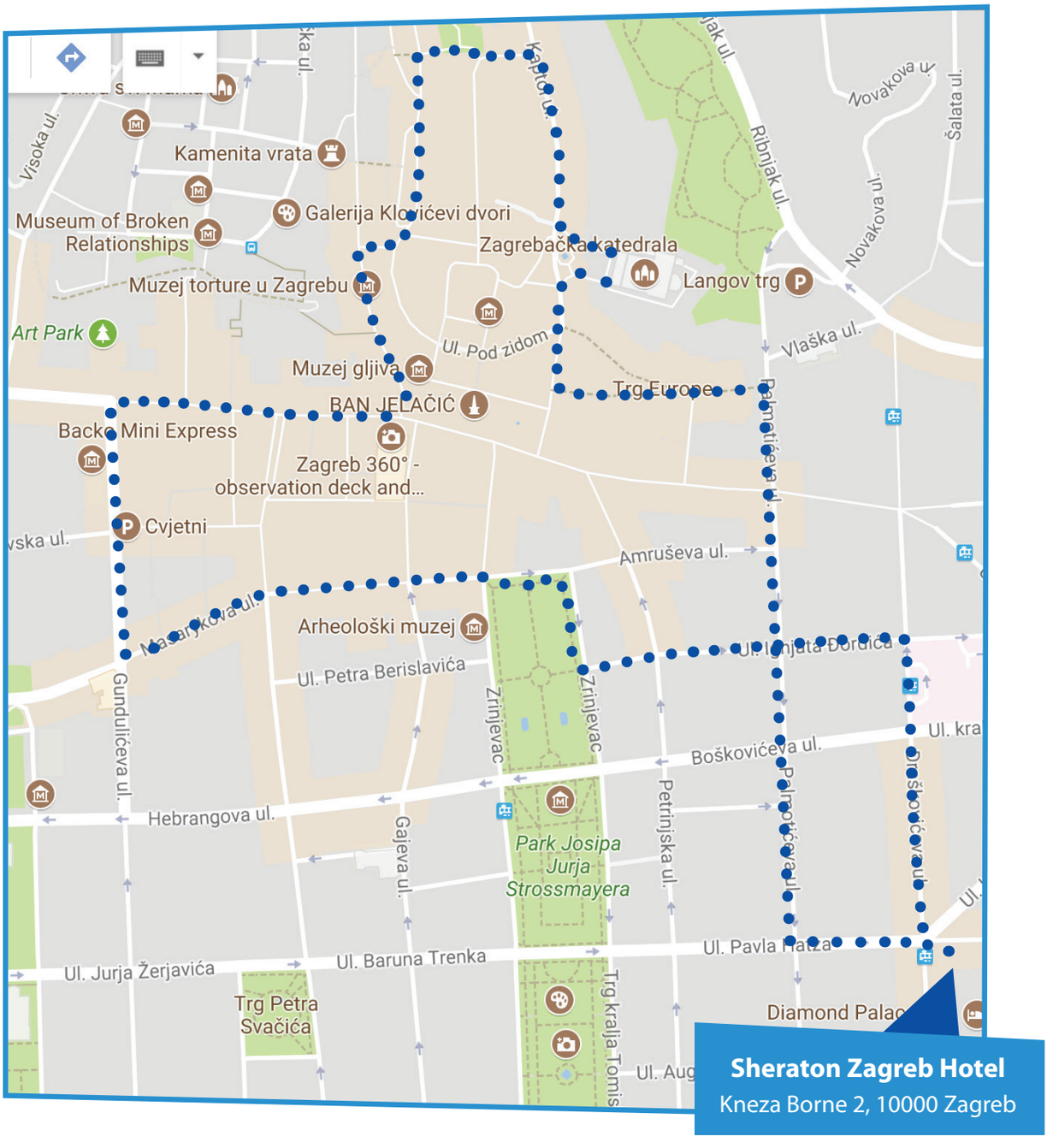
Dress code for both programmes: Casual



The walking route (aprox. 1 km) between the Sheraton Hotel and Trg bana Josipa Jelačića is marked by the blue dotted line.

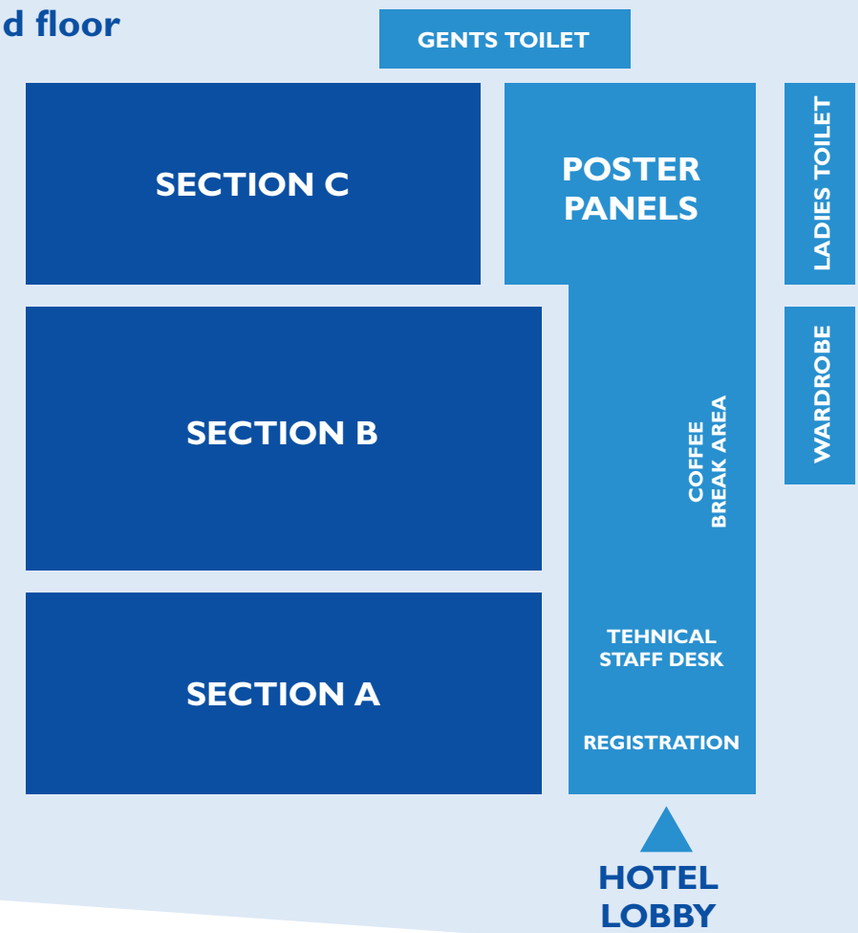
MORNING SIGHTSEEING RUN

Thursday, 16 November, at 7:15-8:00. The meeting point – Sheraton Hotel main entrance. The run will be guided. Running track will include inclined terrain. If the participants wish to do the run individually, they can do so by following the route indicated on the map.

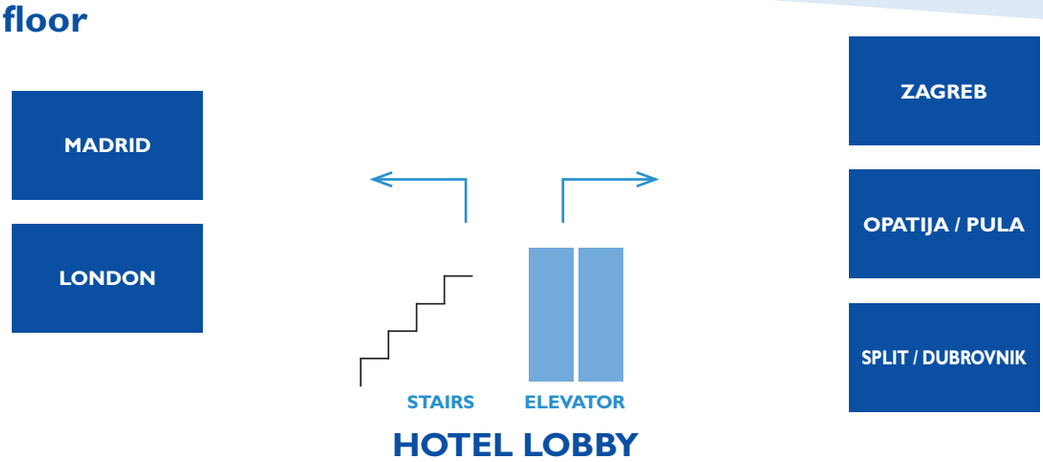


SHERATON ZAGREB HOTEL

Ground floor



1st floor



Opening ceremony: Section B (ground floor)

Keynote lectures and other plenary sessions: Section B (ground floor)

Workshops: Section B and section C (ground floor)

Oral sessions: Sections A, B, C, lecture rooms Opatija/Pula, Split/Dubrovnik, London, Madrid, Zagreb (ground floor and 1st floor)

Symposia: Sections A, B, C, lecture rooms Opatija/Pula, Split/Dubrovnik, London, Madrid (ground floor and 1st floor)

Poster sessions: the area in front of the Sections A, B, C (ground floor)

PRESENTATION GUIDELINES

ORAL SESSIONS

The presenters are encouraged to submit their presentations to the Technical Staff immediately after their registration (the Technical Staff desk is located next to the Registration desk).

Alternatively, they should upload their presentations (and check their functionality) at the Technical Staff desk in the morning (8:30) on the day of their session.

Each room will be equipped with a media projector and a PC. The use of private laptops is not allowed. **The preferred format for presentations is .ppt or .pptx (MS Powerpoint). Prefered aspect ratio for presentation is 4:3.**

The presenters are kindly asked to be available in their respective lecture rooms before the beginning of the session and to introduce themselves to the session Chair.

During the session, the Chair will introduce the presenter. Each presenter will be allotted:

8 minutes for presentation;

2 minutes for discussion.

Please add as last slide *"messages for policy and practice".*

At the end of the session additional 10 minutes will be available for a general discussion. The session timeline will be strictly followed.

POSTER SESSIONS

Poster size should be 100 cm (height) x 70 cm (width).

Poster sessions will take place on Wednesday, 15 November (15:40-16:10) and Thursday, 16 November (14:00-14:30). The authors are kindly requested to be available at their posters during the mentioned time slot.

The posters will be exhibited in the exhibition area in front of the Sections A, B, and C (ground floor). The top of each poster panel will be labelled with the poster number (corresponding to the abstract number indicated in the Final programme and Book of abstracts). The authors are requested to hang up their posters in the morning (8:15) on the day of their poster session and to take the poster down in the evening of the same day (not later than 19:00). Adhesive tapes will be available at the poster exhibition area.

HEPA EUROPE 2017 EARLY CAREER RESEARCH AWARDS

The abstracts awarded with the HEPA Europe 2017 Early Career Research Awards:

First prize:

Bojana Klepač-Pogrmilović,
Victoria University, Australia

A systematic scoping review of studies analysing national-level physical activity and sedentary behaviour policies (Abstract ID 96)

Liam Kelly,
Institute of Technology Carlow, Ireland

Men on the Move': A community-based physical activity programme for adult men in Ireland (Abstract ID 93)

Second prize:

Dorothea Dumuid,
University of South Australia, Australia

BODE index score is related to time-use composition in people with COPD (Abstract ID 40)

Third prize:

Cormac Powell,
University of Limerick, Ireland

The theoretical effects of replacing sedentary time with standing time, LIPA and MVPA on cardiometabolic health (Abstract ID 160)

PROGRAMME AT A GLANCE

Wednesday, 15 November 2017

Time	Section A	Section B	Section C	Opatija/Pula	Split/Dubrovnik	London	Madrid	Zagreb
From 07:15	Registration							
08:15-10:15			**Workshop 1** Quantifying and Visualising Physical Behaviour: An alternative to energy expenditure estimation in evaluation of physical activity interventions	**Workshop 2** Compositional data analysis: examples of application in physical activity research				**HEPA Europe Steering Committee meeting** (9:15-10:15)
10:15-10:30	Coffee break							
10:30-11:00	**Opening ceremony**							
11:00-12:00		**Plenary session – Keynote speaker:** Fiona Bull, World Health Organization – *Current practices and issues in physical activity promotion: From small-scale interventions to changes in national policy*						
12:00-12:55	Lunch							
12:55-13:40		**EU update session**						
13:40-13:45		**IOC - Active Well-being Initiative and Global Active City label**						
13:50-15:20	**Symposium 1** Implementation of Physical Activity Guidelines – national, European and global perspectives	**Oral session** Physical activity interventions in different settings	**Oral session** Physical activity in children and adolescents	**Oral session** Sedentary behaviour	**Oral session** Physical activity and health outcomes	**Oral session** Physical activity policy	**Oral session** Active transport	
15:20-15:40	Coffee break							
15:40-16:10	**Poster sessions** Active ageing Active transport Modern technology in physical activity promotion Physical activity and health outcomes Physical activity interventions in different settings Physical activity policy							
16:10-17:10		**Plenary session – Keynote speaker:** Željko Pedišić, Victoria University, Australia – *Issues and challenges in physical activity surveillance*						
17:15-18:15	HEPA Europe Working groups session							
	Monitoring and surveillance of physical activity	National approaches to physical activity promotion	Environmental approaches to HEPA promotion	HEPA promotion in health care settings	Active ageing: physical activity promotion in elderly	Workplace HEPA promotion	Sports club for health	
19:15-20:30	Zagreb Sightseeing Tour							
20:30-22.00	Welcome Reception							

Thursday, 16 November 2017

Time	Section A	Section B	Section C	Opatija/Pula	Split/Dubrovnik	London	Madrid	Zagreb
07:15-08:00	Morning sightseeing run							
From 08:00	Registration							
09:00-10:00		**Plenary session – Keynote speaker:** Gregory J. Welk, Iowa State University, USA – *The use of wearable technologies in measurement and promotion of physical activity*						
10:00-11:00		**Plenary session – Chatting with giants:** Adrian Bauman Stuart Biddle Nanette Mutrie Pekka Oja						
11:00-11:30	Coffee break							
11:30-13:00	**Oral session** Physical activity interventions in different settings	**Symposium 2** National physical activity policies: progress, pitfalls and lessons learned	**Oral session** Physical activity in clinical and special populations	**Symposium 3** Recent viewpoints about physical activity in clinical cardiology	**Symposium 4** How to create an Urban Active Environment: Lessons learnt and case study examples from the SPAcE (Supporting Policy and Action for Active Environments) EU project	**Oral session** Active ageing	**Symposium 5** 'Keep Youngsters Involved': Insight into an Erasmus+Sport project designed to prevent dropout from youth sport for 12-19 year olds	
13:00-14:00	Lunch							
14:00-14:30	**Poster sessions** Physical activity in children and adolescents Physical activity in clinical and special populations Physical activity measurement Prevalence and determinants of physical activity Sport and health							
14:30-15:10		**Plenary Session – Early Career Research Award presentations**						
15:15-16:45	**Oral session** Physical activity interventions in different settings	**Symposium 6** Global surveillance of physical activity policy: experiences from HEPA Europe and the Global Observatory for Physical Activity – GoPA!	**Oral session** Physical activity in children and adolescents	**Symposium 7** Improving Adherence to Physical Activity Interventions Across the Cancer Trajectory: predictors, determinants and type of intervention	**Oral session** Physical activity in clinical and special populations	**Symposium 8** Sports Clubs and Coaches Health and Physical Activity Promotion – Sports Club for Health (SCforH) the Comprehensive Approach	**Symposium 9** Child Obesity: Super Dynamic Food Dudes to the Rescue!	**Oral session** Sport and health + Physical activity measurement
16:45-17:15	Coffee break							
17:15-18:45	**Oral session** Physical activity interventions in different settings	**Oral session** Physical activity in clinical and special populations + Active ageing	**Oral session** Physical activity in children and adolescents + Prevalence and determinants of physical activity	**Oral session** Sedentary behaviour	**Oral session** Physical activity and health outcomes	**Oral session** Compositional data paradigm in physical activity research + Modern technology in physical activity promotion	**Oral session** Physical activity measurement	**Oral session** Physical activity policy + Active transport
21:00	Conference dinner							

Friday, 17 November 2017

Time	Section A	Section B	Section C	Opatija/Pula	Split/Dubrovnik	London	Madrid	Zagreb
From 08:15	Registration							
09:15-10:15		**Plenary session - Keynote speaker:** Susan Michie, University College London, UK – *Applying behavioural science to developing and evaluating digital interventions: implications for physical activity*						
10:15-10:35	Closing ceremony							
10:35-11:00	Coffee break							
11:00-13:00		**HEPA Europe Annual meeting** (Open to all participants) • Opening and welcome • New applications for membership • Activity report 2015 - 2016 and Work programme 2016 - 2017: introduction and discussion • Updated mission and goals for HEPA Europe • HEPA Europe member website analysis • Update on WHO/Europe Framework of engagement with non-state actors (FENSA) • Other business						
13:00-14:00	Lunch for participants of the Annual meeting							

DETAILED SCIENTIFIC PROGRAMME

WEDNESDAY, 15 NOVEMBER 2017

From 07:15, Area in front of the Section A
Registration

08:15-10:15, Room: Section C
Workshop 1
Quantifying and Visualising Physical Behaviour: An alternative to energy expenditure estimation in evaluation of physical activity interventions

Authors and affiliations:
Malcolm Granat, School of Health Sciences, University of Salford, Salford, United Kingdom
Kate Lyden, PAL Technologies Ltd, Glasgow, Scotland, United Kingdom

08:15-10:15, Room: Opatija/Pula
Workshop 2
Compositional data analysis: examples of application in physical activity research

Authors and affiliations:
Sebastien Chastin, Glasgow Caledonian University, UK, Ghent University, Belgium (presenter)
Dorothea Dumuid, University of South Australia, Adelaide, Australia (presenter)
Timothy S. Olds, University of South Australia, Adelaide, Australia (presenter)
Željko Pedišić, Victoria University, Melbourne, Australia (Chair/devil's advocate)

09:15-10:00, Room: Zagreb
HEPA Europe Steering Committee Meeting

10:15-10:30, Coffee break
Coffee break will be served in front of the Section B (ground floor)

10:30-11:00, Room: Section B
Conference - Opening ceremony

11:00-12:00, Room: Section B
Plenary Session - 1st Keynote lecture

Fiona Bull, World Health Organization – *Current practices and issues in physical activity promotion: From small-scale interventions to changes in national policy*

12:00-12:55,
Restaurants Fontana and King Tomislav in Sheraton Hotel
Lunch

12:55-13:40, Room: Section B
EU update session

1) Implementation of the European Physical Activity Strategy

Regional perspective:

Dr. Joao Breda, Head WHO European Office for Prevention and Control of NCDs and a.i. Programme Manager Nutrition, Physical Activity and Obesity (12 min)

Country perspective:

Hungary: *Mr. Zoltán Boronyai*, Hungarian School Sport Federation, Budapest, Hungary (4 min)

Portugal: *Dr. Romeu Mendes*, Portuguese Directorate-General of Health, Lisbon, Portugal (4 min)

2) Updates from the European Commission's DG Education, Youth, Sport and Culture, Sport Unit

Health-enhancing physical activity developments in the EU context

Mr. Olivier Fontaine, Policy Officer – Sport and Ms Eduarda Pinto, EC HEPA promotion programme

13:40-13:45, Room: Section B
Active Well-being Initiative and Global Active City label - a new approach presented by the International Olympic Committee

13:50-15:20, Room: Section A
Symposium 1 - Implementation of Physical Activity Guidelines – national, European and global perspectives

Organizer: Alfred Rütten, Peter C. Gelius

Chairs: Adrian Bauman, Peter C. Gelius

Discussant: Fiona Bull

Speakers:

Implementation of health counseling approaches in primary care: Some guidance on how to join forces, gained in Switzerland
Eva Martin-Diener

Development and dissemination of the German National Recommendations for Physical Activity and Physical Activity Promotion
Alfred Rütten

Physical activity guidelines and surveillance in the WHO European Region
João Breda

Physical activity guidelines and surveillance: Beyond the European experience
Adrian Bauman

13:50-15:10, Room: Section B
ORAL SESSION
Physical activity interventions in different settings
Chairs: Susan Michie, Niamh Murphy

Time	Abstract ID	Abstract title and authors
13:50	14	Practice, knowledge and difficulties among primary health care providers for promotion of physical activity for hypertensive and diabetic subjects: an observational study from Brazil *Barbosa, J.M.V., Souza, W.V., Vuillemin, A., Oliveira, R.C., Cesse, E.A.P., Fontbonne, A.*
14:00	28	Implementation and impact of in-class physical activities in a positive mental health perspective *Christiansen, L.B., Holt, A-D., Smedegaard, S., Skovgaard, T.*
14:10	32	"There's so many ways to be active" - results of a feasibility study involving adolescent girls in the design of a physical activity intervention *Corr, M., Murtagh, E.*

14:20	34	HIIT@WORK: designing a feasible and acceptable High Intensity Interval Training intervention for desk-top workers in an office setting *De Clerck, I.L., Vandaele, F., Van Hulle, D, Bourdeaud'hui, J., Custers, L., Maenhout, A.*
14:30	60	Take a stand for workplace health: the efficacy, feasibility and acceptability of a workplace sit-stand desk intervention designed to reduce sitting and increase physical activity *Hall, J., Mansfield, L., Kay, T., McConnell, A.*
14:40	70	Effects of exercise interventions on physical literacy among physically inactive persons *Holler, P., Tuttner, S., Amort, F.M., Moser, O.*
14:50	86	Psychosocial factors and physical activity among participating men in The Adventures of Joe Finn Campaign - Social marketing perspective *Kaasalainen, K., Kasila, K., Malvela, M., Komulainen, J., Poskiparta, M.*
15:00	Discussion	

13:50-15:20, Room: Section C
ORAL SESSION
Physical activity in children and adolescents
Chair: Diane Crone

Time	Abstract ID	Abstract title and authors
13:50	7	Harmonising data on the correlates of physical activity and sedentary behaviour in young people: Methods and lessons learnt from the International Children's Accelerometry Database (ICAD) *Atkin, A.J., Biddle, S.J.H., Broyles, S.T., Chinapaw, M., Ekelund, U., Esliger, D.W., Hansen, B.H., Kriemler, S., Puder, J.J., Sherar, L.B., van Sluijs, E.M.F.*
14:00	16	ASPHALT (Activities and Street sports Promoting Health, Active Living and Thriving): rationale and design of a peer-to-peer intervention targeting children and youth in disadvantaged neighbourhoods *Bentsen, P., Christensen, J.H, Elsborg, P., Klinker, C.D.*
14:10	22	Characteristics of physical activity interventions and effects on cardiorespiratory fitness in children aged 6-12 years – a systematic review *Braaksma, P., Stuive, I., Garst, R., Wesselink, C.F., Van der Sluis, C., Dekker, R., Schoemaker, M.M.*
14:20	30	Cross-sectional associations of objectively-measured physical activity and sedentary time with body composition and cardiorespiratory fitness in mid-childhood: The PANIC Study *Collings, P.J., Westgate, K., Väistö, J., Wijndaele, K., Atkin, A., Haapala, E., Lintu, N., Laitinen, T., Ekelund, U., Brage, S., Lakka, T.*
14:30	52	Physical activity: a risk factor for pain and injuries in children? *Greca, J., Ryan, J., Korff, T.*
14:40	54	School corridors: indoor streets for active play *Guneri Sogut, G.D., Sogut, M.*
14:50	85	The objectively measured sedentary behavior and physical activity levels of children and adolescents in the LIITU-study in Finland *Jussila, A.M., Husu, P., Tokola, K., Vähä-Ypyä, H., Kokko, S., Vasankari, T.*
15:00	91	Family associated factors influencing physical activity in 5th-9th grade school children in Slovenia *Kardoš, N., Jurak, G., Starc, G., Djomba, J.*
15:10	Discussion	

13:50-15:20, Room: Opatija/Pula
ORAL SESSION
Sedentary behaviour
Chairs: Louise Foley, Jeff Vallance

Time	Abstract ID	Abstract title and authors
13:50	18	What do office workers like about height adjustable workstations? Qualitative feedback from the SMArTWork trial *Biddle, S., O'Connell, S., Dunstan, D., Edwardson, C., Esliger, D., Gray, L., Yates, T, Munir, F.*
14:00	1	Should leisure time sitting be replaced with sleep, moderate or vigorous physical activity for prevention of diabetes? Prospective isotemporal substitution analyses in 63,687 Danish adults *Aadahl, M., Andreasen, A.H., Gupta, N., Holtermann, A., Lau, C.A.*

14:10	43	Objectively measured sedentary time and self-reported screen-time in youth: Differences by age and gender *Fairclough, S.J., Welk, G., Saint-Maurice, P., Hibbing, P., Noonan, R.J., Boddy,L.M., Christian, D.*
14:20	62	"Screen-stacking" in a sample of UK adolescent females: relationships with moderate- to vigorous-intensity physical activity, sedentary time and sleep *Harrington, D.M., Rowlands, A., Bodicoat, D., Gorely, T., Khunti, K., Sherar, L., Staiano, A., Yates, T., Davies, M., Edwardson, C.*
14:30	67	Association between body fatness and sedentary bouts in elderly women from Central European countries *Hodonská, J., Pelclová, J., Gába, A.*
14:40	72	Establishing raw acceleration thresholds to classify sedentary behaviour in children *Hurter, L., Fairclough, S.J., Knowles, Z.R., Porcellato, L.A., Cooper, A., Boddy, L.M.*
14:50	74	Behavioural insight into perceptions and perspectives of physically inactive people *Iamkamphaeng, N., Boyd, A.*
15:00	8	The Sedentary Behaviour Council-GoPA! Global Monitoring Initiative (Phase 1): Adding sedentary behaviour indicators to the Global Observatory for Physical Activity (GoPA!) Country Cards *Atkin, A.J., McLaughlin, M., Varela, A.R., Pratt, M., Hallal, P.C., Lynch, B.M., Wijndaele, B.M.*
15:10	Discussion	

13:50-15:10, Room: Split/Dubrovnik
ORAL SESSION
Physical activity and health outcomes
Chairs: Marie Murphy, Jana Pelclová

Time	Abstract ID	Abstract title and authors
13:50	29	Physical activity, sedentary time, and fatness in a biethnic sample of young children *Collings, P.J., Brage, S., Bingham, D., Costa, S., West, J., McEachan, R., Wright, J., Barber, S.*
14:00	10	Healthy on the Square Survey: relationship between physical activity, wellbeing and low back pain *Backović Juričan, A., Rostohar, K., Rožič, M.*
14:10	23	Acute physiological, affective and enjoyment responses to apparatus-free protocols of high-intensity intermittent exercise in inactive females *Burgin, A., Holliday, A., Blannin, A., Peters, D.*
14:20	83	Active senior's opinion about importance of physical activity *Jurina, M., Lazinica, B., Korda, K., Sabol, F.*
14:30	64	Is light intensity physical activity beneficial for adolescent health? *Hayes, G., Dowd, K.P., Ciaran, M., Carson, B.P., Purtill, H., Hannigan, A., Herring, M.P., Powell, C., O' Connor, E.M., O'Gorman, C.S., Donnelly, A.E.*
14:40	65	The influence of migration background and family income on childhood overweight *Hermeling, L., Steinacker, J.M., Kobel, S.*
14:50	173	Does muscular strength decline in a constant manner over the years in the elderly? The EXERNET-Elder longitudinal study *Gomez-Cabello, A., Sagarra-Romero, L., Navarrete-Villanueva, D., Gomez-Bruton, A., Marín-Puyalto, J., Muñiz, B., Gonzalez De Agüero, A., Casajus, J.A., Ara, I., Vicente-Rodriguez, G.*
15:00	Discussion	

13:50-15:00, Room: London
ORAL SESSION
Physical activity policy
Chairs: Nick Cavill, Herbert Hartmann

Time	Abstract ID	Abstract title and authors
13:50	142	From Morris, Paffenbarger et al. to action – HEPA Europe *Oja, P.*
14:00	75	A Blueprint to Tackle Physical Inactivity: A collaborative approach in Cheshire and Warrington Sub-region *Iamkamphaeng, N.*

14:10	59	Swimming ability of the 12-year old children in Finland and swimming education in Finnish Schools *Hakamäki, M.*
14:20	124	Economic evaluations of physical activity interventions for type 2 diabetes prevention and control *Mendes, R., Firmino-Machado, F., Guedes-Marques, F., Lunet, N., Almeida, Á, S.*
14:30	136	Local governments' involvement in Health-Enhancing-Physical Activity promotion policies: a scoping review *Noël Racine, A., Van Hoye, A., Boyd, A., Jackson, F., Garbarino, J.M., Massiera, B., Kahlmeier, S., Sandu, P., Vuillemin, A.*
14:40	209	Public actors of national health enhancing physical activity: comparison between France and Belgium *Van Hoye, A., Vandoorne, C., Absil, G., Lecomte, F., Fallon, C., Prevot-Ledrich, J., Lombrail, P., Vuillemin, A.*
14:50	Discussion	

13:50-14:40, Room: Madrid
ORAL SESSION
Active transport
Chairs: Josef Mitáš, Wanda Wendel-Vos

Time	Abstract ID	Abstract title and authors
13:50	9	Mode of travel to work: Contribution to objectively measured physical activity, and associations with individual, interpersonal, organizational and environmental characteristics *Audrey, S., Batista, H.*
14:00	19	Predicting walking and cycling behaviour change using an extended Theory of Planned Behaviour *Bird, E.L., Panter, J., Baker, G., Jones, T., Ogilvie, D.*
14:10	79	ROUTINE - development of a PA promoting journey planner web-app. Walking stride length, gait velocity and intensity during transit routes in public transport stations *Jaunig, J., Füssl, E., Ausserer, K., Strasser, C., Titze, S.*
14:20	185	Do young adolescents enjoy long distance cycling to school? An exploratory research to understand attitudes and behavior in the Netherlands *Shokoohi, R., Weitkamp, G., Dijksterhuis, C., de Jong, J.*
14:30	Discussion	

15:20-15:40, Coffee break
Coffee break will be served in front of the Section B (ground floor)

15:40-16:10, Area in front of Sections A, B, C
POSTER SESSION
Active ageing

Panel label	Abstract ID	Abstract title and authors
A1	3	The prevalence of complications in type 2 diabetics in Diabetes Centers in Dubai *Al Sabbah, H., Alketbi, M.O.*
A2	31	Effect of judo training on body image in older individuals *Condello, G., Ciaccioni, S., Capranica, L.*
A3	123	The association between balance and free-living physical activity in older community dwelling adults (50 years or older) *McMullan, I., McDonough, S., Tully, M., Bunting, B.P., Casson, K.*
A4	147	The relationship between physical activity and unmet physical activity need in old age: a two-year follow-up *Palmberg, L., Portegijs, E., Rantanen, T., Aartolahti, E., Viljanen, A., Hirvensalo, M., Rantakokko, M.*
A5	156	The effect of functional exercise training on elders functionality assessed by Functional Movement Screen *Pizarro, A., Soares, A.*

A6	159	Effects of physical activity on social exclusion among older people: A literature review *Popovic, S., Bjelica, D.*

15:40-16:10, Area in front of Sections A, B, C POSTER SESSION Modern technology in physical activity promotion		
Panel label	**Abstract ID**	**Abstract title and authors**
B1	135	Physical activity wearables and its association with student-athlete identity *Ng, K.W., Ryba, T.*
B2	193	Influencing factors on initial login rate to a web-based intervention platform promoting physical activity among vocational school students *Stassen, G., Grieben, C., Rudolf, K., Füllgraebe, F., Froböse, I.*
B3	217	The role of social media marketing in promoting physical activity and health in students population *Žeger, S., Georgievski, B.*

15:40-16:10, Area in front of Sections A, B, C POSTER SESSION Physical activity and health outcomes		
Panel label	**Abstract ID**	**Abstract title and authors**
C1	51	Psychological benefits and motives for participation in physical activity among university students *Greblo Jurakić, Z., Šimunović, A.*
C2	80	Predictors of falls in an evidence-based community-delivered physical activity intervention for rural older adults *Jones, D.L., Cosner, C.T., Mitchell, J.R., Ray, B.D., Stipec, C.A., Switay, D.A., Mancinelli, C.A.*
C3	95	Regular exercise decreases problematic internet use in children *Kiss-Tóth, E., Sasvári, P., Kiss-Tóth, E.*
C4	114	Regular exercise as a protective factor of the health risk behaviours in adolescents *Lukács, A., Sasvári, P., Kiss-Tóth, E.*
C5	117	Associations of different length sedentary and vigorous activity with cardiometabolic health in 10-13-year-old boys *Mäestu, J., Lätt, E., Jürimäe, J.*
C6	131	The effects of continuous compared to accumulated exercise on health: protocol for a systematic review and meta-analysis *Murtagh, E.M., Murphy, M.H., Lahart, I.M., Carlin, A.*
C7	121	Guidelines-focused education on diet and physical activity improves health-promoting lifestyle profiles in Serbian adolescents and adults *Markovic, L., Djordjic, V., Jorga, J., Bozic, P., Milanovic, I., Radisavljevic, S., Batez, M., Ostojic, S.M.*
C8	154	Analysis of fitness as mediator in the relationship between obesity and quality of live assessed using EQ-5D-Y and PedsQL *Perez-Sousa, M.A., Olivares, P.R., Escobar-Alvarez, J.A., Parraca, J.A., Gusi, N.*
C9	164	Does proximity to recreational facilities decrease the risk of both general and abdominal obesity in 6-to 10-year-old children *Rodrigues, D., Padez, C., Machado-Rodrigues, A.M.*
C10	191	Physical activity and cardiometabolic risk factors in college students *Spratt-O'Shea, N., Murray, J., Rankin, P., Lawlor, M., O'Donnell, S., Kelly, S.*
C11	195	European Initiative for Exercise in Medicine (EIEIM): status and future prospective *Steinacker, J.M., Lauer, R., Reer, R., van Mechelen, W.*

15:40-16:10, Area in front of Sections A, B, C POSTER SESSION Physical activity interventions in different settings		
Panel label	**Abstract ID**	**Abstract title and authors**
D1	5	Social marketing and mass media campaign to promote physical activity in Oman *Alsiyabi, H.K., Alsiyabi, A.M.*
D2	20	Can a framed intervention motivate elderly in assisted living facilities to exercise? A semi-randomized controlled trial *Boen, F., Vanroy, J., Van Uffelen, J., Seghers, J.*
D3	37	Physical activity, quality of life and health literacy: A pre-post-evaluation of a workplace-related lifestyle intervention for employees with health-related risk factors *Dejonghe, L.A.L., Rudolf, K., Lammer, F., Froboese, I., Schaller, A.*
D4	128	Care-PA initiatives in the neighbourhood: the first results of X-Fittt 2.0, a combined lifestyle intervention for low SES overweight people *Mulderij, L.S., Wagemakers, A., Van Ravenhorst, C., Verkooijen, K., Groenewoud, S., Koelen, M.*
D5	129	How to integrate active living in preschools: Moving and active learning in social education curriculum *Munksgaard, K.F., Troelsen, J., Larsen, L.R.*
D6	139	The effects of nudge interventions for physical activity and healthy diet: a systematic review *Ntzani, E.E., Laiou, E., Rapti, I., Schwarzer, R., Fleig, L., Cianferotti, L., Ngo, J., Rizos, E., Kahlmeier, S., Vigilanza, A., Vivier, P., Tsilidis, K.K., Trichopoulou, A., Serra-Majem, L., Brandi, M.L., Ntzani, E.E.*
D7	202	A novel to scaffold children during learning of motor tasks *Tortella, P., Fumagalli, G.*
D8	105	The roles of exercise counseling in the prevention of social exlucion - Successes and challenges, as felt by young people *Laine, K., Havas, A.*
D9	106	Active everyday life in the suburbs - Service desing as a promotor of activity *Laine, K.*

15:40-16:10, Area in front of Sections A, B, C POSTER SESSION Physical activity policy + Active transport		
Panel label	**Abstract ID**	**Abstract title and authors**
Physical activity policy		
E1	13	Scope of public sports policy: a comparative analysis between Brazil and Spain *Barbosa, M.W., Rocha, C.C., dos Santos, O.A., Carneiro, F.S., Pereira, C.C., Mascarenhas, F.*
E2	24	Government spending on physical activity and sports in Brazil from 2004 to 2015 *Carneiro, F.H.S., Matias, W.B., Pereira, C.C., Mascarenhas, F.*
E3	48	School healthy programs: design of a program to increase the level of the physical activity in Castilla-La Mancha (Spain) schools *Garcia, A.S., Moreno, D.S-M. Gasco, J.A.G., Gracia, J.R.A.*
E4	108	Active Healthy Kids Denmark: The Report Card+ *Larsen, L.R., Troelsen, J.*
Active transport		
E5	50	Exploring different scales of walkable neighbourhoods in a European city *Grasser, G., Titze, S., Stronegger, W.J.*

16:10-17:10, Room: Section B
Plenary Session - 2nd Keynote lecture

Željko Pedišić, Victoria University, Australia – *Issues and challenges in physical activity surveillance*

17:15-18:15, Room: Section A
HEPA EUROPE WORKING GROUPS SESSION
Monitoring and surveillance of physical activity

The session will provide a summary of the activities undertaken in 2017 on the theme "Towards objective population monitoring in the Europe: Physical Activity, Sedentary Behaviour and Fitness." These included a workshop organized by the UKK Institute, Finland, in June 2017 in collaboration with HEPA Europe.

17:15-18:15, Room: Section B
HEPA EUROPE WORKING GROUPS SESSION
National approaches to physical activity promotion

This year's session will provide an update from the Erasmus+ EPHEPA project, including a brand-new dissemination template for the HEPA Policy Audit Tool, as well as first results from a scoping review on the roles of local governments in HEPA promotion. Next steps and priorities for the working group will also be discussed.

17:15-18:15, Room: Section C
HEPA EUROPE WORKING GROUPS SESSION
Environmental approaches to HEPA promotion

This year´s session will provide updates on the knowledge of impact of the environment on HEPA, including examples from Urban Active Environments and Healthy Cities. Overview of research, policy, interventions, and future mission and priorities of the working group will also be discussed.

17:15-18:15, Room: Opatija/Pula
HEPA EUROPE WORKING GROUPS SESSION
HEPA promotion in health care settings

This year's session will provide a report on the WHO Expert Meeting on "Cross-cutting approaches to health promotion in health care" as well as a discussion on the project "Connecting Care, Sport and Physical Activity" (The Netherlands). Next steps and priorities for the working group will also be discussed. Members of the working group are invited to suggest further topics to be discussed.

17:15-18:15, Room: London
HEPA EUROPE WORKING GROUPS SESSION
Workplace HEPA promotion

This year's session will focus on surveys, which could be used to obtain comparable information on the current practices of workplace HEPA promotion in various countries. Next steps and priorities for the working group will also be discussed.

17:15-18:15, Room: Split/Dubrovnik
HEPA EUROPE WORKING GROUPS SESSION
Active ageing: physical activity promotion in elderly

This year's session will discuss implementation of physical activity programmes with a focus on home dwelling for elderly. What are successful elements to the target population, for adoption by professionals and institutions, and how do we ensure maintenance?

17:15-18:15, Room: Madrid
HEPA EUROPE WORKING GROUPS SESSION
Sports club for health

The SCforH working group session will present the outcomes of a recently finalized Erasmus+ funded EU project. Especially, the session will focus on the SCforH guidelines for sports federations and updated SCforH guidelines for local sports clubs.

19:15-20:30, Sheraton Hotel main entrance (meeting point)
Zagreb Sightseeing Tour

20:30-22:00, Zagreb 360°, Ilica 1a
Welcome Reception

THURSDAY, 16 NOVEMBER 2017

07:15-08:00, Sheraton Hotel main entrance (meeting point)
Morning sightseeing run

From 08:00, Area in front of the Section A
Registration

09:00-10:00, Room: Section B
Plenary Session – 3rd Keynote lecture

Gregory J. Welk, Iowa State University, USA – *The use of wearable technologies in measurement and promotion of physical activity*

10:00-11:00, Room: Section B
Plenary Session – Chatting with giants

Chairs: Charlie Foster, Karen Milton

Speakers: Adrian Bauman, Stuart Biddle, Nanette Mutrie, Pekka Oja

This session is an opportunity for the audience to engage in candid conversations with global leaders in physical activity research and promotion about their careers, triumphs, failures, and lessons learned from decades of work in this field. Hear their inspirational stories and get straightforward answers to the questions you have always been reluctant to ask.

11:00-11:30, Coffee break
Coffee break will be served in front of the Section B (ground floor)

11:30-13:00, Room: Section B
Symposium 2 - National physical activity policies: progress, pitfalls and lessons learned

Organizer: Sonja Kahlmeier

Chair: Brian Martin

Discussant: Alfred Rütten

Speakers:

Developments on international frameworks and national policies to promote health-enhancing physical activity
Sonja Kahlmeier

A brief history of the successes and challenges in physical activity policy in England
Karen Milton

Get Ireland Active! The story of the development and implementation of the National Physical Activity Plan for Ireland
Catherine Woods, Ronan Toomey

The Portuguese National Physical Activity Promotion Program: Lessons from Year 1
Pedro Teixeira

11:30-13:00, Room: Opatija/Pula
Symposium 3 - Recent viewpoints about physical activity in clinical cardiology

Organizer: Zdravko Babić

Chairs: Zdravko Babić, Hrvoje Pintarić

Speakers:

Trends in physical activity level in patients with Acute Coronary Syndrome
Zdravko Babić

Athlete with LBBB Pattern Arrhythmias; Athlete's Heart or ARVC
Šime Manola

Cardiac rehabilitation: myths and facts
Viktor Peršić

Diseases of the Aorta, Peripheral Artery Disease and physical activity
Mislav Vrsalović

Sexual activity in patients with cardiac diseases
Hrvoje Pintarić

11:30-13:00, Room: Split/Dubrovnik
Symposium 4 - How to create an Urban Active Environment: Lessons learnt and case study examples from the SPAcE (Supporting Policy and Action for Active Environments) EU project

Organizer: Diane M. Crone

Chair: Diane M. Crone

Speakers:

Developing sustainable urban 'active environments' in cities and towns across the EU: An overview of the SPAcE EU Project
Diane M. Crone

Urban Active Environment Action Plan development and implementation - Assessing the economic value of walking and cycling using HEAT
Nick Cavill

Urban Active Environment Action Plan development and implementation in the SPAcE project
Tanja Onatsu

Development of an Urban Active Environment Action Plan: A case study of Castilla-La Mancha, Spain from the EU SPAcE project
Aurora Sánchez-García, David Sánchez-Mora-Moreno, Susana Aznar-Lain

11:30-13:00, Room: Madrid
Symposium 5 - "Keep Youngsters Involved": Insight into an Erasmus+Sport project designed to prevent dropout from youth sport for 12-19 year olds

Organizer: Dorien Dijk, Catherine Woods

Chair: Anita Vlasveld

Discussant: Paolo Adami

Speakers:

Set up of the Erasmus+Sport collaborative partnership project: "Keep Youngsters Involved"
Dorien Dijk, Catherine Woods, Jan Seghers

Factors influencing sports dropout in 12-19 year olds and a proposed model for KYI
Catherine Woods, Joey Murphy, Jan Seghers

Time-use and environmental determinants of dropout in organized youth sport
Ineke Deelen, Dick Ettema, Carlijn Kamphuis

Need-supportive coaching to prevent dropout in youth sport: a case study from Belgium (Flanders)
Jan Seghers, Stijn De Baere, Gert Vandebroek

Strategies related to factors to prevent youngsters from dropout in sports
Dan Boboc, Paulo Rocha

11:30-13:00, Room: Section A ORAL SESSION Physical activity interventions in different settings Chairs: Matleena Livson, Stjepan Heimer		
Time	**Abstract ID**	**Abstract title and authors**
11:30	101	Croatian national program – Living healthy *Krtalić, S., Lang Morović, M., Musić Milanović, S.*
11:40	97	Promoting physical activity at primary schools – Effects of characteristics and the use of playgrounds on children's physical activity levels *Kobel, S., Möhrle, B., Szagun, B., Steinacker, J.M.*
11:50	141	Project Spraoi: Two year outcomes of a whole school physical activity and nutrition intervention using the RE-AIM framework *O Leary, M., Burns, C., Lacey, S., Rush, E., Coppinger, T.*
12:00	162	From lifestyle intervention to lifestyle routine - An interdisciplinary study of sustainment of active living and maintenance of health improvements after a 6-month exercise intervention *Quist, J.S., Winther, J., Friis, A.L., Gram, A.S., Petersen, M.B., Rosenkilde, M., Jespersen, A.P., Stallknecht, B.*
12:10	169	Support for self-management of physical activity in persons with prediabetes and type 2 diabetes - experiences from Sophia Step Study *Rossen, J., Lööf, H., Yngve, A., Hagströmer, M., Brismar, K., Johansson, U.B.*
12:20	179	An intervention for increasing high-school students' participation in physical education – a Standard Operation Procedure presentation *Sandu, P., Baba, C.O., Chereches, R.M., Paška, L., Kadariya, S., Durmishi, E., Tudisca, V., Theuma, N.*
12:30	190	Using the COM-B model to understand the determinants of participation in a workplace physical activity intervention for inactive employees *Smith, C.F., McKenna, J., Kaiseler, M., Rutherford, Z.*
12:40	194	Physical activity as a treatment *Steffansson, M.*
12:50	Discussion	

11:30-13:00, Room: Section C ORAL SESSION Physical activity in clinical and special populations Chairs: Lana Ružić, Karen Steindorf		
Time	**Abstract ID**	**Abstract title and authors**
11:30	38	Assessing social networks and social support for physical activity of participants in counselling programmes for physical activity *Djomba, J.K.*
11:40	39	Live Well: An evaluation of a specialist weight management programme for obese adults *Douglas, C., Toyne, E., Nabb, S.*
11:50	53	Broad-reach physical activity interventions for cancer survivors (2013-2017): We still haven't found what we're looking for *Groen, W., van Harten, W., Vallance, J.*
12:00	56	Cost-utility of VIRTUALEX-FM, a kinect based exergame with control biofeedback, implemented two-sessions per week for two-month in fibromyalgia: RCT *Gusi, N., Collado-Mateo, D., Dominguez-Muñoz, F.J., Adsuar, J.C., Garcia-Gordillo, M.A.*
12:10	89	The presentation of the adaptation process of the Hungarian National Student Fitness Test (NETFIT®) to children with special education needs *Kälbli, K., Kaj, M., Király, A., Csányi, T.*
12:20	88	Cross-validation of a PACER prediction equation for assessing aerobic capacity of children with visual impairment *Kaj, M., Kälbli, K., Király, A., Csányi, T.*

12:30	166	Exploring the potential of tele-exercise to promote mental health compared to face to face exercise in caregivers of Alzheimer patients: RCT *Rohlfs-Domínguez, P., Madruga-Vicente, M., Gozalo-Delgado, M., Gusi, N.*
12:40	58	Six minute walk distance in patients with stable coronary heart disease in Slovenia *Hadžić, V., Novak, A., Pokleka, P., Simpson Grom, P., Šintler, V., Žvan, M., Karpljuk, D.· Dervišević, E.*
12:50	Discussion	

11:30-13:00, Room: London ORAL SESSION Active ageing Chairs: Stuart Biddle, Joana Carvalho		
Time	**Abstract ID**	**Abstract title and authors**
11:30	57	Physical fitness of senior adults living in retirement homes in Slovenia *Hadzic, V., Sušin Donevski, M., Uršej, E., Videmšek, M., Karpljuk, D., Dervišević, E.*
11:40	188	Examining perceptions of yoga among older adults: a qualitative study *Sivaramakrishnan, D., Fitzsimons, C., Mutrie, N., Baker, G.*
11:50	157	Is your body younger or older than what your ID shows? Applications of measuring the Functional Fitness Age (FFA) *Planas-Anzano, A., Mas-Alòs, S., Matas-Garcia, S., Peirau-Terés,X., Carreras-Villanova, D.*
12:00	151	Longitudinal associations between physical activity, sedentary behaviour and body fat: Preliminary findings from a study in Central European older women *Pelclová, J., Hodonská, J., Svozilová, Z.*
12:10	174	The effects of regular physical exercise on physical fitness in older people *Şahin, G., Sarıkaya, M.*
12:20	177	Associations between self-reported physical activity, sedentary time, functional fitness, and psychosocial wellbeing among older adults *Sanders, G.J., Roe, B., Kaehne, A., Fairclough, S.J.*
12:30	187	The effects of yoga on physical functioning and health related quality of life in healthy older adults - systematic review and meta-analysis *Sivaramakrishnan, D., Fitzsimons, C., Baker, G., Kelly, P., Saunders, D., Ludwig, K.K., Mutrie, N.*
12:40	203	How to identify barriers and motivators for using the local environment in a deprived neighbourhood through the lens of older people *Troelsen, J., Carroll, S., Jespersen, A.P.*
12:50	Discussion	

13:00-14:00, Restaurants Fontana and King Tomislav in Sheraton Hotel
Lunch

14:00-14:30, Area in front of Sections A, B, C POSTER SESSION Physical activity in clinical and special populations		
Panel label	**Abstract ID**	**Abstract title and authors**
A1	6	'Two steps forward and one back' - pedometer intervention and health effects for sedentary colorectal cancer patients during adjuvant chemotherapy *Andersen, C., Adamsen, L., Lillelund, C., Møller, T.*
A2	26	Effect of 32 weeks of resistance plus multicomponent exercise training on cardiovascular risk factors in community-dwelling older adults *Carvalho, J., Fernandes, A., Mota, J., Aires, L., Marques, E.*
A3	115	Functional Fitness Standards for Portuguese elders: an exploratory research with community-dwelling individuals diagnosed with Alzheimer's Disease *Machado, F., Ribeiro, Ó., Meireles, J., Sampaio, A., Carvalho, J.*
A4	41	Brighter side of Exercise *Dunaj, M., Hajnic, M., Himmerich, H.*

A5	46	Pragmatic assessment of treatment fidelity; Keep Active Keep Well Programme for COPD *Frith, G., Reece, L., Jones, R., McKee, H., Nichols, S.*
A6	47	An evaluation of 'Active for Health' for long term conditions *Frith, G., Reece, L., Nichols, S., Atchinson, R., Roden, A., Mills, H., Wormly, L.*
A7	175	Changes in quality of life by strength exercise program in women with knee osteoarthritis *Şahin, G.*
A8	68	Heterogeneity in physical activity behavior and societal costs: the ReSpAct study *Hoekstra, T., Hoekstra, F., Seves, B., Pchenitchnikova, T., Dekker, R., van der Schans, C., Hettinga, F., van der Woude, L.*

14:00-14:30, Area in front of Sections A, B, C
POSTER SESSION
Physical activity in children and adolescents

Panel label	Abstract ID	Abstract title and authors
B1	81	Thirty years of the SLO-fit: its legacy *Jurak, G., Kovač, M., Leskošek, B., Sember, V., Strel, J., Starc, G.*
B2	82	My SLO-fit web application *Jurak, G., Leskošek, B., Kovač, M., Bučar Pajek, M., Sember, V., Sorić, M., Strel, J., Starc, G.*
B3	102	Associations between preferences of fitness physical activities and meeting of PA recommendations *Kudlacek, M., Fromel, K., Groffik, D., Mitas, J.*
B4	116	Objectively measured moderate-to-vigorous physical activity, sedentary behaviour and adiposity in youth from rural communities *Machado-Rodrigues, A.M., Coelho-e-Silva, M.J., Fernandes, R., Mascarenhas, L.P., Padez, C., Mota, J.*
B5	120	Physical activity as health behaviour of lower secondary school youth with differentiated body mass *Mandziuk, M.E.*
B6	152	Trends in lifestyle behavior in Czech adolescents: findings from 2010 to 2013 *Pelclová, J., Frömel, K., Mitáš, J.*
B7	158	Body mass index of Montenegrin athletes participating in U21 National Basketball team *Popovic, S., Bjelica, D.*
B8	168	Physical activity and spatial use during school break times in children aged four *Romero Ramos, O., Fernandez Rodriguez, E., Merino Marbán, R., Gonzalez Campos, G.*
B9	214	Level of physical activity and attitude to Physical Education classes of the youth from Eastern Region of Poland *Wasilewska, M., Bergier, J.*
B10	109	Parental willingness to pay for the prevention of childhood overweight and obesity: correlations with parental physical (in)activity *Lauer, R., Steinacker, J., Kesztyüs, D.*

14:00-14:30, Area in front of Sections A, B, C
POSTER SESSION
Physical activity measurement

Panel label	Abstract ID	Abstract title and authors
C1	4	Relationship between International Physical Activity Questionnaire – short form and functional parameters in women *Alpay, K., Gurses, N., Denizoglu Kulli, H., Durgut, E.*
C2	11	Classified as physically active: Are not 7 days of self-reported moderate-to-vigorous physical activity unfair for athletes in organized sports? *Badura, P., Kudlacek, M., Hamrik, Z.*
C3	170	Effect of physical activity showcards on accuracy in self-reports: a randomized crossover study with the Global Physical Activity Questionnaire (GPAQ) *Rudolf, K., Lammer, F., Stassen, G., Froböse, I., Schaller, A.*

C4	198	Influence of sedentary behaviour and physical activity on adiposity indicators in older adult women *Svozilová, Z., Pelclová, J., Hodonská, J., Přidalová, M.*
C5	204	Hollistic measurement of physcial literacy among adults *Tuttner, S., Holler, P., Moser, O., Amort, F.M.*

14:00-14:30, Area in front of Sections A, B, C
POSTER SESSION
Prevalence and determinants of physical activity

Panel label	Abstract ID	Abstract title and authors
D1	21	The selection of young U17 footballers through physical and technical evaluation *Bouhadj, M., Kasmi, B.*
D2	87	Motivational profiles, physical activity and perceived need for Academic Sports – Cluster analysis among Finnish students *Kaasalainen, K., Saari, J.*
D3	163	Body fat percentage and nutritional and physical activity knowledge in adolescents *Ribeiro, J.C., Ferro-Lebres, V., Moreira, P., Mota, J.*
D4	165	Do you like to be physically active? Parents and children enjoyment of physical activities as a predictor of children participation in extracurricular sport *Rodrigues, D., Padez, C., Machado-Rodrigues, A.M.*
D5	176	How life changes shape physical activity in men and women? *Salin, K., Mirja, H.*
D6	155	Physical activity among Slovenians: results of CINDI national survey on health-related behavioural style 2016 *Petrič, M., Remec, M.*

14:00-14:30, Area in front of Sections A, B, C
POSTER SESSION
Sport and health

Panel label	Abstract ID	Abstract title and authors
E1	25	Rugby school and education at the Club INEF. A case example of a Sports Club for Health in Lleida, Catalonia *Carreras-Villanova, D., Peirau-Terés, X., Mas-Alòs, S., Planas-Anzano, A., Matas-Garcia, S., Villalba-Mata, D., Martín-Tamayo, I., Vaz-Teixeira, L., Kraak, W.*
E2	167	Gender differences and age-related changes in performance at the duathlon world champions *Romero Ramos, O., Fernandez Rogriguez, E., Mayorga Vega, D., Merino Marbán, R.*
E3	213	Interdisciplinary training program for recreational soccer coaches *Wallner, D., Kormann, M., Gunzer, W., Kump, H., Simi, H., Tuttner, S., Hofer, K., Amort, F.*

14:30-15:10, Room: Section B
HEPA Europe 2017 Early Career Research Award presentations

Bojana Klepač-Pogrmilović, Victoria University, Australia - A systematic scoping review of studies analysing national-level physical activity and sedentary behaviour policies

Liam Kelly, Institute of Technology Carlow, Ireland - 'Men on the Move': A community-based physical activity programme for adult men in Ireland

15:15-16:45, Room: Section B
Symposium 6 - Global surveillance of physical activity policy: experiences from HEPA Europe and the Global Observatory for Physical Activity – GoPA!

Organizers: Michael Pratt, Andrea Ramirez Varela, Danijel Jurakić

Chairs: Michael Pratt, Sonja Kahlmeier

Discussant: Karen Milton

Speakers:

Current status and future steps for physical activity monitoring: GoPA!
Michael Pratt, Andrea Ramirez, Pedro C. Hallal

Physical activity policy surveillance in Europe: The European Monitoring Framework and HEPA-PAT experiences
Sonja Kahlmeier, Karen Milton, Peter C. Gelius, Alfred Rütten, Fiona Bull

The Global Observatory for Physical Activity-GoPA! Policy Inventory: Pilot Results
Andrea Ramirez, Michael Pratt, Sonja Kahlmeier, Claire Cooper, Danijel Jurakic, Jorge Mota, Katja Siefken, Ines RAndrea Ramirez, Michael Pratt, Sonja Kahlmeier, Claire Cooper, Danijel Jurakic, Jorge Mota, Katja Siefken, Ines Revuelta, Jaime Leppe, Franklyn Prieto, Thelma Sanchez, Shigeru Inoue, Deborah Salvo, Margarita Claramunt, Gerardo Araya-Vargas, Fernanda Baus, Clemencia Anaya, Inacio Crochemore da Silva, Hiroyuki Kikuchi, Shiho Amagasa, Yukio Oida, Noriko Takeda, Juan Rivera, Catalina Medina, Alejandra Jauregui, Bharathi Viswanathan, Pascal Bovet, Felicia Cañete, Guillermo Sequera, Faisal Barwais, Pedro Hallal. GoPA! Working Group

Croatia, Ireland and Netherlands as members in the Global Observatory for Physical Activity
Danijel Jurakic, Niamh Murphy, Wanda Wendel-Vos

15:15-16:45, Room: Opatija/Pula
Symposium 7 - Improving Adherence to Physical Activity Interventions Across the Cancer Trajectory: predictors, determinants and type of intervention

Organizer: Anna Campbell

Chair: Anna Campbell

Discussants: Anna Campbell; Julie Midtgaard

Speakers:

Effects of resistance training on quality-of-life related health outcomes in breast cancer patients during adjuvant radiotherapy
Karen Steindorf, Martina Schmidt, Cornelia Ulrich, Joachim Wiskemann

Exercise in hematological cancer patients during and after allogeneic stem cell transplantation
Rea Kuehl, Peter Dreger, Martin Bohus, Joachim Wiskemann

Long term physical activity levels among cancer survivors – can participation in a 12 week community-based exercise programme help?
Mairead Cantwell, Niall Moyna, Brona Furlong, Noel McCaffrey, Catherine Woods

Intense exercise for survival among men with Metastatic Castrate-Resistant Prostate Cancer (INTERVAL – MCRPC): A Movember Foundation-Funded Multicentre Randomized, Controlled Phase III Study (GAP4)
Fred Saad, Stacey A. Kenfield, June M. Chan, Nicolas H. Hart, Kerry S. Courneya, James Catto, Stephen P. Finn, Rosemary Greenwood, Daniel C Hughes, Lorelei A. Mucci, Stephen R Plymate, Michael N. Pollak, Stephan F.E. Praet, Gillian E. Prue, Emer M. Guinan, Erin L. Van Blarigan, Orla Casey, Mark Buzza, Charles J. Ryan, Robert U. Newton

The role of dyadic coping in prostate cancer survivors' adherence to community-based football – a focus group study of spouses' experiences
Julie Midtgaard, Mikael Rørth

15:15-16:45, Room: London
Symposium 8 - Sports Clubs and Coaches Health and Physical Activity Promotion – Sports Club for Health (SCforH) the Comprehensive Approach

Organizer: Sami Kokko

Chair: Sami Kokko

Discussants: Pasi Koski, Jan Seghers

Speakers:

Impact of the GAA Healthy Club Project on the Health Orientation of Clubs
Aoife Lane, David Callaghan, Niamh Murphy

Sports Clubs Health Promotion orientation in Flanders (Belgium): tracking changes from 2011 to 2015
Jeroen Meganck, Jeroen Scheerder, Jan Seghers

Self-reported physical activity and training volume among young Finnish athletes in different types of sports - The Health Promoting Sport Club (HPSC) study
Sami Kokko, Kasper Salin, Lasse Kannas, Jari Villberg, Tommi Vasankari, Olli J. Heinonen, Kai Savonen, Lauri Alanko, Raija Korpelainen, Harri Selänne, Jari Parkkari

Coaches' and players' perceptions of health promotion activities and coaches' motivational antecedents
Aurelie Van Hoye, Jean-Philippe Heuzé, Jeroen Meganck, Jan Seghers, Philippe Sarrazin

Does sport club participation contribute to physical activity among children and adolescents? A comparison across six European countries
Sami Kokko, Leena Martin, Jari Villberg, Susanna Geidne, Aurelie Van Hoye, Michal Kudlacek, Petr Badura, Aoife Lane, Jeroen Meganck, Jeroen Scheerder, Jan Seghers, Kaisu Mononen, Minna Blomqvist, Pasi Koski

Sporting programs for less active population groups: who benefits?
Linda Ooms, Chantal J. Leemrijse, Dorine Collard, Nicolette Schipper-Van Veldhoven, Cindy Veenhof

15:15-16:45, Room: Madrid
Symposium 9 - Child Obesity: Super Dynamic Food Dudes to the Rescue!

Organizer: Pauline Jean Horne

Chair: Pauline Jean Horne

Discussant: Kelly A. Mackintosh

Speakers:

Controlled evaluation of the Dynamic Dudes Multi-Component Physical Activity Intervention in UK primary school children
Pauline J. Horne, C. Fergus Lowe, Shona Whitaker, Ellen Dolan, Christie Culleton, Kelly A. Mackintosh, Rebecca Steer, and Catherine A. Sharp

The effectiveness of the Dynamic Dudes School-Based Physical Activity Intervention: A qualitative evaluation
Kelly A. Mackintosh, Nicole Holland, Pauline J. Horne, Rebecca Steer

Creation and trial of New Dynamic Dudes Classroom Exercise DVDs: The effects of increased intensity and variety of modelled target moves
Pauline J. Horne, Catherine A. Sharp

Evaluation of the Super Dynamic Food Dudes Intervention for 3–4 year old Children at School.
Catherine A. Sharp; Pauline J. Horne; C. Fergus Lowe; Mihela Erjavec ; Kelly A. Mackintosh

15:15-16:45, Room: Section A ORAL SESSION Physical activity interventions in different settings Chairs: Andrea Backović Juričan, Anne Vuillemin		
Time	**Abstract ID**	**Abstract title and authors**
15:15	27	A whole systems approach to physical activity across a city: using systems thinking to plan interventions and their evaluation *Cavill, N., Rutter, H.*
15:25	42	When the Welsh Dragon Roars: the passion of Parc Eirias and Leisure Services *Evans, D., Hardy, J., Francis, P., Roberts, G.*
15:35	45	The SmartBus brings the health promotion services near you *Freundlich, H.M.*
15:45	197	Effectiveness and cost-effectiveness of neuromuscular exercise and back counselling in female nursing personnel with recurrent non-specific low back pain: a blinded four-arm randomised controlled trial *Suni, J.H., Kolu, P., Tokola, K., Jani, R., Rinne, M., Taulaniemi, A., Parkkari, J., Kankaanpää, M.*
15:55	201	How did a referral in a health care setting affect the attendance in a standardized sports club programme? The HEPA-Styria project *Titze, S., Lackinger, C., Grossschaedl, L., Strehn, A., Schebesch-Ruf, W.*
16:05	206	The effects of six months working capacity and productivity coaching on metal industry employees *Väänänen, I.J., Romo, A.*
16:15	210	A randomized controlled trial testing a social network intervention to promote physical activity among adolescents by using smartphones *van Woudenberg, T., Bevelander, K., Burk, W., Smit, C., Buijs, L., Buijzen, M.*
16:25	215	Acute effects of pre-exercise vibrating foam rolling in addition to dynamic stretching on anaerobic power and flexibility *Yıldız, M., Gölünük, S., Ocak, Y., Akyıldız, Z., Bozdemir, M.*
16:35	Discussion	

15:15-16:45, Room: Section C ORAL SESSION Physical activity in children and adolescents Chairs: Stuart Fairclough, Timothy S. Olds		
Time	**Abstract ID**	**Abstract title and authors**
15:15	104	Economic analysis of children's physical activity intervention *Kuvaja-Köllner, V., Lintu, N., Kankaanpää, E., Valtonen, H., Lakka, T.*
15:25	146	The acceptability and feasibility of a novel peer-led school-based physical activity intervention for adolescent girls (The G-PACT Project) *Owen, M.B., Kerner, C., Curry, W.B., Newson, L., Noonan, R.J., Fairclough, S.J.*
15:35	118	A parent-child active play intervention to improve family health behaviours: Insights and recommendations from the Ag Súgradh le Chéile programme evaluation *Mair, J.L., Haughey, T.J., Ferguson, K., Carlin, A., Stephenson, A.*
15:45	125	Built environment and physical activity in Czech adolescents *Mitáš, J., Nykodým, J., Řepka, E., Feltlová, D., Suchomel, A., Bláha, L., Valach, P., Klimtová, H., Dygrýn, J., Rubín, L., Vorlíček, M., Frömel, K.*
15:55	127	Investigating the role of social networks for physical activity and sedentary behaviour in adolescents: a social network analysis *Montgomery, S., Badham, J., Donnelly, M., Dunne, L., Davison, J., Hunter, R.*
16:05	134	Physical activity behaviours among children and adolescents with functional limitations *Ng, K.W., Rintala, P., Kokko, S.*
16:15	145	The effectiveness of school-based physical activity interventions for adolescent girls: A systematic review and meta-analysis *Owen, M.B., Curry, W.B., Kerner, C., Newson, L., Fairclough, S.J.*

16:25	178	An innovative approach to engage high school students in physical education – DIYPES Project *Sandu, P., Baba, C.O., Chereches, R.M., Bogdan, V., Boros-Balint, I., Durmishi, E., Simonek, J., Valente, A., Tanggaard Andersen, P., Theuma, N.*
16:35	Discussion	

15:15-16:35, Room: Split/Dubrovnik ORAL SESSION Physical activity in clinical and special populations Chairs: Nanette Mutrie, Maroje Sorić		
Time	**Abstract ID**	**Abstract title and authors**
15:15	94	Adaptation of the NETFIT® to children with intellectual disabilities – results of the national research *Király, A., Kaj, M., Kälbli, K., Csányi, T.*
15:25	100	Stimulating physical activity; systematic development and testing of a community-based intervention for hard-to-reach physically disabled people *Krops, L.A., Geertzen, J.H.B., Dijkstra, P.U., Dekker, R.*
15:35	122	The development and co-design of the PATHway intervention: a theory-driven eHealth platform for the self-management of cardiovascular disease *McDermott, L.A., Woods, C., Moran, K., Cornelissen, V., Buys, R., Claes, J., Zampognaro, P., Melillo, F., Filos, D., Chouvarda, I., Triantafyllidis, A., Moyna, N., Walsh, D.*
15:45	126	Barriers and facilitators of implementing a lifestyle intervention in primary care and opportunities for adding a financial incentive *Molema, C., Ter Schegget, S., Wendel-Vos, W., Schuit, J., Van de Goor, I.*
15:55	211	Health-enhancing physical activity interventions for children and young people with neuro-disabilities: A Systematic Review Protocol *Visser, K.S.* *Cardiff University, School of Healthcare Sciences, United Kingdom of Great Britain and Northern Ireland*
16:05	182	Trajectories of physical activity after rehabilitation: results from the longitudinal cohort study ReSpAct *Seves, B.L., Hoekstra, F., Hettinga, F.J., Dekker, R., van der Woude, L.H.V., van der Schans, C.P., Hoekstra, T.*
16:15	207	Psychosocial health is associated with objectively assessed sedentary time and light intensity physical activity among lung cancer survivors *Vallance, J., Bebb, D.G., Boyle, T., Johnson, S.T., Gardiner, P.A., D'Silva, A.*
16:25	Discussion	

15:15-16:35, Room: Zagreb ORAL SESSION Sport and health + Physical activity measurement Chairs: Maria Hagströmer, Pekka Oja		
Time	**Abstract ID**	**Abstract title and authors**
Sport and health		
15:15	113	Relationship between physical activity trajectories and fruit and vegetable consumption frequency trajectories from childhood to adulthood in the Young Finns Study *Lounassalo, I., Kankaanpää, A., Salin, K., Hirvensalo, M., Palomäki, S., Raitakari, O., Tammelin, T.*
15:25	148	Does sports participation in youth predict healthy habits in adulthood? A 28-year longitudinal study *Palomäki, S.H., Hirvensalo, M., Smith, K., Raitakari, O., Tammelin, T.*
Physical activity measurement		
15:35	35	Population-wide objectively measured physical activity monitoring: an overview of possibilities *de Hollander, E.L., de Brabander, P., Proper, K., Wendel-Vos, W.*

15:45	66	Convergent validity of physical activity questionnaire against objectively measured physical activity in adults: the Cardiovascular Risk in Young Finns Study (YFS) *Hirvensalo, M.H., Magnussen, C.G., Salin, K., Yang, X., Telama, R., Heinonen, I., Hutri-Kähönen, N., Viikari, J.A., Raitakari, O.T., Tammelin, T.H.*
15:55	73	FINFIT 2017: Population-based study on objectively measured physical fitness, physical activity, sedentary behavior and sleep in Finland (KunnonKartta 2017) *Husu, P., Suni, J., Tokola, K., Vähä-Ypyä, H., Mänttäri, A., Sievänen, H., Vasankari, T.*
16:05	99	Physical activity of students at Brno University of Technology *Korvas, P., Lepkova, H.*
16:15	216	Video-based marker-less motion analysis for physical activity study: Using directionally-grouped cubic higher-order local auto-correlation *Yoshikawa, F.*
16:25	Discussion	

16:45-17:15, Coffee break
Coffee break will be served in front of the Section B (ground floor)

17:15-18:35, Room: Section A
ORAL SESSION
Physical activity interventions in different settings
Chairs: Emma Adams, Jan Seghers

Time	Abstract ID	Abstract title and authors
17:15	61	Development of a diabetes prevention programme for adolescents in five European countries: results of pilot workings *Harrington, D., Troughton, J., Jarvis, J., Edwardson, C., Brady, E., Gray, L., Bluher, S., Vergara Mitxeltorena, I., Ribeiro, R., Gerasimidi-Vazeou, A., Davies, M.*
17:25	69	Combined involvement of political decision-makers and citizens to prioritize modifications to the built environment *Hofer, K., Tuttner, S.*
17:35	84	More effective lifestyle guidance for social and health care cross-functionally in Finland *Jussila, A.M., Kivimäki, S., Vasankari, T.*
17:45	112	Dreams into Motion – more movement, happiness and wellbeing *Livson, M., Pekkala, J., Iso-Ahola, A., Nikulainen, P.*
17:55	150	Workplace HEPA training programme. From sports planning to work tasks requirements. Mètode 3ES(R) *Peirau-Terés, X., Carreras-Villanova, D., Matas-Garcia, S., Planas-Anzano, A., Mas-Alòs, S.*
18:05	133	Now We MOVE Campaign - 5 years of moving people *Nenova, L.*
18:15	149	Occupation and Qualification Standards of physical activity and public health according to the Croatian Qualification Framework *Paušić, J., Krželj, L.*
18:25	Discussion	

17:15-18:45, Room: Section B
ORAL SESSION
Physical activity in clinical and special populations
+
Active ageing
Chair: Dina L. Jones

Time	Abstract ID	Abstract title and authors
Physical activity in clinical and special populations		
17:15	71	Active Everyday – Experiences of implementing a physical activity referral scheme for people affected by cancer *Humphreys, L.J., Reece, L., Frith, G., Speake, H., Crank, H.*

17:25	77	National Physical Activity Pathway Improvement Programme: A quality improvement approach to implementation within healthcare settings in Scotland *Jackson, F.*
Active ageing		
17:35	36	Communities of Practice for Healthy Lifestyle (COP4HL) *de Jong, J., Shokoohi, R., Principe, T., Kubbinga, C., Beenen, P.*
17:45	15	Centers for Healthy Ageing Bosnia and Herzegovina *Basic Catic, S., Nakas, B., Ferić, A.*
17:55	55	"Quartier Agil" – Feasibility of combined physical and cognitive activities in the neighborhood with smartphone support for stimulating social participation in the elderly social participation in the elderly *Günther, L., Osterhoff, A., Thiel, C., Sommer, S., Niehoff, M., Sharma, M., Handmann, U., Koch, O., Grüneberg, C.*
18:05	92	Key Project Strength in Old Age Implementation *Karvinen, E., Kalmari, P., Holmi, M., Paavola, L., Topo, P.*
18:15	180	Exercise Councils for improving older people's social inclusion *Säpyskä-Nordberg, M., Starck, H., Karvinen, E.*
18:25	192	Go Out with the Elderly Campaign *Starck, H., Säpyskä-Nordberg, M., Honkanen, A., Holmi, M., Kalmari, P., Hovinen, E., Karvinen, E.*
18:35	Discussion	

17:15-18:45, Room: Section C
ORAL SESSION
Physical activity in children and adolescents
+
Prevalence and determinants of physical activity
Chairs: Michal Kudláček, Sylvia Titze

Time	Abstract ID	Abstract title and authors
Physical activity in children and adolescents		
17:15	181	Weekly physical activity of children in an education outside the classroom intervention segmented into day types and domains *Schneller, M.B., Schipperijn, J., Nielsen, G., Bentsen, P.*
17:25	199	Changes in physical activity and sedentary time during puberty – gender difference during weekdays and weekend days *Tammelin, T., Hakonen, H., Kulmala, J., Kankaanpää, A., Syväoja, H., Kallio, J.*
17:35	200	An acceptability and feasibility study of primary school active classroom breaks *Taylor, S.L., Fairclough, S.J., Noonan, R.J., Knowles, Z.R.*
Prevalence and determinants of physical activity		
17:45	17	Differences in objectively measured physical activity and sedentary behaviour between White Europeans and South Asians recruited from primary care: Cross-sectional analysis of the PROPELS trial *Biddle, G.J.H., Edwardson, C.L., Rowlands, A.V., Davies, M., Bodicoat, D.H., Hardeman, W., Eborall, H., Sutton, S., Griffin, S., Khunti, K, Yates, T*
17:55	12	Achieving physical activity recommendations and being physically active by domains among hypertensive and diabetic subjects attended at primary care level: a cross-sectional study in Brazil *Barbosa, J.M.V., Souza, W.V., Costa, L.S., Oliveira, R.C., Cesse, E.A.P., Fontbonne, A.*
18:05	33	Health promotion as an unscrupulous calculation How to apply professional toolkits for "mind management" on the field of physical activity *Cziráki, P.*
18:15	90	Higher academic achievement is associated with less unfavourable changes in physical activity and sedentary time during puberty *Kallio, J., Hakola, H., Kulmala, J., Tammelin, T.*
18:25	130	What psycho-social factors determine physical activity patterns of university students? *Murphy, J.J., MacDonncha, C., Murphy, M.H., Murphy, N., Nevill, A.M., Woods, C.B.*
18:35	Discussion	

Thursday, 16 November 2017

17:15-18:35, Room: Opatija/Pula ORAL SESSION Sedentary behaviour Chairs: Mette Aadahl, Andrew Atkin		
Time	**Abstract ID**	**Abstract title and authors**
17:15	78	Changes in sitting time and sitting fragmentation after a workplace sedentary behaviour intervention *Janssen, X., Headley, S., Matthews, T., Spicer, G., Wooley, S., Dempsey, K., O'Neil, B., Platz, A., Rousseau, P., Akpan, B., Hutchinson, J.*
17:25	111	A scoping review of physical activity and sedentary behaviour research in Thailand *Liangruenrom, N., Suttikasem, K., Craike, M., Bennie, J., Biddle, S., Pedišić, Ž.*
17:35	132	Ethnic differences in sedentary behaviour in 6-8 year old children during school term and school holiday- a mixed methods study *Nagy, L.C., Horne, M., Mohammed, M., Faisal, M., Barber, S.E.*
17:45	171	Segregating the distinct effects of sedentary behaviour and physical activity on older adults' cardio-metabolic profile: Linear regression analysis approach *Ryan, D.J., Wullems, J.A., Stebbings, G.K., Morse, C.I., Stewart, C.E., Onambele-Pearson, G.L.*
17:55	184	The effectiveness of sit-to-stand desks to reduce sitting time within a primary school classroom: an 8 month controlled trial *Sherry, A.P., Pearson, N.L., Ridgers, N.D.· Barber, S.E., Bingham, D.D., Nagy, L.C., Clemes, S.A.*
18:05	186	Effectiveness of interventions for reducing non-occupational sedentary behaviour in adults and older adults: A systematic review and meta-analysis *Shrestha, N., Weisner, G., Grgic, J., Podnar, H., Bennie, J.A., Parker, A., Biddle, S.J.H., Pedisic, Z.*
18:15	196	The development and formative evaluation of the 'Worktivity' app: a behaviour change theory-based mobile app to promote reductions in occupational sedentary behaviour *Stephenson, A., Mc Donough, S.M., Murphy, M.H., Nugent, C.D.· Garcia-Constantino, M., Mair, J.L.*
18:25	Discussion	

17:15-18:15, Room: Split/Dubrovnik ORAL SESSION Physical activity and health outcomes Chairs: Eva Martin-Diener, Jürgen M. Steinacker		
Time	**Abstract ID**	**Abstract title and authors**
17:15	119	Effects of high-intensity training on cardiovascular risk factors and insulin sensitivity in pre- and postmenopausal women *Mandrup, C.M., Andersen, C.B., Hellsten, Y., Stallknecht, B.M.*
17:25	153	Testing which fitness components mediate the improvement of HRQoL after a 6-months physical activity program *Perez-Sousa, M.G., Olivares, P.R., Escobar-Alvarez, J.A., Parraca, J.A., Gusi, N.*
17:35	160	The theoretical effects of replacing sedentary time with standing time, LIPA and MVPA on cardiometabolic health *Powell, C., Carson, B.P., Dowd, K.P., Hannigan, A., Perry, I.J., Kearney, P.M., Harrington, J.M., Hayes, G., Donnelly, A.E.*
17:45	161	Evaluation of an exercise referral scheme in the United Kingdom: Medium term outcomes *Prior, F., Coffey, M., Robins, A., Cook, P.*
17:55	212	Unveiling BVI, replacing BMI: An innovative and affordable tool to monitor physical activity health outcomes and gather data for world populations *Walker, R.E., Barnes, R.*
18:05	Discussion	

17:15-18:45, Room: London
ORAL SESSION
Compositional data paradigm in physical activity research
+
Modern technology in physical activity promotion
Chairs: Adrian Bauman, Željko Pedišić

Time	Abstract ID	Abstract title and authors
		Compositional data paradigm in physical activity research
17:15	40	BODE index score is related to time-use composition in people with COPD *Dumuid, D., Hunt, T., Williams, M. Olds, T.*
17:25	44	Patterns of health behaviour associated with active travel: a compositional data analysis *Foley, L., Dumuid, D., Atkin, A.J., Olds, T., Ogilvie, D.*
17:35	144	The impact of changes in time use on mental health and well-being following retirement *Olds, T., Dumuid, D., Burton, N., Sprod, J., Maher, C., Ferrar, K., Brown, W., Van Uffelen, J.*
		Modern technology in physical activity promotion
17:45	49	Encouraging Physical Activity Behaviour: The concept of 'distributed motivation' *Gough, A., Hunter, R.F., Prior, L., Kee, F.*
17:55	63	Harnessing Gamification for population level changes in physical activity - Findings from 18 UK interventions *Harris, M.A., Bird, W.*
18:05	98	ActionTrack mobile application in teaching outdoors and pupils' physical activity *Koivisto, K, Koski, P., Matarma, T.*
18:15	107	100 degrés, a new venture for Québec en Forme (Canada) *Lapierre, L.*
18:25	143	How do we talk about physical activity on Twitter? A content and sentiment analysis *O'Kane, N., McKinley, M., Gough, A., Ajao, O., Kee, F., Hunter, R.*
18:35		Discussion

17:15-18:35, Room: Madrid
ORAL SESSION
Physical activity measurement
Chairs: Tommi Vasankari, Gregory J. Welk

Time	Abstract ID	Abstract title and authors
17:15	103	Spatial epidemiology and their implication in the field of physical activity: example of the Slovenian study ARTOS *Kukec, A., Djomba, J.K., Jurak, G., Starc, G.*
17:25	138	One size does not fit all: Contextualising family physical activity using a Write, Draw, Show and Tell Approach *Noonan, R.J., Fairclough, S.J., Knowles, Z.R., Boddy, L.M.*
17:35	140	Health related physical fitness monitoring practices in Irish secondary schools: A national review *O' Keeffe, B., Donnelly, A., MacDonncha, C.*
17:45	183	Validity and reliability of the Fitbit Zip as a measure of pre-school children's step count *Sharp, C.A., Mackintosh, K.A., Erjavec, M., Pascoe, D.M., Horne, P.J.*
17:55	189	Physical activity, sedentary behaviour, functional capacity and selected blood biomarkers in men and women with chronic disease *Skelly, F., Moyna, N., McCaffrey, N., Loughney, L., Furlong, B.*
18:05	208	An update on the feasibility of objective physical behaviour measurements in The Alberta Moving Beyond Breast Cancer (AMBER) Cohort Study *Vallance, J., Friedenreich, C., McNeely, M., Culos-Reed, N., Bell, G., Mackey, J., Matthews, C., Farris, M., Cook, D., Voaklander, S., Morielli, A., Courneya, K.*
18:15	205	Level of physical activity in general the French population – a five year study *Ungureanu, J., Marc, A., Schipman, J., Toussaint, J.F.*
18:25		Discussion

Thursday, 16 November 2017

17:15-18:15, Room: Zagreb ORAL SESSION Physical activity policy + Active transport Chairs: Stjepan Heimer, Karen Milton		
Time	**Abstract ID**	**Abstract title and authors**
Physical activity policy		
17:15	76	200GA a zip code for a more active Gipuzkoa region *Iturrioz, J.I., Asurmendi,U., Alvarez, G.*
17:25	110	Regional strategy to promote physical activity - using a combined top-down and bottom-up approach, from policy to action on grass root' level using social media *Leijon, M.*
17:35	172	EUCS, THE-PEMP, GAPPA: ABC's promoting cycling in Europe & the world. European Union Cycling Strategy, Pan European Master Plan & Global Action Plan Physical Activity *Rzewnicki, R.*
Active transport		
17:45	2	"Smartly commuting workplace" – an electronic tool for workplaces to promote work-related sustainable mobility *Aittasalo, M., Tiilikainen, J., Riippi, J., Lapinleimu, I.*
17:55	137	Active school commuting, aerobic fitness and obesity among Liverpool schoolchildren *Noonan, R.J., Boddy, L.M., Knowles, Z.R., Fairclough, S.J.*
18:05	Discussion	

21:00, Johann Franck, Trg bana J. Jelačića 9
Conference dinner

FRIDAY, 17 NOVEMBER 2017

From 8:15, Area in front of the Section A
Registration

09:15-10:15, Room: Section B
Plenary Session – 4th Keynote lecture

Susan Michie, University College London, UK – *Applying behavioural science to developing and evaluating digital interventions: implications for physical activity*

10:15-10:35, Room: Section B
Closing ceremony

10:35-11:00, Coffee break
Coffee break will be served in front of the Section B (ground floor)

11:00-13:00, Room: Section B
HEPA Europe Annual meeting

Meeting agenda (Open to all participants):

11.00 - 11.15	**Opening and welcome** *Tommi Vasankari, Chairman HEPA Europe* *Francesca Racioppi, WHO Regional Office for Europe* University of Zagreb (host)
11.15 – 11.30	**Results of the Steering Committee and chair elections** Sonja Kahlmeier, University of Zurich, Switzerland
11.30 – 11.45	**New applications for membership** *Chair HEPA Europe*
11.45 – 12.15	**Activity report 2015 - 2016 and Work programme 2016 - 2017: introduction and discussion** *Working group leaders, Chair HEPA Europe, Sonja Kahlmeier, University of Zurich*
12.15 – 12.20	**Formal approval of the work programme 2016-2017**
12.20 – 12.35	**Updated mission and goals for HEPA Europe** Proposed new version Discussion and adoption of final version *Karen Milton, University of East Anglia, United Kingdom and Chair HEPA Europe*
12.35 – 12.45	**HEPA Europe member website analysis** *Sonja Kahlmeier, University of Zurich*
12.45 – 12.55	**Update on WHO/Europe Framework of engagement with non-state actors (FENSA)** *Francesca Racioppi, WHO Reginal Office for Europe*
12.55 – 13.00	**Other business**
13.00	**Closure**

13:00-14:00, Restaurants Fontana and King Tomislav in Sheraton Hotel,
Lunch for participants of the Annual meeting
(optional lunch bags provided for meeting paricipants)

BOOK OF ABSTRACTS

1. Should leisure time sitting be replaced with sleep, moderate or vigorous physical activity for prevention of diabetes? Prospective isotemporal substitution analyses in 63,687 Danish adults

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Introduction: Leisure time sitting has been detrimentally associated with cardiometabolic risk in observational studies, but it remains unclear whether sitting is linked to incident diabetes. Studies vary with sitting domains explored, baseline adiposity has not consistently been considered and included, and controversy exists as to how a potential attenuating effect of physical activity (PA) should be taken into account. Therefore the aim of the present study was to examine the effects of substituting 30 min/day of self-reported leisure time sitting with sleep, moderate, or vigorous PA on incident diabetes using isotemporal substitution modeling. **Methods:** Participants ≥ 25 years from the Danish Capital Region Health Survey, conducted in 2007 (N=69,800, response rate 52.3%) and 2010 (N=95,150, response rate 52.3%) were included. Information on daily sleep duration, leisure time sitting and PA was collected by questionnaire. Information on diabetes (type 1 and 2) was obtained from the Danish National Patient Register and the Danish Prescription Registry. The relationship between 30 min/day of each exposure (sitting, sleep, moderate or vigorous PA) and risk of incident diabetes was analyzed using Cox proportional hazards regression models and isotemporal substitution analyses, with time (in years) from baseline to incident diabetes or censuring until 31 December 2013. A priori selected potential confounders, sex, BMI, ethnicity, education, smoking, inflammatory joint disease, perceived stress, physical and mental component scale and work status, were included in the model. **Results**: The final study sample included 63,687 men and women; hereof 1,650 had incident diabetes during a mean follow-up time of 4.75 years (range 1 day – 7.0 years). Those with/without incident diabetes included more men (56.7%/44.4%), higher mean age (57.3y/47.4y) and higher BMI (29.1/24.9). In the fully adjusted models, the hazard ratio (HR) of incident diabetes when replacing 30 min/day of leisure time sitting with sleep was 0.99 (CI 0.96;1.03); it was 0.95 (CI 0.93;0.98) for replacing sitting with moderate PA, and 0.91 (CI 0.77;1.07) for replacing sitting with vigorous PA. **Conclusions**: Substituting 30 min/day of leisure time sitting with moderate PA, but not with sleep or vigorous PA, significantly reduced the risk of incident diabetes by 5% in Danish adults.

2. "Smartly commuting workplace" – an electronic tool for workplaces to promote work-related sustainable mobility

Aittasalo, M.[1], Tiilikainen, J.[1], Riippi, J.[2], Lapinleimu, I.[3]
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[2]City of Tampere, Liikkuva Tampere, Finland
[3]UKK Institute, Administration, Finland

Introduction: Sustainable mobility reduces car traffic, protects environment and enhances workforce health. Workplaces have an important role in promoting smart commuting. So far the Finnish workplaces have not been very active in this. The greatest barriers are lack of know-how and resources. To overcome them, workplaces need simple and pragmatic tools. **Activities undertaken:** A paper version of the tool "Smartly Commuting Workplace" was developed and tested in a research project aiming to promote walking and cycling to work (www.ukkinstituutti.fi/kapy/kapy-in-english). The tool was then extended to cover sustainable mobility more widely, transformed into electronic form and stored in a database, which may be accessed free of charge through registration. The tool includes three parts: I) Action plan - menu of strategies categorized into organization, working unit and employee level - options to specify timing, responsibilities and estimated costs of the strategies - visual illustration of the action plan (year-clock) II) Evaluation - platform for entering information about the realization, costs and effects - survey template for collecting information about the effects III) Report card - graphics about the evaluation **Results**: The development of the electronic tool started in February. It was piloted in five workplaces in May and will be finalized according to the feedback in September. Active dissemination of the tool will start in October to private and public companies, occupational health care providers,

physical activity organizations and sustainable mobility agents. The database allows the developers to get information on the number and profile of up-taking workplaces as well as on the choice of strategies, realization, costs and effects. The information covering the registered up-takers will be analyzed in 2018-20. **Conclusions**: The electronic tool "Smartly Commuting Workplace" is designed to help workplaces to plan, implement and evaluate strategies for sustainable mobility. If disseminated successfully, the tool increases workplaces' awareness and promotion of sustainable mobility. The information accumulated in the database can be utilized in targeting future actions for work-related sustainable mobility at local, regional and national level.

3. The Prevalence of Complications in Type 2 Diabetics in Diabetes Centers in Dubai

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Introduction: Diabetes complications have been increasingly prevalent among type 2 diabetics during the past decades causing high rates of morbidity and mortality. Measures of the prevalence of diabetes complications will lead to preventive decisions and planning of health care. The aim was to assess the prevalence rates of complications in Type 2 diabetics in two Diabetes Centers in Dubai. **Methods**: A cross-sectional descriptive analytical study conducted among type 2 diabetics attending diabetes centers in Dubai. Data was collected form secondary source using patient's records from two diabetes centers involved in the study. Random sampling technique was used to collect 150 patients proportionally allocated according to the total patients (4700 attending patients) available in the two diabetes centers. **Results**: The study showed that the most dominant prevalence type of complications: Hyperlipidemia (84%), Neuropathy (34%), Dyslipidemia (32%), Retinopathy (28%), Lethargy (21.3%), and Nephropathy (16.7%). The associations made between three variables each separately (Date of First Visit, HbA1c, and Fasting Blood Glucose) with the prevalence type of complications, showed significant differences in some types: Dyslipidemia, Hyperlipidemia, Neuropathy, Retinopathy, and Joint & Bone pain. **Conclusions**: There is a reasonable correlation between different variables and the prevalence of complications among the diabetic population, thus studies should always follow up on this issue in order to have clear associations to prevent complications from occurring in the first place. Keywords: Diabetes Type 2, Complications, Diabetes Center, Dubai, Prevalence.

4. Relationship between International Physical Activity Questionnaire – short form and functional parameters in women

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Introduction: Physical activity has an important role for disease prevention and increasing quality of life. Therefore accurate and objective assessment of physical activity is important in terms of determining physical activity levels of individuals and prescribing activity programs. International Physical Activity Questionnaire short form (IPAQ - sf), one of the self-reported questionnaires, is widely used to determine the level of physical activity. The aim of our study is to evaluate the relationship between self-reported physical activity questtionnaire and functional parameters in women. **Methods**: Thirty healthy women (age range 33 - 60 years) participated in the study. All participants were asked to complete IPAQ-sf and performed 6 minute walk test (6MWT), 30 seconds sit-to-stand test (30STS) and postural stability test to assess functional parameters. Postural stability assessment was performed by using Biodex Balance System and lower stability index scores indicate better balance. Weekly MET values were used to determine physical activity levels. In statistical analysis Pearson Correlation Test was performed to assess relationship between physical activite level (PA) and functional parameters. Also comparison of individuals with different levels of activity was performed by the Mann-Whitney U **Results**: No statistically significant correlation was revealed between weekly MET values and other functional parameters. ($p > 0,05$) Significant correlation was determined between 6MWT and 30STS ($r=0,455$, $p=0,015$) and postural stability ($r = - 0,578$, $p = 0,001$) scores. There were no significant difference between two different activity levels (Low PA; $n = 14$, age=48,3 ± 8,7 years and Moderate PA; $n = 16$, age = 46,5 ± 7,8 years) in terms of 6MWT (536,4 ± 40 and 509,9 ± 81,6; $p = 0,564$) , 30STS (14,4 ± 4,0 and 14,6 ± 3,6; $p = 0,890$) and postural stability (2,7 ± 1,7 and 2,8 ± 2,2; $p = 0,853$) scores. **Conclusions**: The results of this study showed that there was no statistically significant correlation between IPAQ-sf and functional parameters in women. In the literature, weak correlation was reported between IPAQ-physical activity level and accelerometer measurements. Baldwin JN et al. presented significant correlation between physical performance and sef-reported physical function (IPAQ) in all genders. Further researches are needed on large sample sizes for women's health promotion.

5. Social marketing and mass media campaign to promote physical activity in Oman

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Introduction: The rise in non-communicable diseases (NCDs) reflects the changing lifestyle of people in Oman. Physical inactivity is a modifiable risk factor for chronic NCDs. One in three Omani adults are inactive; even larger proportions of adolescents and college students are inactive. Addressing physical inactivity requires actions on behavior change through awareness-raising and skills development as well as actions on built environment in order to give people the means to be active at all ages. A social marketing and mass media campaign was developed in Oman targets the general population with overall aim to communicate specific and innovative messages about physical activity (PA) to inform, persuade and motivate population to consider becoming more physically active. **Activities undertaken**: "Health begins with one step" is the slogan for the one-year campaign launched on 27 December 2016. The national physical inactivity task force is leading the campaign in collaboration with the different partners. In 2017, the campaign started to disseminate the messages through the different social media channels. In addition, Educational materials are also used to transmit messages to school age children and patients in primary health care setting and public. Other activities are implemented in schools, shopping malls etc. **Results**: The midyear report of social media accounts of the campaign (Khatwa_om) showed that 422 updates were disseminated through Facebook, twitter, and Instagram. Follows were 76 on Facebook, 706 on twitter and 921 on Instagram with 22 valuable direct messages. Moreover, twitter achieved 91.1k, Facebook 348, Instagram 5,573 impressions. In addition, Facebook had 345 post engagement, 348 post reach and 10 post views, twitter had 1.5% engagement and 188 retweets. For WhatsApp, 131 participants joined the list with 31 posts disseminated. 11 sports days/walkathons were conducted in different regions in Oman until May 2017. Impact of the campaign on the knowledge, beliefs and actual change in the physical activity behavior of the community members will be conducted at the end of the year. **Conclusions**: Changing human behavior is complex; it requires the application of comprehensive, evidence-based actions that can be sustained over a number of years. Innovative strategies need to be considered in promoting PA in Oman.

6. "Two steps forward and one back" - Pedometer Intervention and Health Effects for Sedentary colorectal cancer patients during adjuvant chemotherapy

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Introduction: International hospital-based training studies among trained cancer patients in chemotherapy have found a positive effect on increased physical ability, bodily and mental well-being and reduced fatigue. However, only few studies have evaluated the effects of physical activity among pre-illness sedentary colorectal cancer patients receiving chemotherapy. Further research on this high risk population is needed to clarify whether pedometer interventions might have a positive effect on permanent change of lifestyle and hence reduce the risk of relapse of cancer**. Aim**: To examine the effect of two training initiatives (12 weeks progressive, high-intensity training versus low intensity exercise) on physical, emotional and social habitus, in sedentary patients with colorectal cancer during adjuvant chemotherapy. **Primary outcome**: Physical capacity VO2-peak (12 weeks test). **Design**: Quasi experiment, a two-armed randomized intervention study stratified by age (6000), Muscle strength leg press (1RM)(average improvement 23%), physical capacity (VO2-peak)(average improvement 12%), DXA scan (the average increase in muscle mass 2,1%, decrease in fat 2.3 %), physical activity level (80% increased activity level), barriers for physical activity (chemotherapy, side effects, inguinal hernia) and motivational parameter (peers, pedometer, test) measured baseline and 12 weeks. **Conclusions**: It takes time to recruit and include this high-risk group of patients in pedometer interventions but no drop outs during 12 weeks. After an intensive postoperative course interval walk once a week is motivating for sedentary colorectal cancer patients in chemotherapy.

7. Harmonising data on the correlates of physical activity and sedentary behaviour in young people: Methods and lessons learnt from the International Children's Accelerometry Database (ICAD)

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Introduction: Large, heterogeneous datasets are required to enhance understanding of the multi-level influences on children's physical activity and sedentary behaviour. One route to achieving this is through the pooling and co-analysis of data from multiple studies. Where this approach is used, transparency of methodology for data collation and harmonisation is essential to enable appropriate analysis and interpretation of the derived data. In this paper, we describe the acquisition, management and harmonisation of non-accelerometer data in a project to expand the International Children's Accelerometry Database (ICAD). **Methods**: Following a consultation process, ICAD partners were requested to share accelerometer data and information on selected behavioural, social, environmental and health-related constructs. All data were collated into a single repository for cataloguing and harmonisation. Harmonised variables were derived iteratively, with input from the ICAD investigators and a panel of invited experts. Extensive documentation, describing the source data and harmonisation procedure, was prepared and made available through the ICAD website. **Results**: Work to expand ICAD has increased the number of studies with longitudinal physical activity data, and expanded the breadth of behavioural, social and environmental characteristics that can be used as exposure variables. A set of core harmonised variables, including parent education, ethnicity, school travel mode/duration and car ownership, were derived for use by the research community. Guidance documents and facilities to enable the creation of new harmonised variables were also devised and made available to ICAD users. An expanded ICAD database was made available in May 2017. **Conclusions**: The project to expand ICAD further demonstrates the feasibility of pooling data on physical activity and related determinants from multiple studies. Key to this process is the rigorous conduct and reporting of retrospective data harmonisation, which is essential to the appropriate analysis and interpretation of derived data. These documents, made available through the ICAD website, may also serve as a guide to others undertaking similar projects.

8. The Sedentary Behaviour Council-GoPA! Global Monitoring Initiative (Phase 1): Adding sedentary behaviour indicators to the Global Observatory for Physical Activity (GoPA!) Country Cards

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Introduction: The Global Observatory for Physical Activity (GoPA!) provides country-level information on the status of physical activity surveillance, research, and policy activities for 144 countries worldwide. The Sedentary Behaviour Council-GoPA! Global Monitoring Initiative will pilot test sedentary behaviour indicators for potential addition to the GoPA! Country Cards. Our aim is to describe the project protocol and present results of Phase 1 (sitting time data for the European region). **Methods**: Following the model established for the physical activity Country Cards, a subset of sedentary behaviour indicators will be evaluated: sedentary behaviour prevalence/descriptive metrics (total sitting time, TV viewing) (Phases 1 and 2); documenting national surveys that include sedentary behaviour questions (Phase 1 and 2); availability of a national or subnational sedentary behaviour plan (Phase 3); and, number of articles related to sedentary behaviour and public health identified via PubMed searches (Phase 3). For phase 1, the GoPA! Country Card Almanac and PubMed searches (last 10 years) were reviewed to identify data sources related to sedentary behaviour (total sitting time) prevalence for

the European region. **Results**: The primary source of total sitting time estimates for European countries was the Eurobarometer study (2013). With approximately 1,000 adults sampled from each country, the median sitting times reported ranged from 180 min/day (25th – 75th percentile 120, 360) in Portugal to 360 min/day (240, 480) in Denmark and the Netherlands. The 2012 Health Survey for England provided estimates for total sitting time for men and women in parts of the UK. Mean daily sitting time for men (303 and 340 m/day) and women (296 and 333 m/day) were reported for England and Scotland, respectively. **Conclusions**: Phase 1 of the Initiative sought to identify and collate sitting time prevalence data for the European region. Thirty countries were identified with potentially relevant data, similar coverage to that attained for physical activity. Sitting time estimates ranged from 180 to 360 mins/day. Subsequent phases will incorporate a wider range of sedentary behaviour indicators and expand to include all global regions.

9. Mode of travel to work: Contribution to objectively measured physical activity, and associations with individual, interpersonal, organizational and environmental characteristics

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Introduction: Encouraging walking during the daily commute is a potential strategy for increasing physical activity levels. Understanding factors that facilitate walking can help guide the development of effective interventions. This study aimed to: (i) examine, and compare by travel mode, the objectively measured physical activity of a working adult population, and, (ii) identify associations between mode of travel to work and a range of individual, interpersonal, organisational and environmental characteristics. **Methods**: Employees (n = 654) recruited from 87 workplaces in south west England and South Wales provided data about their commute through wearing accelerometers and Global Positioning System (GPS) receivers, and completing travel diaries and questionnaires. Separate multivariable logistic regression models were developed to examine factors associated with mode of travel to work and levels of physical activity during the commute. **Results:** In comparison to car users, walkers and public transport users accrued substantially higher levels of daily Moderate to Vigorous Physical Activity (MVPA) during the commute (34.3 ± 18.6 vs. 7.4 ± 7.6 minutes, $p < 0.001$) and throughout the day (71.4 ± 21.3 vs. 45.7 ± 20.9 minutes, $p < 0.001$). Participants in non-sedentary occupations were less physically active during their commute ($p < 0.05$). Factors associated with walking to work included a commute distance of less than two kilometres ($p < 0.001$) and absence of free work car parking ($p < 0.01$). Compared to car users, walkers had more favourable perceptions of the suitability and maintenance of pavements ($p < 0.01$), traffic safety ($p = 0.02$), night-time lighting ($p = 0.02$), and the pleasantness of the environment ($p = 0.02$) along their commute. **Conclusions**: Walking during the commute to work (either the whole route or combined with public transport) is an important contributor to objectively measured physical activity levels for adults. Interventions to increase walking to work should take into account both individual and wider determinants of commuting behaviour. These include commuting distances, availability of car parking, perceptions of commuting routes and alternative modes of transport. Encouraging and supporting walking during the daily commute should be a priority for transport, urban planning and public health disciplines.

10. Healthy on the Square Survey: Relationship between Physical Activity, Wellbeing and Low Back Pain

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Introduction: European Network for Workplace Health Promotion (2017) defines workplace health promotion (WHP) as a modern corporate strategy which aims at preventing ill-health at work and enhancing health-promoting potentials and wellbeing in the workforce (ENWHP, 2017). In conjunction with this, we were interested in a relationship between physical activity (PA), wellbeing and low back pain (LBP). **Methods**: In the spring of 2016 two surveys were carried out among 17 companies of the chemical and processing industry between the management and the employees. Questions for both of those target groups were related to the organization of the WHP, health status and lifestyle of employees, including desired WHP activities. 860 employees participated. **Results**: Analysis of the survey revealed that the most employees suffer from LBP (between 57 and 64 %). Among those who have reported poor wellbeing, they were 86 % of them insufficient physically active and only 14 % sufficient ($p<0.05$). Regardless of whether they are sufficient physically active or not about 60% of them reported LBP. Among the motivated for PA there was a higher proportion of male workers (around 40 %) in comparison to female workers (about 30%). In the end both participated target groups answered that

the most desirable WHP interventions should include stress management, health care of the spine and PA promotion. **Conclusions**: The majority of employees that are insufficient physically active (86 %) feels poor. The results of our survey (among other things) showed that there were no statistically significant differences between the PA adequacy and LBP. Nevertheless, it is necessary to strengthen interventions that encourage regular PA, reduce forced posture and decrease LPB. Interventions should vary according to the type of work for the individual target groups of workers.

11. Classified as physically active: Are not 7 days of self-reported moderate-to-vigorous physical activity unfair for athletes in organized sports?

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Introduction: Children and adolescents should achieve at least 60 minutes of moderate-to-vigorous physical activity (MVPA) daily. It is known that not all athletes meet this recommendation but, generally, organized sport is a strong determinant of physical activity (PA). Our previous research using pedometers indicated higher sensitivity and specificity of correctly classifying children as physically active for self-reported cut-off of 5 days per week. For this reason, the present study aimed to assess whether various cut-off points of self-reported MVPA better discriminate athletes from non-athletes. **Methods**: Data were drawn from a pilot testing of a new Health Behaviour in School-Aged Children (HBSC) study leisure questionnaire in the Czech Republic in 2017. The sample comprised 131 adolescents (48.9% boys) aged 10 - 17 years (M = 14.13 years, SD = 1.91). The respondents reported the weekly frequency of their involvement in organized team and/or individual sports and also indicated a number of days they achieved 60 or more minutes of MVPA in the last week. The differences in achieving 5 or 7 days of MVPA weekly between organized athletes and non-athletes were tested using the chi-squared tests. **Results**: Only 11% of adolescents participating in organized sports at least twice a week met the self-reported 7- days MVPA recommendation. Moreover, using the 7-days/week cut-off we observed no difference between them and adolescents who participated in organized sports at lower frequency or did not participated at all ($\chi2 = 0.02$; df = 1; $p = 0.898$). In contrast, 53% of those reporting to achieve 60 minutes of MVPA on at least 5 days in the last week participated in organized sports, compared with 30% of non-participants ($\chi2 = 6.80$; df = 1; $p = 0.009$). **Conclusions**: The difference between adolescents frequently participating in organized sports and those not participating at all or only infrequently was apparent only for the 5 days/week cut-off for MVPA in the last week and not for the 7-day cut-off. Possible interpretation is that athletes do not consider free-living physical activity other than sport, such as walking a dog or mowing lawns, as MVPA to be reported in questionnaires. For this reason, we suggest considering the 5 days/week of self-reported MVPA cut-off for classifying adolescents as physically active.

12. Achieving physical activity recommendations and being physically active by domains among hypertensive and diabetic subjects attended at primary care level: a cross-sectional study in Brazil

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Introduction: Meeting physical activity (PA) recommendations, or only being physically active, among diabetic and hypertensive subjects seems to still be a challenge in public health. The Brazilian community-based approach at primary care level (Family Health Strategy – FHS) theoretically ensures that PA practice be an important part of the non pharmacological treatment of such subjects. The aims of the study were to assess total PA and PA by domains in hypertensive or diabetic subjects attended by the FHS in the state of Pernambuco, North-East Brazil; and to identify variables associated with meeting PA recommendations or being physically active by domains. **Methods**: Cross-sectional study of 393 hypertensive or diabetic subjects randomly selected from 100 primary health care facilities of the cities heading the four healthcare administrative regions of Pernambuco State, Brazil. PA was measured by the International PA Questionnaire (long version). Forward stepwise multivariate logistic regression was performed. **Results**: Mean age of the subjects was 63 ± 13.6 years. Most of them were women (n = 265, 67.4%); retired, housewives, or without formal or informal occupation (n=317, 80.7%); and 157 (40.1%) had a monthly household income lower than the minimal wage. PA recommendations were met by 27% of the subjects with less probability of meeting the recommendations for those

who lived in the capital city of the state, were older, not working or with physical limitations. The domain where more subjects were physically active was household (66.7%) followed by commuting (53.4%), leisure (36.9%) and work (15.8%). Older people were less physically active in all domains. Subjects living in the capital city and not working were less active in commuting. **Conclusions**: Achieving physical activity recommendations is still a challenge among hypertensive and diabetic subjects attended at primary health care. Considering that household and commuting domains were more frequently reported, PA practice in daily activities appears more as an obligation than a choice. Strategies to improve the level of PA should target older people, and encourage leisure activities considering physical limitations and social context.

13. Scope of public sports policy: a comparative analysis between Brazil and Spain

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Introduction: Brazil has mirrored itself in Spain to build its legal systems, and also to consolidate a sports development project. An example of this is that for all the Olympic Games applications, the country was inspired by the 1992 Olympic Games project in Barcelona. Considering that the Spanish sports model is a reference for Brazil, this study had as objective to analyze the characteristics of the sports practitioners of both countries. **Methods**: This is a qualitative and quantitative social research, based on the bibliographic review and analysis of the census documents of the two countries published in the year 2015. **Results**: As for the characteristics of sports practitioners in Brazil and Spain, the analysis of the census documents – Diagnóstico Nacional do Esporte (Diesporte) in Brazil and the Encuesta de Hábitos Deportivos in Spain – reveal that both countries present levels of sports practice nearby. A trend in the two countries is the sharp fall in the number of practitioners with the advancing age, in a more pronounced way in Spain. We consider it relevant to point out that in both countries the main places of practice are public spaces and that they differ in the most practiced modalities. In Brazil soccer predominates and in Spain there is a greater diversification, not having a centrality in only one modality. Finally, 92% of Brazilians and 83.9% of Spaniards who play sports do not have any affiliation with sports institutions. **Conclusions**: In both countries, there is a high rate of people who do not exercise and / or sports, especially among the elderly. Among those who practice there is a dependence in the two nations for public spaces with equipment, being that in Brazil dominates the monoculture of the soccer. Another important record is that most of the people who are inserted in the universe of the sport, do not have ties with the institutions of high performance sport, which demonstrates the need of the governments of Brazil and Spain to prioritize the actions of the sport as a leisure activity, quality of life and health.

14. Practice, knowledge and difficulties among primary health care providers for promotion of physical activity for hypertensive and diabetic subjects: an observational study from Brazil

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Introduction: Brazil has a Unified Health System with a community-based approach of primary health care, the Family Health Strategy (FHS). Each FHS team is composed by one physician, one nurse and several community health workers (CHW). FHS is the entry point to promote physical activity (PA) for hypertensive and diabetic subjects. The aim of this study was to describe FHS professionals' practice and knowledge and difficulties for promotion of PA for hypertensive and diabetic subjects. **Methods**: Cross-sectional study of 100 FHS teams (physicians=78; nurses=97; and CHW=100) randomly selected from the cities heading the four healthcare administrative regions of Pernambuco State, Brazil. **Results**: One out of three FHS teams reported offering physical activities at the health unit for hypertensive and diabetic subjects. Providing PA counseling was reported by 77.8% (214/275) of primary health care providers. The most common PA type recommended to the patients to improve their PA levels was domestic activities. Recommendations (frequency and time weekly) for moderate PA were not known by 69% of the professionals (physicians=55%; nurses=73.2%; and CHW=76%; p value<0.01), and most of them could not correctly assign physical activities to their intensity level (low, moderate or vigorous). Cardiologic problems were recognized by 72.7% of health providers as an important factor

to be evaluated before starting PA practice, with a significant difference ($p<0.01$) between providers from the state capital (n=137; 83%) and the other towns (n=63; 57.3%). Some of the difficulties faced to provide PA counseling included lack of community-based PA programs (n=62, 22.5%); inappropriate built environment (n=29, 10.5%); and patients' lack of information (n=59, 21.5%), lack of time (n=47, 17.1%), lack of motivation (n=17, 6.2%), lack of habit (n=12, 4.4%), and lack of economic resources (n=11, 4%); 19.3% (53) reported no difficulty for counseling. **Conclusions**: Although more than three quarters of the professionals reported providing PA counseling to hypertensive and diabetic subjects, knowledge about PA recommendations appeared to be insufficient. Interestingly, difficulties encountered for PA counseling were mostly attributed to the patients themselves. Promoting PA recommendations among hypertensive and diabetic subjects is still a challenge to health professionals at primary health care level.

15. Centers for Healthy Ageing Bosnia and Herzegovina

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Introduction: In 2011 municipality Novo Sarajevo in collaboration with Partnership for Public Health Association, Dutch Health promotion foundation / Yanos Public Health, The Zellinger Eldelries Homes, Institute of Public Health Federation BiH, City Sarajevo and financial support from Dutch Ministry of Foreign Affairs opened the first Centre for Healthy Ageing / CFHA in Europe. The primary objectives of the Day Care Centre was to restore or maintain optimal capacity for self-care to elderly persons, to delay or prevent institunalisation, to promote partnership with the elderly person, the family, the physician, nurse, social worker, and the community in working towards maintaining personal independence. **Activities undertaken**: Centre for Healthy Ageing is providing variety of health, therapeutic, and social services for seniors. The main accent is on physical activity concentrating on elderlies and their abilities to exercise. At the same time Centres is relaying on elderly volunteer work and their leadership. **Results**: Six Centres for Healthy Ageing active in Bosnia and Herzegovina, with more than 1500 members actively involved in mental health, physical health activities and socialisation on a daily basis. Centres are self sustainable with minor support from municipalities. In 2011 Partnership for Public Health published the Guide for physical activity for ageing people. The Guide was uses overall in Bosnia and Herzegovina and was distributed widely throughout Geriatric centres and Elderlies homes. CFHA concept presented in Lisbon, Portugal in September 2017 during Ageing Conference as an example of good practice in the region. **Conclusions**: The network of centres for healthy ageing should be promoted throughout Bosnia and Herzegovina and the Eastern na Central Europe region. Concept of work should be shared through the network of CFHA. The concept should be presented to municipalities who can play major role in development of the centres. The centre can become role model in the local communities for health promotional activities including promotion of physical activities, healthy eating and smoke free life.

16. ASPHALT (Activities and Street sports Promoting Health, Active Living and Thriving): rationale and design of a peer-to-peer intervention targeting children and youth in disadvantaged neighbourhoods

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Introduction: The level of physical activity (PA) among children and youth is too low, and few meet recommendations. This is concerning, since physical inactivity is one of the leading risk factors for a range of non-communicable diseases. Research suggests that peer-to-peer street sports interventions may provide a structure that supports and enhances health benefits for children and youth in disadvantaged neighbourhoods. Our aim is to present and discus the rationale and study design of ASPHALT, a complex community-based peer-to-peer intervention, because we believe it is relevant for others working with PA, social relations, well-being, and empowerment of 'hard to reach' children and youth living in marginalised neighbourhoods. **Methods**: Our methodological framework is the MRC guidelines for developing and evaluating complex interventions, and the project will be structured in four phases: development, pilot, evaluation, and implementation. The intervention will be managed by the street sports organisation, GAME, and consist of a peer-to-peer education for young volunteers (Playmakers) recruited from the neighbourhoods where the activities will take place. After receiving training, the volunteers will be equipped to run street sport activities in their local neighbourhood, engaging a larger group of children in street sport activities and thereby increasing PA. **Results**: We will introduce the rationale and study design and provide insights from the first phase including an overview of the state-of-the-art of peer-to-peer interventions involving youth and preliminary findings from fieldwork

mapping current practices and perspectives of Playmakers. These results will inform the subsequent intervention development in which an educational concept for peer leaders will be developed, tested and evaluated. **Conclusions**: ASPHALT represents new approaches in the field of PA promotion for children and youth through its rationale and study design including peer-to-peer approaches, interdisciplinary collaboration, participatory approaches, and its focus on interdependent relations between PA, empowerment, social relations, and well-being. This will result in a comprehensive picture of peer-to-peer street sports intervention and children's health and well-being, which will broaden the understanding of the potential benefits of peer-to-peer interventions and street sports in PA promotion in deprived neighbourhoods. These results can be used to inform and guide future policy and practice.

17. Differences in objectively measured physical activity and sedentary behaviour between White Europeans and South Asians recruited from primary care: Cross-sectional analysis of the PROPELS trial

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Introduction: reported data have consistently shown South Asians (SAs) to be less physically active than White Europeans (WEs) in developed countries, although robust objective data have been lacking. Differences in sedentary time have not been elucidated in this population. The study aims are to quantify differences in objectively measured physical activity and sedentary behaviour between WEs and SAs recruited from primary care and to investigate differences in demographic and behavioural correlates to these behaviours. **Methods**: data were utilised from a randomised control trial recruiting individuals identified at high risk of type 2 diabetes from primary care. Light intensity physical activity (LPA), moderate-vigorous intensity physical activity (MVPA) and steps were measured using the ActigraphGT3X+, while sitting, standing and stepping time were measured using the activPAL3™. Both devices were worn concurrently for seven days. Demographic (employment, sex, age, education) and behavioural (fruit and vegetable consumption, alcohol consumption, smoking status) characteristics were measured via self and interview administered questionnaires. **Results**: 963 WE (age = 62 ± 8, female 51%) and 289 SA (age = 55 ± 11, female 43%) were included. Compared to WEs, SAs did less MVPA (26 vs 33 min/day, $p = 0.001$) and fewer steps (6487 vs 7402 per/day, $p \leq 0.001$), but sat less (515 vs 552 min/day, $p \leq 0.001$) and stood more (329 vs 284 min/day, $p \leq 0.001$). Ethnicity was also found to modify the extent to which demographic and behavioural factors act as correlates of physical activity and sedentary behaviour. For example, differences between men and women in levels of MVPA and sitting time were greater in SAs compared to WEs, with SA women undertaking the least amount of MVPA (20 min/day), the least sitting time (474 min/day) and most standing time (364 min/day) than any other group. Smoking and alcohol status also acted as stronger correlates of sitting time in SAs compared to WEs. In contrast, education level acted as a stronger correlate of physical activity in WEs compared to SAs. **Conclusions**: SAs were less active yet less sedentary than WE, which demonstrates the need to tailor the behavioural targets of interventions in multi-ethnic communities. Common correlates of physical activity and sedentary behaviour also differed between ethnicities.

18. What do office workers like about height adjustable workstations? Qualitative feedback from the SMArTWork trial

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Introduction: One popular strategy to reduce sitting time and increase movement in the office setting is to introduce height adjustable workstations (desks). While these have been shown to be effective in reducing sitting time, rather less is known about how office workers react to such changes and what features are seen as positive**. Methods**: Desk-based office workers in the English National Health Service were recruited into a randomised controlled trial designed to reduce workplace sitting. Those randomised into the intervention arm were given a choice of height adjustable desk: full electronic workstation, chosen by 48%, or the manually

operated Varidesk workstation placed on top of the conventional desk, chosen by 52%. As part of the 6-month process evaluation, participants were asked a series of questions about the workstation (and other features of the intervention), as well as asked to provide open-ended responses to the question "what was positive about using the height adjustable workstation?" **Results**: Responses to the process evaluation were provided by 44 participants. From 41 positive comments on the workstation, seven initial themes emerged and were labelled: improved musculo-skeletal outcomes, mental benefits, more movement, general health benefits (e.g., 'better for my health'), social benefits (e.g., 'sense of group effort'; 'encourages peer support'), increased choice (e.g., 'not forced to sit'; 'freedom to choose'), and comfort and utility (e.g., 'more comfortable standing'; 'easy to use'). Musculo-skeletal outcomes featured comments concerning aches and pain at a general level (e.g., 'body aches less'), as well as reference to less shoulder and back issues. Comments were also evident for improved posture. Another significant theme concerned the perceived mental benefits of using the workstation. Benefits were perceived in respect of feelings of energy and alertness (e.g., 're-energises me'). Statements were made to better cognitive function and work productivity (e.g., 'feel more productive'). **Conclusions**: Overall, these qualitative data reflected a large number of positive statements concerning the workstations. Musculo-skeletal and mental health benefits were prominent.

19. Predicting walking and cycling behaviour change using an extended Theory of Planned Behaviour

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Introduction: The psychological predictors of behaviour change may differ from the predictors of engaging in behaviour, and there is limited evidence on the associations between psychological constructs and changes in physical activity behaviours such as walking and cycling. This study examined whether an extended version of the Theory of Planned Behaviour (eTPB) predicted change in walking and cycling for transport and recreation using a population-based sample of adults from three UK municipalities. **Methods**: We used baseline (2010), 1-year (2011) and 2-year (2012) follow-up data from the iConnect study (www.iconnect.ac.uk). Six psychological constructs from the eTPB (attitude, perceived behavioural control, subjective norms, intention, habit and visibility) as well as weekly time spent (i) walking and (ii) cycling, each (i) for transport and (ii) for recreation, were self-reported at all time points. Multinomial logistic regression was used to examine the associations between baseline eTPB constructs and (i) increases and (ii) decreases in the four behavioral outcomes, adjusted for socio-demographic characteristics. **Results**: 1796 and 1465 participants provided 1- and 2-year follow-up data, respectively. Time spent walking (minutes per week) increased more than time spent cycling at both time points. All eTPB constructs except subjective norms were associated with changes in at least one of the four walking and cycling outcomes measured. However, these amounted to relatively few significant associations among the large number of associations tested. In general, eTPB constructs were more often associated with increases than with decreases in time spent walking and cycling. **Conclusions**: This is one of the first known studies to examine psychological predictors of changes in walking and cycling for transport and recreation using an extended version of the Theory of Planned Behaviour (eTPB). Despite finding limited support for the model as a whole, the findings add to the evidence base in identifying specific constructs associated with positive changes in walking and cycling outcomes. As such, future interventions to promote walking and cycling through individually delivered approaches might consider fostering the development of positive attitudes, intentions and habits for these behaviours.

20. Can a framed intervention motivate elderly in assisted living facilities to exercise? A semi-randomized controlled trial

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Introduction: The majority of institutionalized elderly do not exercise, despite the many health benefits. The current study investigated whether a framed intervention can motivate elderly in assisted living facilities (ALFs) to perform functional resistance exercises. It was hypothesized that repeated prevention framing of the exercises (e.g., to avoid health deterioration) would nurture the development of controlled motivation to exercise. By contrast, repeated promotion framing (e.g., to improve health) was expected to lead to higher exercise frequencies over time and to foster the development of autonomous motivation. Autonomous motivation

was hypothesized to predict higher exercise frequencies over time. **Methods**: A total of 111 residents, aged 65+ years (M = 81.4 y; SD = 6.4 y) participated in the study. These participants received a three-week individual program with a standard session of eight functional resistance exercises. Four weekly sessions were recommended. Participants were semi-randomized into three message framing conditions: neutral (i.e., control), prevention or promotion. They received condition-specific written and spoken messages about the exercises at the beginning of the intervention. The spoken messages were repeated at the end of each week. Participants kept a checklist with their weekly exercise frequency and at corresponding points in time, they filled out a questionnaire about their levels of autonomous and controlled motivation to exercise. **Results**: Across conditions and time points, the exercise frequencies and the levels of autonomous motivation were generally high, whereas the levels of controlled motivation were generally low. Contrary to the expectations, there were no significant framing effects. However, higher levels of autonomous motivation predicted higher exercise frequencies. During the final exercise week, this was especially the case for intrinsic regulation (i.e., for the sake of the activity). **Conclusions**: This study indicates that elderly who live in ALFs can be motivated to perform functional resistance exercises. Given the importance of intrinsic regulation, we advise to create an exercise atmosphere that allows for immediate, positive experiences and in which the basic psychological needs for autonomy, competence and relatedness are satisfied.

21. The selection of young U17 footballers through physical and technical evaluation

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Introduction: This study aims to make a comparative study of the physical and technical performances between young U17 Algerian footballers and their Egyptian counterpart. We compared these results with the study. **Selection**: is the process for selecting the best athletes; to represent their city or region, or their country in national or international competition. **Methods**: These tools are designed to be used in decision making, evaluate psychological, social, health, andsports characteristics. Population: 35 young children aged 17 (SD: +/- 5 months). Practicing football for over 10 years at the regional level. Procedure: six tests were carried out four physical tests (Ball launch force, 1500 m, 50 m speed test, test sergeant test) and two technical tests (Akramov test ball test, precision test on a variable target: 30 cm, 50 cm and 70 cm over distances of 16m50, 25m and 30m). Experience lasted 5 days each day we performed a test: 1 day 1500 m, 2 day speed, 3 strength test and 4 day sergeant test, 5 day Akramov and precision test. The tests were carried out individually. For each test three tests were on the other hand a test only for the 1500m.**Conclusions**: proposed batteries of tests for use at national and international levels; imposed the physical and technical tests in the selection procedures and in the training to evaluate the sport level; training of specialists in sports physiology; posted the evaluation results of players to improve are nivaux.

22. Characteristics of physical activity interventions and effects on cardiorespiratory fitness in children aged 6-12 years – a systematic review

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Introduction: Over recent years, children have become less physically active and their cardiorespiratory fitness (CRF) has decreased markedly. Low levels of physical activity (PA) and CRF leave children at risk for cardiovascular disease and negatively affect psychological and cognitive functioning. Acknowledging these concerns, a wide range of PA interventions have been developed over the years. The aim of this systematic review is to examine the characteristics of PA interventions and the effects on CRF in healthy children using treatment theory. **Methods**: PubMed and Embase were searched for studies published in 2003-2016. Inclusion criteria were: - Participants: healthy children aged 6-12 - Interventions: interventions with activities to increase PA behaviour or physical fitness regardless of setting - Control: no or alternative intervention - Outcome: exercise-based CRF measure with appropriate analysis of CRF effects - Study design: randomized controlled trial Treatment theory was used to systematically unravel the components of the interventions (targets, mechanism of action, essential active ingredients, dosing parameters) included in the review. Effect size was calculated using dppc2 and the methodological quality of the studies was assessed using the PEDro scale. **Results**: Of 1002 studies screened, 23 met the inclusion criteria. Thirteen studies found statistically significant improvements in CRF and eight studies showed medium to high effect sizes. Interventions with medium to high effect sizes focused more often on physical fitness than PA behaviour, had slightly higher frequencies of activities and a shorter duration than the less effective interventions. **Conclusions**: The fact that thirteen studies demonstrat-

ed statistically significant improvements in CRF is promising but also emphasizes the need to keep improving research methods and the development and execution of interventions. Treatment theory may improve development, evaluation and comparison of interventions and may systematically enhance our understanding of what constitutes effective intervention. Interventions with larger effect sizes appear to be more controlled, as they usually relied on smaller sample sizes and the components of these interventions encompassed protocolled training sessions which defined and monitored the relative training intensity intended. A duration of at least six weeks and a frequency of three to four times a week is recommended.

23. Acute physiological, affective and enjoyment responses to apparatus-free protocols of high-intensity intermittent exercise in inactive females

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Introduction: Despite well-founded health benefits of cycle ergometer-based high-intensity intermittent exercise (HIIE), its efficacy as a public health strategy has been questioned. This is due to factors including requiring access to specialist apparatus. Furthermore, affective and enjoyment responses to HIIE are important for sustainability. The purpose of this study was to examine whether two acute, apparatus-free HIIE protocols could elicit similar acute physiological responses and preferable affective and enjoyment outcomes compared with a traditional, cycle ergometer-based HIIE protocol, in inactive females. **Methods**: Sixteen inactive females (BMI 25.6 ± 4.2kg•m2, age 35 ± 11 years, activity 1123 ± 594 MET minutes•week-1) completed three exercise conditions using a counterbalanced, cross-over design. Conditions consisted of 4x30-second bouts of either: high-intensity cycling (CYCLE, "all-out" sprint on a cycle ergometer); high-intensity squatting (SQUAT, bodyweight squats with a 5kg weighted arm extension); high-intensity star jumps (JUMP, "all-out" star jumps). Capillary blood was sampled at regular time points for the determination of blood lactate concentration and plasma volume. HR, RPE, affect (using the Feeling Scale) and enjoyment (using the Physical Activity Enjoyment Scale) responses were also measured. **Results**: No significant differences in HR immediately following exercise were seen between CYCLE (166 ± 11bpm) and JUMP (163 ± 13bpm). HR was significantly lower in SQUAT (159 ± 15bpm) compared with CYCLE. HR values exceeded 80% age-predicted HRmax after the second bout of each condition. Blood lactate concentration, corrected for changes in plasma volume, was significantly greater following CYCLE (10.6 ± 2.0mmol•L - 1) than JUMP (7.4 ± 2.5mmol•L - 1) and SQUAT (5.0 ± 1.6mmol•L - 1). Both SQUAT and JUMP were perceived significantly more pleasurable immediately following exercise, and significantly more enjoyable compared with CYCLE. **Conclusions**: By the midpoint of each condition, both apparatus-free HIIE protocols exceeded the target HR threshold of 80% age-predicted HRmax, associated with "high-intensity" intermittent exercise (Kravitz, 2014). JUMP achieved statistically similar HR responses to a typical cycle ergometer-based HIIE protocol. Both JUMP and SQUAT were more pleasurable and enjoyable than CYCLE. This study enhances the understanding of the potential acute physiological, affective and enjoyment responses to differing HIIE protocols in inactive females, which may infer important implications for effective physical activity strategies.

24. Government spending on physical activity and sports in Brazil from 2004 to 2015

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Introduction: An important tool to understand the public policy of physical activity and sport of a government or country is to verify the public expenditure. Thus, the objective in this study was to analyze the expenditure on physical activity and sport from 2004 to 2015 by the federal government of Brazil. **Methods**: A documentary research was carried out, and data were collected from SIGA Brazil, e-SIC, Caixa Econômica Federal report and tax expenditures reports. The period of the research was from 2004 to 2015, with all values deflated at 2015 prices. **Results**: The federal government of Brazil spent on physical activity and sport R$ 29.69 billion, from 2004 to 2015. This value was spent on five categories. The high-performance sport (referring to the training of professional athletes) was the category that received the most resources (R$ 7.41 billion). The second largest expenditure was physical activity and sports for the population (R$ 6.98 billion), carried out by non-profit organizations and by government programs. Infrastructure of physical activity and sport spent R$ 6.52 billion to

build/remodel equipment to practice physical activity and sport for the population and for high-performance sports. The major sporting events (R$ 3.88 billion) were the organization and infrastructure expenses of the events: Pan-American Games of Rio 2007 (R$ 1.82 billion), Military World Games 2011 (R $ 1.42 billion), FIFA World Cup 2014 (R$ 0.64 billion) and Olympic Games of Rio 2016 (R$ 2,52). The lowest expense was with sports management (R$ 2.35 billion). **Conclusions**: This was the first research in Brazil to identify all federal government spending on physical activity and sport. High-performance sports and major sporting events have become a priority for the federal government, due to the visibility that makes it possible for the country. Physical activity and sports for the population received the smallest part of the federal spending what indicates that the government does not prioritize the area which should be the most important in the public policy.

25. Rugby School and Education at the Club INEF. A Case Example of a Sports Club for Health in Lleida, Catalonia

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Introduction: Sports clubs as settings for health promotion are an example of community-based settings suggested to target population aside from clinical-based settings (S. Kokko, 2014). The Sports Club INEF, based in Lleida (Catalonia) offers seven sports modalities for participation and, among those, rugby stands for the keystone of the Club. Since 2014-15 the rugby section launched the 'Rugby School and Education' aimed at provide youth athletes a comprehensive, sustainable and health-related sports participation. This poster describes the nine strategies of the approach. **Activities undertaken**: Regarding comprehensive sports participation: 1) Sport learning. Educational programme based on the fundamentals of rugby and technical tasks on opposition and body contact; 2) Tailored and variability of practice. Tasks are undertaken in several facilities (e.g., rugby pitch, artificial turf, sand pitch, pool, gym); 3) Strengthen social links. Club legends, first XV players and parents participate in youth leisure and sport activities. Related to sustainable participation: 4) Long-term development plan, based on maturate age of motor and coordinative abilities. 5) Family welfare. The amount of participation hours is increasing as the youth grows. Related to health-related sports participation: 6) Individual support, for youth with special needs (e.g., emotional, cognitive, behavioural, physical); 7) Safety. All U-18 players must wear rugby headgear and mouthguard for training and competition; 8) Youth health. All athletes undergo a pre-participation health screening by a medical doctor and receive individually diet recommendations for training and competition days; 9) Parents' school. Educational programme including tag rugby games, first aid, equipment care and laughter therapy. **Results and Conclusion**: For the 2017-18 season 130 youth participate in the project, distributed in the Rugby School (from 6 to 11 y) and Rugby Training and Education (from 12 to 17 y). This practice-based project did not include data collection for further analyses, but according to the new trends on health-oriented club settings in Europe it may be worth considering for the future to target strengths and weaknesses and to compare with other interventions (Sami Kokko et al., 2015).

26. Effect of 32 weeks of resistance plus multicomponent exercise training on cardiovascular risk factors in community-dwelling older adults

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Introduction: Cardiovascular diseases (CVD) are the leading cause of mortality and a great contributing factor for the high morbidity observed on old ages. Evidence suggests that exercise training can improve CVD risk factors. Although exercise training interventions have proven to positively impact most of the risk factors associated with CVD, it is still unclear whether this health benefits may be observed in different types of exercise training programs, which do not focus in a single intervention (i.e., aerobic training or resistance training alone). Therefore, this study aimed to evaluate the effects of a combined exercise training program on a set of cardiovascular risk factors, including body composition and metabolic and immunological parameters in older men and women. **Methods**: Thirty-five older adults of both sexes, aged between 61 and 84 years (mean age = 68.7 ± 5.3 yrs) participated in an exercise training intervention that included resistance exercise training (2 days/week, session duration = 60 min) plus a multicomponent exercise training (1 day/week, session duration = 60 min) for 32 weeks. Outcome measures, before and after training included: i) whole-body composition as-

sessed by dual X-ray absorptiometry; ii) concentrations of total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL - C), triglycerides (TG) and high sensitivity C - reactive protein (hs-CRP) assessed by Cholestech LDX® Analyzer; In addition, accelerometer-based habitual physical activity was also assessed with Actigraph GT1M devices during 7 days. Student t-test for dependent measures was used and the level of significance was maintained in 5%. **Results**: Our main results showed statistically significant improvements in metabolic and immunological parameters, in particular, TG levels decreased 18,4%, ($p = 0,015$) and hs-CRP decreased 27,7% ($p = 0,02$). No significant changes were observed in all cholesterol lipoproteins (TC, LDL - C, HDL - C) neither in body composition (BMI, %fat mass, % lean mass) after training in these community–dwelling older adults. Moreover, there were no significant differences in habitual physical activities indexes. **Conclusions**: In summary, a moderate-intensity 32-week training program comprising resistance and multicomponent exercise sessions 3 times per week may decrease the risk of developing cardiovascular disease during old age. Support from IPDJ and CIAFEL is Supported by FCT with grant UID/DTP/00617/2013.

27. A whole systems approach to physical activity across a city: using systems thinking to plan interventions and their evaluation

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Introduction: Achieving sustained increases in population-level physical activity remains a significant challenge. Strategies at international, national and local levels call for concerted cross-sectoral collaboration to plan and implement programmes to drive coordinated actions across an area. However, the majority of the evidence for the effectiveness of interventions to promote physical activity is on individual-level, short-term interventions. The evidence base only rarely takes account of the complex dynamic systems that exist within communities. There is an increasing focus on a 'whole systems approach' by researchers and funders. We used system mapping to depict the physical activity system in partnership with stakeholders involved in a city-wide physical activity programme in England. This was used to help develop a whole systems approach to both programme planning and evaluation. **Activities undertaken**: We reviewed the activities being planned or implemented in the city-wide approach. At a one-day stakeholder meeting we used a generic systems map for approaches to physical activity promotion at city level as the basis for discussion. Working with stakeholders we used the map to help answer four questions: 1) how well does this generic map describe the system in this city? 2) how should the map be amended to provide a more accurate picture of the local system? 3) Where do your existing activities fit on the map? 4) What data do you currently collect, and what other data would be worth collecting? **Results**: Following the consultation we were able to draft a revised system map that shows all the activities being implemented across the city, and the data being collected. In this case study city, this exercise showed that the current plans were heavily skewed to one part of the overall system. This allowed identification of potential future areas for action, and additional data that could be collected to improve the quality of the evaluation. **Conclusions**: Mapping the physical activity system can be a very effective tool to support stakeholder consultation, to move intervention planning closer to a whole systems approach, and to promote more robust evaluation.

28. Implementation and impact of in-class physical activities in a positive mental health perspective

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Introduction: School physical activity and other activities with the body in focus hold the potential to benefit student's positive mental health and psychosocial well-being. In-class activities (ICAs) (e.g. energizers, active breaks, brain breaks) can positively influence social connectedness, physical self-perception, motivation and emotions. However, if all students are to benefit from the potential qualities of ICA, an inclusive environment is crucial. The purpose of this study was to investigate the implementation and impact of ICA in Danish public schools. **Methods**: ICA is one of three intervention components in the RCT-designed 'Move for well-being in school' research program. The program comprises 2797 students 9-13 years old on 12 intervention schools and 12 comparison schools. During a full school year ICAs should be delivered two times every day focusing on four different aims: social interaction, energizing, coordination and wellness. A mixed methods design was used to evaluate the intervention comprising questionnaires and interviews with teachers and students. The collected data was used to assess the degree of implementation; perception of advantages and pitfalls of ICAs; and the

impact on students' school well-being. **Results**: ICAs were implemented on all participating schools with an average of almost seven brain breaks/class/week. ICAs were well received by most students and teachers, but with substantial variation between schools. It was found that it was necessary for the implementation, that ICAs were planned and scheduled in the timetables. A successful approach was to prepare students in relation to the timing of ICA and inform them about the subsequent assignment to increase on-task behavior after the ICA. Teachers succeeded in creating a inclusive environment, if they were aware and able to explicitly frame the purpose of the activities, and thereby motivating the students to collaboration and increase awareness and acceptance of their different needs, preferences and competences. **Conclusion**: When teachers are able to create the right inclusive environment, ICA is a viable tool to promote positive mental health and well-being in schools for all students. For many teachers, ICA is a challenging task, which calls for both competence development, supportive structures, materials and local school leadership.

29. Physical Activity, Sedentary Time, and Fatness in a Biethnic Sample of Young Children

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Introduction: The nature of associations between movement behaviours and body composition in early childhood remain poorly understood. This study investigated associations of objectively-measured physical activity (PA) volume and intensity, and sedentary time (ST), with body composition in a predominantly bi-ethnic (South Asian and White British) sample of young children from a deprived urban setting. **Methods and results**: The sample included 333 children aged 11 months to 5 years (mean ± sd: 3.3 ± 0.9y) who provided 526 cross-sectional observations for PA and body composition. Total PA volume (counts per minute (cpm)), daily time at multiple fine-grained intensity levels (the cumulative time in activity > 500 cpm, > 1000 cpm, >1500 cpm and so on up to > 6000 cpm), and categories of time spent sedentary (6000 cpm: - 1.57 (- 3.01 to - 0.12) mm per 20 min/d). These results were largely consistent with categorical analyses, as substituting 20 min/d of ST with MVPA was associated with a lower sum of skinfolds (- 0.77 (- 1.46 to - 0.084) mm) and shifting 20 min/d from light PA to MVPA approached significance (- 0.82 (- 1.71 to 0.062) mm, p = 0.068). **Conclusions**: High light-intensity PA appears to be beneficial for body composition in young South Asian and White British children, but higher - intensity PA is more advantageous. Public health bodies might consider basing activity recommendations purely around the concept of dose dependent relationships.

30. Cross-Sectional Associations of Objectively-Measured Physical Activity and Sedentary Time with Body Composition and Cardiorespiratory Fitness in Mid-Childhood: The PANIC Study

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Introduction: The minimum intensity of physical activity (PA) that is associated with favourable body composition and cardiorespiratory fitness (CRF) remains unknown. The objective of this study was to investigate cross-sectional associations of PA intensities and sedentary time (ST) with body composition and CRF in mid-childhood. **Methods**: PA, ST, body composition and CRF were measured in a population-based sample of 410 Finnish children (aged 7.6 ± 0.4y). Combined heart-rate and movement sensing provided estimates of PA energy expenditure (PAEE, kJ/kg/day) and the cumulative time (min/day) above single metabolic equivalent levels (i.e. the total time spent in activity above 1 MET (5.5 ml O2/min/kg), 2 METs, 3 METs and so on up to >7 METs), which were also collapsed to ST (≤ 1.5 METs), light PA (LPA: 1.5 – 3 METs), moderate PA (MPA: > 3 – 6 METs) and vigorous PA (VPA: > 6 METs). Fat mass index (FMI, kg/m2) and trunk fat mass index (TFMI, kg/m2) were derived from dual-energy X-ray absorptiometry. Maximal workload from a cycle ergometer test provided a measure of CRF (W/kg FFM). Linear regression and isotemporal substitution models adjusted for covariates including demographic and dietary factors, birth weight, parental BMI, and mutually adjusted for body composition and CRF, were used to investigate associations. **Results**: The cumulative time above 2 METs was inversely associated with FMI and TFMI in both sexes (p < 0.001) whereas time spent only above 3 METs was positively associated with CRF (p ≤ 0.002); CRF increased and adiposity decreased dose-dependently with increasing MET intensities. ST was positively associated with FMI and TFMI (p < 0.001) but there were inverse

associations between all PA categories (including LPA) and adiposity ($p \leq 0.002$); the magnitude of these associations depended on the activity being displaced in isotemporal substitution models but were consistently stronger for VPA. PAEE, MPA and to a greater extent VPA, were all positively related to CRF ($p \leq 0.001$). **Conclusions**: PA exceeding 2 METs is associated with lower adiposity in mid-childhood, whereas PA of at least 3 METs is required to benefit CRF. VPA was most beneficial for fitness and fatness, from a time-for-time perspective, but displacing any lower-for-higher intensity may be an important first-order public health strategy.

31. Effect of Judo Training on Body Image in Older Individuals

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Introduction: Body image varies along the aging process, especially in women. Actually, body image is a complex and multidimensional construct, with physical activity having positive effects. Thus, the aim of this study was to investigate changes, if any, of a 4 - month judo training (1 - hr session, twice a week) on Body Mass Index (BMI) and body image in older individuals (age: 60 -76 yrs). **Methods**: The experimental group (JG) included 19 (F = 9, M = 10) participants to a 4 - month judo programme, whereas the control group (CG) encompassed 14 (F = 5, M = 6) sedentary controls (CG). Estimated and measured BMI and the four indexes (Body Dissatisfaction-BD, Sexual Body Dissatisfaction-SxBD, Comparative Body Dissatisfaction-CBD, and Absolute Body Dissatisfaction Index-BDI) of the Body Image Dimensional Assessment (BIDA) were considered the experimental variables. A 2 (Gender: females and males) x 2 (Group: JG and CG) x 2 (Intervention: pre and post) ANOVA for repeated measures was applied ($p < 0.05$). **Results**: Main effects emerged for BMI (estimated: 25.8 ± 3.1kg·m - 2; measured: 26.8 ± 3.1kg·m - 2; $p < 0.0001$) and for Gender (females: 24.9 ± 3.1kg·m - 2; males: 27.5 ± 2.5kg·m-2; $p = 0.003$). A BMI x Group x Gender x Intervention interaction ($p < 0.0001$) was found. For measured BMI, post hoc analysis maintained a difference ($p = 0.004$) only for male experimental subgroup (pre: 27.9 ± 2.2kg·m - 2; post: 26.9 ± 2.3kg·m - 2). For BIDA, the BDI resulted 18.6 ± 7.6pt for the JG and 20.6 ± 7.8pt for the CG, respectively. Main effects emerged for Gender ($p = 0.036$), especially in relation to SxBD (females: 13.0 ± 17.2pt; males: 26.1 ± 15.0pt; $p = 0.006$), and for Intervention ($p = 0.009$), especially related to BD ($p = 0.003$), with reduced values for the post condition (23.9 ± 12.4pt) with respect to the pre one (26.8 ± 3.1pt). **Conclusions**: Findings indicate that older individuals tend to underestimate their BMI. In general, BDI resulted comparable with that reported for sedentary co-aged individuals, with a large inter-individual variability. With respect to the male counterparts, women presented lower levels of SxBD, in line with their lower BMI values. Being body image a complex construct, the positive effects of a 4 - month judo programme on BMI were not sufficient to determine significant variation in the participants' body dissatisfaction suggesting a need of a prolonged engagement in physical activity.

32. "There's so many ways to be active" - Results of a Feasibility Study Involving Adolescent Girls in the Design of a Physical Activity Intervention

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Introduction: The majority of adolescent girls do not meet the physical activity (PA guidelines) and the effect sizes of PA interventions for this cohort to date have been small. There is very little research which involves adolescents in the design and development of PA interventions. This study assessed the feasibility of a study involving adolescent girls in the design of a PA programme. **Methods**: 31 students aged 15 - 17 years were recruited from a post primary school in Ireland. The design of the intervention was guided by the Behaviour Change Wheel (BCW). Focus groups and questionnaires were used to gain an insight into the participant's views on PA and their capability, opportunity and motivation for change. PA levels were assessed at pre and post-intervention using the Physical Activity Questionnaire for Adolescents (PAQ-A) and pedometers worn for 7 days. Feasibility benchmarks were defined in advance to assess recruitment, data collection, acceptability and adherence. **Results**: The 6 week intervention included PA sessions and educational sessions delivered during physical education class and a home based component. Participants were given individualised and progressive step count targets each week. Average attendance at sessions was 87% (benchmark = 80%). Eligibility of participants was 61% (benchmark = 60%). There was a 100% retention rate with no participants withdrawing from the study. All participants (n = 31) completed the baseline questionnaires and focus groups, with 100% of participants invited to participate in post-intervention focus groups taking part. Post intervention questionnaires were completed by 71% (n = 22) of participants. Over half (54% or n=17) students completed pedometer measurements, with 32% (n = 10) students with complete data. Average steps per day were 13,121 pre intervention and 14,128 post intervention ($P > 0.05$). The PAQ-A results also increased from a mean score

of 2.39 pre intervention to 2.51 post intervention (P > 0.05).Each data collection measure was deemed feasible, receiving a mean score > 4 out of 5 (benchmark > 3.5 out of 5). **Conclusions**: This study shows the successful use of the BCW in co-creating a PA programme with adolescent girls. Predetermined benchmarks assessing feasibility were reached or exceeded, providing strong evidence for the development of a full randomised controlled trial.

33. Health promotion as an unscrupulous calculation How to apply professional toolkits for "mind management" on the field of physical activity

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Introduction: In Europe, so far, health promoters have relied on the power of common sense, and on the power of persuasion. With moderate success. A desirable lifestyle change as a goal is a communication and not an agitation task, since it is almost hopeless to shepherd the common, private life of individuals of a social level massively in one direction, in other new ways. **Activities undertaken**: How can be the spreading of physical activity formed into a deliberately directed process? - The question has been asked for two decades by a team of physical educators and communication specialists in Hungary, when they experimentally set up an editorial workgroup, which established step by step a global communication system to promote the physical activity. Thus, Europe's first television sport for all magazine was launched in the Hungarian Television. The weekly programme – with certain special editions – won higher audience rate (AMR) on the screen as the prime time crime stories, news and football games. The parallel weekly program on the Hungarian Radio and weekly column in the largest national newspaper joined the project. First children's outdoor sport tv-programme in Europe. Number of mutations in a digital newspaper has been created to reach certain key target groups (e.g. school and workplace environments). Developed a complete database management and info-service system for Hungarian recreational sports. Events and festivals were born. (European Physical Education Picnic, Challenge Day + 364 Sport Festival). **Results and conclusions**: What was the secret of success? The early conclusion is that the means of persuasion and agitation need to be avoided. Conversely: must be operated co-ordinated elements of the communication's systems and on this way produced the unambiguous brand of active health. A Zöldpont MPAS give an itemized review, how did it prove that everyone's sports are saleable, and can be even successful in the media. It presents a complete resume of the methodology of adaptation: How can a view-forming program be maintained, constantly renewed? Finnaly: Manipulation or consciousness formation? - These questions are also answered by the colourful presentation, which in addition to a good practice, also offers new tools for those are interested.

34. HIIT@WORK: designing a feasible and acceptable High Intensity Interval Training intervention for desk-top workers in an office setting

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Introduction: Although physical activity is known to improve health and wellbeing, still only about one third of the European citizens exercises enough. A lack of time is an often cited barrier. High Intensity Interval Training (HIIT) is an innovative training method which has been shown to be at least as efficient to enhance one's health and physical performance as the standard recommended moderate intensity continuous training. Moreover, HIIT is low in time demand and therefore it has a lot of potential as a health-enhancing intervention. However, it is still a question how it can be successfully implemented outside a laboratory or sports hall setting. Therefore, in this practice-based research we aimed for designing a HIIT@WORK intervention, based on the Tabata-protocol, which is both feasible and acceptable for desk-top workers in an office setting. **Methods**: Both qualitative as quantitative design research methodology was used to get more insight into the design principles of the program: (1) Semi-structured interviews (n=50) with desk-top workers to get insight in their expectations for workplace-based exercise interventions and to create design persona's ; (2) A research on the business context within 10 very diverse (small and big, local and multinational) companies to get insight into the practical setting of workplace-based exercise interventions; (3) Designing several prototypes (ranging from interventions of 1 training, 1 week or 4 weeks) and a motivational framework to promote participation (including both individual as team-based interventions); (4) Try-outs within more than 750 test persons, in which both written questionnaires and semi-structured interviews were used for evaluation. **Results**: HIIT@WORK is a feasible, implementable and highly acceptable exercise intervention. The high frequency (4 days/

week) but not the high intensity was perceived as a potential barrier. Strong points were the short duration, skilled trainers, the high level of variation, the motivational framework and the low need of sports materials or clothes. **Conclusions**: HIIT@WORK is found to be a feasible and acceptable exercise intervention. In future designing activities we should work on increasing flexibility and durability of the program, including reaching out to all persona's, and on integrating HIIT@WORK within a broader health policy in a company.

35. Population-wide objectively measured physical activity monitoring: an overview of possibilitie

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Introduction: To inform policymakers, physical activity (PA) and sedentary behaviour (SB) are mostly monitored by questionnaire. Ongoing developments in the field of objective measurement increasingly challenge this approach. In this study, we explored the current possibilities and barriers to switch from population-wide subjective to objective monitoring of PA and SB. **Methods**: We performed a literature search in EMBASE and SCOPUS to identify articles that described the various currently available objective instruments and tested their clinimetric properties, like posture and counts/minute. The statistical outcome measures for validity, reliability and/or responsiveness were converted into three categories, i.e. 'excellent', 'moderate', and 'poor'. Additionally, using a semi-structured protocol, 13 experts in the field were interviewed to gain in-depth insight into the application, practical issues, and possibilities for large scale monitoring. **Results**: Fifty-four studies reporting on 42 different objective measures were included. The majority of studies (N = 21) examined the clinimetric properties of the Actigraph, followed by the ActivPAL (N = 9). The least was known about other specific research devices or consumer activity trackers. The Actigraph had a moderate validity regarding posture and SB, and showed excellent validity on count measures. The reliability and responsivity were scored excellent and moderate. The validity of the ActivPAL measuring posture, transitions and standing time was moderate, whereas the validity for sedentary behaviour was excellent. Responsibility and responsiveness could not be determined of the ActivPAL. Most experts used the Actigraph because of its validated PA measurements and international comparability. Others, however, preferred the ActivPAL for its ability to measure SB more accurately compared to the Actigraph. Not many problems were mentioned by the experts regarding wearing properties. Based on our review, no conclusion can be drawn about the validity of consumer activity trackers, one big advantage mentioned by the experts of wrist-worn consumer activity tracker was the wearing comfort,. Nevertheless, most researchers advised the Actigraph or ActivPAL for nation-wide objective monitoring. **Conclusions**: The Actigraph and ActivPAL are most frequently used in research, are valid devices for assessing PA and SB and may therefore be considered for large-scale / nation-wide objective measurement.

36. Communities of Practice for Healthy Lifestyle (COP4HL)

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Introduction: Promoting Healthy Ageing, and specifically an Active & Healthy Lifestyle, is one of the biggest societal and economic challenges the EU is facing. A paradigm shift from health care and cure to prevention is essential since the traditional ways have proven to be insufficient to solve this complex problem. Purpose of the COP4HL project is to develop and implement an impact-driven multi-sector approach that develops innovative products and services to promote Healthy Lifestyle in different EU settings. Design, methodology and main deliverables of this innovative Erasmus+/Knowledge Alliance project (2017 – 2020) will be presented. **Activities undertaken**: During this 3 - year project, a consortium consisting of 17 partners from 7 EU Member States has been formed. In 5 countries (NL, DEN, ESP, POR, LIT), a Knowledge Alliance is composed of higher education institutes and businesses, supported by public authorities, who are accepting the need of co-creating knowledge to stimulate innovation for an Active & Healthy Lifestyle. Together they develop communities of practice that are organized as learning partnerships. **Results**: The COP4HL project will deliver a European COP Support Lab and a European COP Alliance are developed that facilitate the set-up of COP and a sustainable flow of knowledge. An open access Community Knowledge Hub that provides pilot - tested formal and informal blended learning material for managing COP and implementing interventions. Furthermore, an intensive programme will be developed to stimulate entrepreneurial skills and innovation. Finally, a methodology will be designed to measure impact of local communities of practice in the field of Healthy Lifestyle. **Conclusions**: By linking a strategic European point of view, with practice-based problem - solving through Local COP, the Knowledge Alliance applies a unique holistic approach. This allows shifting behaviors to an Active & Healthy

Lifestyle, and leads to a more integrated set-up of the sectors behind. **Acknowledgements**: this project is co-financed by the Erasmus+/Knowledge Alliance programme of the European Union (587982-EPP-1-2017-1-NL-EPPKA2-KA).

37. Physical activity, quality of life and health literacy: A pre-post-evaluation of a workplace-related lifestyle intervention for employees with health-related risk factors

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Introduction: Chronic diseases are an acknowledged risk factor for early retirement. Workplace-related interventions for employees are expected to maintain workers' health and working ability. The German Pension Fund Rhineland (GPFR) developed a multimodal workplace-related intervention aiming at improving a healthy lifestyle for employees with health-related risk factors. The objectives of the present evaluation are to analyze (1) if the intervention of the GPFR reached a relevant target group for health promotion and (2) how health-related outcomes change during this intervention. **Methods**: The present interim evaluation includes 134 participants and was conducted within the frame of the AtRisk-study. The participants answered a questionnaire on sociodemographic variables, diagnoses (WAI), physical activity (PA) (GPAQ), health-related quality of life (HRQoL) (EQ-5D-5L) and health literacy (HL) (HLQ) at baseline and after 16 weeks at the end of the intervention. Descriptive statistics were used to describe the sample characteristics. Differences in PA, HRQoL and HL over time were tested using the Wilcoxon signed-rank test. **Results**: 58 (43.3%) participants were male and the mean age was 48.3 (± 10.8) years. The mean body mass index was 29 (± 5.9) km/m2. 85.1% reported minimum one diagnosis. The total PA improved statistically significant from 793.3 ± 1102.3 to 870.6±1165.7 min/week ($n = 91$; $p = 0.028$). The average value of the visual analog scale of the EQ - 5D - 5L increased statistically significant from 69.6 ± 15.2 to 76.6 ± 13.0 ($n = 134$; $p < 0.001$) during the intervention. Also the third subscale "actively managing my health" of the HLQ ($n = 128$; $p < 0.001$) improved statistically significant over time. **Conclusions**: The workplace-related intervention has the potential to reach a relevant target group for health promotion. The present interim pre-post-evaluation indicates an improvement of health behavior, quality of life and health literacy. Further studies on the effectiveness of the intervention due to a control group are planned.

38. Assessing social networks and social support for physical activity of participants in counselling programmes for physical activity

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Introduction: Knowing and understanding the social networks of participants in counselling programmes for physical activity (PA) is important for the programme's success and maintaining of PA habits of the participants. It allows evaluation of the impact of social support for PA on participant's physical activity and thus can contribute to a more integrated treatment approach. **Methods**: A research tool was designed for the assessment of egocentric social networks and social support for PA of participants in health-educational workshops "I'm moving". In a pilot study validity, reliability and usefulness of the research tools were assessed. The approach of quantitative analysis of egocentric social networks and image display by using computer programs for social networks analysis were presented. The use of the research tools and analysis approaches were tested and presented in a case study on social support for physical activity and it's impact on physical activity of the participants in three selected health-educational workshops "I'm moving." **Results**: The research tool for assessment of egocentric social networks and social support for PA has adequate validity and reliability and is suitable for the use in health-educational workshops "I'm moving" and family medicine practices. With quantitative analysis of egocentric social networks information on the size, composition and structure of the network can be obtained. The described computer programs for egocentric social network analysis vary in the extent of information on network's actors in their connections being displayed in the network figures. Choosing a computer program depends on the purpose of the analysis and the use of the results. The pilot study also showed that the research tool with the described analysis approach is suitable for assessing the impact of social support for PA on PA habits, and thus the success of the workshop and counselling programs for PA. **Conclusions**: The presented research tool applies analysis of egocentric social networks in connection with health related factors. It enables assessment of egocentric social networks and social support for PA of participants in counselling programs for PA. The results are useful in evaluating the performance of programmes, such as in the design of individual treatment programmes.

39. Live Well: An evaluation of a specialist weight management programme for obese adults

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Introduction: Rising UK obesity levels are creating major challenges for healthcare services treating the issues and associated risk factors (Brown et al., 2015). Weight management programmes (WMPs) are acknowledged by the National Institute of Health and Care Excellence (NICE; 2014) as the "treatment of choice" (p. 18) for obesity as they encourage behaviour change strategies. Live Well is a unique WMP for adults with a body mass index (BMI) of > 45 run by East Riding of Yorkshire Council, which aims to empower people to make long-term exercise and dietary changes through a 26-week individualised programme. The purpose of this evaluation is to explore the effectiveness of the Live Well and compare programme outcomes to other commissioned and commercial UK WMPs. **Methods**: Secondary data taken from 2010 - 2014 comprising 577 participants (men = 169; women = 408) was analysed to explore: programme adherence, weight loss, and physical activity levels, along with secondary measures of obesity, including BMI, waist circumference, waist-to-hip ratio and blood pressure. **Results**: 79.4% (n = 458) of participants completed Live Well. Participation resulted in a mean 8.71kg (6.33%) weight loss, BMI reduction of 3.06kg/m2, 9.18cm waist circumference reduction, significant reduction in blood pressure, systolic (M = -7.16 mmHg, SD = 15.08 mmHg) and diastolic (M = -4.19 mmHg, SD = 13.21 mmHg), and an average 136.13 minutes/week increase in physical activity. Change in physical activity levels negatively correlated with change in weight ($r = -.204$, $n = 347$, $p < 0.001$), BMI ($r = -.205$, $n = 347$, $p < 0.001$) and waist circumference ($r = -.236$, $n = 165$, $p = 0.002$). **Conclusions**: Live Well is a strong contender for the most effective UK WMP. In comparison to other WMPs, Live Well shows better outcomes across weight loss, adherence and engagement with physical activity. However evaluation was challenging due to inconsistent approaches and reporting observed within all UK WMPs, which highlights a need for more standardised protocols in measuring and managing obesity.

40. BODE index score is related to time-use composition in people with COPD

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Introduction: The BODE index is a measure of disease severity in people with chronic obstructive pulmonary disease (COPD). Understanding the relationship between BODE and daily time use may provide important insights for potential targeted intervention strategies in this population. However, the relationship between BODE and daily time use is yet unknown. **Methods**: 135 people with clinically stable GOLD grade II-IV COPD (post-bronchodilator FEV1 ≤ 80%predicted, FEV1/FVC < 0.7) were recruited into this cross-sectional study. Participants were excluded if they had: significant cognitive impairment; clinically unstable COPD; co-morbidities that rendered exercise unsafe; or were waitlisted for lung volume reduction surgery or lung transplantation. Demographics (age, sex, BMI, residential postcode), objective measures of function (physical activity, physiological impairment), and self-reported COPD-related impairment (comorbid health conditions, breathlessness, quality of life) were assessed during a clinic appointment. In the week following this visit, participants wore accelerometers and two computerised 24-h time-use recall interviews were conducted to record patterns of habitual activity using an instrument (Multimedia Activity Recall for Children and Adults (MARCA)) previously validated for people with COPD. **Measures**: BODE index score calculated from: BMI (measured height and weight); FEV1 as a percentage of the predicted value; self-reported extertional dyspnea on the modified Medical Research Council (mMRC) scale; distance walked in six minutes. Time use: 24-h recall (MARCA). **Analysis**: Linear multiple regression models, with BODE index as the predictor, and the time-use composition (expressed as isometric log-ratios) as the dependent variable. Covariates included age, sex, socioeconomic status, smoking status and comorbidities. **Results**: BODE index was a significant predictor of the time-use composition ($p < 0.0001$). Specifically, a higher BODE index predicted more time in quiet time (reading, listening to music) ($p < 0.001$), screen time ($p < 0.001$) and self-care ($p=0.002$), and less time in chores ($p < 0.001$) and household administration ($p = 0.015$), all relative to the remaining time-use domains. **Conclusions**: The BODE index is strongly associated with time use in people with COPD. Activities identified as key correlates with disease state (i.e., BODE index) were chores, screen time and quiet time. This suggests that interventions aimed at optimising chores and reducing screen and quiet time could be beneficial in this population.

41. Brighter side of Exercise

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Introduction: The main goal of the "Brighter Side Of Exercise" Project is to raise awareness about the importance of health- enhancing physical activity in treating anorexia and its role in the process of (re)integration into the society. **Activities undertaken**: Through the cooperation of 14 organizations from 14 EU countries, the project shall first analyze the problem of anorexia and physical activity (in its double function in this problem) in order to develop a pilot project of moderate physical activity in the phases of therapy and post-therapy which shall be implemented during a sport event. All activities shall take place during the week of sport in the second half of September 2017 on one hand, and on the other, during the meetings and exchanges which will be organized before and after the sports events. The sport manifestation will gather more than 150 people in treatment or post-treatment for anorexia which will represent the very first event of this kind. **Results**: The Project shall contribute to the acquisition of knowledge and best practices in various contexts in which the physical activity promotes general health and influences the social inclusion directly. People that shall participate in the one-year program are the professionals with specific knowledge about the problem of anorexia and it is the multidisciplinary approach that will enable the creation of a coherent framework, both the normative and the best practices one, on the EU level. **Conclusions**: A narrow cooperation with sport clubs/organizations/associations shall be established so that they would be familiar from the start with the problem which is very little known of and, because of the nature of the disease, very little spoke of, in all countries with the participating sending organizations head offices. We wish to create a basis for the establishment of testing platforms with the aim of raising awareness both in professionals from various sectors (especially fitness and sport clubs) and in afflicted or borderline people.

42. When the Welsh Dragon Roars: the passion of Parc Eirias and Leisure Services

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Introduction:Parc Eirias, (Colwyn Bay, North Wales) is a venue punching well above its weight. The Welsh Rugby Union (WRU), have made Eirias its home in the north. The venue also hosts concerts featuring international artists such as Lionel Richie and Tom Jones having featured recently. Sitting below these high profile developments, often unseen, but of equal if not greater importance – especially to the local community, the Leisure Services team has brokered an environment, an "offer", using physical-activity to address health concerns. Through the Wellbeing of Future Generations Act, Wales has the ability to demand closer working relationships between public bodies. **Activities undertaken**: Betsi Cadwaladr University Health Board and Conwy Council deliver the "Health Precinct" to improve health through community based physical-activity. This has included creating space for the Social Services/Health Multi-Disciplinary Team (MDT) at the centre, facilitating access to the centre's excellent facilities. The co-location of health and social care alongside leisure staff enabled the team to develop bespoke services for dementia, diabetes and Parkinson's disease. **Results**: Challenges aligning financial and governance systems across partner-organisations; addressing concerns of cross-subsidisation. Benefits: reduction in costs for the MDT, reduced physiotherapy waiting-lists. Challenging ingrained pathways of care (health professional and hospital focused), the Health Precinct used multi-disciplinary teams to review patient needs, leading to referral to exercise professionals. The project team worked closely with professionals and patients to develop trust, leading to increased take-up of physical activity. The de-medicalisation of the pathway and environment provided additional benefits, including the development of social networks overcoming isolation. Opportunities are also provided for carers to support one another. **Conclusions**: It took 3 years to overcome challenges, therefore time, and strong leadership is crucial. Based on the concept that the council and health board share a common goal to improve the health of local residents, this is a demonstrable example that cuts through the rhetoric of integrated services: this is our Welsh Dragon Roar. A business-case is being developed to re-develop the site, building on the person centred, de-medicalised model for driving health and wellbeing.

43. Objectively measured sedentary time and self-reported screen-time in youth: Differences by age and gender

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Introduction: Excessive sedentary behaviour is associated with adverse health indicators in youth, and screen-based sedentary behaviours are particularly pervasive in their lives. We investigated sedentary time and the frequency of screen-based sedentary behaviours among primary and high school students **Methods**: Students (N = 365, 191 boys) in year-groups 5 (aged 9 - 10 years, n = 128), 8 (aged 12 - 13, n = 116), and 10 (aged 14 - 15, n = 121) from three primary and six high schools in England participated. Students wore a SenseWear Armband Mini for 9-days, and completed the online Youth Activity Profile. Dependent variables were objectively measured sedentary time (ST), and self-reported frequency of TV-viewing, Video-gaming, Computer/tablet use, and Mobile phone use in the previous 7 days. Year-group x gender ANCOVA analysed differences in ST. Kruskall-Wallis and Mann-Whitney tests analysed year-group and gender differences in screen behaviours, respectively. Alpha was set at p <.05 and effect sizes were calculated using Pearson's r. **Results**: There were significant year-group differences in ST with Y10 students engaging in more ST than Y8 (p =.002, r =.41) and Y5 students (p <.001, r =.86), and Y8 students recording more ST than Y5 students (p<.001, r =.74). Y8 and Y10 students reported more frequent computer use (p <.001, r =.25 (Y8), r =.38 (Y10)), and mobile phone use (p <.001, r =.47 (Y8), r = 65 (Y10)) than Y5 students (p =.004, r = 0.18 (Y8); p =.002, r =0.2 (Y10)). These differences were broadly consistent within gender groups with the exception of computer use (boys: Y5 similar to Y8). Y10 students used mobile phones more frequently than Y8 students (p <.001, r = 0.27), with differences greatest among girls (p <.001, r =.42). Boys in each year-group reported more frequent video gaming than girls (p <.001, r =.46), and mobile phone use was significantly more frequent in Y10 girls compared to boys (p =.01, r =.23). **Conclusions**: ST and the frequency of screen-based sedentary behaviours were greatest among older students. Video-gaming was a much more prevalent behaviour among boys, while use of computers/tablets and mobile phones (particularly for girls) were more frequent in the older students. Gender and age-specific strategies to limit screen-time, particularly among older youth are warranted, as is continued research into gender and age-specific correlates of sedentary behaviours.

44. Patterns of health behaviour associated with active travel: a compositional data analysis

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Introduction: Active travel (walking or cycling for transport) is associated with favourable health outcomes in adults. However, little is known about the concurrent patterns of health-related behaviour associated with active travel. We used compositional data analysis to explore differences in how people doing some or no active travel used their time, incorporating physical activity, sedentary behaviour and sleep. **Methods**: We analysed cross-sectional data from the 2014/15 United Kingdom Harmonised European Time Use Survey. Participants recorded two diary days of activity, and we randomly selected one day from participants aged 16 years or over. Activities were categorised into six mutually exclusive sets, accounting for the entire 24 hours: (1) sleep; (2) leisure moderate to vigorous physical activity (MVPA); (3) leisure sedentary screen time; (4) non-discretionary time (work, study, chores and caring duties); (5) travel and (6) other. This mixture of activities was defined as a time-use composition. A binary variable was created indicating whether participants reported any active travel on their selected diary day. We used compositional multivariate analysis of variance (MANOVA) to test whether mean time-use composition differed between individuals reporting some or no active travel, adjusted for covariates. We then used adjusted linear regression models and bootstrap confidence intervals to identify which of the six activity sets differed between groups. **Results**: 6,143 participants (mean age 48 years; 53% female) provided a valid diary day. There was a statistically significant difference in time-use composition between those reporting some or no active travel. Those undertaking active travel reported a relatively greater amount of time in leisure MVPA and travel, and a relatively lower amount of time in leisure sedentary screen time and sleep. **Conclusions**: Compared to those not undertaking active travel, those who did active travel reported 11 minutes more in leisure MVPA and 18 minutes less in screen time per day, and reported lower sleep. From a

health perspective, higher MVPA and lower screen time is favourable, but the pattern of sleep is more complex. Overall, active travel was associated with a broadly health - promoting composition of time across multiple behavioural domains, which supports the public health case for active travel.

45. The SmartBus brings the health promotion services near you

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Introduction: SmartBus – a Mobile Services Unit is an innovative service environment combining modern technology, adaptable facilities and mobility. It serves as a platform for diversity of services, but also as an environment for practice-based innovation for health promotion and promoting physical activity. New service concepts will be adopted to replace fixed location-based contact points. The project SmartBus, financed by ERDF and administered by Lahti University of Applied Sciences, created a multipurpose, mobile service unit in the Päijät-Häme region. Flexibility, customer-driven approach and adjustability were the key elements in creating new value for health care professionals and the citizens. **Activities undertaken**: Service design methods have been used to engage service providers and the end users to ideate both the vehicle and health enhancing services. Services include the Health kiosk, oral hygienist's services, physical activity counselling, life coaching and physiotherapy. The customers have ranged from school children to the elderly in the rural areas of Päijät-Häme Region. The healthcare and health promotion services are provided by multidisciplinary team of service providers. With students and teachers of different fields present, the SmartBus acts as a melting pot for diversity of talent and expertise. **Results**: SmartBus takes a holistic approach to well-being. SmartBUS can be seen as a complex co-evolving system in which joint good practices are co-created - whilst serving the clients. Constant feedback from clients is used to further develop the services to fill the gaps between the needs and the services available. Services for social and health care, physical activity counselling and group exercise for the elderly and disabled, library and information, education and culture are provided. Of key importance is the multi-sectorial and multidisciplinary use of the SmartBus and hence, a diversity of health enhancing services provided for the customer. **Conclusions:** There are several benefits for the organisations as well: several studies show that spatial proximity is an important factor in creating innovative environments and encounters. By bringing together both public and private sector service providers, a workplace community with emerging new service ideas, spin-offs and co-operation opportunities can be achieved.

46. Pragmatic Assessment of Treatment Fidelity; Keep Active Keep Well Programme for COPD

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Introduction: Chronic pulmonary disease (COPD) is a progressive disease associated with reduced physical activity (PA). 'Keep Active Keep Well' (KAKW) is a theoretically underpinned, physical activity behaviour change programme, commissioned by the British Lung Foundation (BLF). This programme uses motivational interviewing (MI) techniques to promote PA maintenance in COPD patients. Treatment Fidelity (TF) refers to methodological strategies that enhance reliability and validity of behavioural interventions (Belg et al, 2005) and are rarely incorporated in community based programmes. **Methods**: To ensure a robust TF criterion, the Behaviour Change Consortium (BCC) TF framework was adhered to and mapped against a checklist (Borelli, 2011). This was embedded into the programme from the outset allowing for a complete independent assessment from design through to treatment delivery. These were based on observational accounts to assess intervention design, provider training, intervention delivery, intervention receipt and patient enactment. The BLF were observed delivering provider training and two commissioned prototype sites were observed delivering the KAKW programme. The patient's receipt of the intervention was assessed, using the Client Experience of Motivational Interviewing (CEMI) (Madson et al, 2013). This was given to patients following a session and used to rate the degree to which the instructor exhibits MI adherent behaviours. **Results**: Both sites adhered highly to the TF checklist criteria (> 80%). The mean CEMI score for site 1 was 54.42 (SD = 7.32); mean CEMI score for site 2 was 55.28 (SD = 5.70). **Conclusions**: There is paucity across the literature in reporting methods of TF in community based PA programmes. The following programme embeds TF and offers a useful insight into the pragmatic assessment of TF in community based settings.

47. An Evaluation of 'Active for Health' for Long Term Conditions

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Introduction: Individuals in Rotherham have a lower life expectancy than average. Some of this can be attributed to the prevalence of long term conditions (LTCs). The Rotherham 'Active for Health' (AFH) programme is a robust physical activity (PA) programme, linking NHS rehabilitation services to community PA. The programme offers LTC specific exercise programmes across seven pathways (stroke, COPD, cancer, falls prevention, MSK, cardiac and heart failure). The evaluation aims to assess the extent AFH supports and sustains individuals with LTCs into PA. The interim findings are taken from data captured from November 2015 to June 2017. **Methods**: The evaluation is a mixed method design. Patient outcome measures will be taken at baseline, 3, 6 and 12 months. These include; self-reported PA levels, quality of life (QoL) and self-reported NHS service use. Qualitative interviews will assess patient experiences of AFH. Process evaluation data will be captured through semi structured interviews with key stakeholders. **Results**: Participants engaged in the evaluation to date include; baseline n = 695, 3 months n = 360, 6 months n = 224 and 12 months n = 78. The mean age was 65.44 years (SD = 13.55). An interim economic evaluation on a cohort of 78 participants indicated a significant reduction in healthcare service use, resulting in a cost saving of £843.37 per participant per year. From this cohort, there were significant improvements in mean QoL scores ($p < 0.05$) from 63.67 at baseline to 68.36 at 12 month follow-up. The difference in Cost-savings per quality of life years gained (QALY) was £1333.90, which significantly ($p < 0\ 05$) outweighed the cost of exercise programme (£105.00) within 12 months. Within the total sample, levels of moderate activity increased from baseline (166.33) to 3 months (283.75). There was decrease in moderate PA at 6 months (189.94) and 12 months (160.02). **Conclusions**: AFH offers a promising insight into the rehabilitation pathway for LTCs. Thus far, the data indicates significant savings for NHS service use and cost savings per QALY. There was a significant variance in the PA data which has led to an additional accelerometer study on a subset of patients. Full results are expected December 2018 including a complete economic analysis with a larger sample.

48. School healthy programs: design of a program to increase the level of the physical activity in Castilla-La Mancha (Spain) schools

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Introduction: Today, physical inactivity and the development of unhealthy habits lead to higher incidences of obesity and other related diseases with a big impact on our society. The World Health Organization has claimed that the recent uprising rate of obesity in the worldwide population will end in a global epidemic along this twenty first century, the obesity epidemic The purpose is to show the school healthy programs that has been developed to obtain a better quality of live and a better healthy style of the educative community inside the school and to potentiate the creation of professional learning communities. **Activities undertaken**: The main objective that was established was to practice 60 minutes of physical activity (between moderate and vigorous) along the day. To obtain it, there were established a different periods to develop it: before, while and after the school day. The whole school community was immersed on it, not just the teachers and the families. In order to improve the quality of the activities, it was designed a formative program consisted on 50 hours devoted to innovative pedagogic models. Besides, the interaction between schools was promoted by using private social networks. To support the acquisition of the habits, a three years intervention was fixed with an economic endowment for the school. Finally, a protocol of evacuation was established with the collaboration of the Castilla-la Mancha University. **Results**: The previous decisions were 10 programs that integrated the Healthy school Projects (Proyectos escolares saludables - PES): Sport education, active breaks, evaluation of the physical conditions, active movement, extracurricular activities, healthy habits, family sports, active breaks and the use of the information and communication technologies. **Conclusions**: Currently, the Healthy School Projects (PES) were implemented in 130 schools where more than 48.174 children obtain their benefits. The private social network that coordinate these projects is integrated by 870 teachers that are organized into 10 professional learning communities, one per program, in which there is a strong compromise based on the innovation, the change and the improvement of the education with share goals.

49. Encouraging Physical Activity Behaviour: The concept of „distributed motivation"

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Introduction: Health policy specialists have suggested financial incentives as a method to encourage people to adopt healthier behaviours. The effectiveness of such incentives however, is unclear. Moreover, it is unclear from the literature just what incentivises an individual; monetary reward, social interaction, sense of achievement in reaching targets, or a combination? This work seeks to reformulate common conceptions of motivation and incentive via an exploration of data derived from a complex intervention designed to encourage workplace physical activity (PA). **Methods**: The Physical Activity Loyalty Scheme was a complex intervention which included a financial incentive component involving individuals earning retail vouchers contingent on meeting PA goals. The intervention was tested in a large cluster RCT of office - based employees (n = 776) from public sector organisations in Northern Ireland. Sixty two participants (77% female; mean age 44 years) in the intervention group were invited to participate in focus group discussions aimed at reflections on the impact of the intervention on PA behaviour. Focus groups were audio recorded and transcribed verbatim. Novel analytical methods involved the development of 'issue webs', using network analysis techniques to help understand the interaction between themes and sub-themes emerging from the qualitative data. **Results**: Results cast interesting light on the nature of incentives – as seen from the standpoint of participants, and also on the nature of motivation – usually interpreted as an inner drive of individuals. Emerging themes included; vouchers, desire to improve health status, performance monitoring and meeting goals. De-motivators were linked to the weather, or the nature of the vouchers. **Conclusions**: This study aims to address the knowledge gap regarding incentives and motivating factors to engage in behaviour change. Our analysis suggest that motivation is better considered as a 'distributed' and 'systemic' quality, a property of activity systems, rather than as a property of individuals. The task for health researchers is to plan and design activity systems that will sustain any behaviour change beyond the phase of a 'trial'. We refer to the theoretical as well as the empirical grounds for making our claims, and conclude by discussing the implications of our findings for PA research and policy.

50. Exploring different scales of walkable neighbourhoods in a European city

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Introduction: The walkability of the residential neighbourhood is considered to be one determinant of physical activity for transport. The association between walkability and physical activity for transport is sensitive to the scale of the neighbourhood. Therefore, it is important to test different scales. The aim of this presentation is to explore associations between walkability and physical activity for transport in a European city taking different buffer sizes into account. **Methods**: A cross-sectional study was conducted. Physical activity for transport data were derived from the representative survey 'Bicycle-friendly City' of adults (n = 843) in the city of Graz (Austria). Walkability was measured based on geographic information systems and included measures of density, land use mix, connectivity and walkability indices. Neighbourhood was defined as circular and street network buffers with different distances (800m, 1000m and 1500m) around each respondent's residential address. Bivariate analyses were conducted. **Results**: Bivariate analyses showed that the association between walkability measures and physical activity for transport was stronger and more often statistical significant within neighbourhoods covering a larger area, like circular network buffer of 1000m and street network buffer of 1500m. **Conclusions**: Our results from a medium-sized European city differ from results from walkability studies in the USA or Australia where smaller buffers seem to be more appropriate to research active transport. One possible explanation could be that distances covered by physical active transport are longer in European cities and therefore the scale of the neighbourhood needs to be large enough to represent adequately walkability characteristics.

51. Psychological benefits and motives for participation in physical activity among university students

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Introduction: Knowledge about students' motives for participation in physical activity (PA) and potential psychological benefits associated with PA can significantly contribute to the efficacy of strategies aimed to increase their PA level. Thus, the aim of the study was to determine motives for participation in physical activity (PA) and to explore the relationships between PA and self-reported levels of depression, anxiety, and stress among young adults. **Methods**: The study sample included 290 university students (100 males and 190 females, Mage = 22.35, SD = 2.98) who participated in the online survey. The participants fulfilled the Exercise Motivations Inventory 2 (EMI - 2), the short-form version of the Depression, Anxiety and Stress Scale (DASS - 21), and answered the questions regarding physical activity type and frequency. **Results**: In line with previous findings, male students were engaged in PA more frequently than their female counterparts. The results also revealed gender differences in reasons for participating in PA. Namely, male students were significantly more motivated by affiliation, competition, enjoyment, social recognition and strength ($p < 0.05$). On the other hand, female students obtained significantly higher results on scales measuring appearance, nimbleness, maintaining/improving health and weight management motives ($p < 0.05$). In comparison to their physically inactive or insufficiently active colleagues, male students who were physically active at least 3 times per week reported significantly lower levels of depression. Males with different PA habits did not differ in stress and anxiety levels. Contrary to our expectations, female students who were frequently engaged in PA didn't report significantly lower levels of depression, anxiety or stress. **Conclusions**: The results indicate the importance of promoting PA among university students, especially among young women. In order to be more effective, future PA promotion strategies should consider gender differences in motives for PA participation. Further studies are warranted in order to identify factors that could mediate the relationship between physical activity and mental health.

52. Physical activity: a risk factor for pain and injuries in children?

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Introduction: Paediatric obesity can lead to impairments in daily physical activity of children due to a higher pressure in their lower limbs. Current literature suggests that physical activity may play a role in pain and injury episodes reported by children with obesity. There is a paucity of evidence supporting such a hypothesis. The aim of this study was to investigate the relationship between pain, injury and physical activity levels in children with and without overweight/obesity. **Methods**: This study had a cross-sectional design. With institutional approval, 114 pre-pubertal children aged 8 - 12 yr (72 normal weight, 35 overweight and 7 with obesity) voluntarily participated in the study. Overweight and obesity were classified according to the body mass index cut-offs for overweight and obesity characterized by the International Obesity Task Force. Physical activity was assessed using accelerometry over 7 days. Questionnaires were used to report pain, injuries and socioeconomic status. Pain was assessed along with physical activity over a 7 - day period. Injuries were reported over a 12 - month period. Anthropometric measurements such as body weight, height and circumferences of waist and hip were assessed. Total body fat was estimated using skinfolds. The relationship between the dependent and independent variables was predicted using linear and Poisson regressions. **Results**: In children with normal weight, linear regression models revealed that pain was not associated with moderate, moderate-to-vigorous or vigorous physical activity after adjustment for sex, age, body mass index, waist and hip circumference, body fat, socioeconomic status and biological maturity. In children with overweight or obesity, pain also was not associated with physical activity. In children with normal weight, Poisson regression analyses revealed that injury was not associated with moderate, moderate-to-vigorous or vigorous physical activity. In children with overweight or obesity, injury also was not associated with any intensity of physical activity. **Conclusions**: Different intensities of physical activity may not predict pain and injuries in children with or without overweight/obesity. It can be speculated that pain and injuries reported by children are not linked to daily physical activity. Our results provide a useful basis for future research investigating physical activity barriers in youth.

53. Broad-reach physical activity interventions for cancer survivors (2013 - 2017): We still haven't found what we're looking for

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Introduction: In the cancer context, researchers have advocated for the need to develop and assess the efficacy of physical activity interventions that employ distance-based, broad-reaching (i.e., non face-to-face) approaches. The primary objective of this study was to provide an update (2013 - 2017) of characteristics and outcomes of broad-reach physical activity behavior change interventions for cancer survivors. **Methods**: PubMed and Embase databases were searched from May 2013 till April 2017. Search terms used related to the following aspects: 1) the cancer population, 2) a distance based intervention, and 3) physical activity. Studies were included that met the following criteria: 1) included adult cancer survivors (post diagnosis), 2) intervention was distance-based with no more than one face-to-face visit or contact, and 3) physical activity was measured pre and post intervention. **Results**: We included 25 studies in this review. Eighteen studies focussed on breast cancer survivors. The mean sample size was 155 (median 80, range: 10 – 492). Only three studies included patients on chemotherapy treatments. Mean age across the studies was 56 years. The majority of survivors were Caucasian (96%), were married/had a partner (81%), had a university education (70.5%), and 80% of survivors had early stage disease (< stage II). Eighteen studies measured physical activity using self-report measures while only four studies measured physical activity using objective measures (e.g., accelerometer). Of the 25 trials, only nine studies (36%; six randomized controlled trials, three single arm intervention studies) reported a statistically significant improvement in at least one physical activity outcome. Of the 13 studies that reported self-reported physical activity minutes, only four studies reported statistically significant differences between groups. Across these 13 studies, physical activity data was presented for a total of 20 self-reported physical activity outcomes representing a total mean physical activity change of +66.4 minutes per week (SD 58; Range 216.7). **Conclusions**: Overall, broad-reach physical activity behavior change studies for cancer survivors are underpowered, have limited generalizability, and questionable impact. The reliance on self-reported physical activity behavior measures across the studies limits the conclusions and inferences that can be drawn from such studies.

54. School Corridors: Indoor Streets for Active Play

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Introduction: The breadth of research on the development of interventions that reduce sedentary behavior and improve levels of physical activity in children is rapidly expanding. A remarkably wide plethora of these works dwell on the role of school environments in nurturing and supporting healthy behaviors as complimentary or alternative to endeavors that prioritize constructing knowledgebase through health education, curricula implementation and audio-visual materials. Among these studies, those that dwell on the potentialities of multipurpose school spaces are considerably limited in number in comparison to those which study classrooms and school yards. This research aimed to highlight the potentialities of school corridors as the most versatile multi-purpose indoor spaces heavily used by students that may encourage and house physical activities at differing degrees, especially in conditions which limit the use of outdoor spaces (i.e. extreme weather, air pollution, limited break time, etc.). **Methods**: In order to conduct a systematic review and manifest a comparative and critical analysis of the current research on implementations and best practices for the design and/or renovation of school corridors that promote active play and physical activity electronic databases were quested to identify research that (1) investigated school corridors as multipurpose spaces (2) explored the children's perception of major school spaces (3) dwelled on environmental factors that encourage sedentary behavior (4) school-based policies and physical-social-environmental factors related to physical activity and (5) street play culture. Findings were synthesized using thematic analysis and a further comparative and critical analysis was conducted through logical argumentation. **Results**: The research findings revealed major potentials and challenges regarding the utilization of corridor spaces as indoor active play streets. Based upon these findings and the comparative and critical analysis design recommendations and responses to major challenges were propounded. **Conclusions**: The findings and the further elaborations revealed that the students' and teachers' perception of corridor spaces as navigational routes rather than spaces in themselves may be altered through very basic interventions and design principles which strongly encourage change in both school policies and the active use of multipurpose spaces as such.

55. "Quartier Agil" – Feasibility of Combined Physical and Cognitive Activities in the Neighborhood with Smartphone Support for Stimulating Social Participation in the Elderly Social Participation in the Elderly

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Introduction: Few programs use a combination of physical and cognitive exercise with digital support to promote participants' social participation and connectedness within their neighborhood. As a multidisciplinary effort to fill this gap, "Quartier agil" (literally: agile quarter) is currently being developed and tested for feasibility, including a first estimate of possible effects. **Activities undertaken** : This exploratory, small-scale program aims at elderly community-dwelling adults living in a neighborhood of Bochum (Germany). In the first of two six-month development cycles, 19 participants (72 ± 7yrs) met once weekly with two instructors for a 90 -minute training session targeting physical and cognitive functions. In addition, participants were invited to join, as well as create their own physical and cognitive activities related to meaningful locations ("hot spots") in their neighborhood. Additional training was stimulated and social gatherings were announced via smartphone (specifically designed app). Various indicators of feasibility were collected. **Results**: Preliminary results show that the instructors invested 6hrs/week. Despite technical difficulties and some participants being hesitant of proactively self-organizing activities, they deem the program highly feasible. Attendance rate was 76 ± 15%. Two dropouts occurred and four participants partly missed post-assessments. Thirteen of 13 participants reported high overall satisfaction and 9 out of 13 agreed that the program helped them to promote social contacts. Satisfaction with smartphone support and the smartphone app was mixed. Considering first trends, physical performance (n =13) slightly improved from baseline to post (e.g. Berg Balance Scale: 46 - 56 to 51 - 56 points, p =.028; 6 -minute walking: 500 ± 50 to 519 ± 71 meters, p =.100), while physical activity (Actigraph GT- 3X accelerometer) remained unchanged (light: 144 ± 44 to 152 ± 56 minutes/day, p =.877; moderate to vigorous: 35 ± 23 to 32 ± 25 minutes/day, p =.608). There was an overall trend toward more efficient cognitive functioning in at least one parameter, e.g. verbal fluency switching (n = 16; 65 ± 22 to 72 ± 20 percentile rank, p =.05). **Conclusions**: "Quartier agil" is a feasible program able to facilitate social connectedness and improve some physical and cognitive functions in community-dwelling adults. A number of participants showed reasonable physical and cognitive function and adherence to physical activity guidelines at baseline. Lessons learned have been used to select participants and improve the program for the second cycle.

56. Cost-utility of Virtualex-fm, a Kinect Based Exergame with Control Biofeedback, Implemented Two-sessions per Week for Two-month in Fibromyalgia: RCT

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Introduction: Virtual Reality-based serious exergames has been regarded as a promising alternative to develop new physical rehabilitation programs. But there is a lack of cost-effectivenes studies to support their development. This study assess the cost utility of the addition of an exergame - based intervention named VirtualEX - FM to best usual care for women with fibromialgia. **Methods**: An 8 - weeks randomized controlled trial was implemented. Eighty - three women with fibromialgia were randomly assigned into two groups: exercise group (EG, n = 42) and control group (CG, n = 41). EG exercised for 60 min with a kinect-based exergame protocol including postural games and dance, 2 supervised times a week , while CG continued their usual healthcare. Health-related quality of life was assessed using the EuroQol five dimensions and five levels (EQ - 5D - 5L) that allows to estimate the time-trade-off Quality of Life Adjusted Years (QALY) to perform a cost-utility analysis from health system perspective. We calculated the 95% confidence interval using the non-parametric bootstrapping technique (1000 replicates re-sampled with replacement from treatment and control populations) and plotted a cost effectiveness acceptability curve. An intent-to-treat non-parametric was used to analysis outcomes. **Results**: 97% of participants in the exercise group completed the programme. Over 8 weeks, the treatment costs relative to "usual care" were € 5000 in sink costs (hardware and software development) and € 4000 in the implementation delivering two patients per session. The mean incremental Quality Adjusted Life Years (QALY) of exercise group was 16% compared to of intervention. Was. Each extra QALY gained by the exercise programme relative to usual was € 965 excluding sink costs or € 1087 including them. As a discussion, this incremental cost-effectiveness ratio of VirtualEX is better than previous reported in conventional exercise in land-based and aquatic training in women with fibromialgia. **Conclusions**: VirtualEX-FM is a cost-effective alternative compared to usual care. Furthermore, the current exergame is more efficient than previous conventional exercise programs (aquatic, land-based or vibratory) to improve health-related quality of life. Study funded by the Spanish Ministry of Economy and Competitiveness DEP2015-70356-R, and European Union Regional Development Funds (FEDER), a way of making Europe.

57. Physical fitness of senior adults living in retirement homes in Slovenia

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Introduction: Senior fitness test (SFT) is primarily used to evaluate physical function in healthy elderly people. It comprises six functional tests of strength, endurance, balance, agility and flexibility. SFT performance is important predictor of the level of capacity needed for maintaining physical independence into later life. The main aim of our study was to evaluate level of physical fitness in senior adults living in retirement homes using SFT. **Methods**: Testing was performed in 3 retirement homes in Ljubljana region and 108 adults (27 males and 81 females), age range 67-97 y, participated in the study. SFT was conducted by kinesiologist according to standardized protocol and included the chair stand test, the arm curl test, the chair sit and reach test, the timed up and go test, the back scratch test, and the 6-minute walk test. **Results**: The adults living in retirement homes have significantly worse physical fitness when compared to normative values of independently living adults. This is true for both sexes and all age groups and especially for 6-minute walk test. Furthermore, we have showed that males are performing significantly better compared to females; expect for the chair sit and reach test where no gender related differences were noted. **Conclusions**: Adults living in retirement homes deserve special concern in the terms of regular physical activity programs, as it seems that their functional capacity is not comparable to independently living counterparts. We have proposed an "Active day" program that is a structured exercise program targeting functional deficits in older adults.

58. Six minute walk distance in patients with stable coronary heart disease in Slovenia

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Introduction: Life-long outpatient rehabilitation of coronary patients in Slovenia is organized through coronary clubs. The 6-minute walk test (6MWT) is a common outcome measurement1 used in those clubs to evaluate the cardio-respiratory fitness of patients, as distance walked on the test (6MWD) predicts cardiovascular events in patients with stable coronary heart disease (CHD)2. The aim of our study was to evaluate the influence of gender, age and weight on the 6MWD in coronary patients. **Methods**: Testing was performed in 4 clubs in Ljubljana region and 95 patients (33 males and 62 females), age 74.5 ± 7.9, participated in the study. 6MWT was performed according to standardized protocol3. **Results**: There was no significant difference ($F = 0,98$; $p = 0,755$) in 6MWD among males (498 m) and females (492 m). The predicted 6MWD (441 m and 434 m for males and females, respectively) differed significantly ($p < 0,001$) from measured 6MWD (498 m and 492 m for males and females, respectively). This clearly highlights that physical ability of patients with stable CHD may be underestimated using prediction formulas, hence there is a need for regular annual/biannual testing. Furthermore, as reference values for 6MWD are reported for 5-years intervals we have used same approach in our study, and we have shown that there is a significant difference in 6MWD among different age groups ($F = 10,178$, $p < 0,001$), where most prominent differences are rather on a 10-years interval (eg. 60 - 69y are better than 70 - 79y). The age of patient explains 41% ($p < 0,001$) of the 6MWD in our sample and 6MWD can be calculated as 1041 m – 7.33 x age. Finally, the influence of weight was noticed only through waist to height (WHtR; $p = 0,005$) ratio rather than among different body mass index grades ($p = 0,559$). The patients with normal WHtR had statistically bigger 6MWD (521 m) than patients with abnormal WHtR (469 m). **Conclusion**: Our results are stressing the importance of regular fitness testing in patients with stable CHD to obtain their actual fitness levels needed to prescribe exercise of proper intensity. Furthermore, there is important influence of age and weight on 6MWD that should also be accounted for in exercise prescription.

59. Swimming ability of the 12-year old children in Finland and swimming education in Finnish Schools

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Introduction: According to Nordic definition a person is able to swim, if he or she can swim 200 metres of which 50 metres on the back. Swimming ability and basic rescue skills are recognised as objects in Finnish national core curriculum for basic education. **Methods**: The swimming ability of the 12-year old pupils was asked on a questionnaire. In addition the pupils self-reported, if they swim outside of school. The questionnaires were

available in Finnish and Swedish. The teachers were asked if and how swimming is taught at school. The sample of 4200 pupils and 195 schools was nationally representative. In addition 17 swimming instructors gave additional information on current challenges in swimming education. **Results**: 76% of 12-year old children reported they can swim according to Nordic definition. The percentage has not changed from the previous study done in 2011. There was no difference between boys and girls. Half of the pupils, with no gender difference, reported they go swimming outside of school at least once in a month. The proportion of pupils with adequate swimming skills was associated with the presence of a swimming hall in the municipality and swimming teaching at school. Children born outside of Finland are mentioned to need special attention in swimming education. **Conclusions**: In spite of the national core curriculum several municipalities don't organise sufficient swimming education and the object of the national core curriculum for basic education is not met. This is problematic from an equality perspective and a also a factor affecting the national drowning prevention policy.

60. Take a stand for workplace health: the efficacy, feasibility and acceptability of a workplace sit-stand desk intervention designed to reduce sitting and increase physical activity

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Introduction: Current public health policy and research identifies potential health risks of both physical inactivity and sedentary behaviour (Department of Health, 2011; Thorp et al. 2011). Sit-stand desks have been identified as a potential solution in the office-based workplace setting, however, despite a high level of policy and media attention, the evidence base concerning the efficacy, feasibility and acceptability of sit-stand desk interventions to reduce sitting and increase physical activity (PA) is weak. **Methods**: We implemented a 12-month sit-stand desk intervention within two not-for-profit office-based workplaces in London, UK. Mixed methods including an RCT study design, objective measures of sitting and physical activity, and qualitative interviews and observations were adopted to evaluate the effectiveness, feasibility and acceptability of the intervention. **Results**: The sit-stand desk intervention reduced sitting at work by 38 minutes. However, changes were largest at 12 months (56-minute sitting reduction). Sitting reductions were largest in lower paid employees. The intervention did not alter PA levels. Employees indicated that developing a healthy workplace should be an organisational priority. Sit-stand desk users identified a number of strategies that they adopted to facilitate switching between sitting and standing, and a number of factors that compromised and/or facilitated use of the sit-stand desks and affected the feasibility and acceptability of installing sit-stand desks within the organisations. The sit-stand desk intervention contributed to the normalisation of standing and a focus on employee health within the office-based workplace. **Conclusions**: A clear strategy for installing sit-stand desks is needed to minimise the challenges associated with provision. Sit-stand desks are not a universal or one-size-fits-all approach to workplace health; sit-stand desks could be part of a wider workplace strategy for reducing sitting and increasing PA.

61. Development of a diabetes prevention programme for adolescents in five European countries: results of pilot workings

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Introduction: Type 2 diabetes (T2D), a condition traditionally associated with old age, is increasing in young people. There is a need to develop prevention strategies for young people and their families. Funded through a European Commission tender, the tender's aim was to develop a T2D prevention programme in 12 - 14 year olds for use in five European sites (Germany, Greece, Portugal, Spain and UK). **Activities undertaken**: An established framework for developing this interactive educational programme was followed. Ideas from all sites regarding content and structure was gathered using the literature, from stakeholders and from the investigatory team. This led to sites agreeing a draft programme outline of eight, 90 minute sessions. Topics to be covered

included: increasing physical activity (PA), less sitting, making healthier breakfast and snack choices and what it means to be healthy. A document detailing the underpinning theories and philosophies of the programme was developed to standardise delivery. Learning outcomes for each session were developed and a written curriculum was drafted, with supporting resources, using minimal narrative to allow for easy adaptation and translation. This allowed countries to make country specific changes to session content but not overall learning outcomes. A cycle of piloting and refinement was done in the UK and the curriculum was refined based on observations and feedback. Visits to sites to discuss the curriculum and to provide educator training were invaluable to prevent misunderstanding. **Results**: of activities undertaken This work has resulted in a flexible curriculum with shared learning outcomes for sites to use with young people and their families. Each session includes a review of progress, topic-specific material, goal setting and an activity session for all family members. A PA self-monitoring tool was included to supporting participants in achieving PA related goals. Following a systematic approach to programme development has meant that the interactive educational programme is being tested within a feasibility study at each site. **Conclusions**: Developing a standardised programme across countries is challenging. Agreeing on underpinning theories and philosophies as well as learning outcomes will ensure the programme is delivered in a similar spirit across and within sites.

62. "Screen-stacking" in a sample of UK adolescent females: relationships with moderate- to vigorous-intensity physical activity, sedentary time and sleep

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Introduction: The aim is to explore "screen-stacking" (i.e. concurrent use of multiple screens) in a cohort of 12-15 year old females in the UK and relationships with daily behaviours. **Methods**: Cross-sectional data (Leicester, UK; April-June 2016) from a physical activity (PA) trial were used. Participants self-reported types of screens they used at the same time straight after school, evenings in free time, in bed at night and at weekends. Options included nine common screens, "no screen" and "other". Moderate - to vigorous -intensity PA (MVPA; ≥ 200 milli - g) and sedentary time (< 40 milli-g) were objectively measured via GENEActiv accelerometer (7 day wear) on weekdays, weekend days, and hours after school. Relationships between number of screens used and MVPA, sedentary time and objective sleep duration were explored using mixed models accounting for school clustering and confounding variables (ethnicity, year group, and socioeconomic score). Differences in outcome measures were estimated using least square means. **Results**: Complete data were available on 816 females (age 14.0, SD 0.8 years; 20.4% non-White European). The most common device used at each time period was the mobile phone. Use of ≥ 2 screens was 64.5% straight after school, 72.1% in evenings, 41.9% in bed and 74.9% at weekends. Higher evening screen time was associated with lower after-school MVPA (p = 0.032). Those who used no screens in free time in the evenings engaged in higher MVPA (29.6 mins; 95% C.I. 23.3 to 35.9) compared to those who used 1 screen (19.6 mins; 95% C.I. 16.5 to 22.7) but ≥ 2 screens were not significantly different. Although those who used no screens did not have significantly higher weekend MVPA than those using 1 or 2 screens they had significantly higher weekend MVPA (60.0 mins; 95% C.I. 41.9 to 78.2) vs. those using ≥ 3 (34.1 mins; 95% C.I. 27.2 to 41.0). No other relationships between screen category and MVPA at any time periods were found. There was no relationship between number of screens at any time period and sedentary time or sleep duration. **Conclusions**: No screen use was associated with more MVPA. Use of multiple screens is inversely associated with MVPA in the evenings and weekends.

63. Harnessing Gamification for population level changes in physical activity - Findings from 18 UK interventions

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Introduction: People who are physically active have a 20-30% reduced risk of premature death, however a recent review concluded insufficient evidence for current population physical activity (PA) interventions, citing scalability as a major contributory factor. **Activities Undertaken**: Beat the Street aims to address this key implementation issue by turning a town/city into a game where players register their walking and cycling journeys by tapping a smartcard on RFID readers called 'Beat Boxes' placed on lampposts around the town or city. Players monitor their progress via a website where they can see their own and their team's progress, and the overall city/town target. During registration, participants complete a questionnaire which includes a vali-

dated PA measure. Follow up surveys take place at the end of the game and 6 months later. Pre-intervention/post-intervention comparisons are completed based on survey responses and in-depth analysis is completed based on data from each player's activity by tapping their smartcard on beat boxes. **Results**: In 2016, 18 community-wide interventions were delivered throughout the UK. In total, 300,053 people played the game, 64,512 players registered online, 6,767 players completed a follow-up survey immediately following the game period and 3,103 people completed a follow-up survey 6 months post-intervention. Pre-test/post-test analyses revealed a 9% increase in the proportion of people meeting the WHO PA guidelines and a 5% decrease in the proportion of people reporting being inactive immediately following the intervention/gamification stage ($p < .05$). Further analysis revealed an 8% increase in the proportion of people meeting the WHO PA guidelines and a 5% decrease in the proportion of people reporting being inactive between baseline and follow-up, six-months post-intervention ($p < .05$). **Conclusions**: The findings from 18 Beat the Street interventions delivered across the UK in 2016 suggests that gamification is a promising approach to changing population levels of PA. Data collected 6-months following the gamification period indicates changes in physical activity may be sustained after the withdrawal of incentives.

64. Is Light Intensity Physical Activity Beneficial for Adolescent Health?

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Introduction: Substantial research into the impact of MVPA on adolescent health has been conducted, resulting in recommendations being provided. The evidence which informs such recommendations is based primarily on studies that have examined the association between health outcomes and physical activities of at least moderate intensity. MVPA accounts for a relatively small proportion of an adolescent's total daily activity behaviour. The relative contribution of objectively determined activity behaviour at the lower end of the activity intensity continuum, such as sitting/lying time (SLT), standing time (StT) and light intensity physical activity (LIPA) to biomarkers of health is understudied and unclear in adolescents. This study examined the relative contribution of activPAL 3TM micro (AP3M) determined activity behaviours with biomarkers of health among Irish adolescents. **Methods**: A random sample of healthy Irish adolescents (n=229, mean age (SD) = 16.4 (0.93) yrs, BMI (23.5 (3.7) Kg.m2)) provided fasted blood samples which were analysed for total cholesterol (TC), HDL - C, LDL - C, triglycerides (TG) and glucose. Participants had their height and weight, waist and hip circumference, blood pressure (Systolic, 123.6 (13.7) mmHg; diastolic 68.9 (9.4) mmHg (DBP) and four-site sum of skinfolds 47.1 (21.0) mm measured after wearing the AP3M for 9 consecutive days. The amount of time spent in SLT, StT, LIPA, and MVPA was quantified. Linear mixed-effects models examined the relationship between in SLT, ST, LIPA and health biomarkers while controlling for age, sex and school effects. **Results**: Participants spent approximately 9.9 (1.9) hrs in SLT, 3.32 (0.8) hrs standing, 1.27 (0.37) hrs in LIPA and 0.53 (0.31) hrs in MVPA. Regression analysis identified LIPA to have a significant negative relationship with DBP ($\beta = -7.05$, $SE = 1.76$, $p \leq 0.001$) and TG ($\beta = -0.20$, $SE = 0.071$, $p \leq 0.005$). MVPA showed no significant association with any of the health variables. No relationship was observed between activity behaviours and body composition measures. **Conclusions**: The findings of the present study indicate that this cohort did not achieve the daily recommendations for MVPA; participation in LIPA may be a more achievable recommendation for adolescents. In addition, the findings suggest that increasing the amount of time spent in LIPA may be a plausible alternative strategy for reducing health risk in adolescents.

65. The influence of migration background and family income on childhood overweight

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Introduction: Low physical activity (PA) often goes hand in hand with adverse health outcomes such as overweight and obesity. A sedentary lifestyle together with overweight and obesity very often tracks from childhood into adulthood. There is growing evidence that social disparities in low PA and overweight already exist in childhood. This study aimed to explore associations between weight status in childhood, parental cultural background and family income. **Methods**: Baseline data from a cluster-randomized study were evaluated for this purpose. Height and weight were measured in 1 646 primary school children (7.1 ± 0.6 years, 50.1% male),

of which 489 (29.8%) had a migration background. Body mass index (BMI) was calculated and weight status was determined based on WHO percentile curves. Country of origin and family income were obtained through a parental questionnaire. Household monthly net income was dichotomized into <1 750€ and ≥1 750€. Binary logistic regression was used to estimate odds of overweight, adjusted for age, gender, parental BMI and level of education. **Results**: In this sample, the overall prevalence of overweight including obesity was 18.5% and 5.0% for obesity alone. The prevalence of overweight and obesity was significantly higher among children with migration background (26.5%, $p < 0.01$). These children had an 81.9% higher risk of being overweight (CI 1.323 - 2.502, $p < 0.001$) while children coming from a family with low income had a 114.9% higher risk (CI 1.422 - 3.247, $p < 0.001$). The combination of both revealed no significant effect. **Conclusions**: Migration background and family income are independently associated with childhood overweight. The findings underline the importance of tailored primary PA-interventions to reach vulnerable groups of the population who have an elevated risk of not being sufficiently physically active and becoming overweight or obese as a consequence.

66. Convergent validity of physical activity questionnaire against objectively measured physical activity in adults: the Cardiovascular Risk in Young Finns Study (YFS)

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Introduction: In a comprehensive review of physical activity (PA) questionnaires validated with the use of objective measures (Helmerhorst et al 2012), it was concluded that a self-reported questionnaire remains an important research method in large-scale studies. We determined the convergent validity of a PA questionnaire against objectively measured PA in adults obtained with the use of a pedometer. **Methods**: Data from the Cardiovascular Risk in Young Finns Study (YFS) were collected from 1 853 participants aged 30 – 45 years. The participants completed a self-reported questionnaire that included items on leisure-time, commuting and habitual PA. PA was expressed as leisure-time Physical Activity Index (PAI) and Metabolic Equivalent hours/week (METh/wk) values. The participants wore a pedometer (Omron Walking Style One, HJ - 152R - E) for seven consecutive days and used it to record their total steps and aerobic steps daily. **Results**: There was a low to moderate association between the self-reported questionnaire and pedometer measurements regarding both total steps and aerobic steps taken during leisure time and commuting. An association was not observed between pedometer data and self-reported habitual PA. Of the individual items in the questionnaire, questions that described the frequency of PA and the duration of vigorous PA correlated the most strongly with the pedometer values obtained for total and aerobic steps ($r = 0.28 – 0.44$, $p = < 0.010$). **Conclusions**: Since no gold standard criterion method exists to record the time spent at various intensities, we can only conclude that the questionnaires and pedometers measure PA differently but adequately enough. It is unrealistic to expect very high agreement between an instrument that has exact PA cut points and the less precise self-report questionnaire. In this study, aerobic steps provided a relevant estimate for moderate and high level PA when duration and intensity could be considered. Helmerhorst H et al. A systematic review of reliability and objective criterion-related validity of physical activity questionnaires. Int J Behav Nutr Phys Act. 2012; 9:103.

67. Association between body fatness and sedentary bouts in elderly women from Central European countries

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Introduction: Elderly women are at higher risk of adiposity due to postmenopausal changes. Although there is evidence about bidirectional causal relationship of adiposity markers with physical activity (PA) and sedentary behaviour (SB), the results have been somewhat inconsistent. Therefore, we aimed to assess the cross-sectional associations between percentage of body fat (FM%) and objectively measured SB. **Methods**: We performed an analysis of 314 healthy elderly women (average age of 66.6 ± 6.5 years) from three Central European countries. The FM% was assessed by a bioelectrical impedance method and SB was monitored using an accelerometer set at 1 min epoch. The following categories of bouts were exported and analysed: 5, 10, 20, 30, 40 and 60 min. To express accumulation of sedentary time in bouts, we calculated indicator alpha (α). We performed a multiple linear regression analysis that was adjusted for age, wear time and moderate-to-vigorous PA (MVPA). All

women provided also demographic and socio-economic information and reported their health status, so we additionally adjusted analysis for these confounding variables. **Results**: On average, the women spent 466±88, 326±83 and 38 ± 23 min per day in SB, light-intensity PA and MVPA, respectively. Mean values of α and FM% were 1.6 ± 0.1 and 36.1 ± 7.1 %, respectively. FM% was positively associated with frequency and duration of all categories of sedentary bouts. After adjustment for confounders, there was a significant association with frequency of bouts ≤ 30 min (β ranging from 0.16 to 0.74, $p \leq 0.05$) and duration of bouts ≤ 20 min (β ranging from 0.21 to 0.28, $p \leq 0.01$). The association weakened in longer bouts. In contrast, FM% was strongly negatively associated with α also in the fully adjusted model (β - 0.003; $p \leq 0.001$). **Conclusions**: Our results suggest that FM% may predict sedentary time independently of age, PA, demographic, socio-economic and health factors. These findings underline the benefits of adiposity prevention and treatment, which can lead to more active and healthy aging. Longitudinal study is needed to verify these associations.

68. Heterogeneity in physical activity behavior and societal costs: the ReSpAct study

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Introduction: The purpose of this study was to identify trajectories of physical activity during up till 52 weeks after rehabilitation among patients with a chronic disease or physical disability. Additionally, we assess direct and indirect healthcare and productivity costs associated with each trajectory over time. **Methods**: Patients (N = 1719) with different kinds of disabilities and/or chronic diseases were followed at baseline (T0; 3 - 6 weeks before discharge) and after 14 (T1), 33 (T2) and 52 (T3) weeks after discharge from rehabilitation. Physical activity was determined by an adapted version of the SQUASH questionnaire and total direct- and indirect cost data were determined by the iMTA Medical Consumption Questionnaire. Latent class growth mixture modelling was used to determine trajectories of physical activity based on the total minutes physical activity per week. Associations between trajectory membership and direct- and indirect costs were determined by regression models adjusted for relevant patients' characteristics. **Results**: Six trajectories were identified, whereof two large and stable trajectories were investigated for further analysis in this study: an active (N = 235) and a semi-active (N=959) trajectory. The other four small trajectories all showed fluctuations in physical activity in some degree or another (N = 27, N = 30, N = 40, N = 50, respectively). Direct costs were generally lower throughout the follow-up for patients in the active trajectory, whereas indirect costs were higher, which could be explained by the higher number of patients with paid work in the active trajectory compared to the semi-active trajectory (82% versus 35%). **Conclusions**: This study showed that the majority of patients were classified in either a semi-active stable trajectory or an active stable trajectory. Patients classified in the stable active trajectory reported lower healthcare related costs compared to patients in the semi-active trajectory, but higher productivity related costs highlighting opportunities for more personalized treatment during, but also after rehabilitation.

69. Combined involvement of political decision-makers and citizens to prioritize modifications to the built environment

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Introduction: Poor physical activity levels among all age groups in Austria have been statistically documented. As a consequence, the project "Communities Living Actively" was established to analyse and modify the built environment in three rural towns in Austria. The combined involvement of political decision-makers and the citizens in the modification process was previously not a common practice in Austria. **Activities undertaken**: A tool including seven qualitative and quantitative methods was developed to analyse the built environment with experts and citizens: (1) qualitative interviews with key persons, (2) multidisciplinary expert assessment of the built environment, (3) citizens' assessment of the built environment, (4) discussions on social media, (5) questionnaires sent to every household to analyse mobility behaviour, (6) a participatory workshop to discuss ideas and the need for modifications. In the evaluation and scoring workshop (7), all results from step one to six were summarized, discussed and scored with ten to twelve key community persons and decision-makers in each town. A cost-benefit ratio was calculated for each of the suggested modifications in order to identify those options that on the one hand require few resources to implement, while on the other hand bring high physical activity outcomes for citizens. **Results**: The need for modifications in the three towns can be structured into four categories: footpaths and cycling routes, the school environment, public spaces, traffic and

security. Suggestions with the best cost-benefit ratio were 1) establishment of footpaths for school children, 2) design of footpaths with safety measures, 3) barrier-free footpaths with appealing seating and 4) unobstructed cycling routes. By contrast, measures to make streets and byways more bustling were assigned a low cost-benefit ratio. The combined participation of citizens and local politics in each step of analysis and decision-making was identified as a determining success factor in building environmental modifications to promote physical activity due to the continuous dialogue about requirements, needs and realisation. **Conclusions**: The variety of citizens and decision-makers involved allowed a comprehensive perspective about the status quo in the communities. The scoring method supported the involvement of political decision-makers and ensured systematic and objective decisions for suitable modifications.

70. Effects of Exercise Interventions on Physical Literacy among Physically Inactive Persons

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Introduction: The current global pandemic of overweight and obesity is closely related to a physically inactive lifestyle. At present, physical inactivity is a major public health challenge. Evidence has shown, that there is an association between physical activity and physical literacy (PL). However, it is still not investigated if it is possible to promote PL through exercise interventions from a holistic point of view among physically inactive adults. The primary aim of this prospective non-randomised case-control study was to assess the effects of exercise intervention on PL among physically inactive adults. **Methods**: Thirty-one physically inactive adults assigned to the intervention group (IG) (81% female, 43.61 ± 15.93 years) participated in an exercise intervention once weekly for 15 weeks. Thirty physically inactive adults (80% female, 45.20 ± 10.46 years) participated in the matched control group (CG) and did not receive any exercise intervention. PL, exercise dosage, compliance, demographic and psychosocial parameters were measured. PL was evaluated by a questionnaire, covering five domains of the holistic PL model (physical behaviour, motivation, belief and attitude, knowledge as well as self-confidence and self-efficacy towards physical activity). Inter and intra group differences between baseline and follow-up measurement were investigated. **Results**: PL increased significantly in the IG ($p < 0.01$) by 9.45%, whereas no changes were revealed in CG relative to baseline values. No relationship was found between exercise dosage, compliance as well as demographic and psychosocial parameters and the amount of increase in PL. Regarding the five domains of PL, IG showed improvements in physical behaviour ($p < 0.05$) , self-confidence and self-efficacy ($p < 0.001$) as well as improvement with marginal significance in exercise belief and attitude ($p < 0.08$). No changes were evident in the IG concerning the domains knowledge and motivation. However the domain motivation reached both at baseline and follow-up the highest score out of all five domains. **Conclusions**: The findings of the present study indicated that exercise interventions ameliorate physical literacy among inactive adults. Regarding the high prevalence of overweight and obese persons, these study results may be useful to help physically inactive adults incorporate a physically active lifestyle.

71. Active Everyday – Experiences of implementing a physical activity referral scheme for people affected by cancer

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Introduction: It is estimated 5.3 million adults in the United Kingdom will be living with or beyond cancer by 2040. For those people who are living longer with or beyond cancer, they are not necessarily living well. Enabling people to be physically active at all stages of treatment can improve both clinical and quality of life outcomes. The purpose of this publication is to build knowledge of experiences of running a city-wide physical activity service for individuals living with and beyond cancer. **Activities Undertaken**: Active Everyday is a physical activity referral pathway for people affected by cancer in Sheffield, UK. The project is one of the initial six sites to implement the Macmillan Physical Activity Behaviour Change Model. The implementation of the model required services to adhere to the key principles of the pathway but also be aligned to local priorities, and the physical activity opportunities available locally. Through Active Everyday people affected by cancer are enabled to self-manage their physical activity via specialist advice from trained specialists, and signposting to appropriate physical activity options. **Results**: 200 people affected by cancer have been referred into the Active Everyday project, through referrals from health professionals, community workers, and self-referrals. The project collects follow up data at 3 month, 6 months, and 12 months. The project team have encountered

issues with regular referrals, engaging people from BME backgrounds, and collecting follow up data. Active Everyday has implemented behaviour change strategies including Motivational Interviewing techniques to increase engagement and ongoing physical activity support to increase recruitment and retention. **Conclusions**: Active Everyday aims to provide people affected by cancer with the support to become and stay more physically active. Implementation of a community based city-wide physical activity pathway may have different challenges than trials based on clinical or primary care pathways. The complexity of a person's journey through cancer treatment poses a number of challenges to the successful implementation of a referral model. Where possible, the impact of new strategies should be measured, and referral successes and challenges should be shared with those planning similar pathways.

72. Establishing raw acceleration thresholds to classify sedentary behaviour in children

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Introduction: Accurately measuring sedentary behaviour in children is challenging as it encompasses a complex set of behaviours taking place in a range of settings. The use of accelerometry is a widely accepted objective method of monitoring children's sedentary time, but raw acceleration sedentary thresholds generated from a wide range of sedentary activities that reflect children's typical behaviours are missing from the literature. The purpose of the study was to compare acceleration output between ActiGraph (AG) hip and wrist monitors and GENEActiv (GA) wrist monitors and to identify raw acceleration sedentary thresholds in children for these monitor brands and placements. **Methods**: Twenty-seven 9 to 10 year old children wore AG GT9X accelerometers on the right hip, dominant- and non-dominant wrists and GA accelerometers on dominant- and non-dominant wrists, as well as an activPAL on the thigh, while completing seven sedentary behaviour activities followed by ten minutes of free-living play during school break time. Data analysis involved using repeated measured ANOVAs to compare monitor brands and placements and Receiver Operating Characteristics (ROC) curves to identify sedentary thresholds. **Results**: Significant main effects of activity ($F1.47, 9547.67 = 18279.33$; $p < 0.0001$) and brand ($F1, 6479 = 36.04$; $p < 0.0001$), but a non-significant main effect of placement (dominant and non-dominant wrists) ($p = 0.259$) were observed. A significant three-way interaction effect (activity x brand x placement) was observed ($F1.77, 11489.44 = 16.83$; $p < 0.0001$). Output from the AG hip monitors were significantly lower than the AG dominant ($p < 0.0001$) and non-dominant wrist monitors ($p < 0.0001$). ROC curve analysis was used to identify sedentary and stationary thresholds using activPAL as the criterion reference, with resultant hip thresholds (32.6mg) lower than wrist thresholds (AG dominant wrist 55.6mg and non-dominant wrist 48.1mg). Classification accuracy increased for all monitors when "standing" was included into the classification (Specificity increased from 51% - 60% to 85% - 89%), resulting in similar thresholds identified for both sedentary and stationary behaviours. **Conclusions**: Differences in accelerometer output complicates comparisons between brands and placements in children. The thresholds developed need to be confirmed in future studies.

73. FINFIT 2017: Population-based study on objectively measured physical fitness, physical activity, sedentary behavior and sleep in Finland (KunnonKartta 2017)

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Introduction: The number of studies collecting objectively measured data on physical fitness, physical activity (PA), sedentary behavior (SB) and sleep on population level are scarce. Even fewer studies have analyzed these behaviors and fitness against various health indicators. Thus, the purpose of this study is to measure fitness, PA, SB and sleep objectively in a representative sample of Finnish adults. **Methods**: The participants of the study comprise a stratified random sample of 20–69 year-old Finnish men and women (n=10 500) from seven districts (Helsinki, Turku, Tampere, Kuopio, Jyväskylä, Oulu, Rovaniemi). Participant's fitness level is assessed at the health examination by three health-related fitness tests (shoulder-neck mobility, modified push-ups, 6 minute walk test). In addition, height, weight and waist circumference are measured and blood samples are taken. Participants' PA and SB during waking hours are measured by a hip-worn triaxial accelerometer (UKK RM42, The UKK Institute, Finland) for seven consecutive days. When measuring sleep the accelerometer is removed from hip to wrist. Participants' health status, work ability, quality of life, sickness absences and health service use are

assessed by a questionnaire. The Coordinating ethics committee of the Hospital District of Pirkanmaa has given an ethical approval for the study (R17030). The data collection of the study started in September 2017 and will continue until the end of January 2018. **Results**: The main outcomes of the study are fitness, specific patterns of objectively measured PA and SB, sleep quality, and their association with various health indicators. In the future baseline data will be assessed against prospective register-based data on disease incidence, sickness absences and premature retirement. The FINFIT 2017 study will be repeated with a new random sample every fourth year. **Conclusions**: The FINFIT 2017 study provides novel, objectively measured data on fitness, PA, SB, and sleep on population level. The data will be utilized in elaborating the dose-response relationships between these factors and behaviors and various health outcomes.

74. Behavioural insight into perceptions and perspectives of physically inactive people

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Introduction: The aim of the abstract is to present the findings from the physical inactivity research. The research seeks to examine the reasons why people are physically inactive. It aims to explore and understand participants' perceptions and perspectives of inactivity. **Methods**: The research employed a qualitative research. Face-to-face surveys were utilised as a data collection tool to provide detailed insight into the thoughts of the people who self-reported to be inactive. Participants followed a semi-structured format but with the scope to deviate depending on the responses to ensure in-depth data. The samples (n=678) were recruited based on an intercept survey in crowded locations. Participants were first approached to identify if they class themselves as an active or inactive person. Only those who reported to be inactive were involved in the surveys. Data sets were analysed by thematic analysis. **Results**: The analysis highlights two key factors which contribute towards inactivity, extrinsic and intrinsic influences. External factors, such as lack of opportunities, accessibility, lack of time and money, health conditions and other commitments, were reported. However, participants acknowledged that when it comes to getting active, it often comes down to "choice" and the choice is not to be active. Major contributing factors to this are intrinsic influences such as lack of interest, laziness and unenjoyment. Participants acknowledged that these intrinsic influences are much more difficult to overcome than external factors. In contrast, when asked about the things that make them active in the day other than exercise, they acknowledged that enjoyment and necessity are major influencers. **Conclusions**: Extrinsic and intrinsic influences need to be considered to fully understand the behaviour of an inactive person. Findings show people are inactive mainly due to not making a conscious choice to be. Fun and enjoyment are not seen to be associated to being active. This research concludes that to fully understand why people are inactive, what informs behaviours and choices need to be understood. Findings from this research highlights to the need to make physical activity more fun and enjoyable, or make activity necessary or integral as part of everyday life.

75. A Blueprint to Tackle Physical Inactivity: A Collaborative Approach in Cheshire and Warrington Sub-region

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Introduction: This abstracts aims to examine how Active Cheshire brought together key stakeholders to drive sustainable change to embed physical activity into everyday life. In Cheshire and Warrington, in the North West of England, 22.1% of the population aged 16+ are active for less than 30 minutes per week, directly resulting in an estimated £17.5million annual cost to the sub-region. Despite large investments over the last decade and with many organisations operating in the sector, participation figures published by Sport England since 2006 have shown to be flatlining. It is evident that a different approach is needed to tackle physical inactivity. **Activities undertaken and Results**: On October 6th, 2016, at #PartOfTheMOVEment conference, more than 250 sub-regional stakeholders mandated Active Cheshire to create a Physical Activity Task Force to explore how the levels of inactivity can be addressed locally, thus, improving health, wellbeing, and prosperity. Active Cheshire engaged "whole system partners" to create the Task Force who have co-designed and will co-deliver the strategy. The strategy aims to affect sustainable change based on consumers insight. Therefore, behavioural insight research was conducted to understand what makes people inactive with findings used to inform the development of the strategy. The strategy has five key strands; • Active Kids • Active Design • Active Workplace • Activators • Active Minds The strategy focuses on the "whole system approach" to create, encourage, maintain and embed active habits into all aspects of everyday life. On October 6th 2017, one year on from #PartOfTheMOVEment conference, Active Cheshire will host #PartOfTheMOVEment2 conference, launching of

the strategy and providing delegates an opportunity to contribute to the local plan of action. **Conclusions**: The creation of the Physical Activity Task Force has provided strategic direction for the sub-region to tackle physical inactivity. The collaborative plan focuses on the whole system approach that will build and embed physical activity into all aspects of everyday life. The key feature underpinning the strategy is to affect sustainable change through understanding the needs, demands, and lifestyles of the end users.

76. 200GA A zip code for a more active Gipuzkoa Region

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Introduction: Despite of efforts on physical activity (PA) promotion, 32.6% of women and 25.1% of men remain inactive in our territory. The initiative 200GA, included in the Strategic Plan of the Department of Sports 2016-19, seeks to extend to the municipalities opportunities and resources to generate a more active and healthy society. The main objective is to reduce a 5% the inactive population (3% men and 7% women) by 2019. **Actvities undertaken**: A multicomponent intervention strategy based on socioecological model has been deployed. On the one hand, priority population groups have been defined in coordination with municipalities. More than 100 citizens of Gipuzkoa have exposed their experience on AP. In addition, interviews were conducted with experts and scientific review. The implementation of free counseling services has been promoted throughout the territory, linked to referral from health, education and social services. A model for attention of disability has been created for Gipuzkoa, exercise and pathology guides have been edited and free training courses have been offered for instructors of sports centers. Measures to promote equity: bonuses on club fees, declaration of commitment to equity, financing of intervention projects and good practices guide. In addition, an investigation has been developed on the equity in the sports policies of the municipalities. **Results**: 12 PA counseling services in 2017. 129 people in focus groups, 44 experts interviewed. Eleven exercise and pathology guides have been distributed. 80 technicians in training sessions on exercise and pathology and disability. 109 sports clubs with bonus quota commitments, 87 clubs with equity agreements, 23 interventions in 2017/18. **Conclusions**: A multicomponent program has been implemented in coordination with the local authorities of Gipuzkoa. The progressive implementation of PA guidance services linked to referral schemes has progressed in line with the expected objectives. The project provides a common framework for policies to promote PA. Local authorities have positively valued the concretion of interventions in contrast to megaprojects.

77. National Physical Activity Pathway Improvement Programme: A Quality Improvement Approach to Implementation within Healthcare Settings in Scotland

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Introduction: The publication of the Health and Social Care Delivery Plan (Scottish Government, 2016), provides a blueprint for the future of the NHS in Scotland. The delivery plan details actions to enhance health and social care services, enabling people to live longer, healthier lives at home or in a homely setting. In this context, the delivery plan states "by 2019 the National Physical Activity Pathway (NPAP) will be embedded in all appropriate clinical settings across the health care system". Aims: Drawing on learning from the NHS Scotland Physical Activity Pathway Feasibility Study (NHS Health Scotland, 2014) and similar health behaviour change interventions, this programme draws on quality improvement methodologies to: • Create national and local infrastructure that will enable delivery • Enable health boards to test implementation within a range of settings • Upscale implementation, spreading delivery across clinical settings. **Activities undertaken**: 1. National level support and governance: Reporting to a National Strategic Group chaired by the Minister for Public Health and Sport, the Health and Social Care Physical Activity Delivery Group provides a governance role to the NPAP Working Group convened to lead the development and delivery of the improvement programme. 2. Pathway infrastructure development: Adopting an assets based approach the NPAP Working Group, will inform the development of solutions, reflecting local needs and circumstances, maximising existing resources to create the following infrastructure: • Support materials (practitioners) • e-data systems (recording/referral) • Workforce development. **Results**: These actions build on prior learning and are applied in practice via three delivery models including the use of NHS Activators as local clinical implementation leads, Allied Health Professionals (AHP) and condition specific approaches. Upscaling and spread can be enhanced via learning exchange opportunities through which good practice can be shared and improvements to delivery spread across Scotland. **Conclusion**s: Quality improvement methodologies such as the improvement journey allow the NPAP to be implemented in the context of long term transformational change within the NHS. However the pace and scale at which this happens is reflective of current resources. Nonetheless, implementation progress can be made, even if limited in scale.

78. Changes in sitting time and sitting fragmentation after a workplace sedentary behaviour intervention

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Introduction: Prolonged sedentary behaviour has been shown to be detrimental to health. Nevertheless, population levels of sedentary behaviour are high and interventions to decrease sedentary behaviour are needed. This study aimed to explore the feasibility and effect of individualized consultation intervention aimed at reducing sedentary time and increasing breaks in sedentary time in college workers. **Methods**: A pre-experimental study design was used. Participants were recruited at a 4-year College in Massachusetts, USA. Measures of sedentary behaviour were recorded using an activPAL3 accelerometer. Participants were asked to wear the accelerometer for 24 hours over 7 consecutive days and also complete a bed and wake time diary. Following the collection of baseline data, all participants received an individualized sedentary behaviour consultation. The intervention incorporated feedback from an activPAL activity monitor and was focused on limiting bouts of sedentary behaviour greater than 30 minutes. The consultation session was followed up by weekly motivational e-mails. Post-intervention sedentary behaviour measures were taken after 16 weeks. Outcome variables were sedentary minutes/day, standing minutes/day, stepping minutes/day, number of sedentary bouts lasting 10-19.99 minutes, 20-29.99 minutes and >30 minutes. Differences between baseline and follow up were analysed using paired t-tests. **Results**: Thirty-six participants took part in the intervention. The intervention did not change daily sedentary time, standing time or walking time (change -0.48%, +0.48% and -0.01%, respectively; p>0.05 for all). The number of sedentary bouts greater than 30 minutes decreased significantly by 0.52 bouts/day (p=0.015) but no change was detected in bouts lasting 10-19.99 minutes or 20-29.99 minutes (+0.02 and -0.13 bouts/day, respectively; p>0.05 for both). **Conclusions**: In this study a consultation based sedentary behaviour intervention was successful in reducing number of bouts greater than 30 minutes of sedentary behaviour. However, daily sedentary time did not reduce significantly. These results indicate that consultation based interventions may be effective if goal setting is focussed on a specific component of sedentary behaviour (e.g. reducing 30-minute bouts, including 10-minute active breaks every hour). This study did not include a control group and the results of the study should be confirmed by more structured randomised controlled trials.

79. ROUTINE - development of a PA promoting journey planner web-app. Walking stride length, gait velocity and intensity during transit routes in public transport stations

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Introduction: Active transport offers an excellent opportunity to include health-enhancing physical activity (PA) in everyday life. The use of public transit is most commonly combined with active commuting, such as walking and cycling. The aim of the study is to evaluate the stride length, gait velocity and intensity of PA during typical routes in a large railway station. The study is part of a project to extend a journey planner web-app with estimates of potential PA on the queried journey. **Methods**: Twenty seven participants (13 women; 18–74 years of age) completed 5 typical routes, e.g. from train to metro, through a large railway station in Vienna (i.e. Westbahnhof). Each participant completed the same routes but walked alone at his/her self-chosen pace. The distances within the station were measured with a measuring wheel. Furthermore, a route of 60 meters on flat ground served for reference measures. We used pedometers and heart rate monitors to measure the number of steps, time and intensity on the routes. **Results**: Mean stride length on the 60m reference route was 0.78 m (SD = 0.06 m; women: 0.74 m, men: 0.82 m). For the 5 routes, the mean walking time ranged between 109–188 seconds. The range of the mean stride length was 0.63–0.76 m (SD = 0.06–0.08 m) with high correlation (r > .76) to the gait velocity (mean = 1.20–1.54 m/s; SD = 0.14–0.16 m/s). Based on the median values, participants walked 94 % of their time with moderate- to vigorous-intensity (≥ 50 % HRmax). Around 46 % (median) of the walking time was with vigorous-intensity (≥ 70 % HRmax) on the route with 142 stairsteps upstairs. **Conclusions**: This is one of the first studies measuring the walking potential within a public transport station. Although the walking bouts are less than 10 minutes, the walking intensity is mostly moderate and reaches vigorous-intensity when people walk upstairs. Thus, using public transport helps to accumulate steps per day with at least moderate-intensity. Acknowledgement: This study is funded by the Austrian Ministry for Transport, Innovation and Technology (BMVIT); FFG-grant: 854937.

80. Predictors of Falls in an Evidence-Based Community-Delivered Physical Activity Intervention for Rural Older Adults

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Introduction: The Tai Ji Quan: Moving for Better Balance (TJQMBB) program is an evidence-based, community-delivered physical activity program that reduces falls in older adults. A 16-week intervention was conducted to translate TJQMBB into a new community setting (churches). This study describes the: 1) frequency of falls and injuries; 2) the fallers and fall events; and 3) the sociodemographic, clinical, and functional performance characteristics at baseline that predicted falls at 16 weeks. **Methods**: The study included rural community-dwelling adults aged 55 years or older. One-hour classes were held twice weekly at 15 churches. Baseline data were collected via questionnaires (sociodemographics, clinical data) and performance-based tests: Arm Curl (upper extremity strength), 5 Times Sit-to-Stand (lower extremity strength), Timed Up-and-Go (mobility), and 5- or 10-Meter Walk (gait speed). Fall/injury data were collected via monthly calendars, questionnaires, and interviews. Multiple logistic regression was performed to identify baseline predictors of falls. **Results**: This analysis included 193 participants (mean age 72 years, 82% female). There were 151 (78%) non-fallers and 42 (22%) fallers at 16 weeks (21% frequent fallers with > 1 fall, 38% with injuries). The 42 fallers reported 56 falls, of which 16% required medical care. Falls occurred equally indoors (50%) or outdoors (50%). Most commonly injured areas were the knees, arm/elbow, or head/face (20% each). At baseline, fallers were significantly more likely to report low back pain ($p<0.01$); use an assistive device to walk ($p=0.02$); report pain, stiffness, or swelling that limited activities ($p=0.02$); be frequent fallers ($p=0.04$); or have slower gait speed ($p=0.01$) compared to non-fallers. In the regression model with age, gender, and these 5 predictors, low back pain (OR 12.3; 95% CI 2.7, 56.1) and presence of pain, stiffness, or swelling (OR 2.7; 95% CI 1.2, 6.1) were significant fall predictors. **Conclusions**: In a physical activity intervention, participants with low back pain or pain, stiffness, or swelling at baseline were 12.3 and 2.7 times more likely to fall, respectively, than participants without these conditions. Further investigation is needed to determine if targeting older adults with these conditions with more intensive or different exercise interventions would reduce falls in this population.

81. Thirty years of the SLO-fit: its legacy

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Introduction: The SLOfit is a national surveillance system for physical and motor development of children and youth in Slovenia, which has been enabling annual monitoring of physical and motor status of children in all Slovenian schools from 1987 onwards. On the national level, the SLOfit data serves as scientific backbone for most of the policies, related to improvement of physical activity of children and youth and the policies, related to school physical education. **Activities undertaken**: Every April, almost the entire Slovenian population, aged 6 to 19 is measured by 8 motor tests and 3 anthropometric measurements. Annual measurements allow researchers to constantly monitor the population developmental trends, while teachers use the analysed data to identify children with special developmental needs, to follow the development of every individual child and adjust the teaching process to the needs and capabilities of children. Centralised management and evaluation of data with unique feedback system enables children and parents to compare their development with the development of their peers and identify the needs for improvement. **Results**: To date the SLOfit database includes over 7 million sets of measurements of over 1 million children and is one of the largest cross-sectional and cohort database of physical and motor development in the world. Data from the SLOfit is regularly included in the Childhood Obesity Surveillance Initiative of the World Health Organization and often pooled for analyses of global secular trend analysis. **Conclusions**: Slovenian educational policy, informed by the SLOfit data, managed to develop one of the most efficient system of physical education and extracurricular sports programs in the world, which results in very favourable level of physical fitness and physical activity of children in Slovenia in comparison to the rest of the world.

82. My SLO-fit web application

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Introduction: The rich legacy of the SLOfit, a national surveillance system for physical and motor development of children and youth in Slovenia, challenges us for well-designed further development of system. Despite its strengths, it has a huge potential for improvement. **Activities undertaken**: We prepared the web application My SLOfit, which allows parents and secondary school students web access to students' SLOfit results. PE teacher could also see a student's SLOfit results via this application as well as a students's physician or others persons invited by parents. **Results**: On My SLOfit annual SLOfit data are available with following feedback: progress of student physical fitness through all schooling years, comparison of his/her physical and motor development with peers, fitness and health-risk category of individual SLOfit results. In next years, we are planning to improve the My SLOfit application by: providing feedback about physical activity and other lifestyle habits of students based on questionnaires; linking the SLOfit database with the existing systems for tracking physical activity and enabling students to enhance their profile also by adding information on their physical fitness or using automated trackers such as smartphones smart bracelet trackers and other trackers of physical activity; providing annual user-friendly SLOfit reports for parents, students, PE teachers, ministry and other decision makers; providing expert advices on SLOfit forum and occasional messages for parents and students if the SLOfit analysis suggests that recommendations for physical fitness or activity are not met; developing predictive models, which could visualize health risks and raise the awareness of students, parents, teachers and physicians regarding the health risks due to physical inactivity. **Conclusions**: By My SLOfit we will build infrastructure for lifelong surveillance of physical fitness, ease sharing of information between PE teachers and school physicians, which increases the risks of incorrect diagnoses from the medical side and the risks of contraindicative physical exercising or total excusing from exercise from the educational side. At the same time, we will rise awareness of the parents and students about the consequences of poor physical fitness of a child and the adequacy of child's habitual physical activity.

83. Active senior's opinion about importance of physical activity

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Introduction: The purpose of this study was to determine the opinions of active seniors about the importance of physical activity (PA) in their age, gender differences and to determine a correlation between age and disease as well as a correlation between education level and perception of the importance of physical activity. **Methods**: The data were collected via questionnaire. The total number of participants was 130, out of which 11 male (8.5%) and 119 female (91.5%) subjects age between 65 to 92 (M = 74.91; sd = 5.94). Analyzed variables include basic socio-demographic characteristics (age, gender, educational level, years of active involvement in PA), variables of perception of exercise importance, list of diseases and quality of life variables. The data were statistically processed and descriptive statistics, independent sample t-test and correlation analysis were used. **Results**: All respondents consider that PA for their age is important and that PA exerts their own health. It is considered by 31.3% of the respondents that the physiotherapy is sufficient to improve the condition of the injury, while 68.8% disagrees with this statement. 93.6% of participants believe that PA can prevent often doctor visits. 30% of subjects highlighted the various positive influences that physical activity has on physical health, and 29.2% of them highlighted the socialization and psychological benefits that they feel as a result of physical activity. Gender differences have not been established. The correlation between the age and diabetes type II and osteoporosis was established. Regarding diabetes type II, a statistically significant low positive correlation ($r = 0.213$; $p < 0.03$) was found. The correlation analysis showed that there is no correlation between the respondent's educational level and their perception of the importance of exercise. **Conclusions**: All participants emphasize the importance of PA among older adults and the benefits it brings, no matter the education or gender. Knowing the data from researches about the influence of PA on chronic non-contagious diseases, this study confirms the awareness of that data among senior public practice.

84. More Effective Lifestyle Guidance for Social and Health Care Cross-Functionally in Finland

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Introduction: Effective Lifestyle Guidance for Social and Health Care Cross-Functionally (VESOTE) program is one of a leading project of the Finnish government and it is funded by the Ministry of Social Affairs and Health during 2017-2018. The VESOTE program reinforces and develops effective and target-based lifestyle guidance in social and health care. The development activities emphasise physical activity (PA), nutrition and sleep. The final goal of the program is for Finns to be more physically active, sit less, eat a varied and healthy diet and sleep better. The main responsibility lie with the UKK Institute. Many National co-operator organisations, experts, 10 health care districts, many municipalities, PA and leisure services, PA and social and health organisations take part in the VESOTE program. **Activities undertaken**: VESOTE goals: - Adopting and reinforcing effective and high-quality lifestyle guidance operating models. - Developing lifestyle guidance expertise. - Utilising and spreading best practices. - Reinforcing the multi-functionality and multi-professionality of lifestyle guidance. - Utilising the expertise and experience of the third sector in lifestyle guidance. VESOTE activities: Regional and web-based training for professionals: - bringing up the topic of lifestyle behaviors - guidance on PA, nutrition, sleep and treatment of sleep disorders without medication. Developing and reinforcing treatment and service chains. Creating regional co-operation networks. Objective monitoring of PA and sleep, as well as utilising information in lifestyle guidance. Assessing the effectiveness of lifestyle guidance. **Results**: The diverse activities of the program are implemented at different levels simultaneously. Regional operators will define their own lifestyle guidance development activities and target groups. The effective, high-quality development activities will form a virtual lifestyleclinic that will include lifestyle guidance tools and methods for professionals. A lifestyle guidance service palette will also be created for the clinic, which will help professionals direct the customer onto the lifestyle guidance path. **Conclusions**: There are over 4 million inhabitants and 184 municipalities in the area covered by the VESOTE program. The idea of the VESOTE program is to promote health and well-being in Finland and to reduce inequality by putting good practices into permanent use widely in social and health care cross-functionally.

85. The objectively measured sedentary behavior and physical activity levels of children and adolescents in the LIITU-study in Finland

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Introduction: The recent development in objective measurement methods has given more results about children and adolescents sedentary behavior (SB) and physical activity (PA) levels. The LIITU2016-study measured levels of SB and PA objectively for the first time among 3rd, 5th, 7th and 9th graders in Finland. **Methods**: In the LIITU2016-study the SB and PA were measured by a triaxial hip-worn accelerometer (Hookie AM20, Traxmeet Ltd., Finland). Teachers delivered the accelerometers to pupils at school and a week later the pupils returned the devices back to schools.SB (sitting, lying) and standing in six-second epochs were recognized from acceleration data using angle for posture estimation method. PA was analyzed on the basis of mean amplitude deviation converted to metabolic equivalents (MET) and intensity was calculated as the one-minute exponential moving average of epoch-wise MET values.3284 children and adolescents wore the accelerometer. 90 % (n=2931, 59 % girls) used the accelerometer for at least 4 days, 10 hours per day. Users by grades; 3rd: 895, 5th: 885, 7th: 679 and 9th: 472. **Results:** Children and adolescents spent about half of their measured accelerometer usage time sedentary (7h 26min). The amount of SB was smallest among the 3rd graders (6h 41min) and it grew constantly according the grades. Standing time was approximately 78min per day and the amount rose with age. Children and adolescents had a break in SB 37 times a day.Children and adolescents spent approximately 3h and 31min per day in light PA. The younger children and girls had on average more light PA than boys and adolescents. About 10% of the accelerometer usage time consisted of moderate PA (92min) and only few percent about vigorous PA (14min). Children were more active than adolescents and boys were more active than girls. **Conclusions**: More objective and systematic research of SB and PA is needed in Finland. Next LIITU-study will be conducted in 2018.In the future we should analyze children's and adolescents' daily routines in more detail to find out the most potential time slots to reduce SB and increase PA. We should also put more emphasize on the adolescents' SB and PA interventions.

86. Psychosocial factors and physical activity among participating men in The Adventures of Joe Finn Campaign - Social marketing perspective

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Introduction: Social marketing is a likely strategy to design health campaigns. This study aims to identify differences in psychosocial factors, physical activity (PA) and physical fitness among Finnish men who participated in the Adventures of Joe Finn Campaign, including its fitness tests. The research framework was based on the Health Action Process Approach (HAPA) and principles of social marketing. HAPA guides the explanation of health behaviors at the individual level within the wider framework of social marketing. **Methods**: will help in targeting social marketing for men in further campaign. Methods: Data were collected during the lorry tour of the Adventures of Joe Finn Campaign in 2011 and by an email survey in 2014. Physical fitness was estimated with a body fitness index (BFI) based on the Inbody 720, Polar OwnIndex test and a hand grip test. Self-reported PA and psychosocial factors (knowledge, skills, social support, goal setting and self-efficacy) were elicited by questionnaire. At baseline, 900 men (Mage=43.9, SD= 12.7) engaged in the study. Later, 361 (40 %) of these men were assigned to a "need-for-change" group on the basis of a low or moderate BFI, high body mass index (BMI>25 kg/m2) and indications of an abdominal obesity. In 2014, 102 of these men completed a follow-up questionnaire. **Results**: Low self-efficacy, poor skills, lack of goals and lower social support differentiated low-fit men (19 %, N=172) from their high-fit counterparts (38 %, N=342). The post campaign survey indicated that, in the "need-for-change" group, men who reported positive changes in PA over time, had higher PA goals at baseline and they expressed stronger promoters for PA than those who remained at the low PA level. **Conclusions**: The results suggest that social marketing for low-fit men needs to focus on promoting self-efficacy and self-regulatory skills. Even low-demanding fitness tests can promote goal setting but low-fit men will need also further support, such as individual counseling, access to local PA groups or regular use of self-monitoring tools. The co-operation with different stakeholders would enable an effective social marketing and continuous availability of individual support beyond campaign events.

87. Motivational profiles, physical activity and perceived need for Academic Sports – Cluster analysis among Finnish students

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Only one third of Finnish academic students meet physical activity (PA) recommendations. Universities are potential cost-effective settings for PA promotion. However, both personal and structural factors can hinder students' engagement in PA. This study examined motivational profiles of academic students, and their relationships with PA and perceived need for Academic Sports (e.g. exercise classes, gym, PA counseling). Participants were 4114 academic students, aged 30 or younger, who answered to the Finnish Student Barometry in 2016. PA was assessed by IPAQ-short version (MET-min/wk). Motivation for PA was examined by Sports Motivation Scale (SMS) which differentiates autonomous (AU) and controlled (CO) forms of motivation and amotivation (A). Perceived need for Academic Sports were asked by a questionnaire. Data were analyzed by confirmatory factor analysis, cluster analysis and Multivariable Analyses of Variance (MANOVA). Four motivational profiles were distinguished: 1=Amotivation (high A, low CO & AU), 2=Ambivalent motivation (high A, moderate CO & AU), 3=Moderate motivation (low A, moderate CO & AU) and 4=High motivation (low A, high CO & AU). Profiles 1 and 2 were the least active and differed from profiles 3 and 4. Only 15 % and 17 % of students in profiles 1 and 2 reached the recommendations for PA. Amotivated scored Academic Sports the least important in general. Ambivalently motivated scored other services low but personal PA counseling was as important for them as reported among highly motivated. Moderately motivated perceived gym as an important service while highly motivated, in profile 4, valued personal PA counseling and exercise classes more than profile 3. High amotivation was related to insufficient PA and low perceived need for Academic sports. In turn, high overall motivation was associated with high PA and interest to Academic Sports. Among the two least active profiles, amotivation formed a barrier to PA although moderate AU and CO motivation was reported by ambivalently motivated. Ambivalently and moderately motivated profiles would be the most fruitful target groups for further interventions. Our identified motivational profiling will be further benefit the ongoing work of the Academic Sports policy recommendation working group in helping to identify effectively targeted policy practices.

88. Cross-validation of a PACER prediction equation for assessing aerobic capacity of children with visual impairment

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Introduction: The Hungarian National Student Fitness Test (NETFIT®) is a health-related, criterion-referenced test system developed by the Hungarian School Sport Federation (HSSF) and The Cooper Institute (TCI) that was implemented in 2014/15 in schools throughout the country. The test battery was developed for typically developing children (TDC), so the interpretation of the test results was difficult for students with special educational needs (SEN). The purpose of this sudy was to evaluate the validity of the Progressive Aerobic Cardiovascular and Endurance Run (PACER) test for children with visual impairment. **Methods**: 20 partially sighted and 20 legally blind children (aged 10–19 years old) were selected randomly from 3 special schools to complete both laboratory (maximal treadmill protocol) and field assessments (PACER) of aerobic capacity. Agreement between lab- and PACER-derived peak oxygen consumption (VO2) was examined using linear regression analyzis and two-sided equivalence testing techniques, respectively. **Results**: The final sample resulted in a total of 22 visually impaired children. The regression modell used in NETFIT® fit well for the partially sighted children (R2=0.827), but not for blind children. There was a significant difference between the predicted and the measured peak VO2 values by blind children (34.88 vs. 39.14 mL/kg/min, t=-2.287, p=0.038). Multiple regression analyzis of PACER performance variables and peak VO2 measures indicated the best model for estimating relative peak VO2 for blind children: peak VO2 =43.608 + (0.636*shuttles) – (0.829 * BMI). The lab and PACER VO2 using the new regression model shared 84% of the variance by blind children (R2=0.835) and that limits of agreement ranged from -9.86 mL/kg/min to +18.9 mL/kg/min. The absolute error values were 1% for girl and 11% for boys, and the average peak VO2 estimates from PACER were within the 10% equivalence region for both sexes (girls: 35.22 to 28.18 mL/kg/min, boys: 37.82 to 46.22 mL/kg/min). **Conclusions**: The PACER test using the new regression model for blind children is a reliable field test to assess aerobic capcity for children with visual impairment. From the schoolyear 2017/2018 the adapted NETFIT® will use this method in the mandatory assessments.

89. The presentation of the adaptation process of the Hungarian National Student Fitness Test (NETFIT®) to children with special education needs

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Introduction: From the academic year of 2014/2015 the assessment of fitness level of every student (grade 5-12) is mandatory regulated by law in Hungary. NETFIT® is a health-related, criterion-referenced fitness test-battery, which was developed in joint cooperation by the Hungarian School Sport Federation (HSSF) and The Cooper Institute. The fitness standards of the assessment were developed and researched on typically developing children (TDC). The HSSF was authorised by the Hungarian government to adapt the NETFIT® to children with special education needs (SEN). **Methods**: During the adaptation process following a systematic literature review semi-structured interviews were taken with 22 PE teachers from 10 special schools. Based on these, five research plans were developed by disability areas (mild intellectual disability (MID) and other declared psychological developmental disorder (ODD), autism spectrum disorder, visual impairment (VI), hearing impairment, physical disability). The physical fitness of 1214 children with different kinds of disabilities was measured with NETFIT® and alternative tests, and the quality of life using the KidScreen questionnaire. In the field of MID and ODD our aim was to compare the percentile distribution of the test results with the results of TDC. For children with autism spectrum disorder and VI reliability researches were conducted and three cardiovascular fitness tests (PACER, 1mile walk test, YMCA step test) were validated on VI children. **Results**: The physical fitness of children with different kinds of disability is lower than that of TDC. The results of musculoskeletal tests of children with MID were on average 20 percentile rank lower than those measured for the TDC. Based on the currently used standards and equation estimating peak VO2, in PACER test only 7.7% of blind children reached the standard of healthy fitness zone in comparison with 61,8% of TDC. **Conclusion**: The NETFIT® will be adopted for children with different kinds of disabilities. The healthy fitness zone standards will be lowered for MID. In the case of blind children a newly developed equation will be used to estimate peak VO2. In other disability fields, certain NETFIT® tests will be optional, and we expand the NETFIT® with some alternative test items.

90. Higher academic achievement is associated with less unfavourable changes in physical activity and sedentary time during puberty

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Introduction: Many recent studies have shown an association between physical activity (PA) and academic performance. However, in studies with objectively measured PA the association and the direction of the association remains unclear. Further, very little evidence exists on the associations between objectively measured sedentary time and academic performance. Thus the aim of this two-year follow-up study was to determine whether academic performance was associated with the level and change of children's moderate and vigorous PA (MVPA) and sedentary time (ST) both in school and in leisure time during weekdays. **Methods**: Data was collected during a two-year follow-up including five measurements. The students (508 girls and 462 boys) were from nine Finnish schools and aged 12.6(1.3) years at the time of the first measurement. The children's MVPA and ST were measured objectively for one week with a hip-worn accelerometer (Actigraph GT3X). Cut-points for MVPA and ST were defined according to Evenson (2008) and the data was analysed separately for school-time and leisure-time. Academic achievement was defined as the grade-point average (GPA) for the school-year and provided by the education services. A linear growth curve model (within multilevel context) was used to study the level and slope (rate of change) of MVPA and ST. Variation in level and slope was explained by school performance (GPA) at baseline (2013) after controlling for seasonal variation. **Results**: In general MVPA decreased and ST increased during the two-year follow-up period during puberty. Higher baseline GPA was positively associated with the slope of leisure-time MVPA (b=0.109, p=0.005), and inversely associated with the slope of leisure-time sedentary time (b=-0.225, p=0.005) indicating less unfavourable changes in these leisure-time behaviours during follow-up. Baseline academic performance was not associated with changes in school-time MVPA or ST. **Conclusions**: Students with lower academic achievement seem to be more vulnerable for unfavourable changes in leisure-time physical activity and sedentary time during puberty.

91. Family associated factors influencing physical activity in 5th-9th grade school children in Slovenia

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Introduction: Social environment, especially family associated factors, has an important role on physical activity (PA) among children. Parental PA, logistic support, socioeconomic status and joint activities with their children were correlated positively with PA among children. Our aim was estimating the prevalence of family associated factors influencing PA in Slovenian 5th -9th grade school children (aged 10-14 years), and examine whether there is an association with self-reported PA and physical status. **Methods**: Data were obtained from the cross sectional study ARTOS 2013. 1911 school children enrolled in grades 5th to 9th of 11 elementary schools were included in the research. Anthropological measures and self-reporting questionnaires for children and their parents were used for data collection. Frequency of family related factors was assessed and linked to PA indicators and physical status. Descriptive statistics were used for analysis. Differences were statistically significant at $p \leq 0.05$. **Results**: According to the data most of parents finished secondary school, are employed and about one third reported a sufficient economic status. Most of the parents encourage (85.6 %) and provide logistic support (92.6 %) for PA to their children. 36.7 % of families had a dog and 49.5 % of children reported walking the dog by themselves. A positive association is seen between gender, age, parental education, family economic status, parental encouragement, parental logistic support and leisure time sport activity. Other leisure time PA was positively associated with parental encouragement and logistic support. Body mass index (BMI) shows positive association with age, parental employment and education. Gender and parental logistic support are positively associated with triceps skinfold thickness (TST). Positively associated with active travel to school were gender, age, parental education, economic status, dog ownership, walking the dog and parental logistic support. There was no statistically significant association found between dog ownership, siblings, and PA, BMI or TST among children. **Conclusions**: These findings prove the important role of family-associated factors, such as education and employment of parents, parental encouragement and logistic support, on children's PA and consequently their physical status. The results suggest that targeting parents in PA promotion activities, could positively influence children's PA habits.

92. Key Project Strength in Old Age Implementation

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Introduction: Strength in Old Age Program, coordinated by the Age Institute, developed and implemented research-based good practices of health exercise in cross-sectorial collaboration in 38 municipalities in 2010-2015. The target group consisted of community-living 75+ persons with decreased mobility. The aim was to produce strength and balance related group exercise and outdoor exercise. For launching new activities and updating exercise skills, trainers were trained to organize local training for various sectors. The target group was well-reached with the help of outreach work and exercise counselling. Participation was especially rewarding for the socioeconomically challenged. The model of program and good health exercise practices were chosen for implementation as part of the governmental health promotion key project (2017-2018). The aim is to 1. make municipalities aware of good practices and older target groups, 2. have a total of 110-130 new municipalities registered in the project and commit municipal authorities to Strength in Old Age activities, and 3. engage the target group in beneficial exercise activities. **Activities undertaken**: The means to distribute good practices include social marketing, communication, training, and learning together. The distribution is supported by an extensive network of collaborators, including several national NGOs. External communication includes presentation materials, websites, handouts, Twitter feeds, bulletins, electronic newsletters, fairs and seminars. Internal communication includes telephone calls, e-mails and electronic support packages. Learning arenas include regional seminars and workshops, training-the-trainers courses, online studies, and a closed Facebook page. The following good practices with support materials are offered to the key project municipalities: 1. Exercise councils of older people, 2. Intensive exercise in the gym and further training groups, 3. Mobility tests, and 4. Health exercise with peers (e.g. gym friend activities). Age Institute's website on senior activity parks supports the project. **Results:** So far 70 municipalities have registered into the project. In the spring 2017 about 100 trainers were trained, and more than 400 key persons participated in seven regional seminars. The cross-sectorial implementation of good practices has started in several municipalities. **Conclusions**: Easily applicable good practices have been widely popular and municipalities have committed to the development of the target group's exercise needs.

93. 'Men on the Move': A community-based physical activity programme for adult men in Ireland

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Introduction: Men in Ireland have a life expectancy 4.5 years lower than women, are less likely to engage in healthy lifestyle behaviours, and are less likely to use health services. Physical activity (PA) is a prophylactic to many of the chronic conditions affecting men. Traditional patterns of male behaviour pose inimitable challenges in targeting health behaviour change among men. Increasing evidence suggests that gender-specific strategies are necessary in creating sustainable PA programmes that appeal to men. It is also well established that men will engage with approaches that prioritise community-based settings over healthcare settings. This study reports on the physical fitness and body morphology adaptations of Irish men who engaged in a 12-week community-based PA programme; Men on the Move. **Methods**: 927 inactive males were recruited across 8 counties (4 intervention [n=501]; 4 comparison-in-waiting [n=426]). The programme consisted of structured group exercise for 1 hour twice weekly along with two facilitated health-related workshops. Participants were assessed at baseline, 12, 26 and 52 weeks. Inferential statistical analysis ($p \leq 0.05$) were undertaken on the between group change scores from baseline at 12W, 26W and 52W time-points. The intervention targeted a 1 MET increase in aerobic fitness, 5% weight reduction and 5cm waist reduction. **Results**: Baseline results present approximately one in ten men with a 'normal' BMI, 45.5% classed as obese, and 44.2% overweight. Results post-intervention at 12W, 26W and 52W time-points ($p \leq 0.05$) respectively found 73%, 71% and 52% achieved a 1 MET increase in fitness; 14%, 16% and 22% achieved a 5% reduction in bodyweight; and 49%, 46% and 43% achieved a 5cm reduction in waist circumference. **Conclusions**: The results indicate that the programme succeeded in reaching its target population, with just 10.2% of men recruited being of 'normal' weight. Post-intervention results suggest that supporting inactive men to increase their physical fitness can lead to significant reductions in health risks. Men on the Move is innovative in its gender specific approach to a public health issue among a 'hard to reach' population group, and is the first step to establishing a nationwide PA programme in community-based settings targeting inactive men in Ireland.

94. Adaptation of the NETFIT® to children with intellectual disabilities – results of the national research

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Introduction: From the school year 2014/2015 the implementation of the Hungarian National Student Fitness Test (NETFIT®) was mandatory from 5th grade up in every public education institute. The test battery was developed to examine the health-related fitness status of typically developing children (TDC), so the interpretation of the test results was difficult for students with special educational needs (SEN). The Hungarian School Sport Federation was authorized to implement the adaptation within the framework of the priority project EFOP 3.2.8. The progress started with a nationally representative research of the two largest groups of the 52552 children with SEN, who are students with mild intellectual disability (ID) and other declared psychological developmental disorders (DPDD), in order to adapt the existing health-related standards and to evaluate the applicability and reliability of the NETFIT® in the given population. **Methods**: The study sample consisted of 10-18 year-olds with mild ID (N=429) and other DPDD (N=440), who have no other disabilities or cardiovascular problems affecting motor activity and lack orthopedic lesions. NETFIT® tests were assessed, and the results were categorized into 3 fitness zones: healthy fitness zone (HFZ), needs improvement zone and needs improvement –health risk zone. The connection between the tests result and the IQ was analyzed with Pearson's Correlation. Results Both students with mild ID and DPDD had lower levels of HFZ achievement rates than their TCD counterparts based on the already existing health-related fitness standards for the musculoskeletal fitness tests. The percentile ranks of the standards in the push up, curl up, standing broad jump, handgrip and trunklift tests were on average 20 percentile rank lower than those measured for the TDC. **Results**: show a significant negative correlation between the standing broad jump test and IQ, for children with mild ID (r=-0.213, p<0,05). **Conclusions**: Based on the experience of the study it can be stated, that the adaptation and revision of the standards was necessary in order to evaluate the fitness status of children with SEN realistically and therefore establish a health-related fitness assessment. In the tests that need complex motor coordination and pace keeping, specific, adjusted standards are recommended.

95. Regular exercise decreases problematic internet use in children

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Introduction: In the last decades, Internet use among children has steadily increased. The problematic Internet use is detrimental to both physical and mental health. The purpose of the study was to investigate the profile of children using the Internet as well as their correlation with regular exercise. CES-DC), perceived health status (Visual Analogue Scale of 0 to 100), regular exercise (≥5 days/week for at least an hour), BMI z-score, school performance and socioeconomic status were measured. Data were analysed using the SPSS 24.0 statistical package, p≤.05 was considered statistically significant. **Methods**: A total of 189 children between the age of 10 to 15 (47.6% males) took part in this study from a primary school in an urban area of North-Eastern Hungary in 2017. The response rate was 86.7%. Internet use (Internet Addiction Test), well-being (WHO-5 Well-being Index), life satisfaction (Cantril ladder on a scale of 1 to 10), depression (Center for Epidemiological Studies Depression Scale for Children **Results**: 51.1% of children exercised at least 5 times a week for an hour without gender difference. There was association between regular exercise and socioeconomic background (X2(2)=6.750, p<.034) as well as perceived health status (F(1,184)=6.225, p=.013). Children with wealthier background exercised more, and the more active children had better health status. 14.3% of children were identified as problematic Internet users dominated by boys (Boys: 39.20 ±13.08 vs. Girls: 33.18 ±10.37; p=.001). There was significant correlation between internet use and regular exercise (F(1,186)=4.477, p=.036). That is, those with appropriate regular exercise had more favourable scores (34.14 ±11.19) than their less active counterparts (37.85 ±12.83, p=.036). In the regression model, predictors of internet use were gender (t=-3.326, p=.001), school performance (t=-3.302 p=.001), life satisfaction (t=2.728, p=.007) and regular exercise (t=-2.187, p=.030).**Conclusions**: Our study suggests that the prevalence of problematic Internet use is high among children in the age group of 10 and 15. Problematic Internet use is predicted by male gender, worse achievement at school, unfavourable life satisfaction and less exercise in children. Encouraging children to be physically active and offer different sport opportunities in school settings seems an achievable goal for prevention.

96. A systematic scoping review of studies analysing national-level physical activity and sedentary behaviour policies

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Introduction: Physical activity (PA) policy research is often referred to as an underdeveloped area. This scoping review aimed to assess the frameworks, methods, and results of previous studies that have analysed the existence or content of national PA or sedentary behaviour (SB) policies. **Methods**: A systematic literature search of peer-reviewed publications, doctoral theses, and master's theses with abstracts in English was conducted independently by two authors in July 2017, using the following databases: SPORTDiscus; PubMed/MEDLINE; Web of Science; Scopus; Open Access Theses and Dissertations (OATD); and Networked Digital Library of Theses and Dissertations (NDLTD). Additional searches were conducted using Google and through the web sites of the World Health Organization, the Global Observatory for Physical Activity, and the Active Healthy Kids Global Alliance. The reference lists of all documents selected in the primary search were also checked. **Results**: Out of 24,738 screened documents, 201 publications from 164 studies met the selection criteria. The overwhelming majority (86%) of PA/SB analyses concerned countries with high and very high human development index (HDI) scores and only 4% were related to countries with a low HDI. For 43% of studied countries no policy analysis was conducted, but only data about the existence of any national PA plan was available. Finland, Canada, Australia, and Netherlands were the most researched countries with respect to national-level PA and/or SB policies. Only 17% of studies were based on a theoretical or conceptual framework. Seven percent of the studies used content analysis and two percent used discourse analysis as their research methods. The HEPA Policy Audit Tool (PAT) was used in only two percent of the studies. The majority of the remaining studies used a literature search and expert review as their main research method. SB policies were investigated in only 19% of the studies. **Conclusions**: Thorough PA/SB policy analysis has been conducted in few countries, including mainly those with very high and high HDI. Further efforts to expand research related to SB policies is needed. More PA/SB policy research is necessary to inform public health stakeholders and future policy development, especially in countries with medium and low HDI.

97. Promoting physical activity at primary schools – Effects of characteristics and the use of playgrounds on children's physical activity levels

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Physical inactivity and an inactive lifestyle are common risk factors for health, even during childhood. The aim of this study is to identify the effects of characteristics and the use of playgrounds at primary schools on physical activity (PA) of first and second graders. Baseline data of 1787 children (7.1±0.6 years) participating in the Baden-Württemberg Study was analysed. Characteristics such as size and design of playgrounds, its use as well as children's height and weight were assessed during a school visit. PA and socioeconomic factors were assessed via parental questionnaire. Factors associated with physical activity were identified using gender-specific logistic regression models. Boys met recommended guideline of at least 60 minutes of moderate- to vigorous-intensity PA on four or more days per week significantly more often (OR 1.71). Whereabouts during school breaks (OR 0.65) as well as the playground size (OR 0.65) were negatively associated with PA. For girls, a positive association between playground design (OR 1.74) and PA was found. The examined factors are associated with PA in primary school children and, should therefore be considered when developing and implementing interventions to improve PA at schools. These interventions should especially target girls since at primary school age already girls are less physically active than boys. An appealing playground design could therefore contribute to promote PA in girls.

98. ActionTrack mobile application in teaching outdoors and pupils' physical activity

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Introduction: In Finnish Government Programme 2015, new learning environments and the increase in physical activity at school are mentioned among the objectives of the development of knowledge and education. It is known that most of the time pupils are sitting during the school day in Finland. ActionTrack application permits a new way to teach outdoors with mobile application during the school lessons. By the application it is possible to connect teaching tasks and physical activity. In this study it was analyzed how the use of ActionTrack application in teaching outdoors is associated with the levels of pupils' physical activity. **Methods**: This study was experimental, for the target group it included ten weeks' intervention. The target group consists of two school classes of fifth grade (experimental class, n=18; control class, n=16, average age in both classes 11.6). The experimental group had classes where ActionTrack application was applied two or three times a week during ten weeks. The classes of the control group were organized as usually. The physical activity of the pupils was measured by the Actigraph accelerometers before the intervention, in the middle of it and at the end of the intervention. The changes of physical activity were analyzed during the whole day and during the time spent at school. Repeated Measures Anova and Wilcoxon's test were used in the analysis. **Results**: According to the results, the changes were not noticed in neither groups in daily physical activity. Whereas during the time spent at school the average time of at least moderate intensity was increased in the intervention group, especially at the beginning of the intervention. Similar changes were not noticed in the control group. At the end of the intervention the average time of at least moderate intensity was increased in the experimental class while the change in the control class was opposite. **Conclusions**: It can be concluded that according to this study, the use of ActionTrack in teaching increased physical activity during the school time. Use of applications such as ActionTrack application in teaching can be recommended when the goal is to increase physical activity at school.

99. Physical activity of students at Brno University of Technology

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Introduction: Nowadays, the population lifestyle is affected by a number of factors. In the specific social group of university students the key factors are the character of their study, opportunities to join a physical activity and the students´ attitude to regular physical exercise. The aim of our research was to find out the volume of physical exercise and sedentary activity in the course of seven subsequent days throughout a semester encompassing the students´ study time and leisure time. **Metods**: Group: Bachelor students of Brno University of Technology (n=558), 276 women and 252 men. Design: The long IPAQ form was chosen for the research. We used results based on questions from Part 1: questions 2-7, and Part 4, questions 20-25. **Results**: It has been found out that 49.8 % of the students declared high-intensity and 44.8% medium-intensity loading at the time of study, 62.2% of the students indicated 10 minutes of walking daily. At the study time the load was 3594 MET/week. For leisure time, 76.0% of the students indicated 3.7 days of walking over ten minutes, on average 77.1 minute per day, 69.9% of the students indicated an intensive physical activity, the average time is 84.9 minutes per day and 43.7% of the students indicated medium-intensity physical activity, on average 67.3 minutes per day. One week leisure time activity was assessed at 1596 MET. The time of sedentary occupation is rather long at a technical university, 6.8 hours/day at study time and 4.97 hours/day over the weekends. **Conclusions**: The desired walking time is indicated by a relatively high number of students for study as well as leisure days. The students indicated lower physical activities for leisure time than for study time, which is somewhat surprising as the system of study in most programmes encompasses lectures and seminars where the students are sitting, and laboratory practise with both physical and sedentary activities.

100. Stimulating physical activity; systematic development and testing of a community-based intervention for hard-to-reach physically disabled people

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Introduction: Physically disabled people participate less in physical activity than healthy people. Most existing physical activity interventions are rehabilitation- or school based, limiting their reach. The current study aims to develop and test a community-based intervention for stimulating physical activity in hard-to-reach physically

disabled people. **Methods**: Intervention Mapping (6 steps) was used for systematically developing a physical activity intervention. In the needs assessment the physical activity level and health related quality of life of patients after rehabilitation was determined using questionnaires (step 1). Next, experts and physically disabled people were asked for their ideas about intervention objectives, determinants and design of the intervention using qualitative research (steps 2 and 3). Since experts expressed no need for a new intervention, the existing intervention "Activity coach" was adapted to the specific target population. Within the adapted intervention, "Activity coach+", participants will be reached by a network of intermediate organisations from medical and social background, and referred to an activity coach. Participants will have a pre intervention physical assessment by physiotherapists, and will be individually guided to existing organized or non-organized activities by the activity coach. Participants will be coached one year. In order to monitor and stimulate physical activity in daily life, participants receive an activity tracker (step 4). Activity coaches were trained and meetings between involved parties are organized to support adoption and implementation of the "Activity coach+" (step 5). "Activity coach+" is implemented in community March 2017, and will be evaluated using a mixed-method design. Effects of the intervention on health and social participation will be quantitatively evaluated using questionnaires and physical assessments after 0, 2, 4, 6 and 12 months. Physical activity will be evaluated using an accelerometer. The implementation process and experiences with the intervention will be determined using qualitative research, based on the RE-AIM framework (step 6). **Results**: First experiences of stakeholders and participants are positive. First results of the quantitative monitoring (0, 2, 4 months) will be presented at the conference. **Conclusions**: The intervention study is expected to be completed in October 2018.

101. Croatian National Program "Living Healthy"

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Introduction: Croatian Institute of Public Health is implementing comprehensive health promotion project "Healthy Living" that has been officially adopted by the Government in July 2015 as a National health promotion program. The implementation of the National Program "Living Healthy" started back in 2002 under the monitoring of the Ministry of Health and the Croatian Institute of Public Health and has continued in 2014. The goal of the program is the improvement of health of the entire population through activities implemented at the local community level through acting in the community, with a goal to inform, educate and raise awareness among the citizens of the Republic of Croatia of all ages on positive aspects of healthy lifestyles – healthy nutrition, physical activity, obesity prevention, decreasing overweight, decreasing morbidity from chronic non-communicable diseases. Due to its comprehensivenes and multisectorial implementation, activities of the Program are implemented through five components each aiming at a specific population and covering a specific aspect of health promotion. **Activities undertaken**: The activities of the National Program "Living Healthy" are focused towards the improvement of health of the entire population on the local community level. The five components of this program that include various projects are: Health Education (Polygons, 10-minute exercises, Recommended menus for elementary schools and high schools), Health and Physical Activity (the Walking Towards Health), Health and Nutrition (Certification Mark Living Healthy), Health and the Workplace (Health-Friendly Company) and Health and the Environment (the Volunteers in Parks). The target populations of the National Program are all residents of the Republic of Croatia. **Results**: The implementation of Program "Living Healthy" has initiated in 14 out of 21 Croatian counties. The first activity in each county is activity "Walking towards health" followed by the "Living Healthy" conference on health promotion and best county practices in health promotion. **Conclusions**: The expected public health contributions of the National Program "Living Healthy" are: raising awareness of the citizens on the need for maintaining their health, modification of changeable unhealthy habits, decreasing the morbidity from chronic mass diseases and increasing the share of healthy citizens in total population of the Republic of Croatia.

102. Associations between preferences of fitness physical activities and meeting of PA recommendations

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Introduction: Adolescent fitness physical activities (PA) are an important part of the overall PA, especially because they relate to their physical fitness and health. The aim of the study was to find out differences in meeting weekly PA recommendations among adolescents who prefer or do not prefer fitness PA. Partial aim of the study was to find out what types of PA adolescents predominantly run. **Methods**: Research sample consisted

of 9513 participants aged 15-19 in years 2009-2016. Respondents completed the PA preference survey in the Indares internet program. 4977 participants from this group completed also the International Physical Activity Questionnaire - a long form and 1348 participants were involved in objective PA monitoring by pedometers. **Results**: Fitness PA are continuously preferred by boys with stable ranking on the third place, behind team and individual PA. It seems that popularity of fitness PA among girls is increasing, mainly at the expense of rhythmical and dancing activities and outdoor PA. Czech and Polish boys, as well as Czech girls, who prefer fitness PA, meet significantly more PA recommendations for vigorous PA (at least 3 days/week of 20 min/day and at least 5 days/week of 60 min/day). There were no significant differences in meeting recommendation of 11 000 steps/day. **Conclusions**: We should respect preferred activities and type of PA, while creating conditions for PA realization in adolescents. It is important to enable high intensity PA for those who prefer fitness PA, so they could be involved in these activities. It seems to be useful to combine rhythmical and dancing activities together with fitness PA in girls. There is also set of various factors significantly associated with meeting PA recommendations, i.e. gender, country, size of the residence, as well as participation in organized PA. 29,6% of participants in organized PA meet PA recommendations, compare to 14,9% of non-participants.

103. Spatial epidemiology and their implication in the field of physical activity: example of the Slovenian study ARTOS

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Introduction: Risk factors of the physical and social environment, and their impact on health have become increasingly important in spatial epidemiology. The geographic information system (GIS) is part of a more general and modern concept, denominated geo-information or geomatics. With GIS we can map data of different objects, variables, conditions, land characteristics, into a digital environment, with the possibility of overlaying data layers, applying multiples spatial analysis and visualization of this data. In public health, GIS has multiple potential applications such as identification and assessing health risk factors related with physical and social environment, or in decision-making and prevention. Our aim was therefore to assess potential use of GIS methodology for analyzing data collected in the survey ARTOS (engl. ACDSi- Analysis of children development in Slovenia). **Methods**: We reviewed the database of the study ARTOS and searched both for variables needed to geographically locate the study subjects and variables relevant to public health and can be linked to geographic data (lifestyle factors, demographic and socioeconomic data, anthropological and fitness measures). **Results**: All collected data are georeferenced, that mean each child's school participated in the survey, has coordinates within the National Coordinate System. It is also possible to obtain children's home addresses, which allows a differentiation on individual level. All collected data can be linked to geographic data and present a valuable contribution to public health research and interventions. Those data include socioeconomic status of families, lifestyle factors (physical activity (PA), nutrition, sleeping, substance abuse etc. habits) of children, anthropological measures and fitness status. **Conclusions**: Data on children's PA and other health-related factors collected in the study ARTOS are suitable for analysis using GIS. With spatial techniques we can assess landscape and other relevant geographic characteristics, and in combination with other data identify high and low risk areas related to PA and other risk factors. In the future we can provide spatial epidemiological studies for assessing the association between PA and its effects on health, standardized to potential confounding factors in different geographical areas. Those findings can improve the understanding and improvement of PA and other lifestyle factors.

104. Economic analysis of children's physical activity intervention

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Introduction: Low levels of physical activity (PA) is a common problem among children. The aim of this study was to assess the cost-effectiveness of PA intervention in a population-based sample of children aged 6-8 years. **Methods**: The present data is from the Physical Activity and Nutrition in Children (PANIC) Study, which is a controlled physical activity and diet intervention study aimed at decreasing cardiometabolic risk. Altogether 506 children (306 in intervention, 200 in control groups) participated in the study. The intervention group had 6 family-based physical activity counselling sessions of 15-45 minutes during the 2-year intervention period. Moreover, the children could participate in after school exercise clubs. PA was assessed by a questionnaire. The duration of total PA (min/week) was calculated by summing the amount of all types of PA. In this study,

the effectiveness outcome is PA; increase in weekly hours of PA during 2-year intervention period. The analysis has only partial societal perspective. It takes account the costs of intervention and cost of time what parents have used for intervention visits but not the costs of social and health care services use. The overall costs, costs per participant, and incremental cost-effectiveness ratio (ICER) to identify the costs per increased hour per participant were calculated. Uncertainty around the ICER was captured by a probabilistic analysis using a non-parametric bootstrap method. **Results**: Preliminary results show that during 2-year intervention, weekly PA increased 57 minutes in the intervention group and decreased 36 minutes in control group ($p<0.001$). The incremental cost-effectiveness ratio was 203€ per increased PA hour per week without parental time use and 357 € with parental time use. Taking the uncertainty of the ICER estimate into account we can conclude that if society's willingness to pay (WTP) is 450€ per increased PA hour per week during 2-year intervention then this intervention with parental time use is cost-effective for 88% of participants. If WTP is 350€ this intervention is cost-effective for 43% of participants. **Conclusions**: The study finds potential advantages in using family-based PA intervention aiming to increase PA among children.

105. The roles of exercise counseling in the prevention of social exlucion - Successes and challenges, as felt by young people

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Introduction: Young people who have risk of social exclusion have often grown apart from physical activity. Physical activity can support and prevent the spiral of social exclusion. An inactive lifestyle can be transferred from generation to generation. Actions Young people between 18 and 29 years, who don't have a job or a place to study. Selection through healthcare, employment services, or the Defence Forces' call-ups. A personalised activity plan for three months for each. Length, weight, BMI, waistline and a lifestyle questionnaire based on the participant's own evaluation was filled two times during the process; 1st and 2nd visit. One-on-one theme interviews were carried out approximately one year after the process ended (n=7). Content analysis was used to chart the prevented or promoted factors of the process. **Results**: The young people experienced positive changes in their health, attitudes, and mental wellbeing. Positive improvements were pointed out more positive attitude, readiness for change, more goal-oriented attitude, as well as the quality of their sleep, joy, and improved mood. Their interest in a more versatile diet also increased. Time management and the length of the process were experienced as challenges. The young people brought up experience-related challenges, such as frustration, a feeling of not getting results, and a fear that the process stops ahead of its time. Some deficiencies in the exercise guidance process were also mentioned; the insufficient number of personal contacts, the measurements, as well as the feeling that the personal guidance and support was insufficient. The young people felt social relationships to both support and challenge. Friendships, increased interaction, and the feeling of belonging in a group all supported the process. At the same time, social interaction raised negative feelings which prevented the success of the process. The young people feared meeting people, losing personal support, and challenging interaction situations. **Conclusions**: The results show that exercise counseling have a positive boost to improve wellbeing of the young people. Exercise counseling can be an activator towards a job or a place to study.

106. Active everyday life in the suburbs - Service desing as a promotor of activity

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Introduction: The new strategy 2017-2021 of the City of Helsinki is highlighting the participation of the residents. In the strategy Helsinki aims to be the most functional city in the world. City of Helsinki aims to be a moving and healthy City for all and to resolutely fight segregation and social exclusion. Promoting social quality is part of the strategy. Participation, inclusion and social quality are increased by using service design as a tool in service planning. Employees of the Helsinki City also benefit from service design; allows direct feedback and increased interaction. Studies show that inhabitants have a larger risk for lack of life control, segregation and exclusion in eastern part of Helsinki. **Activities undertaken**: The project is based on the frame of reference of service design by Koivisto (2007). The model takes into account customer orientation, participatory methods and interaction. The suburbs were observed through walking and by photographing the environment to visualise current services. The main interest were sports and exercise facilities, parks, shopping centres, light traffic lines and location of the services. Residents of the areas were interviewed. The existing services were monitored, tested by mystery shopping method and users of the services were interviewed. Two open work-

shops were used to collect the needs and ideas from residents for new sport services and regional development. A service design office was used as an expert in the process. **Results**: Service design enables new ways of working and is one way to encounter residents. Possible user profiles were defined from the collected data. Valuable information for the development of low-threshold sports services were gained. Working group operations, workshops and face to face discussions increased the customer-oriented planning. Local sports events were proven to lower threshold of participation in organised sports. Information was gained on the awareness, visibility and safety of sports facilities. Participation of the residents in planning sports services was a chance to learn something new. **Conclusions**: The benefits of participation and service design are shown in the long run. Involving people is not easy. It takes time and we must accept that not everyone wants to participate.

107. 100 degrés, a new venture for Québec en Forme (Canada)

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Introduction: After investing $ 400 million between 2007 and 2017 in the mobilization of Québec society, Québec en Forme shows positive results documented elsewhere (1, 2, 3), and knows that the momentum around healthy eating and active living (HEAL) may fade. To prevent this from happening and to renew itself in a different financial context, the organization has transformed its robust model (in-person support to the development of cross-sectorial strategic plans among 160 local communities) into an agile model, open to the civil society, anchored in digital practices and comprising 4 pillars: knowledge, networking conferences, grants and ambassadors. It wishes to: Maintain the interest in HEAL; Network with people and organizations; Share knowledge; Promote change and opinion leaders. **Activities undertaken**: So far, work has been done to redesign our 3 digital platforms (WIXX, VeilleAction, PSNM) into one, based on the logic and needs of the users. The digital hub offers: Online content (texts, videos, tools and resources); Grants and crowdfunding; o Yellow pages for regional communities highlighting ambassadors (informer, experts, connectors) and members.A pilot project tested the implementation of networking conferences, where speakers are opinion leaders in areas relevant to the perspectives we identified (2017-2022) and relevant to the Quebec Government Policy on Health Prevention. **Results**: Since April 2016, 17 networking conferences have enabled over one thousand people to network. The webzine generated 152,000 visits in 5 months and the newsletter is delivered to 6,500 subscribers (opening rate = 27%). The yellow pages of the regional communities welcome new members and ambassadors every day. The pilot phase comprised a grant; 15 of the 46 applications were funded for a total of $ 73,000 but on an annual basis, $ 600,000 will be granted. Funded projects have resulted in more collaborations and an evaluation plan is currently being drafted. **Conclusions**: 100 ° as a community of interest and expertise hub currently meets the practitioner's expectations and has potential for growth.

108. Active Healthy Kids Denmark: The Report Card+

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Introduction: Physical Activity (PA) is associated with several benefits to children's health and tends to track from childhood to adulthood Report Card. International research suggests that children and young people with physical disabilities often have lower levels of fitness, strength, motor skills and psycho-social well'being than their peers without disabilities and experience limited opportunities to participate in PA. There is a need to evaluate and translate the research on PA to guide future interventions, as well as policy and program development related to children with physical disabilities. One way to address this knowledge translation is to use the Report Card method. The primary purposes of the project are to provide a Report Card presenting the best available evidence on facilitators, barriers and knowledge on how Denmark is performing in providing opportunities for physical activity for children and youth with a chronic condition or disability, and to evaluate their PA behaviors. **Activities undertaken**: The Report Card relies primarily on a synthesis of the best available national research and policy strategies identified by the Report Card Research Committee consisting of a wide presentation of researchers and experts within PA health behaviors and policy development. The work is coordinated by Research and Innovation Centre for Human Movement and Learning situated at the University of Southern Denmark and the University College Lillebaelt. Nine PA indicators will be graded using the Active Healthy Kids Canada Report Card development process. **Results**: Nine indicators related to PA in Danish children and youth with a chronic condition or disability will be graded: 1) Overall physical activity 2) Organized sport participation 3) Active play 4) Active transportation 5) Sedentary behaviors 6) Family and peers 7) School 8) Community and the built environment 9) Government strategies and investments The grades will range

from A (highest grade) to F (lowest grade), benchmarking the percentage of children meeting the guidelines (Table 1). **Conclusions**: The accumulated grades describe the PA behavior of Danish children and youth with a chronic condition or disability, and the strategies, investments and intentions from the government to create good facilities and promote PA for the target group.

109. Parental willingness to pay for the prevention of childhood overweight and obesity: correlations with parental physical (in)activity

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Introduction: Research on willingness to pay (WTP) for prevention and the reduction of childhood overweight and obesity is scarce. WTP can be used as a threshold for cost-effectiveness analyses. Physical activity (PA) has several positive health outcomes, whereas physical inactivity is associated with non-communicable diseases and causes great costs for the society. The aim was to evaluate the correlation between parental WTP and physical activity and inactivity measured by media consumption. **Methods**: Analyses of cross-sectional data from the health promotion program "Join the Healthy Boat", financed by the Baden-Württemberg Foundation, in German primary schools for 1451 participants. Trained staff measured anthropometrics of children. Parental questionnaires included their sociodemographic status, anthropometrics, WTP to reduce the incidence of childhood overweight and obesity by half, PA and media consumption. PA was measured as being physically active yes/no and min/week, the letter dichotomised in reaching the WHO guideline of ≥150min/week moderate to vigorous PA or not. Media consumption was measured as min/day of TV/video respectively computer use, and dichotomised at ≥60min/day. Mann-Whitney U-tests and Fisher´s exact tests assessed differences between WTP and no WTP ($\alpha<0.05$). **Results**: Nearly half of the parents (49.8%, n=710) were willing to pay for the prevention of overweight and obesity in children. Overweight and obese mothers were significantly more often willing to pay as well as both parents of overweight and abdominally obese children and children with migration background ($p<0.05$). Neither PA nor media consumption showed significant differences. **Conclusions**: The general WTP of about half of the parents and the higher WTP for affected families reflects the awareness of the problem and the need for action. Overweight and obesity are associated with WTP, while parental PA and media consumption seems not to be. Longitudinal studies and comparable studies are necessary. Other factors, such as parental health attitudes should be investigated.

110. Regional strategy to promote physical activity - using a combined top-down and bottom-up approach, from policy to action on grass root' level using social media

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There is no national strategy to increase physical activity in Sweden. Since the national campaign "Sweden on the move" in 2001 the area of physical activity promotion has gained less and less attention at national, regional and local levels. In the autumn of 2015 the regional politicians in Region Östergötland supported the idea of developing a regional strategy - based on the Physical Activity Strategy for the WHO European Region 2016-2025 and the 2030 agenda for sustainable development. During 2016, a strategy document was prepared and developed with the support of society's many different stakeholders. The overall goal of the strategy is; - more individuals become physically active - inequality in activity levels between groups decreases - to increase intersectoral cooperation among stakeholders who actively participate and cooperate in promoting physical activity. The strategy is focused on five different settings; built environment, leisure time and sports, school and education, work and economic support, social welfare and health care services. A political decision, at regional level, to support the strategy "Sätt Östergötland i rörelse.nu" (Put Östergötland in to action.now) was made in January 2017. However, the work of implementing the strategy and its intentions began already in the beginning of 2016, with the ambition to be creative and innovative: to find new solutions to old problems and to collaborate to increase partnership and benchmarking. Therefore by the time the strategy was presented and politically approved, we had created an informative website where we disseminated facts and knowledge "good examples" of ongoing actions for others to learn and share. The website is (only) in Swedish: www.sättöstergötlandirörelse.nu and www.facebook.com/sattostergotlandirorelse.nu The physical activity strategy has received much attention both politically and in the traditional media. During the period from the 1 of February, when the webpage was launched, until summer break we presented 25 different "Good examples". Numbers are continuously increasing and have, by itself, already resulted in new initiatives and "good examples" among different stakeholders. The WHO strategy was useful to create a regional strategy and policy work combined with a bottom-up social media strategy seems to be a useful combination.

111. A Scoping Review of Physical Activity and Sedentary Behaviour Research in Thailand

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Introduction: The number of deaths per year attributed to non-communicable diseases is increasing in low- and middle-income countries, including Thailand. To facilitate the development of evidence-based public health programs and policies in Thailand, national research on physical activity (PA) and sedentary behaviour (SB) is needed. The aim of this scoping review was to map all available evidence on PA and SB in Thailand, to identify research gaps and suggest possible directions for future research. **Methods**: A systematic literature search was conducted through 10 bibliographic databases. Additional articles were identified through a secondary search of reference lists, websites of relevant Thai health organisations, Google, and Google Scholar. Studies written in Thai or English were screened independently by two authors and included if presenting quantitative or qualitative data relevant to public health research on PA/SB. **Results**: Out of more than 25,000 screened items, a total of 568 studies were included in the review. Most studies concerned PA only (80%), while others included SB only (6.7%), with 13.3% addressing both PA and SB. Correlates of PA/SB were the most studied topic (59.8%), followed by outcomes of PA/SB (21.5%), prevalence of PA/SB (12.3%), and instrument validation (3.2%). Most PA/SB research was cross-sectional (69.2%), while interventions (19.5%) and longitudinal studies (2.6%) were less represented. Most studies (94%) relied on self-reports of PA/SB, and few (5.5%) used device-based measures (e.g. pedometers/accelerometers). Both sexes were examined in most studies (82.6%). Adults were the main target population group (50.5%), followed by older adults (27.3%), adolescents (16%), and children (6.2%). Clinical populations were also investigated in the context of PA/SB in a large number of studies (17.8%), most frequently those with diabetes, hypertension, and cardiovascular disease (20.8% each). **Conclusions**: PA research in Thailand has been developed since late 1980s and has continuously grown over the last three decades, whilst SB research has started receiving attention since 2000 and has been less investigated. More studies using population-representative samples are needed, particularly among children, adolescents, and older adults. To provide stronger evidence on determinants and outcomes of PA/SB, longitudinal studies using standardised measures of PA and SB are required.

112. Dreams into Motion – more movement, happiness and wellbeing

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Introduction: The purpose of the abstract is to present Dreams into Motion, a way of working which builds networks, activates people to co-operate and encourages them to try new things. The aim is to increase movement, joy and wellbeing. The initiative is co-ordinated through the Finnish Olympic Committee, and it is a part of Finland's Centenary Celebrations of 2017. **Activities undertaken**: Dreams are put into motion by giving people the possibility to be involved in generating ideas and by inspiring them to collaborate with others, so that everyone can increase exercise in their own environment through easy solutions. Putting this into practice is supported continually by growing a network of actors around Finland. Municipalities, sports clubs, early education actors, schools, work organisations and associations from different administrative regions have been asked to get involved. Through idea workshops, sharing skills and experimentation, existing activities have been strengthened and new forms of collaboration built. **Results**: To evaluate the results, a survey is conducted among 40 municipalities in August-October 2017. The preliminary results show that the way of action has been successful especially in finding new parties for co-operation (56 % of the respondents say it has worked quite well or very well), new ideas have been experimented in practice (57 %), involvement has increased (53 %), new participants have come along to exercise (46 %), and the physical activity of the participants has increased (43 %). The activities have focussed on all age groups. The members of the Dreams into Motion network would like the initiative to continue in a way or another. It is too early to tell whether there are major differences in the experiences of the municipalities, but it seems that the duration of the local cooperation and the resources dedicated to action are something to consider. **Conclusions**: Dreams into Motion has already helped the municipalities to take action in new ways. Also, the members of the coordination network have got a plenty of novel ideas. In the future, it is essential to find the most appropriate ways to support the continuation of the well started collaboration.

113. Relationship between physical activity trajectories and fruit and vegetable consumption frequency trajectories from childhood to adulthood in the Young Finns Study

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Introduction: While cross-sectional studies have found physical activity (PA) and dietary behaviours to cluster, not many longitudinal studies have examined the associations between PA and fruit and vegetable consumption frequency (FVCF) during life course. This study aimed to examine how PA trajectories are related to FVCF trajectories from childhood to adulthood. **Methods**: The data was obtained from the Cardiovascular Risk in Young Finns Study with six cohorts. PA was measured 5–8 times between 1980–2011 covering ages 9–45, and FVCF five times between 1980–2001 covering ages 3–39 through self-administered questionnaire. Trajectories of PA and FVCF were analysed using mixture modelling, and the relationship between PA and FVCF trajectories with cross tabulation and chi-square test (n=3547, 51% females). The associations between the trajectories were controlled for socioeconomic status (SES). **Results**: Four PA trajectories were identified for males (persistently active 13%, increasingly active 30%, decreasingly active 16%, and inactive 41%) and five for females (persistently active 3%, increasingly active 15%, decreasingly active 12%, low-active 53%, and inactive 17%). Five FVCF trajectories were identified for males (stable high 49%, stable moderate 27%, increasing during youth 11%, low fluctuating 6%, and decreasing 6%) and for females (stable high 50%, stable moderate 33%, fluctuating 5%, from decreasing to increasing 4%, and decreasing 8%). Of PA trajectories, females and males who were persistently active, and females who increased their PA level or had previously been active most likely followed the stable high FVCF trajectory (consumed fruits and vegetables approximately daily), whereas those who were inactive or had low PA level least likely followed it. Of PA trajectories, females who increased their PA level least likely followed the decreasing FVCF trajectory, while inactive individuals most likely followed it. PA and SES were independently associated with FVCF: persistent PA and higher SES both were positively associated with consuming fruits and vegetables more frequently. **Conclusions**: These results show that PA and FVCF cluster also in time from childhood to adulthood. Even though rather large proportion of inactive individuals consumed fruits and vegetables at least weekly, the persistently active ones more likely consumed them daily.

114. Regular exercise as a protective factor of the health risk behaviours in adolescents

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Introduction: This study aimed to evaluate the adolescents' health-related behaviour and find relationships with regular exercise and physical fitness. **Methods**: The total sample included 422 young people (16.33 ±1.66 y/o) (212 males) from an elite secondary grammar school in an urban area of North-Eastern Hungary in 2017. The response rate was 88%. Well-being (WHO-5 Well-being Index), overall life satisfaction (Cantril ladder on a scale of 1 to 10), depression (Kutcher Adolescent Depression Scale), perceived health status (Visual Analogue Scale of 0 to 100), eating disorder (SCOFF questionnaire), sleepiness (Cleveland Adolescent Sleepiness Questionnaire), physical fitness (International Fitness Scale), regular exercise (≥5 days/week for at least an hour), self-reported substance use, BMI z-score and socioeconomic status were measured. For data analysis we used SPSS 24.0 version, p≤.05 was considered statistically significant. **Results**: 42.4% of the students exercised at least 5 times a week. Boys were more active than girls (X2(1)=24.376, p<.001). Regular exercise had relationships with age (F(1,421)=11.703, p=.001), well-being (F(1,416)=9,299, p=.002), perceived health status (F(1,415)=28.514, p<.001), life satisfaction (F(1,417)=13.755, p<.001), depression (F(1,415)=6.967, p=.009), and physical fitness (F(1,17)=87.025, p<.001). Students exercising at least 5 days a week were younger and had more favourable results than their less active peers. There was a significant relationship between regular exercise and the frequency of alcohol consumption (F(1,410)=5.028, p=.025) and some tendency could be observed in tobacco use (X2(1)=3.291, p=.070). Fewer students smoke and drink alcohol in active group. Analysing the relationship between fitness and the other investigated parameters, we found a significant correlation with well-being (r=.259, p<.001), life satisfaction (r=.267, p<.001), perceived health status (r=.399, p<.001), depression (r=-.314, p<.001), sleepiness (r=-.137, p=.005), gender (F(1,417)=20.843, p<.001), and alcohol consumption (F=2.638 p=0.016). There was a significant difference in fitness scores by socioeconomic background

(F(2,405)=7.642, p=.001). Students with wealthier background were fitter. **Conclusions**: This study suggests that appropriate regular exercise and consequently being physically fit can play a protective role with regard to health impairing behaviors in adolescents. Educational institutes can serve the most suitable location for providing sport facilities and encouraging young people to be involved in sports and regular exercise.

115. Functional Fitness Standards for Portuguese elders: an exploratory research with community-dwelling individuals diagnosed with Alzheimer's Disease

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Introduction: Dementia, particularly Alzheimer's disease (AD), is one of the major causes of impairment and dependence in the world. This syndrome has a significant impact on diagnosed individuals, extended to informal caregivers and to the community itself. Besides the cognitive decline, that characterize AD, this neurodegenerative disease progresses along with functional impairment, and adversely affects physical conditioning. Recent guidelines reinforce the need to implement effective interventions to mitigate the impact of AD. Physical exercise, according to American College of Sports Medicine and other few studies, could be significant in improving functional and cognitive performances in these individuals. The Senior Fitness test has been used to evaluate physical function in healthy older adults, and seems to be appropriate for those diagnosed with dementia. The aim of this study was to compare Portuguese community-dwelling elders with AD, and their healthy pairs, giving the functional fitness standards stabilized for their age group. **Methods**: According to the 2011 National Institute of Neurological Communicative Disorders and Stroke – AD and Related Disorders Association criteria, and in a mild to moderate stage of disease (Clinical Dementia Rating criteria), 14 individuals diagnosed with probable AD were referred from the Neurology Department of São João Hospital in Porto to participate in this study. The Rikli and Jones set of tests were applied to 9 women and 5 men between 75 – 79 years old, but the 2-minute step test were used instead of 6-minute walk. **Results**: Results from One-Sample Wilcoxon Signed Rank test revealed significant differences on the distribution of upper (p=0,008) and lower body (p=0,050) muscle strength variables for older women, and on upper body muscle strength (p=0,042) variable for men, comparing to the normative values of each group. **Conclusions**: Data suggest that muscle strength performance of community residents' elders with AD is significantly worse compared with their healthy pairs. Additionally, these comparisons were unachievable about their cardiorespiratory performance, once the 2-minute step standards are not established. These results reinforced the importance to create cost-effective strategies, and evaluation instruments, to mitigate or prevent the physical conditioning decline, determinant to their autonomy on activities of daily living.

116. Objectively Measured Moderate-to-vigorous Physical Activity, Sedentary Behaviour and Adiposity in Youth from Rural Communities

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Introduction: Research on relationships between lifestyle behaviours and adiposity in school youth from less studied communities (i.e. rural settings) is potentially important for identifying subgroups at risk. Indeed, rural areas, with relatively low population densities, are characterized by socioeconomic and educational inequities that can impact on health of youth. The aim of the present study was twofold: i) to compare the moderate-to-vigorous physical activity (MVPA), sedentary behaviour (SB), and adiposity between boys and girls from rural settings; ii) evaluates the associations among waist circumference (WC) and objective measures of SB in a sample of rural adolescents. **Methods**: The sample included 254 students (114 boys, 140 girls), 13-16 years of age, from rural regions of the Portuguese midlands. Height, weight, and WC were measured. Cardiorespiratory Fitness (CRF) was assessed with the 20-m shuttle-run test. An uniaxial GT1M accelerometer was used to obtain five consecutive days of MVPA and SB. One-way analysis of covariance (ANCOVA) was used to test the effect of sex on the afore-mentioned behavioural variables, controlling for chronological age. In addition, multiple linear regression was used to test associations between WC and SB, adjusted for several potential confounders

(age, sex, PA, CRF, parental education). **Results**: Rural boys spend significantly more time than girls in PA and MVPA on both week and weekend days, whereas girls spend significantly more time than boys in SB on week days and the total of five measured days. Rural boys also have significantly higher levels of CRF than girls. SB was not significantly associated with the WC, neither in the unadjusted model nor after adjustment for all potential confounders. In the final model, the unique significant predictor of the WC was cardiorespiratory fitness (β=-0.82; 95% CI, -1.02 to -0.62). **Conclutions**: The present research revealed that both males and females failed to meet the current guideline of 60 continuous MVPA per day. Furthermore, WC was not independently associated with SB time in rural school adolescents. Future research is claimed among rural adolescents in different geographic contexts to try to clarify recent findings of less studied communities.

117. Associations of different length sedentary and vigorous activity with cardiometabolic health in 10-13-year-old boys

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Introduction: The aim of the study was to examine different length bouts of sedentary behaviour and moderate-to-vigorous (MVPA) association to different cardiometabolic risk factors and continuous cardiometabolic risk score in children. **Methods**: In a cross-sectional study design with 123 boys ages 10-13 yrs, sedentary bouts lasting 1-4, 5-9, 10-14, 15-29 and ≥30 min and MVPA bouts lasting <5, 5-9 and ≥10 min were determined using accelerometry. Each bout was compared with cardiometabolic risk factors and a cardiometabolic risk score that was calculated using standardized values of BMI, waist circumference, HOMA-IR, triglycerides (TRG), total cholesterol and high-density cholesterol ratio. **Results**: Significant differences in total sedentary time were found between weekdays vs. weekend days when sedentary time was accumulated in bouts of 5-9 min (102.9 min vs. 97.9 min, respectively) and bouts of 15-29 min (103.4 min vs. 90.5 min, respectively). All measured MVPA bouts differed significantly between weekdays and weekends days. Time spent in 10-14 min sedentary bouts on weekend days was negatively associated with the continuous cardiometabolic risk score. Time spent in ≥30 min sedentary bouts was positively associated with the continuous cardiometabolic risk score, insulin and HOMA-IR (b ≥ 0.001, 95%CI: 0.000-0.034) on weekend days. No further associations between sedentary bouts and insulin, HOMA-IR, glucose and TRG were found. In addition, time accumulated in ≥10 min MVPA bouts was negatively associated with the continuous cardiometabolic risk score on weekdays, and the association between time accumulated in different MVPA bouts and BMI z-score was also negative. **Conclusions**: There was a tendency that longer sedentary bouts have the effect of higher metabolic risk. MVPA bouts longer than 10 min have negative effect on metabolic risk.

118. A parent-child active play intervention to improve family health behaviours: Insights and recommendations from the Ag Súgradh le Chéile programme evaluation

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Introduction: Parent-child active play interventions can increase physical activity (PA) levels and improve health and wellbeing in children and their families. 'Ag Súgradh le Chéile' engages parents and children (4-8 years old) in active play during a school-based workshop including music, rhyme and traditional games. The aim of the programme is to promote parent-child active play as being vital to a child's healthy development. This paper presents results from process and summative evaluations of the programme. **Methods**: The evaluation examined: active play workshop implementation (PA type and duration, interactions) through observations (n=4); children's views of active play and health through a Draw & Write task (n=109; 51% boys); and key stakeholder opinions on the workshop via interview and focus group (n=7). Qualitative data were analysed thematically using a deductive approach. **Results**: Implementation of the workshop was varied and dependent on the tutor delivering the session. The main activity observed within the session was standing (mean ± SD; 70 ± 6%), with very little engagement in moderate-vigorous PA (8 ± 5%). Observed interaction between parent and child varied during the workshop (21-44%). Draw and Write responses revealed that children are aware of both positive and negative health behaviours. The key aspect of the intervention, from the children's perspective, was having the opportunity to interact and play with their parent. Qualitative insights were centered on three key themes: (a) the ethos of the programme; (b) the level of PA and interactions; and (c) the potential to effect behaviour change. It was understood that the programme is aimed at the promotion of active play and healthy

eating. Promoting parents' involvement in active play with their child was viewed as more important than the type, intensity or duration of the PA itself. Finally, the viability of the workshop to effect change was considered limited, due to the one-off nature of the programme. **Conclusions**: The programme demonstrated benefits to those involved. Implementation could be further standardized to ensure more consistent delivery, greater focus on health enhancing moderate-vigorous PA, and continued encouragement of parent-child interactions. A longer intervention may increase likelihood of sustained family behavior change.

119. Effects of high-intensity training on cardiovascular risk factors and insulin sensitivity in pre- and postmenopausal women

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Introduction: Menopause is associated with increased risk of type 2 diabetes mellitus and cardiovascular disease and the causal factors have been proposed to be the loss of estrogen and the subsequent alterations of the hormonal milieu. In order to investigate whether exercise can counteract these adverse effects, the purpose of this study was to assess the effects of exercise training on health outcomes before and after menopause. **Methods**: Two groups of healthy, normal weight, premenopausal (n=18) and postmenopausal (n=19) women, with a mean age difference between groups of only 4 years, were included in the study. Measurements were performed at baseline and after a 3-month high-intensity exercise training intervention. Body composition was assessed by magnetic resonance imaging and dual x-ray absorptiometry. Peripheral insulin sensitivity was determined by hyperinsulinemic euglycemic clamp and femoral skeletal muscle insulin-stimulated glucose uptake was assessed by positron emission tomography/computed tomography. Maximal oxygen uptake was examined by an incremental bicycle ergometer test. **Results**: No differences in maximal oxygen uptake and body composition were detected between the two groups at baseline. Exercise training increased maximal oxygen uptake ($p<0.0001$), lean body mass ($p<0.001$) and thigh muscle mass ($p<0.0003$), and decreased whole body fat mass ($p<0.01$), total fat, android and gynoid fat percentages ($p<0.001$, $p<0.01$ and $p<0.0001$, respectively), abdominal subcutaneous and visceral adipose tissue masses ($p<0.005$ and $p=0.03$, respectively) similarly in the two groups. The postmenopausal women had lower insulin-stimulated glucose uptake in vastus lateralis muscle than the premenopausal women ($p=0.02$) and tended to have lower insulin-stimulated glucose uptake in femoral muscles ($p=0.06$) as well as peripheral insulin sensitivity ($p=0.08$) at baseline, but both groups had a similar increase in insulin-stimulated glucose uptake in vastus lateralis ($p<0.001$) and femoral muscles ($p<0.0001$) and in peripheral insulin sensitivity ($p=0.01$) with training. **Conclusions**: Postmenopausal women improved body composition, peripheral insulin sensitivity and skeletal muscle insulin-stimulated glucose uptake to the same extent as premenopausal women after 3 months of high-intensity exercise training. These results suggest that training-induced adaptations are preserved in the early postmenopausal phase and thus, mid-life women should be encouraged to be physically active.

120. Physical Activity as Health Behaviour of Lower Secondary School Youth with Differentiated Body Mass

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Introduction: Undertaking physical activity (PA) is one of the most important behaviour conducive to maintaining good health as long as possible. Systematic PA in particular, during growing period and adolescence is essential for the proper development of the whole organism. The aim of the study was to evaluate PA of lower secondary school students from selected schools of Bialskie district, taking into account the division into groups based on the value of the BMI. **Methods**: The research involved lower secondary school students in randomly selected schools in Bialskie district. The consent of the headmaster and the parents of the examined children was obtained. In total, 393 students participated in the study. The diagnostic survey method was used, using an anonymous questionnaire survey. Measurements of height and weight were made according to Martin and Saller's technique. Based on the obtained data, BMI was calculated and then three groups were defined based on international norms: underweight, normal and overweight with obesity. **Results**: Persons with overweight and obesity spend statistically significantly less time on physical activity than those with normal BMI and underweight ($\chi 2 = 19.55$; $p < 0.001$). The most commonly chosen form of PA by underweight people is team sports, and the least common is exercise in the gym. The most commonly chosen form by people with normal BMI and overweight was riding a bike, and the least varied forms of fitness. Overweight people more often than those with normal BMI and underweight watched television in their leisure time and less often

practised sports ($\chi 2 = 25.81$, $p = 0.019$). The way to deal with stress statistically significantly differentiated the researched ($\chi 2 = 31.46$; $p = 0.001$). **Conclusions**: Undertaking PA by lower secondary school students is insufficient, especially in the face of increasing sedentary leisure time spending. Bearing in mind the obstacles and factors motivating to PA that were indicated by the study participants, during the physical education classes, the socialization role of PA should be stressed.

121. Guidelines-focused education on diet and physical activity improves health-promoting lifestyle profiles in Serbian adolescents and adults

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Introduction: Education about healthy diet and physical activity is considered a vital element of many public health initiatives, yet the effectiveness of focused educational programs to change health behaviors across large populations seems to be poorly described so far. **Methods**: We evaluated the impact of an age-specific short-term educational program, designed in accordance with the U.S. Department of Health and Human Services dietary guidelines and physical activity guidelines, in nationally representative sample of Serbian adolescents and adults (n = 3822). The health-promoting lifestyle habits were assessed via the Health-Promoting Lifestyle Profile (HPLP-II) at baseline and following 6-8 weeks post-education. **Results**: Educational intervention markedly improved HPLP-II scores for diet (0.05 points, 95% CI from 0.03 to 0.07; $P < 0.0001$) and physical activity (0.09 points, 95% CI from 0.06 to 0.11; $P < 0.0001$). In addition, health-related quality of life, as evaluated with 12-item short form survey, increased for 9.8% at follow-up (95% CI from 6.9 to 13.4; $P < 0.0001$). **Conclusions**: It appears that guidelines-driven short-term educational intervention can positively tackle unhealthy lifestyles in promoting good health in general population. Clinical trial registration www.clinicaltrials.gov, ID number NCT02999425. Funding: This work was supported by the Serbian Ministry of Education, Science and Technological Development (# 175037), the Serbian Ministry of Youth and Sport (# 401-01-137), the Provincial Secretariat for Higher Education and Scientific Research (# 114-451-710), and The Coca-Cola Foundation.

122. The development and co-design of the PATHway intervention: a theory-driven eHealth platform for the self-management of cardiovascular disease

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Introduction: Cardiovascular diseases (CVD) are a leading cause of premature death and disability and an economic burden worldwide. International guidelines recommend routine availability and delivery of all phases of cardiac rehabilitation (CR). Uptake of traditional cardiac rehabilitation remains suboptimal, as attendance at formal hospital-based CR programmes is low, with community-based CR rates and individual long-term exercise maintenance even lower. Home-based CR programs have been shown to be equally effective in clinical and health-related quality of life outcomes, and yet are not readily available. Purpose The aim of the current study was to develop the PATHway intervention (Physical Activity Towards Health) for the self-management of cardiovascular disease. Increasing physical activity in individuals with CVD was the primary behaviour. **Methods**: The PATHway intervention was theoretically informed by the Behaviour Change Wheel (BCW) and Social Cognitive Theory (SCT). All relevant intervention functions, behaviour change techniques (BCTs) and policy categories were identified and translated into intervention content. Furthermore, a person-centred approach was adopted involving an iterative co-design process and extensive user-testing. **Results**: Education, enablement, modelling, persuasion, training and social restructuring were selected as appropriate intervention functions. Twenty-two BCTs, linked to the 6 intervention functions and 3 policy categories were identified for inclusion and translated into PATHway intervention content. **Conclusions:** This paper details the use of the BCW and SCT within a person-centred framework to develop an eHealth intervention for the self-management of

CVD. The systematic and transparent development of the PATHway intervention will facilitate the evaluation of intervention effectiveness and future replication. The Template for Intervention Description and Replication (TIDieR) checklist was used to specify details of the intervention including the who, what, how and where of proposed intervention delivery. Keywords: intervention development, person-centred approach, behaviour change wheel, health behaviour change, eHealth, physical activity, cardiovascular disease.

123. The association between balance and free-living physical activity in older community dwelling adults (50 years or older)

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Introduction: Poor balance is associated with an increased risk of falling, disability and death in older adults. Research supports the short-term benefits of exercise in older adults at higher risk of falling. However, less is understood about the long-term effects of free-living PA, the activity of everyday living, on balance in older adults at lower risk of falling. This novel study evaluates the relationship between free-living PA and balance in older healthy community-dwelling adults, to better inform fall prevention programmes. **Methods**: A systematic review was carried out using meta-analysis of observational studies and narrative synthesis of intervention studies. The results informed the secondary data analysis of measures of free-living PA and balance across a 2-year period, obtained from The Irish Longitudinal study of Ageing (TILDA) study. Data were analysed using a Structural Equation Modelling (SEM) approach to firstly identify an appropriate model of balance, and then to understand and explain the patterns of change in balance and PA over time, controlling for other exogenous variables. **Results**: The systematic review found a lack of robust research exploring free-living PA and balance in healthy older adults, but results suggest that more active healthy older adults have improved neuromuscular and sensory balance measures. Secondary analysis of the TILDA data also found that free-living PA improves balance measured using Timed Up and Go (TUG), handgrip strength, Mini Mental State Exam, vision, and hearing over a 2-year period. The exogeneous variables of sex, age, medication use, fear of falling, education, pain, alcohol consumption, and ADL disability were found to be significant risk factors for balance. **Conclusions:** The findings in this study support that free-living PA impacts on a broader range of the determinants of balance than previously identified and can improve balance in an older healthy community-dwelling population. Therefore, future PA programmes should measure balance as a multidimensional concept to capture the full range of relevant improvements. Key words: balance, physical activity, older adults, community dwelling, SEM.

124. Economic evaluations of physical activity interventions for type 2 diabetes prevention and control

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Introduction: Type 2 Diabetes (T2D) is considered one of the major chronic diseases related to increased economic burden on healthcare systems. Although physical activity (PA) is part of all international algorithms to prevent and to control T2D, most of these populations are sedentary. Economic evaluation of PA interventions should assist decision-makers on resource allocation to this type of health enhancing strategies. This work aimed to analyze economic evaluation studies of PA interventions in the scope of T2D. **Methods**: A systematic review of the literature was conducted to identify full economic evaluations (cost-benefit [CBA], cost-effectiveness [CEA] and cost-utility [CUA] analysis) of PA interventions to prevent and control T2D. **Results**: Eight studies were selected for final analysis: one CBA (presenting cost-benefit ratio [CBR]), three CEA (presenting incremental cost-effectiveness ratio [ICER]) and four CUA (presenting incremental cost-utility ratio [ICUR]). All interventions were compared to standard care. Two studies were within the scope of T2D prevention: a CBA (intervention: workplace leisure PA program; outcome: reduced treatment cost; CBR: 1 USD/2.2 USD), and a CEA (intervention: exercise counselling program; outcome: DALYs averted; ICER: 30000 AUD/DALY). Six studies addressed T2D treatment: 1) CEA (intervention: supervised pedometer-based walking program; outcome: daily steps; ICER: 111 CAD/1000 steps); 2) CEA (intervention: automated telephone self-management support; outcome: 10% increase in the proportion of patients that accomplish PA guidelines; ICER: 558 USD/10% increase); 3) CUA (intervention: whole-body vibration-based exercise program; outcome: QALYs gained; ICUR:

3627 EUR/QALY); 4) CUA (intervention: structured counseling intervention to promote PA; outcome: QALYs gained; ICUR: 10000 EUR/QALY); 5) CUA (intervention: combined [aerobic plus resistance] exercise program; outcome: QALYs gained; ICUR: 46411 EUR/QALY); 6) (intervention: combined [aerobic plus resistance] exercise program; outcome: QALYs gained; ICUR: 37782 CAD/QALY). Three studies used real-world patient data (one randomized controlled trial and two non-randomized studies) and another one used simulated models. **Conclusions**: Published studies on this area are scarce. Although those identified in the present review used different intervention strategies and different outcome measures, the existing evidence supports the cost-effectiveness of PA interventions. The results from this review could help in the decision process of funding PA programs for these populations.

125. Built environment and physical activity in Czech adolescents

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Introduction: Increasing prevalence of obesity and unhealthy health behavior are typical indicators in Czech adolescents. School and home neighborhood environment might play significant role in being physically active or inactive. The aim of this study was to find out whether the level of physical activity varies in Czech adolescents according to neighborhood walkability. **Methods**: Standardized method using the IPEN adolescent protocol was used to get the subjective and objective measures on physical activity (PA) and neighborhood environments across Czech regional cities. The research was running from 2014 to 2016. Total of 1745 adolescents (895 boys) aged 11-19 years participated in the study. Current results include sample of 910 respondents who met the including criteria (wearing pedometer for objective measures of physical activity and fulfilled the IPEN questionnaire for the neighborhood characteristics). **Results**: Meeting the level of 10000 steps/day was not suitable for 33 % of Czech adolescents and almost 63 % from the observed sample do not meet the recommended level of at least 12.5000 steps/day. Adolescent boys living in walkable areas (the city center and surrounding neighborhoods) reported more steps (average 12048 steps/day) that those living in less walkable neighborhoods on the outskirt of the cities for boys (average 11502 steps/day). Reversibly to boys, adolescent girls living in walkable areas (the city center and surrounding neighborhoods) reported less steps (average 11367 steps/day) that those living in less walkable neighborhoods on the outskirt of the cities (average 11651 steps/day). This neighborhood variety influence on physical activity is also consistent in school and weekend days for both boys and girls with no significance. **Conclusions**: The research on the level of physical activity of adolescents in Czech Republic indicate its decrease. The built environment is not a significant factor for PA in Czech adolescents. The policy and school intervention programs should reflect these indicators in creation more physical activity friendly and safe environments to influence the level of physical activity in adolescents. Supported by the research project of Czech Science Foundation "Multifactorial research on built environment, active lifestyle and physical fitness in Czech adolescents" (No. 14-26896S).

126. Barriers and facilitators of implementing a lifestyle intervention in primary care and opportunities for adding a financial incentive

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Introduction: The implementation of combined lifestyle interventions (CLIs) to improve physical activity levels and eating behavior of patients with diabetes mellitus type 2 and/or cardiovascular disease is challenging. Adding a financial incentive for the patients might increase the effectiveness of these interventions. In this study positive and negative factors that influence implementation of a lifestyle intervention in primary care were identified, as well as factors that influence the willingness to participate in the intervention. In addition the opinion of the interviewees on adding financial incentives to a CLI were identified. **Methods**: Management representatives of care groups, health care professionals and representatives of regional public health services were interviewed using semi-structured interviews. Topics were: a) implementation of lifestyle interventions,

b) willingness to participate in lifestyle interventions, and c) financial incentives. Transcripts of the interviews were analyzed using the program MAXQDA. **Results**: Perceived facilitators for implementation of the CLI in general practice were the intervention tailored to the needs of the target group, enthusiasm and willingness of healthcare providers to offer the CLI to patients and the motivation of the patients themselves. Perceived barriers were the out-of-pocket costs for patients, healthcare providers' negative perception of the CLI, the unfamiliarity and lack of knowledge of healthcare providers with the CLI and the lack of willingness of health insurers for funding these CLIs. In the opinion of the respondents, a financial incentive could improve patients' willingness to participate in the CLI. However, the long term effect was doubted. Moreover, respondents preferred a positive incentive for their patients over a negative one. **Conclusions**: Our results suggest that successful implementation of CLIs depends on three aspects, besides motivated patients. First, the availability of sustainable funds to develop the program. Second, care groups disseminating the program to healthcare providers. And third, healthcare providers offering the program to patients. Moreover, our results confirmed that, although long-term effects were doubted, financial incentives could improve patients' willingness to participate in the CLI.

127. Investigating the role of social networks for physical activity and sedentary behaviour in adolescents: a social network analysis

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Introduction: There has been little research investigating the association between peer and individual physical activity behaviour, and the underpinning mechanisms are underexplored. During adolescence, peer influence becomes stronger while parental and familial influence weakens, especially with regard to engagement in health behaviours. Better understanding of how peer social networks are associated with physical activity behaviour and the identification of important network structures and characteristics will help inform the development of socially-activated physical activity behaviour change interventions for adolescents. Therefore, the aim of this study was to investigate the association between physical activity behaviour and peer networks in adolescents. **Methods**: This study involves secondary analysis of a population-wide, cross-sectional survey (Wellbeing in Schools Survey) on health and well-being involving post-primary school pupils (1603 respondents; aged 13-14 years old; 88 schools) in Northern Ireland. A sub-sample of 23 schools with at least 80% complete network data and ranging in demographic characteristics was selected for analysis. Friendships were measured using social network techniques and physical activity was measured using the Physical Activity Questionnaire for Children (PAQ-C). Social network analysis involved network visualisations and deriving network descriptives to investigate network structure and characteristics in relation to socio-demographic characteristics and physical activity behaviour using UCINET6 (version 6.620) software. Logistic regression was conducted to investigate the association between network properties and physical activity behaviour while controlling for key socio-demographic characteristics. **Results**: Of the 23 schools included in the analysis, 30% were single sex and 83% high socioeconomic status. 17% of the schools were from the most deprived areas. Preliminary results show distinct clustering of participants by gender and an association between network parameters and physical activity levels. Further in-depth analysis regarding the association between network structures and characteristics, and physical activity behaviour will be presented. **Conclusions**: Among adolescents of age 13-14 years, there is evidence of an association between friendship ties and physical activity levels, which differs by gender. Future behaviour change interventions for adolescents should consider and utilise these inherent network structures and characteristics within the intervention design and evaluation.

128. Care-PA initiatives in the neighbourhood: the first results of X-Fittt 2.0, a combined lifestyle intervention for low SES overweight people

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Introduction: Physical activity (PA) is an important contributor to health and well-being, and physical inactivity has been identified as the fourth leading risk factor for global mortality. People with a low socioeconomic status (SES) are less engaged in PA than high SES citizens. Combined lifestyle initiatives are deemed effective to stimulate PA and to improve health and societal participation. In those initiatives, multiple sectors (e.g. sports, health insurers, municipalities) collaborate to connect primary care and PA at neighbourhood level. An example is X-Fittt 2.0, a combined lifestyle intervention in Arnhem (the Netherlands) focusing on low SES

overweight people (BMI ≥ 28 kg/m2). X-Fittt 2.0, funded by the municipality and a health insurer, consists of 12 weeks of group sport sessions (twice a week), lifestyle coaching and dietary advice (multiple times throughout the 12 weeks), and 3 years of follow-up (lifestyle coaching three times a year). This research aims to study the short term (12 weeks) effects of participation in care-PA initiatives for people with a low SES in terms of health and societal participation. **Methods**: Before and after the 12-week programme, body measurements and questionnaire data (n = 36) were collected and analysed. In addition, six focus groups with the participants (n = 28) were conducted. **Results**: In the first 12 weeks, people lost on average 6.7 kilos (average BMI change from 34.2 to 31.9 kg/m2). The average percentage of body fat decreased from 39.0% to 36.7%, and average self-reported health status increased from 6.0 to 7.3 (0-10 scale). As participants stated, "my fitness improved" and "I feel better about myself". Participants valued the programme with an 8.5, e.g. because "the guidance and atmosphere are really good". An example of increased societal participation: "I can play with my children again". In October 2017, the first long term results (1 year after the start) will be available and presented. **Conclusions**: The first results of X-Fittt 2.0 are promising, suggesting that both participant's health and societal participation improved as a result of participation in X-Fittt 2.0. Long-term results will reveal whether these effects will be sustained or will further improve over time.

129. How to integrate active living in preschools: Moving and active learning in social education curriculum

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Introduction: It is well-documented that physical activity(PA) contribute to physical, mental and social health and well-being1-3. The acute cognitive benefits of PA has been reported in several studies4 and a recent study suggests, that task-relevant PA significantly improves math learning in children5. Thus, PA in settings for daily childhood living, e.g. kindergartens, might improve general health and learning. A method towards achieving active living from early childhood is for pedagogues` to integrate PA and task-relevant PA in their professional approaches6. However, studies have shown that pedagogues do not have the educational levels to integrate PA in their practice7,8, indicating a lack in educational curriculum for pedagogues on how to include PA or task-relevant PA in future practice. The purposes of this study are to - develop didactics based on PA, tailored for lecturers at the education for pedagogues (Bachelor of Social Education (BSE)). - implement the use of PA into professional practice at the BSE. **Methods**: The study is a two-phase study inspired by action research. In phase one a group of experts in PA and learning, the Movement Taskforce (MT) organize workshops and act as discussion partners for lecturers at University College Lillebælt (UCL). PA as a didactical and pedagogical tool is discussed and defined. Feasible teaching methods are designed, adapted and implemented into lectures. Students' learning experiences and appropriateness of the teaching methods are evaluated by focus group interviews with lecturers and students, video documentation and Learning Rating Scale questionnaires. In phase two, the teaching methods will act as basis for the development and implementation of a "PA profile" at the BSE Finally, students will apply PA as a pedagogical and didactical method when working in professional practice. **Results**: Presentation of focus group interviews, video documentation and Learning Rating Scale questionnaires. Pilot projects at UCL have shown promising results. Lectures have shown readiness to engage in processes to develop a curriculum with focus on integration of PA. **Conclusions**: The project will result in a model suggesting how lecturers can include PA in learning processes in an educational context, and how to implement PA in pedagogues´ future practice.

130. What psycho-social factors determine physical activity patterns of university students?

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Introduction: A growing number of young adults spend time in a university setting, a setting often associated with unhealthy behaviour changes such as low levels of physical activity (PA) or high levels of alcohol consumption. Regular PA has been shown to benefit general health, mental health and happiness in young adults. Although levels of PA have been researched, no information on how this target group organise their PA across different life domains is available. The primary purpose of this study was to explore if, and how, stu-

dents organise their PA across transport and recreational life domains. A secondary purpose was to identify the psycho-social factors influencing these PA patterns. **Methods**: Students from 31 Irish universities completed a supervised online survey that measured demographic information, psycho-social factors, transport and recreational related PA using adapted measurement tools. A two-step cluster analysis was used to identify specific PA patterns. Binary logistic regressions (BLR) identified which factors influence cluster membership while controlling for age, sex and household income. **Results**: Analysis was performed on 6,951 students (50.7% male; 21.51 ± 5.55 years). One 'Inactive' cluster (i.e. motorised travel and no recreational PA) emerged. Four clusters containing a form of PA emerged including 'Active Commuters' (i.e. active travel and no recreational PA), 'Active in University' (i.e. active travel and recreational PA in university only), 'Recreationally Active outside University' (i.e. motorised travel and recreational PA through organisations outside university), and 'Active Everywhere' (i.e. active travel and recreational PA in both university and outside organisations). BLR indicated that students with positive perceptions of the physical environment, high levels of motivation, and active engagement in action and coping planning for PA were significantly more likely to be in a cluster containing PA than the 'Inactive' cluster. **Conclusions**: Universities are an ideal setting for the implementation of health promotion strategies as they support a large student population at a key time for the development of lifestyle skills and behaviours. Understanding students PA behavioural patterns, and what determines these patterns, will help health professionals and policy makers identify strategies to tailor interventions to improve PA engagement, in addition to overall health.

131. The effects of continuous compared to accumulated exercise on health: protocol for a systematic review and meta-analysis

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Introduction: Current public health guidelines recommend that physical activity can be accumulated in multiple short bouts performed over the course of a day. A systematic review and meta-analysis of studies is needed to inform the evidence base for the formulation of updated public health guidelines. This study will examine if there are different effects from a single bout of exercise compared with the same total duration accumulated in multiple bouts over the course of the day, on short- and long-term health outcomes in adults. **Methods**: The following databases were searched for journal articles published in English between January 1970 and September 2016: CENTRAL, MEDLINE, Embase, Cochrane Database of Systematic Reviews, CINAHL, PsycINFO, SportDiscus, PEDro. Randomised controlled trials and quasi-experimental trials that evaluated the effects of a single bout of exercise compared with the same intensity and mode of exercise of the same total duration, accumulated in multiple bouts over the course of a day in community-dwelling adults (age 18+) were eligible for inclusion. Two reviewers will independently screen studies, extract data and assess risk of bias. Study authors will be contacted to clarify missing or unclear data when necessary. We will provide summaries of intervention effects for each study by calculating risk ratios (for dichotomous outcomes) or standardised mean differences (for continuous outcomes). Where appropriate, data for some outcomes will be included in a random-effects meta-analysis with standardised mean differences for continuous outcomes and risk ratios for binary outcomes. Subgroup analysis will examine evidence of differential responses to the interventions. We will conduct sensitivity analyses based on risk of bias. **Results**: Following removal of duplicates the searches yielded 7397 hits. After screening of titles/abstracts 89 studies were put forward for full-text review. **Conclusions**: At present there is some evidence from experimental studies that physical activity accumulated throughout the day is as effective as the more traditional continuous approach. The present study augments the existing evidence base by synthesising available research and will therefore aid decision making by researchers and policy-makers seeking to formulate public health messages.

132. Ethnic differences in sedentary behaviour in 6-8 year old children during school term and school holiday- a mixed methods study

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Introduction: High levels of sedentary behaviour (SB) in childhood are increasingly common and damaging for child health and well-being. This study explored ethnic differences in SB during school and holiday weeks in White British (WB) and South Asian (SA) children in West Yorkshire, UK. **Methods**: A convergent parallel design, mixed methods approach was taken. This comprised of a quantitative study with 160, 6-8 years old children

and a qualitative study with a subsample of 18 children, 6 parents and 8 teachers. Children in three schools from varied socioeconomic (SES) backgrounds were invited to wear activPal inclinometers for 7 school term (Summer/Winter/Spring) and 7 holiday (winter/spring) days during July 2016-May 2017. Total sitting, sitting accumulated in different bout lengths and breaks in sitting were explored. Data was analysed using multivariate linear mixed effects multilevel modelling, assuming no interaction effects. Eleven focus groups and interviews were carried out using the Theoretical Domains Framework to explore SB perceptions. Data were analysed using Framework Approach. **Results**: 104 children provided 844 valid days of data. Children spent on average 492 minutes/day in sitting of which 367 was spent in bouts30 and 53minutes in bouts>60. Children broke their sitting on average 112 times/day. Sex, ethnicity, deprivation, overweight status, season, term, weekday and school were adjusted for. No significant ethnic differences for any of the sitting outcomes except breaks in sitting were found. SA children had 25 fewer breaks in sitting per day compared to WB ($p<0.001$). Qualitative data found that perceived reasons for high levels of sitting included: boredom, enjoyment of screen activities (by children), parenting practices, curriculum pressures (teachers), the need to sit down and learn, and child's preference for screen activities (parents). **Conclusions**: Children spent a concerning amount of time sitting, regardless of ethnicity. The study showed significant ethnic differences for breaks in sitting. Since breaks in sitting are desirable for cardiovascular health, interventions to reduce SB should also aim to increase breaks in sitting especially for SA children. Traditional approaches to learning such as the need to sit and parental practices that increase sitting require further exploration.

133. Now We MOVE Campaign - 5 years of moving people

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Introduction: NowWeMOVE (NWM) is the Europe's biggest campaign promoting sport and physical activity. Its vision is to get "100 million more Europeans active in sport and physical activity by 2020". The campaign's overall objectives are to: • Raise awareness of the benefits of grassroots sport and physical activity among European citizens; • Develop and promote opportunities to be active in grassroots sport and physical activity; • Enable sustainable and innovative capacity building for grassroots sport and physical activity providers; • Advocate for the societal benefits of grassroots sport and physical activity among policy makers. **Methods**: The main flagship events of NWM campaign are: • MOVE Week, • No Elevators Day, • European School Sport day, • European Fitness Day; • European NowWeBike tour. The implementation of the campaign is done through: 1. Securing a strong network of nationally based partners in all European countries. 2. Capacity building of the national partners - 42 national coordinators 3. Creating resource libraries - PR toolkits, social media toolkits, off-line campaign materials; company activation pack, Guerilla marketing toolkit. 24/7 technical, graphical and PR support. **Results**: ISCA estimated the number of participants involved in NowWeMOVE campaign activities from 2012 up to now to be 3.5 million people in +400 European cities. The European campaign had also inspired Brazil to organize its own MOVE Weeks from 2013 to now and since 2016 the MOVE Week initiative have been expanding to the other Latin-American countries. **Conclusions**: Due to the scope of the campaign - targeting all European countries - and the limited budget – we took a strategic decision to focus on building capacities within our partners on national levels to secure the implementation of the campaign. It is important to underline that the above described impact on individuals and organisations (short and long term) is supplemented by the policy/systemic impact of the campaign. Indeed the advocacy objective of the campaign is crucial for the longer term success of the campaign vision, since increased engagement and investment of policy makers and other related stakeholders in physical activity promotion is absolutely necessary to address the physical inactivity epidemic.

134. Physical Activity behaviours among children and adolescents with functional limitations

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Introduction: Given the important role of physical activity in the prevention of non-communicable disease, studies of children and adolescents with functional limitations are a top priority. Children and adolescents experience physical, social and psychological change whereby this period of life is essential to examine. Despite physical activity levels increasing in the last 10 years, between the ages of 11 to 15, there is substantial reduction in physical activity levels. The Finnish School-aged Physical Activity (SPA) study was designed to provide a national monitoring tool to assess physical activity among children and adolescents and is one of the few that includes data disaggregation by disability. **Methods**: The 2016 SPA study was designed through

a cluster multi-level sampling method that was nationally representative. Children (n=4724) with average ages of 11, 13, and 15 years took part in the study that involved web-based questionnaires. Questions about their functional limitations, including 'seeing', 'hearing', 'speaking', 'moving', 'breathing', and 'remembering and concentration' difficulties were based on a modified version of the Washington Group on Disability Statistics items. Physical activity, sitting time and participation in organized sports were self-reported single items. Between-subjects multivariate analysis of variance and covariance (gender, age, family affluence) was performed for each functional limitation category. **Results**: One in six (14.9%) reported to have functional difficulties that could indicate disability. Adolescent boys with 'moving' difficulties (n=62) and boys (n=171) and girls (n=245) with 'remembering and concentration' difficulties reported significantly lower levels of physical activity, more sitting time and fewer sports club memberships than adolescents without functional limitations. However, differences in physical activity behaviours among adolescents with 'seeing' (p=.244), 'hearing' (p=.588) or 'speaking' (p=.639) difficulties were not significant to peers without disabilities. **Conclusions**: Finnish adolescents with 'moving 'difficulties as well as difficulties in 'remembering and concentration' face the greatest health disparities in terms of physical activity behaviours. Despite the limitations from self-reported data, this study sheds light on how adolescents with functional limitations report their physical activity behaviours and is comparable to Global Matrix data. The differences in physical activity levels between functional limitations indicate the need to improve health promotion strategies through multifaceted approaches.

135. Physical activity wearables and its association with student-athlete identity

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Introduction: Self-quantification is easier with the assistance of wearable technology. Hardware devices that athletes wear, such as heart rate monitors or sports watches (HRM/SW), and integration into the user's smart phones as applications (apps) are readily available as commercial products. Despite the surge in the emergence and use of these technologies, there is a lack of knowledge of how student-athletes use these devices and if it plays a part in the identity of athletes. Therefore, the purpose of this study was to investigate the rate at which student-athletes at elite sport schools own and use HRM/SW and apps, as well as the associations between these devices and athletic identity. **Methods**: Adolescents (n=437) in their second year of elite sport school (average age range is 16-17 years old) took part in a survey collected from 7 schools around Finland in a longitudinal mixed methods study on adolescent athletes' careers in the spring of 2017. The athletic identity measurement scale (AIMS), (Brewer et al, 1993), Task values (Niemivirta, 2002), and items taken from the Finnish School-age Physical Activity (SPA) study (Kokko et al, 2016) regarding physical activity wearables (PAW) were included in the analysis. PROCESS macro for SPSS was used for a model exploring the mediation of task values in relationship between PAW and AIMS. **Results**: Significantly more girls than boys (p=.036), individual sport athletes than team sports (p<.001) and professional sport aspirations (p=<.001) had fitness trackers. Whereas, more team sport athletes than individual sports (p=.036), higher grades than lower grades (p=.026) and professional sport aspirations (p=.014) had apps. Users of fitness trackers was significantly associated with task values and overall AIMS, but not for all of its subdomains. **Conclusions**: Among student-athletes, there is a distinction between apps and fitness trackers for physical activity. This has implications in the personalised approaches towards technology to enhance physical activity.

136. Local governments' involvement in Health-Enhancing-Physical Activity promotion policies: a scoping review

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Introduction: Among the plurality of factors influencing the physical activity levels of populations, policy is recognised as a key leverage from a socio-ecological approach. The World Health Organization has recognized the roles of local governments in the policy development of Health Enhancing Physical Activity (HEPA) promotion. Despite this fact, there is still little knowledge about the involvement by local governments in HEPA promotion at local level through policies. This scoping review aimed to explore how local governments' are involved in HEPA promotion policies. **Methods**: Scientific databases were interrogated by two independent researchers to include and extract peer-reviewed scientific articles published in English from January 2006 to

December 2016. A common data extraction sheet, based on the physical activity policy framework and the socio-ecological approach, was used to collect, organize and summarize data with variables of interest. **Results**: A total of 21 articles, mainly originating from English-speaking countries such as USA, Canada and Australia (n=19), were included in the final analysis. Local governments were involved in HEPA policies acting on physical (n=18), organizational (n=10), individual (n=8), and social environment levels' (n=1). The policies reviewed were in majority multi-sectoral (n=15), except 6 from planning sector (n=3), from health sector (n=2), and from transport sector (n=1). **Conclusions**: This scoping review provided a first look of the involvement of local governments in HEPA policies. Further research should investigate deeply HEPA policies to have a better vision of what is implemented and to identify the best strategies to make people physically active according to the local context. Keys words: physical activities, health promotion, policies, local governments, scoping review.

137. Active school commuting, aerobic fitness and obesity among Liverpool schoolchildren

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Introduction: The aim of this study was to examine differences in health outcomes between active and passive school commuters, and examine associations between parent perceptions of the neighbourhood environment and active school commuting (ASC). **Methods**: One hundred-ninety-four children (107 girls), aged 9-10 y were recruited from ten schools in Liverpool, England. Measures of stature, body mass, waist circumference and cardiorespiratory fitness (CRF) were taken. Body mass index (BMI) was calculated from stature and body mass and BMI z-scores were assigned [1]. Children were classified as healthy weight [2] and aerobically fit [3] based on previously recommended cut-points for BMI and CRF, respectively. School commute mode (active/passive) was self-reported and parents completed the neighborhood environment walkability scale for youth [4]. Distance to school was calculated from home and school postcodes using Google Maps. Area deprivation was calculated from home postcodes. Multivariate analysis of covariance (MANCOVA) assessed differences in health outcomes by school commute mode. χ^2 with odds ratios (OR) as a measure of effect examined school commute mode group differences in weight status, CRF, deprivation and school commute distance. The same analyses were repeated to examine deprivation group differences in weight status, CRF, school commute mode and school commute distance. Logistic regression analyses assessed associations between parent perceptions of the neighbourhood environment and ASC. **Results**: Fifty-three percent of children commuted to school actively. Active school commuters had significantly higher BMI (p=0.02), BMI z-score (p=0.05), and waist circumference (p=0.01) than passive school commuters. Children who lived in more-deprived neighbourhoods that were perceived by parents as being highly connected, un-aesthetic and having mixed land-use were more likely to commute to school actively.

138. One Size Does Not Fit All: Contextualising Family Physical Activity Using a Write, Draw, Show and Tell Approach

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Introduction: To develop effective family-based physical activity (PA) intervention programmes researchers need to understand the habitual PA behaviour, characteristics and socio-environmental constraints of individual families. However, effective approaches to capture the 'lived experiences' of families are not yet well established. Therefore, this study aimed to (1) demonstrate how a "write, draw, show and tell" (WDST) methodological approach can be appropriate to family-based PA research, and (2) present two distinct family case studies to provide insights into the habitual PA behaviour and experiences of a nuclear and single-parent family. **Methods**: Six participants (including 2 'target' children aged 9-11 years, 2 mothers and 2 siblings aged 6-8 years) from 2 families were recruited through primary schools in Liverpool, UK. The families were purposefully selected based on their family structure. Participants completed a paper-based PA diary and wore an ActiGraph GT9X accelerometer on their left wrist for up to 10 weekdays and 16 weekend days. ActiGraph .csv files were analysed using the R-package GGIR version 1.1-4. Mean minutes of moderate-to-vigorous PA (MVPA) for each weekday and weekend of measurement were calculated. Diary responses were summed to produce frequency counts. A range of WDST tasks were undertaken by each family to offer contextual insight into their family-based PA. The WDST tasks generated visual (write/draw and show/tell activity) and narrative data (show/tell activity and

children's write/draw narratives). The narrative data were analysed via thematic analysis. **Results**: The combination of accelerometry, diary, write/draw, and narrative data generated complimentary interconnected findings that uncovered new insights into family-based PA. The selected families participated in different levels and modes of PA, and reported contrasting leisure opportunities and experiences. **Conclusions**: Offering 'voice' via the PA narratives of two distinct families highlights the limitations of prescriptive family-based PA intervention programmes. These novel findings encourage researchers to tailor family-based PA intervention programmes to the characteristics of the family, and demonstrate the utility of PA diaries in conjunction with accelerometers to provide understanding of the mode and context of family-based PA.

139. The effects of nudge interventions for physical activity and healthy diet: a systematic review

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Introduction: In recent years, "nudge" policies have become increasingly popular seeking to modify the way individuals make decisions by affecting their potential response to available options. There has been a growing body of clinical and population research assessing different nudge interventions on various health-related outcomes but without guidance for everyday practice on whether and how to use this type of interventions. We aimed to map and systematically appraise the evidence on the effect of different nudge interventions on physical activity and healthy diet. **Methods**: A systematic review was performed by using Pubmed and Web of Science (January 2003 to March 2017). Randomised and non-randomised studies were included if they quantitatively assessed physical activity and/or healthy diet interventions that were explicitly related to the nudge theory. Studies were grouped by type of nudge intervention. The provisional typology of choice architecture in micro-environments by Hollands et al (2013) was used, adapted to include tailored e-based interventions and economic incentives. The included studies were appraised using items of the Cochrane collaboration tool for assessing risk of bias and the Research Triangle Institute item bank. **Results**: Forty-three publications reporting on forty-five studies were included with varying degrees of bias. Five studies investigated physical activity interventions while forty studies investigated healthy diet interventions. Overall, physical activity nudge studies pertained to proximity, prompting and financial incentive nudges, yielding inconsistent results. Specific types of nudge interventions such as proximity and presentation alterations can be effective in encouraging people towards the adoption of healthier diet choices, while labeling, availability, prompting, functional design and sizing nudge interventions provided inconclusive results. **Conclusions**: Evidence on the effectiveness of nudge interventions on improving physical activity is limited while specific nudge interventions improving convenience showed to be effective in encouraging people towards the adoption of healthier diet choices. Further conceptual development and research is needed for a conclusive judgment on the efficacy of different types of nudge and to optimally determine the type, intensity and circumstances that make nudge-related interventions more effective, particularly regarding physical activity.

140. Health related physical fitness monitoring practices in Irish secondary schools: A national review

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Introduction: Health Related Physical Fitness (HRPF) in childhood and adolescence is a powerful marker of future health (1). Despite WHO recommendations (2), and unlike the US, Australia, Canada, New Zealand and several European countries (3), the Republic of Ireland (ROI) lacks a clearly specified strategy for testing and monitoring physical fitness in children and adolescents. The aim of this study was twofold. Firstly, to review physical health and fitness monitoring practices in secondary schools in the ROI. Secondly, to determine the perceived need for the development of a web based solution to host, evaluate and compare HRPF levels at a national level. **Methods**: An email containing a link to an online questionnaire was sent to all secondary

schools (N=735) in the ROI. 336 physical education (PE) teachers initiated a 39-item questionnaire, of which 323 responses from 235 schools (32.0%) were eligible for analysis. Questionnaire items were generated in part from the cross validated 'Physical Education Teachers Attitudes Towards Fitness Testing Scale' (PETAFTS) (4) and a 'Health, Activity and Fitness Monitoring' questionnaire (5). Descriptive statistics were calculated for all variables. **Results**: 92.6% of teachers used fitness testing in their physical education programme. Student health was not monitored outside of physical education in 86.4% of schools. Only 11.6% of physical education teachers tracked students HRPF for the duration of their time in secondary school. Teachers had positive attitudes towards the role of HRPF monitoring in physical education (M=5.8; SD = .66) on a 7 point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Teachers were in favour of developing a web based solution to facilitate monitoring health measures across year groups (M=6.4; SD = .94). **Conclusions**: Levels of HRPF testing in the ROI are in line with international practice (5, 6). However, a minority of PE teachers track students' results as they move through school years. PE teachers are strongly in favour of the development of a web-based platform to monitor students HRPF levels as they progress through secondary school. There is a need to develop a standardised method and platform for schools to record and track student HRPF.

141. Project Spraoi: Two year outcomes of a whole school physical activity and nutrition intervention using the RE-AIM framework

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Introduction: The purpose of the study was to assess the impact of a 24 month, whole of school, physical activity (PA) and nutrition intervention. No previous published Irish research has examined the effectiveness of a multicomponent intervention targeting increased PA and improved nutritional knowledge and attitudes among primary school aged children. 'Project Spraoi' is based on a New Zealand (NZ) intervention titled, 'Project Energize' (www.projectenergize.org.nz), which reports positive changes in prevalence figures for overweight and obesity, physical fitness and nutritional behaviour among NZ pupils. **Methods**: Two intervention schools (1 rural, classified as middle/high socio economic status (SES); 1 urban, classified as low SES) and 2 matching control schools were selected. Measures of body mass (kg), waist circumference (cm), systolic and diastolic blood pressure (mmHg), resting heart rate (bpm), cardiovascular fitness (time taken to complete a 550m run) and nutritional knowledge/attitude (via questionnaire) were examined. PA was objectively measured over 7 days using Actigraph triaxial accelerometers (MTI model 7164, Fort Walton Beach, FL) at 30Hz/5 second epochs. Intervention schools were assigned an 'Energizer', for 2 school years, to promote PA and improve nutritional knowledge/attitudes. Process evaluation techniques (semi-structured interviews, questionnaires and draw-and-write) assessed the impact of the intervention on teachers, parents and pupils. **Results**: The intervention reached 473 pupils and 43 school staff, across 2 primary schools in Cork (Ireland). Pupils (n=231) aged 6 (n=120) and 10 (n=111) were measured at baseline and after 2 school years. After adjustment for baseline measures and in comparison to control schools, the intervention was associated with smaller waist circumference relative to gender and age (-0.4 standard deviation scores $p<0.0005$), slower resting heart rate ($p=0.003$) and favourable nutritional knowledge/attitudes among 10 year olds. Teachers (n=9), parents (n=3) and pupils (n=290) reported positive outcomes for PA behaviour and nutritional knowledge/attitudes. **Conclusions**: Project Spraoi, has shown promise amongst older primary school pupils to reduce waist circumference and resting heart rate. A longer duration intervention is needed to clarify if potential differences in health markers among younger age groups can be identified. Furthermore, positive changes in PA and nutritional knowledge/attitudes support the need for its continued delivery.

142. From Morris, Paffenbarger et al. to action – HEPA Europe

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Introduction: The pioneering work of Jerry Morris, Ralph Paffenbarger and others ripened to solid scientific evidence for the promotion of physical activity for health in the 1990's. Consequently, policy actions began to sprout first in North America and then in Europe. HEPA Europe took the lead in this European movement**.** **Methods**: Narrative review. **Results:** The first European Network for the Promotion of Health-enhancing Physical Activity (HEPA Europe I) was a EU-funded project during 1996 to 2001. It aimed to foster national HEPA policy and strategy development, advance networking and information exchange, and to promote walking. Among the network's achievements were recommendations for the development of European HEPA strate-

gies, national HEPA policy initiatives in 17 European countries, and growing number of walking programs. The network was an important catalyst in placing physical activity on the WHO's agenda. HEPA Europe I established a solid platform for the further development and implementation of HEPA policies and strategies in Europe, and paved the way for HEPA Europe II, formality established in 2005. HEPA Europe II was set to increase participation in and improve conditions for physical activity in Europe. It aimed to contribute to the development and implementation of national HEPA policies, strategies, programs, approaches and examples of good practice. The network's outputs include books, scientific articles, policy analyses, and promotional guides and tools. Five years after the start of HEPA Europe II, its activities and products had influenced HEPA promotors' work in more than 30 European countries. During its first ten years of existence it has had a strong involvement in major HEPA policy and strategy developments promoted by WHO and EU. In 2016 the network had 158 member organizations from 36 countries including research-, policy- and practice-oriented institutions at international, national, regional and local level**. Conclusions**: HEPA Europe movement has been able to make a significant contribution to physical activity promotion for health in Europe. The coincidence of a number of favorable developments during its early years of existence, the combination of commitment and conceptual clarity, institutional support at several levels, and the network's ability to produce high utility outputs have made this possible.

143. How do we talk about physical activity on Twitter? A content and sentiment analysis

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Introduction: The ever-growing popularity of social media has encouraged physical activity (PA) practitioners and researchers to embrace these new platforms for promoting PA. However, we need to better understand how we communicate about PA on social media platforms and how users interact with it. Contributors to the PA conversation on Twitter are wide reaching; encompassing the general public, for-profit organisations and public health bodies and professionals. This study aims to identify themes in content and sentiment across the PA conversation on Twitter and assess the sources of information, to provide PA researchers and practitioners with an insight into the social media environment and how information is shared within it. **Methods**: Tweets containing the term "physical activity" were collected from Twitter continuously over a 7-day period in May 2017, producing 7,525 tweets. Sentiment scores were assigned to tweets using the Wordnet extension for RapidMiner Studio. A coding framework was developed and content analysis was manually performed on a 1% sample to identify frequency of main themes; including informational, promotional, and personal. **Results**: The majority of PA tweets expressed weak positive (67.1%), weak negative (12.3%) and neutral sentiment (13.7%), with the minority exhibiting strong positive (5.5%) and strong negative (1.4%) sentiment. Preliminary content analysis identified 63.5% of PA tweets as informational, with 8.1% of tweets promoting products or services, and 28.4% identified as personal tweets, for example general commentary and reporting behaviour. Within all informational physical activity tweets, 63.8% contained information in the tweet itself rather than linking to external information. Further detail regarding the results of the content and sentiment analysis will be presented. **Conclusions**: Tweets about PA were predominately positive and used to convey information within the tweet. The findings of this study will provide PA researchers with a better understanding of how PA is discussed on Twitter, and further analysis of the data may help inform how we use social media as an intervention tool for lifestyle behaviour change and PA promotion.

144. The impact of changes in time use on mental health and well-being following retirement

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Introduction: Retirement is a life transition involving an obligatory change in how people use their time. Because there are strong associations between use of time and health, different changes in time use following retirement may have different impacts on mental health. **Methods**: 101 participants were followed from 6 months before retirement to 12 months after retirement. At each time-point, use of time was quantified using a validated computerised 24-hour recall. Depression, anxiety and stress were assessed using the Depression, Anxiety and Stress (DASS21) scale, well-being with the Short Warwick-Edinburgh Mental Well-being Scale

(SWEMWBS), life satisfaction with the Australian Unity Personal Well-being Index (AUPWI), and self-esteem with the Rosenberg Self-Esteem Scale. Time-use data were analysed using compositional data analysis, which treats the 24-h day as a holistic "activity composition" rather than as individual activity domains. Time flow analytics were used to map patterns of change in time use from pre-retirement to post-retirement. Regression analysis was used to determine whether changes in the activity composition were significantly associated with changes in mental health. Compositional isotemporal substitution models were used to illustrate dose-response relationships between changes in time use and changes in health for individual activity domains, such as screen time and physical activity. **Results**: Following retirement, time no longer spent in work time flowed mainly to household chores, sleep, screen time and quiet time (e.g. reading). Changes in the activity composition were significantly related to changes in DASS total score, depression, stress, and self-esteem, but not to anxiety, well-being or life satisfaction. Replacing work time with physical activity or sleep was associated with positive changes in mental health. Effect sizes for 60-minute substitutions ranged from –0.19 to +0.40. **Conclusions**: Following retirement, replacing work with physical activity, and to a lesser extent sleep, is associated with better mental health.

145. The Effectiveness of School-Based Physical Activity Interventions for Adolescent Girls: A Systematic Review and Meta-analysis

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Introduction: Physical activity (PA) decreases during the transition from childhood to adolescence, with larger declines observed in girls. School-based interventions are considered the most promising approach for increasing adolescents' PA levels although, it is unclear which types of school-based interventions have the greatest impact. The objective of this systematic review was to assess the impact design and effectiveness of school-based PA interventions targeting adolescent girls. **Methods**: A systematic search was conducted using four electronic databases (PubMed, Web of Science, SPORTDiscus and PsychInfo). This systematic review was registered with PROSPERO (Registration number: CRD42016037428) and PRISMA guidelines (2009) were followed throughout. Studies were eligible if they reported the effects of school-based PA interventions on PA outcomes among adolescent girls (mean age 11-18 years). Studies were included in the meta-analysis if they employed a pre-post, control group design. **Results**: In total, 9,383 records were identified. After screening and eligibility assessments, twenty studies were identified as meeting the inclusion criteria and were included in a narrative synthesis. Seventeen studies were eligible for inclusion in the meta-analysis. There was a significant small positive treatment effect for school-based PA interventions for adolescent girls ($k=17$, $g= 0.37$, $p<.05$). After an outlier was removed (residual $z = 7.61$) the average treatment effect was significantly reduced, indicating a very small positive effect ($k = 16$, $g= 0.07$, $p=.05$). Subgroup analyses revealed very small significant effects for multi-component interventions ($k= 7$, $g= 0.09$, $p<.05$), interventions underpinned by theory ($k= 12$, $g = 0.07$, $p<.05$), and studies with a higher risk of bias ($k= 13$, $g = 0.09$, $p<.05$). **Conclusions**: Intervention effects were very small which indicates that changing PA behaviours in adolescent girls through school-based interventions is challenging. Risk of bias scores did not appear to be associated with intervention effectiveness. Multi-component interventions and interventions underpinned by theory may be the most effective approaches to positively change adolescent girls' PA. Keywords: Adolescents, Girls, School, Physical Activity, Intervention.

146. The Acceptability and Feasibility of a Novel Peer-led School-based Physical Activity Intervention for Adolescent Girls (The G-PACT Project)

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Introduction: Globally, physical activity (PA) levels are low amongst adolescent girls. PA levels decline between childhood and adolescence, with girls showing greater levels of decline. Peer-led intervention programmes are an effective way of improving health behaviours in adolescents, but little is known about whether this premise holds for motivating adolescent girls to increase PA. This study aimed to assess the feasibility and acceptability of a novel peer-led PA intervention programme to increase the PA levels among adolescent girls aged 13-15 years. It was hypothesized that girls' PA levels would increase following engagement with the peer-lead inter-

vention. **Methods**: The intervention employed a peer-led model designed using Social Cognitive Theory (SCT) and Self-Determination Theory (SDT). The intervention was delivered in three schools over eight weeks and involved 233 adolescent girl participants. Each school recruited PA leaders (10-15 girls in each school) who received training sessions on PA, health, leadership, motivation, barriers to PA, ideas to increase PA, and peer support. The training sessions were delivered by undergraduate PA students, who acted as mentors to the school PA-leaders. The PA leaders were encouraged to support other adolescent girls in their school settings to engage in more PA. Two of the schools provided after-school PA opportunities. The acceptability, practicality, engagement, and perceived success of the intervention was investigated using focus groups (peers, leaders & mentors) and interviews (teachers). PA enjoyment, self-efficacy, wellbeing and social support were assessed pre and post intervention. PA levels were also measured using ActiGraph Link GT9X accelerometers. Qualitative analysis adopted deductive and inductive methods, using SCT and SDT as an initial thematic framework, and then exploring additional emergent themes. PA data analysis used R package GGIR to calculate daily mean minutes of moderate to vigorous PA (MVPA). Descriptive statistics will be calculated for psychosocial outcomes and anthropometric data. ANCOVA analyses will examine change in all outcome measures over the intervention period. **Conclusions**: Initial results will be available to present at HEPA 2017. This intervention shows innovation incorporating undergraduate students to act as mentors and role models to adolescent PA leaders. Key Words: Peer-led, Physical Activity, Adolescent, Girls, Mentoring, School-based, Intervention.

147. The relationship between physical activity and unmet physical activity need in old age: a two-year follow-up

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Introduction: Physical activity can be considered a basic need and its importance for maintaining good health has been widely recognized. Nevertheless, some older adults feel that they do not have the opportunity to be as physically active as they would wish, a situation termed as unmet physical activity need. The role of physical activity in the development of unmet physical activity need is not yet known. We studied whether lower levels of physical activity predict the development of unmet physical activity need after one and two years among older adults. **Methods**: Community-dwelling people aged 75-90-years were interviewed at baseline (n=848) and one (n=816) and two (n=761) years later. Those who reported willingness to increase physical activity, but no possibilities to do so, were defined as having unmet physical activity need. Physical activity level (high activity, moderate activity, low activity) was self-reported, and in addition, measured objectively with an accelerometer for 7 days at baseline among subgroup (n=174). The data were analyzed with logistic regression analysis. **Results**: At baseline, 115 (14 %) participants reported unmet physical activity need. Of the participants who did not report unmet physical activity need at baseline (n=693), 85 (12 %) developed unmet physical activity need by one-year and 52 (8 %) by two-year follow-up. Participants who reported low activity levels at baseline were more likely to develop unmet physical activity need one or two years later compared to participants who reported high activity levels (OR 2.82, 95% CI 1.60-4.95) when adjusted for age, gender, years of education, comorbidity, depressive symptoms and lower extremity physical performance. Moderate physical activity level was not associated with the development of unmet physical activity need in the adjusted model (OR 1.63, CI 0.93-2.84). Participants with higher step counts at baseline had lower risk for unmet physical activity need on the two-year follow-up period (OR 0.74, 95% CI 0.58-0.95). **Conclusions**: Older adults who engage in lower levels of physical activity are at higher risk for the development of unmet physical activity need. Thus, promoting equal opportunities for physical activity is especially important for older adults who are less active.

148. Does sports participation in youth predict healthy habits in adulthood? A 28-year longitudinal study

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Introduction: Studies indicate that health behaviors in youth can predict the same behaviors later in life. However, the role of sport participation in predicting healthy lifestyle habits is unclear. This study aimed to investigate the association between participation in organized youth sport and adult healthy lifestyle habits. **Methods**: Data from the longitudinal Cardiovascular Risk in Young Finns Study (YFS) with a 28 year follow-up was used. Participation in sport-club training sessions among 9–18-year olds (n= 1285) was assessed

in 1983 and 1986 by a self-reported questionnaire. Participants were classified as active (participated in 1983 and 1986), dropouts (participated in 1983, not 1986), beginners (did not participate in 1983 but did in 1986) and non-actives (did not participate in 1983 or 1986). During 2011 participants (aged 37–43-year old) reported their: smoking status, alcohol consumption, fruit and vegetable consumption and physical activity. Odd ratios (OR) were calculated by multinomial logistic regression, to examine how persistence of participation in youth sport was associated with having many (4-5) healthy habits in adulthood versus having only few (0-2) healthy habits. **Results**: The results showed that consistent participation in youth sport training was positively associated with more healthy adult habits among females. Females who were active in youth sport had four times greater odds of having many (4-5) healthy habits in adulthood than non-actives. In males, active participation in youth sport was associated with high adult physical activity, but not the number of healthy habits. **Conclusions**: Participation in organized sports is very popular among children and youth in most western countries. Influences of youth sport participation on healthy lifestyle is an important issue since it has been suggested that youth sports clubs are an important setting for health promotion. The results suggest that active sports participation in youth could promote healthy lifestyle choices particularly among females.

149. Occupation and Qualification Standards of Physical Activity and Public Health According to the Croatian Qualification Framework

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Introduction: Physical inactivity has been identified as the fourth leading risk factor for global mortality (6% of deaths globally). This follows high blood pressure (13%), tobacco use (9%) and high blood glucose (6%). Overweight and obesity are responsible for 5% of global mortality. It has been shown that participation in regular physical activity reduces the risk of coronary heart disease and stroke, diabetes, hypertension, colon cancer, breast cancer and depression. Additionally, physical activity is a key determinant of energy expenditure, and thus is fundamental to energy balance and weight control. According to the expert basis of the Croatian Ministry of Labour and Pension System from July 2014 and the National Classification of Occupations in the education field of Kinesiology there are just some different occupations: Physical education teacher, Sport trainer and Fitness and recreation instructor. **Activities undertaken:** According to the CROQF Act and the CROQF Register, there are no registered occupational standards or qualifications standards with units of competences or units of learning outcomes in the sectoral council XIX: Education, nurture and sport. According to the mentioned the aim of project from the European Structural Fonds was defining occupational and qualification standards in the subsector of Kinesiology and Sport in the 7th CROQF level. Faculty of Kinesiology from University of Split, Croatian Kinesiology Association, the Faculty of Kinesiology Alumni Association and the Croatian Paralympics Committee defined 6 occupational and 4 qualification standards through the ESF project. **Results:** In the field of Physical Activity and Public Health was defined one occupation standard of Kinesiologist in Public Health and belonging qualification standard Master of Physical Activity and Public Health in the 7th CROQF level. **Conclusions:** Kinesiologist in Public Health is an expert who: plans health-enhancing physical activity, in co-operation with the health care team; independently with responsibility programs and conduct HEPA with the aim of prevention or therapy of chronic non-communicable diseases; actively participates in the strategic planning of the HEPA program in the public health system.

150. Workplace HEPA training programme. From sports planning to work tasks requirements. Mètode 3ES(R)

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Introduction: EU member states set worksite HEPA policy recommendations (European Commission, 2008). Health-oriented companies benefit employers, themselves and beyond, the community. There is a relationship between health workplace programmes and productivity raise, sick leaves rates decrease and, accordingly, sanity costs (Pronk, 2014). In Spain, most sick leaves relate to musculoskeletal disorders (INSHT, 2016). The Mètode 3ES(R) sets an employer- and home-based HEPA training plan aimed at getting adherence for six months and promoting an active lifestyle. **Activities undertaken**: We collect individual data for a job profile diagram (e.g., posture, task(s), anatomical plane(s), type(s) of muscle contraction) and register particular mechanical-functional specifications. We match all common tasks with fitness exercises. After, we collect data from the employers: pre-participation health screening, expectations, health-related fitness, PA behaviour and quality of life. With these, we set the six-month plan based on strength and neuromuscular training. Workload

progression stands for three-week blocks, three workouts weekly and increases complexity from general adaptations to work-specific demands. Scheduling the counselling progression relies on previous works from the authors (Mas-Alòs, 2012). Workout sessions include activation exercises, a circuit training (isometric then miometric) and an exercise challenge (balance or isometric). A personal trainer counsels the employers weekly during working hours about the tasks and collects feedback. Every three months we collect data and provide feedback to the employers about their, so-called, functional fitness age (FFA) (Latorre-Rojas et al., 2017). **Results**: We launched a pilot programme for a company staffing 50.000+ employers. To date, final results are not yet available but four months after the initial testing 62% of the participants adhered (from an initial n = 116). Of the 44 who dropped, 36 abandoned within the first month. Their FFA decreased from 76,85 y to 68,79 y (mean values) at month three. Data on sick leaves is blinded to the authors. **Conclusions**: Most of dropouts were during the first month, which suggests that the pilot programme was not what these participants expected. Since then, employers adhered to counselling and improved fitness. The authors have no data on sick leaves, but will start a new Mètode 3ES(R) for the same company, suggesting that employers' health improve.

151. Longitudinal associations between physical activity, sedentary behaviour and body fat: Preliminary findings from a study in Central European older women

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Introduction: Older adults are the most sedentary and least active segment of society. Positive associations between obesity and physical activity (PA) were found in cross-sectional studies in older adults. Longitudinal studies might explain the directionality of these associations. Therefore, the aim of this study was to: a) describe longitudinal changes in sedentary behaviour (SB), light-intensity physical activity (LIPA), moderate to vigorous physical activity (MVPA) and percent of body fat (FM%) and b) examine the longitudinal associations between fatness and SB and PA**. Methods**: We measured PA and SB by accelerometry and FM% by a bioelectrical impedance method in healthy elderly women (baseline average age of 62.8 ± 3.9 years) at baseline and after a 7-year follow-up. Spearman's correlation coefficients were used to evaluate tracking of physical activity, sedentary behavior and FM% over 7 years. The longitudinal associations were examined using regression analyses adjusted for wear time and age. **Results**: Mean FM% of the whole sample was 33.8. On average, the women spent 439 ± 68, 351 ± 65 and 42 ± 22 minutes per day in SB, LIPA and MVPA, respectively. Tracking effects of SB, LIPA and MVPA were strong (the correlation coefficients ranging from 0.49 to 0.58) and tracking effects of FM% were even stronger (0.87). Out of 81 women, 34 were obese (42%) at baseline. After 7 years, SB increased more, but not significantly, in obese women (21.6% ± 19.1%) than in nonobese women (17.5% ± 12%). 7-year changes in MVPA show high variability. On average, MVPA decreased more, but not significantly, in obese women (-10.4 ± 55.1%) than in nonobese women (-6.2 ± 52.9). In fully adjusted regression models, longitudinal associations between FM% and SB and MVPA were not found. **Conclusions**: We provide evidence of tracking of SB, PA and FM% in older age in women. Our results do not support the hypothesis about longitudinal association between fatness and SB and PA.

152. Trends in lifestyle behavior in Czech adolescents: findings from 2010 to 2013

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Introduction: Trend data provide basic information for different processes in public health practice. Therefore, the aim of the study was to describe time trends in pedometer-determined physical activity (PA) and subjectively assessed screen based behavior over four-year period in Czech adolescents. **Methods**: Participants were recruited for a Czech national 6-year cross-sectional survey (No. MSM 6198959221) using a systematic random sampling method. The final sample was 1080 Czech adolescents aged 15 – 19 years: 35.9% men (n=388) and 64.1% women (n=692) with mean BMI=21.6 kg/m2 (SD=3.0 kg/m2). PA was assessed objectively by using a Yamax Digiwalker SW-700 pedometer. Participants were instructed to wear the pedometers for at least 10 h/day for 7 consecutive days. Participants provided seven-day record related to their screen based activities (watching TV, computer use). The pedometer-determined and questionnaire based outcomes were divided into two groups (with cut offs: 11,000 steps per day; 3 hours of screen based activities per day). Four categories were created ("busy bees": >11,000 steps/day & 11,000 steps/day & >3 hour/day; "light movers": <11,000 steps/day & <3 hour/day; "couch potatoes": 3 hour/day), named according Bakrania et al. (2016) and analysed using ordinal regression models **Results**: Boys took more (M=11,953; SD=3686) steps/day than girls (M=11,443; SD=3229). Girls reported lower (M=177 min; SD=94) screen time per day than boys (M=221 min; SD=114). The proportion of "busy bees" decreased by 9.8% and the proportion of "couch potatoes" decreased by 10.7% from

2010 to 2013 in girls. In 2010, boys and girls were 1.12 and 1.51 times, respectively, more likely to belong to the "busy bees" category than in 2013. In 2010, girls were 1.52 times less likely to belong to the "couch potatoes" category than in 2013. **Conclusions**: This study might suggest reduction in PA and increase in screen based activities in Czech adolescent girls over time. This trend is not apparent in Czech adolescent boys. Moreover, this study indicates an increasing proportion of girls (not boys) belonging to the "couch potatoes" category, and a decreasing proportion of girls (not boys) belonging to the "busy bees" category.

153. Testing which fitness components mediate the improvement of HRQoL after a 6-months physical activity program

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Introduction: The Health Related Quality of Life (HRQoL) is related with the ability to perform daily activities with vigour, as well as traits and capacities that are associated with a low risk for development of chronic disease and premature death. This concept known as health related physical fitness (HRPF) is closely connected with the weight status of childhood since the excess of body fat and high body mass have a negative impact. Mainly this deterioration of HRPF in children that suffer overweight or obesity is preceded by a low physical activity, so most weight loss programs are based on increasing the physical activity to improve the HRPF and HRQoL. However, the conclusions of these weight loss programs are based on causal relationships about the phenomenon studied. From a practical point of view, mediation analysis can show for example which HR-PF components can be potential mediators on HRQoL. The purpose of this study was to test if the improvement on HRPF components mediate the changes in HRQoL after an exercise intervention in children suffering overweight and obesity. **Methods**: 170 overweight and obese children from public weight loss program participated in a 6-months public physical activity program. Anthropometrics characteristics, fitness components (Upper Limb Strength, Central Body Strength, Lower Limb Strength, Agility, Range of Motion [ROM] and cardiorespiratory fitness) and HRQoL (PedsQL and VAS) were measured. ANCOVA and Cohen's effect size were performed to analyze the improvement and mediation analyses adjusted by covariates pre-measures in order to analyze which HRPF components mediate the changes on HRQoL after the intervention. **Results**: The results showed moderate effect on CORE and lower limb strength and agility. The improvement of CORE, agility and ROM mediated the changes obtained on physical functioning dimension. The improvement of agility and CORE mediated the changes on global health. **Conclusions**: The HRPF components that mediate the changes on HRQoL were CORE, Agility and ROM in children with overweight and obesity after a 6-months physical activity intervention. For this reason, the weight loss programs aim to improve HRQoL must be focused to improve these HRPF components.

154. Analysis of fitness as mediator in the relationship between obesity and quality of live assessed using EQ-5D-Y and PedsQL

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Introduction: Body Mass Index (BMI) is related with Physical Fitness level (PF) and it affects proportionally to Health Related Quality of Life (HRQoL), but to perform simple relationship between BMI-PF-HRQoL is not enough to obtain evidence about these causal phenomena. It needs to know the how and why and to what extent for example whether PF can help to improve the quality of life to children affected by overweight or obesity. This could be known through mediation analysis. The aim of this study was to analyze the association between physical fitness and anthropometric measures with HRQoL, and examined which HRQoL dimensions are mediated through PF in overweight or obese children. **Methods**: A total of 233 overweight or obese children and 105 normal weight participated in the study recruited from public educational centers and a public weight loss program. Anthropometrics characteristics, fitness components (Upper Limb Strength, Central Body Strength, Lower Limb Strength, Agility and Range of Motion) and HRQoL (PedsQL, EQ-5D-Y and VAS) were measured. A global fitness index was calculated using the z-score of all fitness tests. Mediation analyses by gender were performed in order to analyze if fitness is a mediator in the relation between obesity and HRQoL dimensions. **Results**: the mediation analyses showed that fitness is a mediator between obesity and

HRQoL on most dimensions in PedsQL and some in EQ-5D-Y. **Conclusions**: Results confirmed the relationship between obesity and HRQoL, and showed fitness as a mediator in this relationship.

155. Physical activity among Slovenians: results of CINDI national survey on health-related behavioural style 2016

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Introduction Regular physical activity (PA) and active lifestyle are two key factors when we strive to maintain and improve our health and well-being. Every four years for the last fifteen years, the national CINDI survey (Countrywide Integrated Non-communicable Diseases Intervention) on health-related behavioural style is performed in Slovenia. A part of the survey's questionnaire consists of questions on PA that are intended to determine the prevalence of PA among the general adult population of Slovenia. For the last few years the results are encouraging; in year 2012 there was a significant increase in number of Slovenians that reached WHO (World Health Organization) recommendations on PA. The next conducted analyses showed similar PA level in the year 2016 as well. **Methods** The survey was conducted over a period of three months from May to July in 2016 by the National Institute of Public Health in Slovenia. Among the entire population a random sample of 15,639 Slovenian residents (from 25 to 74 years old) were selected by a simple random sampling technique. The survey was carried out in form of online and paper questionnaires. **Results** The response rate was 54.9%, therefore 8,590 randomly selected residents had participated in the survey. 55.9% of respondents reached or exceeded the amount of overall PA (calculation of the amount of moderate- and vigorous-intensity aerobic PA combined) needed to maintain health. 31.4% of Slovenians performed moderate-intensity aerobic PA at least 5 days a week, each day for at least 30 minutes, and 43.0% of respondents reached the recommended amount of PA by performing the vigorous-intensity aerobic PA. On the other hand, 12.2% of respondents were not physically active at all, despite the fact they were capable of being physically active. There were some differences observed in PA habits in relation to gender, age, education and geographic location of respondents. **Conclusions** Regarding the overall PA, over a half of all the respondents are sufficiently physically active according to WHO recommendations on PA. The results represent a starting point for further health education and promotion activities. Future research on factors that influence physical inactivity is needed.

156. The effect of functional exercise training on elders functionality assessed by functional movement screen

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Introduction: The purpose of this study was to analyze the effects of a functional training program in the development of the 7 Functional Movement Screening (FMS) patterns of movement in elderly adults. **Methods**: The sample comprised 30 elderly divided in 2 groups: Experimental Group (EG; n=14; mean age= 68,21±2,88 years) which underwent on a training program 3 times a week (2 sessions of multicomponent training + 1 session of functional training), during 6 months; and a Control Group (CG; n=16; mean age= 76,88±5,28 years) which participated twice a week in sessions of a multicomponent training program. FMS battery was used to assess the individual patterns of movements in dynamic and functional conditions and the detection of movement disorders before and after the experimental period. In order to evaluate the differences between pre- and post-intervention, the non-parametric Wilcoxon test was used. **Results**: The results show that: i) there were significant differences in the total score between pre and post-intervention on the Experimental Group (12,93 Vs. 15,86 points, respectively; $p<0.05$); ii) there were significant differences in the percentage of change in the total score between the Experimental Group and the Control Group (22,6 and 4,47, respectively) iii) for the exception of rotary stability, there were significant differences in all the other patterns of movement between the Experimental Group and the Control Group. **Conclusions**: Our findings suggest that a functional training program may improve the patterns of movement as assessed by the FMS, and therefore improve older people functionality. Acknowledgments. Support from IPDJ and CIAFEL is Supported by FCT with grant UID/DTP/00617/2013.

157. Is your body younger or older than what your ID shows? Applications of measuring the Functional Fitness Age (FFA)

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Introduction: Biological age is a progressive decrease in viability and increased vulnerability over time, which ultimately leads to death (Spidurso et al., 2005). Outcomes related to ageing of organs include respiratory, cardiovascular, cognitive among others. Nakamura et al. (1989) and Kimura et al. (2012) suggested fitness indicators of ageing. More recently Latorre-Rojas et al. (2017) applied other tests to lower injury risk for seniors and created an equation that correlates fitness outcomes with chronological age (CA) in women older than 50: The Functional Fitness Age (FFA). The age difference between FFA and CA indicates better or worst fitness than expected, in other words, FFA shows how young or old someone is. Taking the FFA as a motivational and easy-to-understand indicator, we proceeded to calculate the FFA in different settings: 1) Worksite, included in the Mètode 3ES(R) exercise programme (Peirau et al., 2017); 2) University staff, for HEPA promotion; 3) Clinical, for cancer patients; and use these data to motivate participation in HEPA programmes. **Methods**: FFA equation takes data from the Health-Related Senior Fitness Test Battery (Rikli & Jones, 1997). Tests were applied measuring upper- and lower-body strength (Arm Curl and Chair Stand) and flexibility (Back Scratch and Chair Sit-and-Reach), aerobic endurance (2-Minute Step) and agility (8-Foot Up-and-Go). Fitness evaluators held a degree in Sport Sciences and received specific training on procedures and data collection. The FFA was provided in individual reports during face-to-face explanation. Prior to fitness assessment and data collection, the PAR-Q test was administered and participants signed an informed consent for data collection and treatment. **Results**: We collected data from 301 people aged 18-87 years. 116 from the worksite exercise programme, 153 university staff, and 32 cancer patients. These sample sums to the initial 459 being collected to create the FFA equation, resulting with a data collection from 760 people from both genders, physically active and inactives, with and without diseases. **Conclusions**: The FFA equation is valid for women aged 50+, hence using the equation in other populations must be interpreted according to HEPA counselling goals and expectations. The procedures are safe when including a pre-participation health screening to minimise adverse effects.

158. Body Mass Index of Montenegrin Athletes Participating in U21 National Basketball team

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Introduction: The purpose of this study was to describe body height, body weight and body mass index of Montenegrin basketball players participated in U21 nation team and to detect possible differences in relation to sedentary subjects from the same country. **Methods**: Thirty-five males were enrolled in the study. They were divided into two groups: Fourteen basketball players participated in U21 national team of Montenegro (19.14±0.66 yrs.) and twenty-one healthy sedentary subjects from the same country (20.94±3.10 yrs.). All subjects were assessed for the anthropometric measures, using the standardized procedure recommended by the International Biological Program (IBP) standards. Height and weight was measured to the nearest 0.1 cm. Body mass index (BMI) was calculated as body mass in kilograms divided by height in meters squared (kg/m2). The descriptive statistics were expressed as a mean (SD) for each variable. Independent-samples T test was carried out to detect the effects of football sport on each variable: body height, body weight and body mass index (BMI). **Results**: The mean of the body height was 194.72±6.99 centimeters for basketball players and 184.14±0.07 for non-athletes, body weight was 95.00±13.19 (athletes) and 82.66±14.11 (non-athletes) and BMI was 24.98±2.84 (athletes) and 24.34±3.71 (non-athletes). A significant difference was not found for all variables: body height (p=0.000), body weight (p=0.014) and body mass index (p=0.591). The results of this study revealed that although most of the sedentary subjects are not regularly trained; they didn't show significant differences in body mass index. **Conclusions**: These findings suggest us to conclude that sedentary boys in Montenegro have great body composition assessment and they are not obese. On the other hand, basketball players are significantly taller and heavier, comparing to sedentary subjects, and this is caused by selection of young people for this sport.

159. Effects of Physical Activity on Social Exclusion among Older People: A Literature Review

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Introduction: Physical activity is an important tool in decreasing chronic diseases worldwide and might be a strong factor that can help older people to integrate into society. Therefore, the purpose of this study was to investigate the potential impact of physical activity on social exclusion among older people. **Methods**: Three electronic databases (MEDLINE, Scopus, and Web of Science) were searched for original research articles available until June 2017. Then research findings were summarized and effects of physical activity on social exclusion among older people were identified, as well as areas of future research were recommended. **Results**: Results of this study showed that older people believe that joint physical activity in groups can help them to meet other people, and that it can help them to expand their social network and to improve their health. Joint physical activity in the groups had a more significant impact on social exclusion than social activity that older people conduct alone. However, it is important to emphasize that monitoring in social exclusion area of research was started only lately and just recent studies are available. **Conclusions**: Findings from this study demonstrate that the joint physical activity in the groups could be used to decrease social exclusion of older people. However, these findings should be taken into consideration to find the best practices in this field, largely due to the reason there were a number of non-standardized research protocols, as well as various approaches for social exclusion research in past decades.

160. The Theoretical Effects of Replacing Sedentary Time with Standing Time, LIPA and MVPA on Cardiometabolic Health

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Introduction: A recent trend in physical activity (PA) and sedentary behaviour research has been to explore the theoretical effects of replacing sedentary time (ST) with an alternative PA behaviour (e.g. standing time (StT), light-intensity PA (LIPA) or moderate-to-vigorous PA (MVPA) on cardiometabolic health. As such, it can offer useful insights for researchers on cross-sectional data, which could inform longitudinal interventions. This study aimed to examine the effect of substituting 10 minutes of ST for StT, LIPA or MVPA on cardiometabolic health markers in older adults. **Methods**: Three-hundred and twenty three participants recruited to the Mitchelstown Cohort Rescreen Study (median age=65.0 (IQR 9.0) years, median BMI=27.8 (IQR 5.5) kg.m-2) provided habitual PA (measured using an activPAL3 Micro) and cardiometabolic health (glucose, lipids, body composition and blood pressure) data. Isotemporal substitution (IS) analysis modelled the effect of replacing 10 minutes of ST with StT, LIPA or MVPA. Coefficients (B; 95% CI) for the IS models represent the estimated effects of replacing ST with StT, LIPA or MVPA, while holding wear time constant and adjusting for known covariates, including age, sex, lifestyle factors and medication/disease status. **Results**: Replacing 10 minutes of ST with LIPA had a favorable effect on body mass (B=-0.827; -1.246, -0.407), BMI (B=-0.306; -0.454, -0.159), percentage body fat (B=-0.472; -0.666, -0.278) and systolic (B=-0.700; -1.312, -0.088) and diastolic (B=-0.341; -0.664, -0.019) blood pressure. Replacing ST with MVPA had a favorable effect on triglycerides (B=-0.037; -0.068, -0.007) and percentage body fat (B=-0.335; -0.591, -0.078). No effect was observed for other markers of cardiometabolic health or for replacing ST with StT. **Conclusions**: For this cohort of older Irish adults, substituting ST with LIPA may be an effective strategy for improving body composition markers and blood pressure, while MVPA replacement was associated with reductions in percentage body fat and triglycerides. There was no evidence of the benefit of replacing ST with StT. These results can be used to inform future interventions, as well as shaping future physical activity guidelines.

161. Evaluation of an exercise referral scheme in the United Kingdom: Medium term outcomes

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Introduction: Exercise referral schemes (ERS) aim to increase the physical activity (PA) levels of people with chronic health conditions. To date, the efficacy of ERS has been inconclusive due to the variable nature of scheme characteristics and evaluations, requiring further research. Therefore, the aim of this study was to evaluate the medium-term (≤6 months) impact of ERS participation on health and mental wellbeing outcomes in an existing ERS. **Methods**: Secondary analysis of data was conducted for 1801 people referred to an ERS in Greater Manchester, between July 2015 and March 2016. ERS duration was 6 months, providing person-centred support and individualised exercise prescription. Primary outcomes measured at the 1st, 12th and 24th week of participation were PA (measured using the IPAQ), body mass index (BMI) (kg/m2), blood pressure (BP) (mmHg), general health status (measured using the EQ-5D-3L) and mental wellbeing (measured using the Warwick-Edinburgh Mental Well-being scale (WEMWBS)). Outcomes were analysed for those with complete data for each outcome at weeks 1, 12 and 24, using descriptive statistics and paired t-tests. **Results**: In total 1801 people were referred to the ERS (105 waiting list, 533 participating, 469 completed, 379 dropped-out, 315 non-uptake). Between weeks 1 and 24 there were significant changes in PA (0 to 615 MET mins), BMI (32.45 to 31.43 kg/m2), systolic BP (136 to 130 mmHg) and diastolic BP (82 to 80 mmHg), all p< .01. There were also significant improvements to overall generic health status (EQ-5D-3L) and mental wellbeing (WEMWBS). Generic health status, as measured using the EQ-5D-3L health profile showed reductions in the number of people experiencing problems with mobility (-5.1%), self-care (-5.3%), pain (-4.4%), and depression/anxiety (-9.1%). **Conclusions**: Referral to ERS with supported behaviour change increased PA, health and mental wellbeing in the medium-term. Therefore, healthcare professionals should consider the referral of inactive persons with chronic health conditions to an ERS. Future analyses will determine if these outcomes persist in the long term (≥12 months), in addition to adjunct benefits of participation not routinely captured in evaluations.

162. From lifestyle intervention to lifestyle routine - An interdisciplinary study of sustainment of active living and maintenance of health improvements after a 6-month exercise intervention

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Introduction: Excess adiposity and physical inactivity are associated with increased risk of lifestyle-related diseases including type 2 diabetes and cardiovascular disease. Although health benefits can be obtained by intensive exercise interventions, maintenance of a physically active lifestyle is challenging. Therefore, exploring how people sustain a physically active lifestyle after an exercise intervention is crucial. The aim of this interdisciplinary follow-up study was to investigate maintenance of improvements of metabolic health and to identify sustainment scenarios and important challenges related to maintenance of a physically active lifestyle after a 6-month exercise intervention in women and men with overweight and obesity. **Methods**: Previously physically inactive adults (20-45 years) with overweight and obesity (BMI: 25-35 kg/m2) completed a 6-month randomized controlled trial consisting of habitual lifestyle (CON, n=16), active commuting (BIKE, n=19), or leisure-time exercise of moderate (MOD, n=31) or vigorous intensity (VIG, n=24). Participants were invited to a follow-up visit including biomedical measurements and a semi-structured interview concerning the transition from intervention-based exercise to unmonitored everyday life exercise 12-18 months after the end of the intervention. The follow-up visits are ongoing. **Results**: Preliminary data including 52 participants suggest that cardiorespiratory fitness increased during the intervention within all three exercise groups (baseline – 6 months: BIKE: 14 [4; 24] %; MOD: 11 [2; 21] %, VIG: 16 [9; 24] %, all p≤0.02). However, only within BIKE the increase in cardiorespiratory fitness remained significant at follow-up (baseline – follow-up: BIKE: 16 [7; 25] %, p=0.002; MOD: 6 [-1; 13] %, p=0.097; VIG: 7 [-4; 18] %, p=0.220). Other biomedical outcomes and identification of sustainment scenarios and maintenance of health benefits after the exercise intervention will be presented at the conference. Preliminary **Conclusions**: and perspectives Improvements in cardiorespiratory fitness were maintained in the active commuting group, whereas the effects were attenuated in the leisure-time exercise groups at follow-up. Through an understanding of the relation between metabolic health effects and maintenance of physically active everyday life routines, new strategies can be developed to support post-intervention sustainment.

163. Body fat percentage and nutritional and physical activity knowledge in Adolescents

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Introduction: Knowledge enhancement has been referred as a mean to improve nutrition and physical activity, and reduce obesity. The objective of this work was to identify the difference of nutrition and physical activity knowledge according body fat and physical activity levels in adolescents. **Methods**: A cross sectional study with 734 adolescents was designed. Body fat was measured using electric bioimpedance, physical activity data were objectively measured by accelerometer. Adolescents were divided in 2 physical activity groups: high and low physical activity; 2 body fat groups: normal fat and overfat and 4 groups resulted from the combination of body fat and physical activity. Nutrition and physical activity knowledge were assessed by questionnaires. **Results**: Body fat percentage revealed that 30.8 % of adolescents were overfat or obese, and daily moderate to vigorous physical activity was in average 47.9 (SD=27.49) minutes. High physical activity adolescents presented higher physical activity knowledge (p=0.044) and the overfat/ low physical activity group scored the worse on experts' nutritional recommendations knowledge. **Conclusions**: Knowledge is not the single factor in the obesity equation, but it seems essential to reduce overfat and obesity. Interventions that address several nutrition and physical activity determinants should be designed. This work was supported by FCT- Portuguese Foundation for Science and Technology, grant number FCOMP-01-0124-FEDER-028619 (FCT: PTDC/DTP-DES/1328/2012) and the Research Centre supported by: UID/DTP/00617/2013.

164. Does proximity to recreational facilities decrease the risk of both general and abdominal obesity in 6-to 10-year-old children?

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Introduction: General and abdominal obesity have been related to cardio-metabolic risk in children. This study aimed to determine if proximity to recreational facilities was associated with the risk of children having one or more obesity indicators. **Methods**: A cross-sectional study in 793 children (51.3% girls) aged 6-10 years was carried in central Portugal. Height, weight and waist circumference were collected. International Obesity Task Force (IOTF) cut-offs were used to define obesity and waist-to-height ratio (WHtR) was used to assess abdominal obesity. Both indicators were considered and children were classified as having 'no risk of obesity', 'one risk of obesity', or 'double risk of obesity' (if both IOTF and WHtR were above the recommended levels). Using a questionnaire, parents reported if they perceived a number of recreational facilities as 'existing' or 'not existing' in the neighbourhood, their level of education and family income. Adjusted multivariate logistic regression models were used to observe association of childhood obesity and facilities proximity. **Results**: A total of 15.9% of children, and more girls than boys, had both general and abdominal obesity while 13.1% had only one of the obesity indicators. Swimming pool was the facility most reported by parents has existing nearby home (57.3%) while the inverse was seen for large open spaces (25.1%). The inexistence of sport facilities in the neighbourhood was not associated with the prevalence of only one obesity indicator (general or abdominal obesity) in children. But, parents that reported large open spaces (OR=3.130, p=0.001), gymnasiums (OR=1.693, p=0.031), pavilions (OR=1.825, p=0.016) and football fields (OR=1.730, p=0.022) as non-existent nearby home had increase odds of their children having double risk of obesity (general and abdominal obesity), even after adjusting for children's gender, age, parental education and family income. **Conclusions**: Children with better access to recreational facilities are less likely to have both general and abdominal obesity, maybe because they have more opportunity to engage in physical activity. We emphasize the importance of increased and effective cooperation among urban planning and public health since public health efforts to reduce childhood obesity may benefit from policies directed towards the providing of infrastructures surrounded physical environments.

165. Do you like to be physically active? Parents and children enjoyment of physical activities as a predictor of children participation in extracurricular sport

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Introduction: The health benefits of physical activity (PA) are well established and for children, they include avoiding weight gain and hypertension, increased bone mineral density and a positive mental state. The aim of this study was to observe if children participation in extracurricular sports was predicted by how much the father, the mother and the own child enjoyed participating in PA and sport. **Methods**: The study included 834 parents and their respective children (aged 6-10 years), living in Coimbra, Portugal. Through a questionnaire, parents were asked about their PA habits and they had the chance to report if they enjoyed to be physically active or not. They also reported if their child practiced any extracurricular sport, how many sports (zero, one sport, two or more), and how many times per week (none, one or two times, and three or more times). Socio-demographic variables were derived from the same questionnaire. During a semi-structured interview, children were asked how much they enjoyed PA and sports. Multinomial logistic regression analyses were conducted to examine associations between children participation in sports and parents/children reported enjoyment of PA and sports. **Results**: Mother's enjoyment of PA was not associated with children participation in sport but, the inverse results were found for father's and children's opinions. Children had significantly more odds of practicing one sport (OR=4.643; AOR=3.120), practicing sport 1-2 times per week (OR=4.307; AOR=2.921) or 3 or more times/week (OR=2.778) if they father enjoyed to be physically active. After adjustment, the best predictor of participation in extracurricular sport was children's own enjoyment (≥ 2 sports: AOR=3.445; ≥ 3 times per week: AOR=5.542). **Conclusions**: Father enjoyment of PA seems important for children engagement in extracurricular sport, either because of motivation or role modelling. However, children's own enjoyment was the best predictor for participating in more sports and more frequently. We conclude that the more children enjoy PA, including sports, the more likely they are involved in those activities. Families and schools should listen to children's opinions, promote a variety of sports and activities and create a challenging but fun environment for children to be physically active.

166. Exploring the potential of tele-exercise to promote mental health compared to face to face exercise in caregivers of Alzheimer patients: RCT

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Introduction: It is well-known that adequate face-to-face exercise is a cost-effective public health technology to promote physical and mental health. However, there is an increasing interest to develop tele-exercise programs to reach people cheaper (e.g. reducing time and travel costs) and persons having social disadvantages that limit them to attend face-to-face sessions due to socioeconomic level, duties or distance to sport facilities. In spite of great interest in tele-exercise there is lack of comparison of the benefits of tele-exercise compared to face-to-face. The aim of this study has been to examine the cost-effectiveness of an individual physical tele-exercise program in reducing the depression of informal caregivers of patients with AD (CAD) and, secondary, discuss it to previous control trial face-to-face trial performed by our research group. **Methods**: We randomly distributed 32 caregivers in a control and tele-exercise intervention group. Depression was measured by means of the Geriatric Depression Scale and burden by Zarit Scale. Caregivers exercised twice a week during 3 months. Each one-hour session included: 1) warm - up, 2) basic aerobic steps (BAS), 3) resistance strength work (RSW) with weighted wrists (maximum 1 kg), 4) again, BAS, 5) again, the RSW block and 6) cold down. **Results**: Intervention group decreased depression rate by 12%, while the control group displayed an increased depression rate). The gains were smaller than previous study delivering the program face-to-face. Fitness results were similar in both delivering methods. **Conclusions**: The direct personal contact with the physical instructor instead of remote contact with caregiver is a strong facilitating factor to improve mental health, so complementary motivation tools should be research. Therefore, we recommend to conduct future research aimed to compare in an ad hoc way the effects of the described physical activity on depression of caregivers of patients with AD as a function of in situ versus remote presence of the physical instructor. Funded by Spanish National Institut for Elderly and Social Services (Ministry of Health and Social Police). (185/2010).

167. Gender differences and age-related changes in performance at the duathlon world champions

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Introduction: While the different distances and legs involved in the triathlon have been widely studied, the duathlon is a sports event that has traditionally attracted less interest among researchers. Studies to establish similarities and differences between the two multi-stage competitions are therefore necessary. Our study analyses the differences in performance between genders, and changes in performance in age group category at Olympic distance during the ITU Duathlon World Championships held between 2005 and 2016. **Methods:** During this period, a total of 9,772 duathletes were analysed (6,739 men and 3,033 women). Two-way analyses of variance (ANOVA) were used to examine the gender-related and age-related differences in performance (time, percentage of time and performance ratio) in the first running, cycling and second running legs, and total race for the top 10 male and female athletes in each age group at the Duathlon World Championships. These age groups are established by the ITU, in 5 years' periods. **Conclusions:** We found that between the 2005 Olympic Duathlon World Championship and 2016, there was a 62% increase in participation rates in all age groups and the age group with the widest participation, in both the male and female categories, was age 40-44. With regards to performance in the age groups, the best results for total race time were in the 30-34 age group, in both male and female athletes, although there are no significant differences in age groups from 20 to 49 years in the case of men, and 35 to 44 years in the case of women. With regards to the different duathlon legs, in our results the best time for men in the first and third leg (running) was achieved by the 25-29 age group, although there were no statistically significant differences in race times between this age group and the 20-24, 30-34, 35-39 and 40-44-year groups (and 45-49 years for the second race). For women, the best time was in the 30-34 age group, with no significant differences being observed in performance times between this age group and the 25-29, 35-39 and 40-44 age groups for the first and second race.

168. Physical activity and spatial use during school break times in children aged four

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Introduction: The latest studies warn of obesity levels and sedentary lifestyles in children, and of the impact this has on health. Spain has one of the highest rates of school obesity in Europe, so this study aims not only to quantify, using the pedometer and through behavioural mapping, how much the pupils in the sample move during their free play at break time, but also how they use the space, based on an environmental perspective. This offers us the prospect of encouraging desirable behaviours and to intervene to promote health by encouraging physical activity during this school break time. **Methods:** 119 pupils participated in the study, with a mean age of 4 years (65 boys and 54 girls). To assess physical activity during school break time, Yamax Digiwalker SW-200 (YDSW200) pedometers were used. The number of steps and the behavioural mapping were captured during break time and the schoolchildren's free play at the early years educational establishment. Data collection took place for 20 minutes. The time the child spent in each of the nine zones, or multizone if the child moved continuously between different areas (10 spatial categories), of the school playground was recorded. Four predefined and mutually exclusive behavioural categories were therefore identified: Passivity (P), Communication (C), Static activity (SA) and Dynamic Activity (DA). **Conclusions:** In analysing spatial use by pupils aged 4 in early years education, multizone category 10 dominates (1,034 instances), which, together with the dominance of behavioural category DA (2,571 instances), make the categories the most interesting from a health point of view, since they both involve motor movement, and therefore physical activity in the children. In our results, there are no significant differences between gender and behavioural category DA, or the number of steps completed during break time (65.69± 24.98 steps per minute in boys and 62.1± 30.23 steps per minute in girls). This means that for slightly more than half the time, pupils are engaging in activities that involve physical stimuli, with the remaining time distributed between the other categories, which are less interesting from the point of view of health habits.

169. Support for self-management of physical activity in persons with prediabetes and type 2 diabetes - experiences from Sophia Step Study

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Introduction: Sophia Step Study is a three-armed RCT aiming to evaluate two levels of support for self-management of physical activity in persons with prediabetes and type 2 diabetes (NCT02374788). Participants from a primary health care center in Stockholm, Sweden, were randomized to a multi-component group (A) offered a pedometer, individual consultations and group counseling; a single-component group (B) offered a pedometer or a control group with standard care (C). Both interventions comprised several behavior change techniques and the interventions and study assessments continued for two years. The interventions were evidence based, although what the researchers may believe are the mediating effects may not be consistent with what the participants consider have been helpful. To date there is limited research concerning how participants experience such interventions. Qualitative inquiry assists in highlighting implementation factors, informal patterns and unexpected interactions. The purpose herein is to describe participants experience after completing the two-year Sophia Step Study. **Methods:** An explorative qualitative study design was used. Data was collected through semi-structured face-to-face individual interviews. In total 18 interviews were performed with participants who had completed the multi-component intervention (n=7), the single-component intervention (n=6) or served as controls (n=5). The sample was representative of the full study population (men, n=11, women, n= 7, prediabetes, n=5, type 2 diabetes, n= 13, and median age 68.5 years). Qqualitative manifest content analysis with an inductive approach was applied to analyze the interviews. **Results:** Two main categories emerged from the analysis (a professional management and an internal journey) with five sub-categories (health check-ups and feedback, external resources supporting motivation to engage in physical activity, emotional support through friendly relationship, a new approach to physical activity and to overcome barriers to physical activity). Participants from all three arms had received feedback and support for changing routines for physical activity during participation. Study participation facilitated increased awareness and motivation for physical activity and helped establish new routines and problem solving capacities. **Conclusions:** Frequent health check-ups, equal partnership and an open and consistent environment are important features in the support for self-management of physical activity. Step registration and group counselling can offer additional support.

170. Effect of physical activity showcards on accuracy in self-reports: a randomized crossover study with the Global Physical Activity Questionnaire (GPAQ)

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Introduction: Misperception and inaccuracy are major challenges when measuring physical activity via questionnaire. Some questionnaires like the Global Physical Activity Questionnaire (GPAQ) provide showcards illustrating physical activity of moderate and vigorous intensity. This study aims to investigate whether these showcards benefit the accuracy of self-reported physical activity data. **Methods:** Fifty-four physically active volunteers (57.4 % female, mean age: 28.3±12.2 years; mean BMI: 23.2±3.1 kg/m2) were randomized to answer the German version of the GPAQ with showcards ("GPAQ+") or without showcards ("GPAQ-") after seven days. After the next seven days, the two study groups were reversed according to the randomized cross-over design. Objective physical activity of all participants was recorded by accelerometry (ActiGraph GT3X+) over the whole investigation period of 14 days (2x7 days). Differences between each GPAQ version and accelerometry were evaluated by Bland-Altman-analyses and Wilcoxon-tests. **Results:** Neither for moderate (p=0.328) nor for vigorous intensity (p=0.406) statistically significant differences between the two groups could be found. Mean accelerometer-derived moderate and vigorous physical activity were 109.9±29.4 min/day and 12.8±9.7 min/day, respectively. The average discrepancy between GPAQ and accelerometry was -23.1±89.3 min/day (GPAQ-) and -21.2±117.05 min/day (GPAQ+) for moderate intensity, and 35.2±45.5 min/day (GPAQ-) and 30.3±35.4 min/day (GPAQ+) for vigorous physical activity. **Conclusions:** The showcards demonstrate no significant effect on the accuracy of self-reported physical activity in this study. Both groups underestimate the time of moderate intensity and overestimate the duration of vigorous physical activity which indicates misclassification of self-assessed data. However, these findings should be further investigated with other target groups and larger sample sizes. Moreover, other strategies to improve questionnaire accuracy should be elaborated.

171. Segregating the distinct effects of sedentary behaviour and physical activity on older adults' cardio-metabolic profile: Linear regression analysis approach

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Introduction: Physical behaviour (PB, physical activity [PA] and sedentary behaviour [SB]) can adjust cardiovascular mortality risk in older adults. The aim was to provide models to predict cardiovascular profiles (CVP) using 21 parameters of PB. **Methods:** Participants (n = 93, 73.8 ± 6.23 years, 55% female) wore a thigh-mounted accelerometer for seven consecutive days. Phenotype of the carotid, brachial, and popliteal arteries was conducted using ultrasound. **Results:** SB was associated with one of 19 CVP. Standing and light intensity PA (LIPA) were associated with three and one CVP, respectively. An hourly increase in LIPA decreased popliteal intima-media thickness (IMT) (0.09 mm [95%CI 0.15, 0.03]). sMVPA (moderate-vigorous PA [MVPA], accumulated in bouts < 10 mins) was associated with one CVP. 10MVPA (MVPA accumulated in bouts ≥ 10 mins) had no associations with CVP. W50% had associations with three CVP. SB%, alpha, true mean PA bout, daily sum of PA bout time, and total week 10MVPA each were associated with two CVP. **Conclusions:** Patterns of PB are more robust predictors of CVP than absolute hrs·day-1 PB. Our finding that popliteal IMT can be reduced through increased standing and LIPA engagement suggests that older adults can obtain health benefits without MVPA engagement.

172. EUCS, THE-PEMP, GAPPA: ABC's promoting cycling in Europe & the world. European Union Cycling Strategy, Pan European Master Plan & Global Action Plan Physical Activity

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Introduction: Cycling is hot in 2017! One major policy initiative aimed at promoting cycling was presented to the European Union in June 2017. Two more approach final development stages for adoption in 2018 and 2019. What do these plans mean for public health, active transport planning, and people who are or want to be walking and cycling in Europe? **Activities undertaken:** In just over one year the European Union Cycling Strategy (EUCS) was developed and delivered to the EU Commissioner responsible for transport. Since 2014 the Transport Health and Environment Pan-European Programme (THE PEP) has been developing the Pan European Master Plan for Cycling Promotion (PEMP). The World Health Organization decided in early 2017 to launch a Global Action Plan for Physical Activity (GAPPA), to be ready for adoption by mid- 2018. **Results:** The three policy initiatives examined were found to have high levels of consistency, complementarity and reported potential beneficial consequences. They have different histories and target audiences which are intricately related to their development, timelines and roll out plans. While GAPPA is not limited to cycling promotion, the argument can be made that global promotion of active transport can make the greatest contribution to increasing levels of physical activity. **Conclusions:** There are many common features in these cycling promotion proposals to convince politicians and decision makers. They include: 1. valuing cycling (economic contributions including jobs, monetization of health benefits, and harm reduction), 2. Existence of a decidedly sufficient evidence base ("we know enough to act and how to deliver results") and 3. an absolute prerequisite is the multi-sectoral approach incorporating transport, health, environment, urban planning, economics, finance and education.

173. Does muscular strength decline in a constant manner over the years in the elderly? The EXERNET-Elder longitudinal study

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Introduction: Muscular strength has been related with a reduction of mortality [1] and functional independence across the aging process; therefore, maintaining high levels of muscular strength through lifetime is crucial for elderly people. We aimed to observe the changes in muscular strength across the aging process in seniors over 65 years. **Methods**: In this longitudinal study a total of 152 participants (32 men and 120 women) (age 70.9 ± 4.5 years)

were evaluated in Aragon (Spain) within the framework of the EXERNET-Elder multi-centre study. Lower and upper body strength was measured in all participants using the Chair Stand Test and Arm Curl Test, respectively (from the Senior Fitness Test battery). The measurements were first registered in 2008-2009 and eight years later, in 2016-2017. A 2-way repeated measures ANOVA test was used to evaluate the changes in these variables. The sample was divided into three groups according their age in the first evaluation (group 1: ≤74 years old; group 2: 75-84 years old; group 3: ≥ 85 years old) to observe the age effects. As no sex by time interaction was found, analyses were performed including men and women as a whole. **Results**: The whole group showed significant decreases in lower and upper body strength between both measurements (16.0±3.2 vs. 13.9±3.3 repetitions and 19.0±3.3 vs. 15.9±3.6 repetitions, respectively; both p<0.001). The average percentage of change during the follow-up was -11.6% and -16.3% respectively. However, the oldest group showed greater decreases in muscle strength in the 8-years follow-up than the younger groups (-9.6%, -9.9%, -25.2% for the lower extremities and -13.1%, -15.6%, -26.9% for the upper extremities; groups 1, 2 and 3, respectively). **Conclusions**: Muscle strength decreases across the aging process, being more pronounced in people above 85 years. The loss of muscle strength across aging may negatively affect the functional capacity. Therefore, specific training interventions should be encouraged specially in men and women older than 85 years old. Supported by Ministerio de Trabajo y Asuntos Sociales (104/07), Centro Universitario de la Defensa (UZCUD2016-BIO-01), Ministerio de Economía y Competitividad (DEP 2016-78309-R), Biomedical Research Networking Center on Frailty and Healthy Aging (CIBERFES) and FEDER funds from the European Union (CB16/10/00477).

174. The effects of regular physical exercise on physical fitness in older people

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Introduction: The aim of this study was to investigate the effect of regular physical exercise on physical fitness in older people. **Methods**: Participants: Fifteen older people, healthy and older than 65 years, who have voluntarily participated in this study (age mean: 71.3±4.82 years; body weight: 68.8±10.01 kg; height: 162±10.6 cm; BMI: 26.2±3.79). Tests: Chair stand test, 2 minute step test, chair sit and reach test, arm curl test and back scratch test were used to evaluate the physical fitness of older people. Training program: The older people participated in regular physical exercise for 16 weeks, 2 sessions per week and 60 minutes per session. All tests were applied before exercise periods and after 16 weeks. The Mann Whitney U test was used to compare pre and post physical fitness parameters. **Results**: Leg strength was 10.00±2.44 repeats pre-exercise and 11.73±3.2 repeats after exercise. Aerobic capacity was 119.33±39.18 repeats pre-exercise and 118.13 ± 37.61 repeats after exercise. Right arm strength was 20.53±3.94 repeats pre-exercise and 19.73±4.07 repeats after exercise. Left arm strength was 20.13±4.85 repeats pre-exercise and 20.53±3.94 repeats after exercise. Right shoulder flexibility was -8.33±10.86 cm pre-exercise and 1.67±9.38 cm after exercise. Left shoulder flexibility was -10.06±11.72 cm pre-exercise and -8.33 ± 10.82 cm after exercise. Right hamstring flexibility was -1.47 ± 9.55 cm pre-exercise and 1.67 ± 9.38 cm after exercise. Left hamstring flexibility was 1.13 ± 8.79 cm pre-exercise and 2.80 ± 8,54 cm after exercise. There were significant differences in leg strength (z=-2.966;p=0.003), right arm strength (z=-2.161; p=0.031), right shoulder flexibility (z=-2.758;p=0.006), left shoulder flexibility (z=-2.955;p=0.003) and right leg strength (z=-2.546; p=0.011) between pre and after exercise periods. There were no significant differences in left arm strength (z=-1.310; p=0.190), aerobic capacity (z=-0.252; p= 0.801) and left leg strength (z=-1.689; p=0.091) between pre and after exercise periods. **Conclusions**: The regular physical exercise provides positive effects on physical fitness in older people. But for more marked increase in aerobic capacity of older people, the aerobic activity must be applied also.

175. Changes in quality of life by strength exercise program in women with knee osteoarthritis

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Introduction: The joint damage and pain accompanying knee osteoarthritis are primary causes of activity restriction and physical disability and have a profound impact on quality of life. The aim of this study was to examine the effect of strength exercise on quality of life in women with knee osteoarthritis. **Methods**: Participants, diagnosed based on clinical and radiological criteria, were recruited in Antalya Education and Research Hospital. Fifty two subjects were randomized and assigned into three groups;open group (open kinetic chain group), closed group (closed kinetic chain group) and control group (control group). All outcome measures were measured before baseline by trained assistants blinded to the participants treatments allocation and then measured again at six weeks of exercise (mid-exercise) and post-exercise.Turkish version of SF-36 health

survey was used for quality of life. A 12 week strength training program was supervised two times per week.This research was approved by the Akdeniz University, Faculty of Medicine (Akdeniz University ethic number: 189). One way analysis of variance and Kruskal Wallis tests were used to compare differences of baseline measurements among three groups. Multiple 3x3 (group´time) analyses of variance(ANOVA) was performed to identify significant changes over time. A post hoc Bonferroni test was used to compare the main time and group effects with confidence interval adjustment. **Results**:In the open group,SF-36 physical function, role physical, pain, role emotional, vitality, general health were found to be increased between baseline and post-exercise period. In the closed group, physical function, role physical, pain, social function, role emotional, vitality were found to be increased between baseline and post-exercise period ($p<0.05$). **Conclusions**: The largest improvements were with respect to the vitality,general health and role physical domains.

176. How life changes shape physical activity in men and women?

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Introduction: Physical activity (PA) tends to track from adolescence to adulthood. However, there are numerous life events, which may have an influence on PA. For example having a child or changes in marital status may influence on daily routines and hence, influence on total PA. **Methods**: Data were obtained from 1,051 Finnish adults from the Cardiovascular Risk in Young Finns Study in 2007 and 2011. Cohort study participants wore an Omron Walking Style One (HJ-152R-E) pedometer for five days. Major life events, such as change in marital status, child birth, change in work status were determined from data collected in 2007 and 2011. Latent change score model was used to examine mean change in daily total steps, aerobic steps (steps accumulated in bouts of at least 10 minutes without interruption at arte of ≥60 steps/minute), and non-aerobic steps between 2007 and 2011. **Results**: Men who divorced in the 4-year period had a decrease in their non-aerobic steps ($p=0.040$), while women who recoupled decreased their total steps ($p=0.010$). Women who had a first child in the 4-year period had a decrease in their total steps ($p=0.016$). In men, having a second child was associated with a decrease in aerobic steps ($p=0.033$). **Conclusions**: Life changes influence on daily PA. Targeted interventions to maintain and increase PA should be directed for example to customers in child health clinic. Likewise, counselling for parents how to increase PA in their everyday life could potentially have an influence on individual's PA.

177. Associations between self-reported physical activity, sedentary time, functional fitness, and psychosocial wellbeing among older adults

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Introduction: Physical activity and sedentary behaviours are modifiable determinants of health among older adults. Recent research highlights the potential for physical activity and sedentary behaviour to influence an array of physical and psychosocial determinants of health among this population. The current study examined whether self-reported sitting time, walking, and moderate physical activity were associated with selected self-rated physical and psychosocial outcomes among inactive older adults (≥ 65 years of age). **Methods**: One hundred and eighty nine inactive older adults (aged 65-102 years (M=77, SD= ±8 years)) from Sefton, North-West England participated in this cross-sectional study. Participants completed self-reported measures of physical activity (International Physical Activity Questionnaire for the Elderly), quality of life (Kemp Quality of Life Scale), self-rated physical fitness and health (Self-Assessment of Physical Fitness and the Self-rated health questionnaire), and self-efficacy for exercise (Self-Efficacy for Exercise Scale). Linear regression analyses assessed whether self-reported sitting time, walking and moderate physical activity and sociodemographic variables were associated with self-rated measures of quality of life, physical fitness and health, and self-efficacy for exercise. **Results**: A significant positive association was observed between moderate physical activity (min/w) and self-ratings of quality of life ($F(1,187) = 4.369$, $p<.05$ adjusted $R2 = .023$), health ($F(1,187) = 4.184$, $p<.05$, adjusted $R2 = .022$), and self-efficacy for exercise ($F(5,183) = 5.249$, $p<.001$, adjusted $R2 = .125$). A significant negative association was obtained between sitting (min/w) and self-rated physical fitness ($F(5,183) = 11.016$, $p<.001$, adjusted $R2 = .231$). Results also revealed significant associations between gender ($p<.05$, adjusted $R2 = .051$), age ($p<.001$, adjusted $R2 = .083$) and season ($p<.001$, adjusted $R2 = .053$) with self-rated physical fitness, and gender ($p<.05$, adjusted $R2 = .036$) and season ($p<.001$, adjusted $R2 = .053$) with self-efficacy for exercise. **Conclusions**: Sitting time was negatively associated with self-rated physical fitness, while

moderate physical activity was positively associated with self-rated quality of life, physical fitness and health, and self-efficacy for exercise. Such findings could aid policymakers and health care professionals to further raise awareness of the influence of sitting time and physical activity on older adults' perceptions of their physical and psychosocial health.

178. An innovative approach to engage high school students in physical education – DIYPES Project

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Introduction: Adolescents and youth physical activity (PA) levels are an important predictor of PA at adult age. Physical education (PE) is an important component of the total PA time, due to its structured content and regularity. However, in recent years, in most EU countries, steady decreases were observed in high-school students' participation in PE (and PA in general). The aim of the DIYPES project is to explore the effectiveness (measured in terms of participation and engagement) of a participative approach to PE classes in high-school students from 5 European countries, respectively: Albania, Italy, Malta, Romania and Slovakia. **Methods**: DIYPES is a 2 year Erasmus + Sport project (2017-2018), following a 2 steps approach: Step 1: PE curricula analysis in project partner countries: by means of thematic document analysis followed by semi-structured stakeholders interviews, we will explore the aims, objectives, contents, implementation methods, and other special attributes (e.g. approaching vulnerable populations) of PE curricula, to inform what would be needed and feasible to improve in Step 2: Intervention: consisting of 3 months of adapted PE classes delivered in 3 classes from 3 high-schools selected in each partner country, organized in accordance with: 1.The high-school students' needs and preferences (explored by the means of questionnaires and focus-groups); 2. PE curriculum requirements (as resulted from Step 1); 3. PE teachers' consultation (by face-to-face interview); 4. High-schools available infrastructure (explored by structured observation). Project internal evaluation focuses on quality of collaboration within and between national teams, lessons learned (all steps of the internal collaboration around the DIYPES project). Expected **Results**: Following Steps 1 and 2, DIYPES will propose examples of good practice applicable at EU level for developing and delivering more engaging PE classes for high-school students. **Conclusion**: Consulting high-school students in regards to their needs and preferences for PE class planning and employment could increase these students' awareness and active participation and contribute to overall increases in PA time at this age of transition from childhood to adolescence/young adults. As far as we know, this is the first multi-setting research study looking into the beneficial outcomes of students' engagement their own physical education.

179. An intervention for increasing high-school students' participation in physical education – a Standard Operation Procedure presentation

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Introduction: In recent years, in most EU countries, steady decreases were observed in high-school students' participation in physical education and physical activity in general. The aim of this intervention, part of the Erasmus + Sport project DIYPES, is to explore the benefits of a participative approach to physical education classes in high-school students from 5 European countries: Albania, Italy, Malta, Romania and Slovakia. The innovativeness and interconnection of project activities require a tool to help defining and finalising tasks, procedures and documents. A standard operating procedure (SOP) manual was considered a key tool devoted to provide support and guidance to handle specific functions. The aim of this paper is to describe the SOP developed with the purpose of obtaining high-quality intevention implementation. **Methods:** A three months intervention consisting of adapted PE classes will be delivered in 3 classes from 3 high-schools in each part-

ner country. The intervention, delivered in the spring semester of 2017-2018 school year, will involve about 1125 students from 15 high-schools located in the 5 partner countries. The SOP developed describes the necessary actions that will be implemented by all partners in order to prepare and employ the intervention in their own setting and be able to collect a rich and consistent dataset. **Results**: The SOP presents the steps (ethical approval, administrative approval, data collection, intervention content development, intervention implementation, intervention process and final evaluation) and actions necessary for each partner to follow for proper intervention implementation and also provides a time schedule within which each activity has to be completed and the tools (questionnaires, focus-group guides, interview guides, observation sheets) that have to be used in each step. Given the structural and socio-cultural differences between project countries, the SOP allows small deviations in implementation, so as to reach an optimal balance between richness and consistency of project dataset. **Conclusions**: A SOP is a necessary tool for reaching a high-quality intervention implementation and an optimal balance between consistency and richness in a multi-country dataset that will be the basis for a guideline of good practice at European level for increasing high-school students participation and engagement in PE.

180. Exercise Councils for Improving Older People's Social Inclusion

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Introduction: The Act on Elder Care Services and the Act on the Promotion of Physical Activity encourage the inclusion of older people in service development. Exercise councils of older people are developed in the Strength in Old Age programme. They are meant for community-living older adults who, due to decreased functional capacity, have problems in participating in physical activities. In these councils, the elderly can influence the development of exercise activities and environments. **Activities undertaken:** Exercise councils are organized in Strength in Old Age municipalities in cooperation with local actors and the Age Institute. Councils start with a two-hour discussion with 8-12 older participants. The themes include exercise counseling, guided exercise, and exercise environments. One person leads the discussion and one writes up the suggestions and wishes. Municipal decision-makers and officials and representatives from NGOs are invited to hear the conclusion of the discussion. Afterwards the actors make a bulletin of the results which will be sent to the participants of the council, municipal decision-makers and newspapers. **Results:** Exercise councils have already assembled in 41 municipalities. The participants have applauded the current activities and made many new suggestions. They have suggested an exercise group calendar, low-threshold exercise counseling, and more support from health care professionals. They hoped for more senior gym groups, guided home exercise and exercise groups to rural areas. There was a need for more transportation services, outdoor exercise parks and guided groups in the parks. There was also a need for outdoor companions. People hoped for more benches on their walking routes. In wintertime, streets should be kept clear of snow and ice. Municipal actors and officials brought their own ideas into the councils and received instant feedback. The suggestions of the councils have been taken into account in municipal action plans. **Conclusions:** The feedback showed that the councils were useful channels of influence. Exercise councils can produce necessary information for the planners, decision-makers and organizers both locally and nationally. The councils have promoted inter-sectoral cooperation.

181. Weekly physical activity of children in an education outside the classroom intervention segmented into day types and domains

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Introduction: Implementation of education outside the classroom (EOtC) practice in a single or a few school classes has resulted in increased physical activity (PA) during school hours. As such, EOtC is a potential movement integration (MI) strategy within the traditional classroom school setting that can increase children's PA. This study aims to investigate the associations between EOtC practice and 9-13 year old school children's PA during a school week segmented into specific day types and domains. **Methods**: In a class-clustered parallel class observational design, 33 classes (17 EOtC classes and 16 parallel class comparison classes) were recruited comprising a total 663 children. The children were asked to wear a lower back-placed tape-mounted accelerometer 24h/day for a full week. After subtraction of children absent from school on day of setup, failing to provide informed consent, or having incomplete accelerometer data, 361 (54.4% compliance, 10.9±1.0 years, 61.2% girls) children were included in a day type segmented analysis. Sixteen of the 33 classes provided addi-

tional information on their school activities and 194 children in these classes were included in a domain-specific analysis. Mixed-effects regressions were used to test for associations between proportion of PA during different activities or day types. **Results**: The proportion of moderate-to-vigorous physical activity (MVPA) did not differ between school days with EOtC activities and school days without EOtC and PE. Proportion of time spent in light physical activity (LPA) was higher school days with EOtC activities compares to on school days with no EOtC and PE activites (girls 2.4%, boys 2.1%). Boys spent 8.0% more of their time in MVPA during EOtC activities compared to classroom activities (no difference observed for LPA), whereas girls spent 9.8% more of their time in LPA (no difference observed for MVPA). **Conclusions**: EOtC was positively associated with PA compared to more traditional teaching activities and was implemented without allocation of extra resources, such as staff hours and equipment. EOtC offers a supplementary strategy for MI into the classroom, without compromising time for teaching activities.

182. Trajectories of physical activity after rehabilitation: results from the longitudinal cohort study ReSpAct

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Introduction: Why does one patient maintain a physically active lifestyle after rehabilitation and the other does not? The purposes of this study were to identify trajectories of physical activity among people with a physical disability and/or chronic disease during and after rehabilitation, and to determine which personal and health-related factors are associated with trajectory membership. **Methods**: Patients (N=1719) with different kinds of disabilities and/or chronic diseases were followed at baseline (T0) and after 14 (T1), 33 (T2) and 52 (T3) weeks after discharge from rehabilitation in the longitudinal cohort study, Rehabilitation, Sports and Active lifestyle (ReSpAct). Latent class growth mixture modelling was used to determine trajectories of physical activity based on self-reported data of total minutes activity per week. Descriptive statistics were used to determine personal and health-related factors associated with trajectory membership. **Results**: Six trajectories were identified, whereof four small and dynamic trajectories, and two large and stable trajectories. Further analysis was based on the two large and stable trajectories: an 'active' (N=235) and a 'semi-active' (N=959) profile. Patients in the 'active' trajectory were more physically active than patients in the 'semi-active' trajectory on each measurement occasion (2768±741 versus 688±561 minutes per week on T3). Patients in the 'semi-active' trajectory were more often female (56.8% versus 48.5%) and older (51.8±13.6 versus 46.0±12.3). In addition, patients in the 'active' trajectory perceived less barriers of being physically active (e.g. due to the disability), had a higher quality of life, less pain, less fatigue complaints and were less conscious about their energy management (pacing behaviour) during the day compared to patients in the 'semi-active' trajectory. **Conclusions**: This study indicated that the majority of patients obtained a relatively stable physical activity behaviour after rehabilitation. Insight in the relevant personal and health-related factors may provide us with more knowledge when optimizing patients tailored advice in developing and maintaining a physically active lifestyle after rehabilitation.

183. Validity and reliability of the Fitbit Zip as a measure of pre-school children's step count

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Introduction: Validation of physical activity measurement tools is essential to determine the relationship between physical activity and health in pre-school children, but research to date has not focussed on this priority. The aims of this study were to ascertain inter-rater reliability of observer step count, and inter-device reliability and validity of Fitbit Zip accelerometer step counts in pre-school children. **Methods**: Fifty-six 3-4-year-old children (29 girls) recruited from 10 nurseries in North Wales, UK, wore two Fitbit Zip accelerometers whilst performing a timed walking task in their childcare settings. Accelerometers were worn in secure pockets inside a custom-made tabard. Video-recordings enabled two observers to independently code the number of steps performed in 3 minutes by each child during the walking task. Intra-class correlations, concordance correlation coefficients, Bland-Altman plots and absolute percent error were calculated to assess the reliability and validity of the consumer-grade device. **Results**: An excellent intra-class correlation was found between the two observer codings (ICC = 1.00) and the two Fitbit Zips (ICC = 0.91). Concordance between the Fitbit Zips

and observer counts was also high (r = 0.77), with an acceptable absolute percent error (6–7%). Bland-Altman analyses identified a bias for Fitbit 1 of 22.8 ± 19.1 steps with limits of agreement between -14.7 and 60.2 steps, and a bias for Fitbit 2 of 25.2 ± 23.2 steps with limits of agreement between -20.2 and 70.5 steps. **Conclusions**: Fitbit Zip accelerometers are a reliable and valid method of recording pre-school children's step count in a childcare setting.

184. The effectiveness of sit-to-stand desks to reduce sitting time within a primary school classroom: an 8 month controlled trial

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Introduction: This study evaluated the effectiveness of the long term use of sit-to-stand desks in reducing classroom sitting time in a school in Bradford, UK. **Methods**: A controlled trial was conducted over an 8-month period (November-July 2015/16) in two year 5 classrooms from different primary schools; every child in the intervention class received an Ergotron LearnFit sit-to-stand desk while the control class continued to use traditional desks. activPAL inclinometers were worn for 7 days at baseline and at 4 and 8-months follow-up to measure sitting. Total sitting time and sitting time accumulated in different bout lengths during class time were explored; due to different device wear times between groups, the proportion of wear time spent in sitting variables were used in the analysis. Multi-level models were used to determine intervention effects at each time point. **Results**: Fourty-nine children (25 girls; age mean [SD]: 9.8 [0.3] years; 67% South Asian) provided valid activPAL data at baseline (Intervention=22, control=27) and were included in all models. At baseline, multi-level models found no differences between classes in the proportion of wear time spent sitting in total (β [95%CI] -3.6% [-9.8,2.7], P>0.05) or in prolonged bouts of >10 minutes (β [95%CI] -3.3% [-9.4,2.8], P>0.05). At 4-months and 8-months, the intervention group demonstrated a significantly lower proportion of wear time spent sitting in total (4-months: β [95%CI] -25.3% [-32.3,-18.4], P10 minutes (4-months: β [95%CI] -17.4% [-24.0,-10.7], P<0.0005; 8-months: -29.0% [-35.8,-22.1], P<0.0005) compared to the control class. No significant differences were detected between groups in after school sitting time at any time point. **Conclusions**: This study is the first to assess the long-term effectiveness of sit-to-stand desks within a UK primary school. The intervention appeared to successfully reduce total classroom sitting time and time spent in prolonged bouts over an 8-month period, with no apparent evidence of compensation occurring after school. These encouraging findings should be confirmed in a large randomised-controlled trial.

185. Do young adolescents enjoy long distance cycling to school? An exploratory research to understand attitudes and behavior in the Netherlands

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Introduction: The change from primary to secondary school has a negative impact on physical activity levels of adolescents. Cycling is an easy way of integrating physical activity into adolescents' daily life. In the Netherland, cycling is rather common and around 80% of adolescents are cycling to school every day although they have to travel around 9km; however, the percentage dropped dramatically for adults. To maintain the habits of cycling is important to understand the attitude towards cycling and other mode of travel. This study aimed to uncover factors that makes young adolescents cycling to school unpleasant for them , using qualitative method. **Methods:** An online interactive map-based questionnaire (Maptionnaire), focus group discussions, carrying a GPS logger and an online travel diary for 5 days, were used to understand attitudes and behavior towards long distance cycling to school in 36 adolescents (12-15 years). **Results:** Although the majority of participants were cycling to school, only 30% of them chose cycling as their favorite travel mode. More than 80% of participants stated that the car is a more convenient travel mode, because protects you in bad weather and is faster than bicycle. Also, 70% of participants thought cycling in rural areas and along busy roads in city is not safe. A lot of adolescents stated that crowded cycling pathways around the school especially in the morning, makes cycling stressful. Almost half of adolescents doubted whether cycling to school is good for their health. They stated that it is stressful to cycle in overcrowded cycling pathways around the school in the morning. Long distance cycling on windy/rainy days, lack of traffic safety, and crowded cycling pathways around the school in the morning were mentioned as main reasons to make adolescents' cycling to school unpleasant for

them. **Conclusions:** Cycling intervention should focus on improving adolescents' traffic safety perceptions, and to take urgent steps to improve over-crowded cycle lanes at rush hours. Also it is important to educate adolescents on health benefits of cycling. It will help to maintain adolescents' habit of cycling after reaching the age at which it is possible to ride a moped/car.

186. Effectiveness of interventions for reducing non-occupational sedentary behaviour in adults and older adults: A systematic review and meta-analysis

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Introduction: Over the past 50 years, there has a significant decline in daily physical activity and increase in sedentary behavior (e.g. sitting). While the evidence is still emerging, studies suggest that when compared to sitting in other domains (e.g. workplace and transport) leisure-time sedentary behavior is more strongly associated with negative health outcomes. However, no systematic reviews of effectiveness of interventions for reducing sedentary behavior in leisure-time, transport and household domains are available. Therefore, the aim of this systematic review was to assess the effectiveness of interventions for reducing non-occupational sedentary behavior. **Methods**: We conducted electronic searches of nine databases. We included randomized controlled trials (RCTs) and cluster RCTs only. Two review authors independently screened studies for eligibility and completed data extraction and risk of bias assessment. **Results**: Evidence from the meta-analyses suggests that interventions can reduce sedentary leisure time in adults in the medium-term (-29 min/day; 95% confidence interval [CI]: -55, -2.3 min/day) and TV viewing in the short (-25 min/day; 95% CI: -37, -13 min/day) and medium term (-11 min/day; 95% CI: -20, -2 min/day). No significant pooled effects were found for transport-related sitting time and leisure-time computer use ($p > 0.05$). **Conclusions**: The findings of this systematic review suggest the interventions may be effective in reducing non-occupational sedentary behavior in the short-to-medium term. However, no significant effect was found on long-term outcomes. No evidence was available on the effectiveness of non-occupational interventions on reducing sedentary time in older adults. Further high-quality research with larger cohorts is warranted.

187. The effects of yoga on physical functioning and health related quality of life in healthy older adults - systematic review and meta-analysis

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Introduction: Research evidence indicates that yoga improves flexibility, balance, sleep quality, executive function, and other indicators of physical and psychological health in older adults. There is currently no systematic review establishing the effectiveness of yoga in a healthy older adult population. The objective of this study is to address this gap and determine the effects of yoga on physical function and health related quality of life in healthy older adults. **Methods:** Ten electronic databases including Medline, Web of Science, Cochrane Library and SPORTDiscus were searched in May 2016. Inclusion criteria: randomized controlled trials; healthy older adult participants with mean age of 60 years; studies evaluating a yoga intervention compared with active controls (example: walking, chair aerobics) or inactive controls (example: waitlist control, education booklets); and published in English. The studies were screened and those that did not meet the inclusion criteria were eliminated. As a preliminary analysis, a 'vote counting' approach was adopted, where the number of studies reporting significant interaction effects favouring the yoga group was totalled for each outcome measure to obtain an indication of the effectiveness of yoga. **Results:** After the screening process, 34 of 6591 retrieved studies met the inclusion criteria, and were included in the review. The studies measured a range of outcomes including physical function (body composition, cardio-pulmonary fitness, strength, flexibility, mobility and walking speed, balance, and incidence of falls), and psychological outcomes (anxiety, depression, perceived physical and mental health, quality of life, social health, sleep quality, self-efficacy, fear of falls, and stress). The vote-count analysis revealed that evidence was lacking to show yoga was effective when compared with active controls. When comparing yoga with inactive controls, yoga was effective in improving flexibility, walking speed, and sleep quality in healthy older adults. **Conclusions:** Based on the vote-counting procedure, yoga was found to be effective in improving flexibility, walking speed and sleep quality compared to inactive controls. However, to arrive at an accurate conclusion, a quantitative analysis examining effect sizes is required. A meta-analysis is currently being conducted to establish the effectiveness of yoga in improving physical function and psychological outcomes in healthy older adults.

188. Examining perceptions of yoga among older adults: a qualitative study

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Introduction: A very low percentage of older adults in Scotland meet the muscle strengthening, balance and co-ordination guidelines. Practicing yoga has benefits for older adults including improved strength, flexibility, mobility and balance. To develop an appropriate yoga programme for older adults, it is important to get an in-depth understanding of their perceptions of yoga. Hence, the aims of this study are to: 1. explore the perceptions of yoga in adults over 65 years 2. understand why yoga is a female dominated activity 3. provide guidance for yoga instructors, and strategies for promoting yoga in the older adult population **Methods**: We conducted focus group discussions and interviews with a total of 19 male and female older adult participants, both with and without prior yoga experience. Participants were recruited through convenience sampling from a university fitness facility, and local leisure centres in Edinburgh. Thematic analysis and framework analysis were used to analyse the transcripts, and explore the differences in perceptions between the yoga and non-yoga participants. **Results:** The study found that yoga was viewed as a slow, gentle activity, suitable for older adults. Yoga participants had a positive view of yoga and appreciated its non-competitive aspect. However, some participants with no yoga experience anticipated that they may find it too demanding. Some suggested reasons for low male participation rates were that older men considered yoga a feminine activity, did not like joining group activities and did not pay attention to long-term health issues. Guidelines for instructors while working with older adults include being audible, giving clear instructions and demonstrating in class. Strategies such as providing more information on yoga and its benefits, and organising taster sessions or introductory classes were suggested to promote yoga in this population. **Conclusions:** The study offers insights into how older adults perceive yoga including knowledge of yoga, thoughts on the features and perceived intensity of yoga practice, the gendered nature of participation, benefits, and apprehensions. These findings would be useful to persons interested in yoga for an older population, and should be considered while developing a yoga programme.

189. Physical activity, sedentary behaviour, functional capacity and selected blood biomarkers in men and women with chronic disease

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Introduction: Sedentary behaviour (SB) is associated with adverse health outcomes. This study compared physical activity (PA), SB, functional capacity and blood biomarkers between men and women attending induction to a community-based chronic disease (CBCD) exercise programme. **Methods**: Men (54%) and women with coronary artery disease, (n=61); chronic obstructive pulmonary disease, (n=54); peripheral arterial disease, (n=27); or type 2 diabetes, (n=25) were recruited. BMI, hip and waist circumference were assessed using standard procedures. Lower and upper-body strength was measured using a timed sit-to-stand and hand-grip test, respectively. A sit-and-reach test and 6-min time trial was used to measure flexibility and cardiovascular fitness, respectively. Fasting levels of serum glucose, lipids and c-reactive protein were measured. PA and SB were recorded over 7 d using an activPAL3 micro triaxial accelerometer. Results are presented as mean ± SD. **Results**: Women had a significantly higher BMI (32.5±4.8 vs. 29.1±8.7 kg.m2), hip circumference (114.0±17.4 vs. 104.1±8.1 cm), waist-to-hip ratio (1.4±1.1 vs. 1.0±0.1) and significantly lower handgrip score (20.1±5.4 vs. 31.4±8.2 kg) than men. Total cholesterol (5.0±1.1 vs. 4.2±1.2 mmol.L-1) and HDL-cholesterol (1.5±0.4 vs. 1.2±0.3 mmol.L-1) were significantly higher in women than men. Participants completed 4723±2466 steps.day-1. During waking hours participants spent 9.2±1.9 h sedentary, 4.0±1.7 h standing, 1.3±0.6 h stepping, 1.1±0.4 h in light-intensity activity (LIPA), 4.5±1.8 h standing and LIPA combined, and 0.3±0.3 h in moderate to vigorous activity (MVPA). Including sleep, participants spent 18.6±1.9 h sedentary per day. The majority of sedentary time was spent in >20 min bouts, 70% of which were >40 min. Compared to men, women spent significantly more time standing (4.4±1.6 vs. 3.7±1.6 h) and standing and LIPA combined (4.9±1.8 vs. 4.1±1.7 h). Women had significantly less total sedentary time (18.2±1.9 vs. 19 0±1.9 h) and spent significantly less time than men in bouts >20 min. There was no significant difference between men and women for all other measures of SB and PA. **Conclusions**: Men and women attending induction to a CBCD exercise programme were only achieving 50% physical activity guidelines. Upper-body strength was lower and BMI and waist-to-hip ratio were higher in women than men.

190. Using the COM-B model to understand the determinants of participation in a workplace physical activity intervention for inactive employees

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Introduction: Despite being less likely to maintain positive physical activity (PA) behaviours, inactive employees have most to gain from engaging in workplace PA interventions. However, in the pursuit of treatment or group differences, this group is often overlooked in designing interventions and in reporting outcomes. Given these shortcomings, it is important to establish what attracts previously inactive employees into new programmes. The recently developed COM-B model (Michie et al., 2011) offers a structured framework for addressing these issues. COM-B proposed that capability (C), opportunity (O), and motivation (M) are all necessary elements to change behaviour (B). Using COM-B, this study investigated how capability, opportunity and motivation influenced inactive UK university employees who participated in a workplace PA intervention. **Methods**: At baseline and following the six-week step-challenge, self-reported PA (IPAQ-Short Form) was collected via an online survey. Post-challenge purposive sampling identified previously-inactive participants. Two volunteers, from 29 previously-inactive recruits, contributed a semi-structured interview, developed to investigate the chronology of, and the relative contribution of the COM-B elements to, PA change. Interviews were transcribed verbatim. Deductive content analysis identified the most prevalent elements. **Results**: Two forms of Opportunity - physical and social – were central to initial engagement. Physical opportunity related to the option to walk, cycle or swim, while social opportunity emerged through exercising together, and through exercise-related mutual support and camaraderie. Capability, especially physical capability, was not a barrier, although both participants had been active employees earlier in their lives. Motivation was driven by recent health diagnoses requiring lifestyle changes. Perceived improvements in health and wellbeing positively influenced motivation throughout the challenge. **Conclusions**: COM-B helped to identify that recruitment and engagement of these previously-inactive individuals into a workplace PA intervention was primarily linked to physical and social opportunities. Opportunity can be defined as an environmental determinant of behaviour change. Although the study limits extensive generalisability, the findings are in line with a recent review of policy papers regarding PA promotion in workplaces (Seppälä et al., 2018). To optimise return on investment, further work is needed to establish which environmental determinants increase the participation of previously-inactive employees in workplace PA interventions.

191. Physical Activity and Cardiometabolic Risk Factors in College Students

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Introduction: Moderate to vigorous physical activity (MVPA) is a strong predictor of cardiometabolic health among adults (Peterson et al., 2014). At present, little is known about physical activity levels and cardiometabolic risk factors in third level Irish students. Therefore, the purpose of this study is to assess MVPA levels and examine the relation between MVPA and cardiometabolic risk factors in third level students in Ireland **Methods**: Fifty six third level students (mean ± SD; age = 22.93 ± 5.9 years, 62.5% male) participated in this study. Body mass index (BMI), percent body fat, waist circumference, blood pressure, and estimated maximal aerobic capacity (VO2max) were assessed. Venous blood samples were taken to assess total cholesterol, triglycerides, LDL-C, and HDL-C. Actigraph accelerometers were used to assess sedentary time and moderate-to-vigorous physical activity (MVPA) time over the nine-day period following the initial assessment. **Results**/findings: MVPA per week was significantly higher in males (363.4 ± 140.6 min/week) than females (276.1 ± 152.9 min/week; p=.03). There was no significant difference in sedentary behaviours, light, moderate, and vigorous physical activity levels between genders. There was a significant inverse association between MVPA (min/week) and body fat (r = -0.347, p = 0.006). There was a significant positive relation between MVPA (min/week) and systolic blood pressure (r = 0.282, p = 0.028) and VO2max (r = 0.271, p = 0.043). There was no significant relation between MVPA and waist circumference, BMI, diastolic blood pressure, sedentary behaviour, serum triglyceride levels, total cholesterol, HDL-C or LDL-C levels. **Conclusions**: Objectively measured MVPA was higher amongst males in comparison to females which is consistent with previous research (Morgan et al., 2008). MVPA was associated with reduced body fat. There were also favourable correlations between MVPA and both systolic blood pressure and cardiorespiratory fitness (VO2max). However, significant relations with other cardiometabolic risk factors were not found. This is one of the first studies to examine the relation between MVPA and cardiometabolic risk factors in third-level students in Ireland.

192. Go Out with the Elderly Campaign

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Introduction: Everyone should be able to go outdoors daily, including older adults with decreased functional capacity. Many older people living at home or in service housing cannot go out alone because of decreased mobility, memory problems, loneliness or fear of falling. Studies have shown that more than a half of 80+ older people experienced difficulties in walking 500 meters. They need a companion for outdoor activities. **Activities undertaken:** The annual Go Out with the Elderly campaign promotes outdoor activities in safe company. The Age Institute challenges volunteers in NGOs, students, nursing professionals, families and neighbours to go out with older people. In support of local campaigning, various kinds of communication materials have been produced. The campaign is visible in social media and newspapers and featured on local radio stations. Everyone can participate in the campaign by walking outdoors with the elderly, recording the outdoor sessions in a website, telling outdoor stories, and challenging others to join the campaign. The website shows the recorded number of outdoor sessions and latest outdoor stories. During the campaign active outdoor companions and communities are rewarded with small gifts. **Results:** The campaign will be organized for the sixth time. Last year the campaign recorded 18.643 outdoor sessions in 79 municipalities during six months. Participants included 133 communities and individuals. The campaign culminated in 86 outdoor events around Finland. Newspapers published 80 articles about the campaign, mostly in local papers. The goal for 2017 is to have participants in 100 municipalities. **Conclusions:** Go Out with the Elderly campaign has been established as an annual event. It has succeeded in calling positive attention to older people's need for outdoor activities all year round. The campaign has inspired people of different ages to become outdoor companions for the elderly. In many service houses outdoor activities have become a permanent activity.

193. Influencing factors on initial login rate to a web-based intervention platform promoting physical activity among vocational school students

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Introduction: Web-based interventions are a promising approach to promote healthy behaviours such as physical activity (PA). However, login rates and usage are often low, especially in primary care. Findings how to increase participation and particularly how to reach risk subgroups within heterogeneous target groups are highly relevant for future interventions. This study investigates whether a school health project day and further individual-related variables impact initial login to an intervention platform. **Methods:** A cluster-randomized eight-week intervention study was conducted in vocational schools. In one school, a webplatform was introduced during a project day about healthy behaviours prior to the intervention (platform+). In a second school, students just received individual invitation emails (platform-). A third school served as waiting list control group. For evaluating influencing factors on initial login, a logistic regression model was calculated. Dependent variable was self-assessed login (yes vs. no). Independent variables were intervention group (platform+ vs. platform-) and baseline data on sex, BMI (<25 vs. ≥25 kg/m2), PA (≥5 vs. ≤4 days of at least 30 min PA), subjective health status (≥good vs. <good, 5-point Likert scale) and work ability (≥good vs. ≤moderate, Work Ability Index). Sample limitations were participating in both pre- and post-measurements and age 18-25 years to exclude retraining courses (n=222, 59.9 % female, 20.4±1.9 years, 23.8±4.9 kg/m^2). **Results:** In total, 33 students (78.8 % female, 20.2±1.9 years, 22.9±3.9 kg/m2) logged in. Initial login rate was 14.9 % (21.0 % platform+, 9.4 % platform-). Project day participants (OR 3.7, CI-95%: 1.5-9.0, p<0.01) and females (OR 3.5, CI-95%: 1.2-9.9, p<0.05) were more likely to login. Other variables (BMI, PA, health status, work ability) showed no significant association with initial login. **Conclusions:** Initial login rate to the intervention platform was low. However, conducting a project day prior to the intervention more than doubled and significantly impacted login rates. Nevertheless, cost-benefit effects of accompanying face-to-face actions must be considered. Strategies increasing participation should be clarified. Other formats may affect login rates among young target groups (low-threshold, time-saving, app-based). Moreover, further studies are necessary to investigate (non-) user characteristics and, building on this, how to reach risk subgroups.

194. Physical activity as a treatment

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Introduction: In Finland, according to the Current Care Guidelines physical activity can be used as a treatment of several diseases. In Pieksämäki we created a physical activity model, where the identification of clients, a personal care and services are implemented as a seamless cooperation between social- and health care and sports services. The aim of the study was to evaluate the outcomes and the cost of the model as well as the potential savings in health care cost. **Methods**/Design: The physical activity model includes three visits to a physical exercise instructor, personal physical exercise plan, possibility to participate in different sport groups and use the swimming hall and gym of the city of Pieksämäki for free during the participation in the physical activity model. In the study the follow-up data was collected from physical inactive persons (n=79) who are recruited to the model. The follow-up periods varied from 6 to 12 months. **Results**: Objective measures showed that participants' average weight and visceral fat decreased significantly during the 6-month follow-up. In one year follow-up period the results still showed a decrease, but not significant. The average blood sugar levels decreased and the average blood lipids increased slightly. Subjective measures, the ASCOT (adult social care outcomes toolkit) and 15D (the health-related quality of life instrument) showed significant increase ($p<0.005$) in the average quality of life for both follow-up periods. To estimate the costs we used a simple decision analytic model. The costs of physical activity model are 1 232 euros per customer. In health care costs we took into account the added wellbeing through physical exercise in depression, back and neck pain and T2DM. Physical activity model didn't bring any cost savings compared to the care as usual. It was possible to observe potential cost savings during longer period already the next year after participating in the model and if the physical activity is maintained at the same level, the savings will increase. **Conclusions**: The physical active model in cooperation between social- and healthcare and sports services increase quality of life of the individuals and generate potential savings in health care cost.

195. European Initiative for Exercise in Medicine (EIEIM): status and future prospective

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Introduction: Physical inactivity is a pandemic public health problem, related to many chronic diseases, premature mortality and causes great costs for the society. On the other hand, regular physical activity (PA) influences health in several positive ways and e.g. leads to higher academic performance in children and adolescents. Despite these positive impacts, a large number of people do not meet the recommendations for sufficient PA. Therefore, PA and exercise should be included in the medical care system to prevent and treat chronic diseases. The "European Initiative for Exercise in Medicine" (EIEIM) aims to introduce PA as a vital sign into the healthcare system. Healthcare providers are to be encouraged to prescribe PA as a drug, include it in treatment plans, and collaborate with exercise specialists**. Activities undertaken**: On grounds of the United States-based initiative Exercise is Medicine® (EIM), founded by the American College of Sports Medicine (ACSM) and the American Medical Association (AMA), EIEIM was established as the European coordination centre in Ulm, Germany, in 2016. It provides a network, an overview and resources for national centres, which are located in each participating country**. Results**: Currently, European countries involved in EIEIM are: Germany, Greece, Israel, Norway, Poland, Portugal, Spain; others are about to join. EIEIM hosted the EIEIM conference 2017 in Lisbon with almost 400 participants. So far, worldwide about 15.000 physicians and 12.000 exercise professionals have been trained, and over 16 Mio. healthcare patients have been impacted by the global EIM initiative. **Conclusions:** The next steps of EIEIM are to 1) strengthen the cooperation and distribution of knowledge and foster the synergy between the organisations active in the field of PA/exercise in participating countries and therefore establish a network, and 2) increase knowledge and awareness of healthcare professionals regarding PA/exercise in participating countries by benchmarking.

196. The development and formative evaluation of the 'Worktivity' app: a behaviour change theory-based mobile app to promote reductions in occupational sedentary behaviour

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Introduction: Occupational sedentary behaviour (SB) is associated with negative health consequences [1]. Software applications for mobile phones (apps) are being harnessed to reduce SB, however, few are based on theoretically derived constructs [2]. Apps offer potential platforms for users to self-monitor SB in real time. Existing apps to self-monitor and provide instant feedback on physical behaviours generally capture physical activity, but not SB. Objective SB measurement tools lack a user-friendly interface for SB self-monitoring/feedback. Therefore, we aimed to develop a novel app, using the behaviour change technique (BCT) taxonomy [3], in an effort to measure and help reduce occupational SB. **Methods**: App development followed four steps: 1. Ideation/design workshops; 2. BCT identification; 3. Low-fidelity prototypes; 4. High-fidelity prototypes developed using Xamarin's cross-platform development software. The app provides a measure of SB by reminding users to log time spent sitting at hourly intervals throughout the work day. Users can set personalised 'sit-less' goals based on feedback. The app delivers nudges, tips and progress reports to help workers reduce SB in line with their goals. App content was designed to be user-friendly, visually appealing, with low levels of content/reading. Formative app evaluation (currently ongoing) involves think-aloud interviews to assess initial impressions, ease of use, data entry and app navigation. **Results**: We describe the development of a novel and theoretically-informed app incorporating self-monitoring, personalised feedback, goal-setting and education to help reduce occupational SB. Insights into the think-aloud interviews, in addition to the outcomes obtained will be available at the conference. **Conclusions**: To our knowledge, this is the first app to provide a platform for office workers to self-monitor and receive feedback on SB via a theory driven app. Formative evaluation of the app is being conducted with results available for the conference. The resulting app is to be embedded within an intervention and formal testing in a feasibility study is planned. 1. van Uffelen et al. Occupational Sitting and Health Risks. AJPM. 2010;39(4):379-388. 2. Bastawrous, Armstrong. Mobile health use in low-and high-income countries. JRSM. 2013;106(4):130-142. 3. Michie et al. The Behavior Change Technique Taxonomy(v1) of 93 Hierarchically Clustered Techniques. Ann. Behav. Med. 2013;46(1):81-95.

197. Effectiveness and cost-effectiveness of neuromuscular exercise and back counselling in female nursing personnel with recurrent non-specific low back pain: a blinded four-arm randomised controlled trial

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Introduction: The prevalence of low back pain (LBP) in health care workers is higher than in other occupations with huge economic burden due to increased sickness absence and direct health care costs. Aim To determine effectiveness and cost-effectiveness of exercise and counselling interventions against non-treatment in reducing LBP and its' consequences. **Methods:** A blinded four-arm randomised controlled trial with 6-month interventions and outcome assessment at 6 and 12 months. Participants were female nursing personnel (n=219) with recurrent non-specific LBP (intensity ≥2 in numeric rating scale, duration <7 months) and strenuous work tasks for the back. Intervention-arms were Combined neuromuscular exercise and back counselling, Exercise only (twice per week for 24 weeks, á 60min), Counselling only (10 sessions in 24 weeks, á 45min) or non-treatment Control. The main outcomes were intensity of LBP (Visual Analog Scale, VAS); incremental cost-effectiveness ratio of sickness absence days and quality adjusted life years (QALY). **Results:** No adverse effects occurred. The intensity of LBP (VAS) decreased (p=0.001) only in the Combined-arm (effect size 0.70; 30.2% with minimal important change of 15 mm) as did the LBP related sickness absence days in a cost-effective manner. There was no change in QALY. **Conclusions:** Combined exercise and counselling emphasising the control of the lumbar neutral zone (LNZ), but neither alone, seems effective and cost-effective in reducing pain and sickness absence in female nursing personnel with recurrent LBP and thus in threat of reduced workability. The present findings provide encouraging evidence that neuromuscular exercise no more than once a week combined with five sessions of back counselling during six months could be feasible

and effective at low costs in real life settings. The present study together with former studies strengthen the findings on the possible importance of control of the lumbar neutral zone (LNZ) in all daily life as an effective intervention component reducing injury and re-injury of lower back, and thus chronic LBP, when emphasised simultaneously in both exercise and counselling.

198. Influence of sedentary behaviour and physical activity on adiposity indicators in older adult women

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Introduction: Modern lifestyle leads to avoidance of physical activity (PA) and it is known that physical inactivity and excessive sitting are associated with adverse health outcomes. It remains unclear if activity status is a predictor of adiposity in older adults. The main aim of this study was to examine influence of sedentary behaviour (SB) and PA on adiposity indicators in Czech, Slovak and Polish older adult women. **Methods**: We assessed 313 healthy women from the Central Europe with mean age of 66.6 (95% CI 65.8-67.3) years. To collect data on PA and SB, all women wore an accelerometer for one week. The body composition analysis was conducted using the InBody 720 device. We used three adiposity indicators: percentage of body fat (FM%), visceral fat area (VFA) and fat mass index (FMI). In multiple linear regression analyses, we adjusted models for the following confounders: age, wear time, socio-demographic information, smoking and health status. **Results**: The mean values of FM%, VFA and FMI were 36.1%, 125.9 cm2 and 10 kg/m2, respectively. On average, women spent 466 minutes in SB, 325 minutes in light PA and 38 minutes in moderate-to-vigorous PA per day. After adjustment for confounders, frequency and duration of SB accumulated in 20-minute bouts were significantly positively associated with all adiposity indicators (β ranging from 0.037 to 0.419, $p \leq 0.05$). Conversely, MVPA was negatively associated with all adiposity indicators (β ranging from –0.109 to -0.570, $p \leq 0.001$). **Conclusions**: The present study suggests that SB represents a serious risk factor for adiposity in older women from the Central Europe. The recommendation for older women is to avoid prolonged time spent sitting and try to include PA into their schedules more frequently.

199. Changes in physical activity and sedentary time during puberty – gender difference during weekdays and weekend days

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Introduction: This study determined the changes and gender differences in objectively measured physical activity and sedentary time during puberty during weekdays and weekend days. **Methods**: The study population consisted of children from nine schools throughout Finland who participated in a 2-year follow-up study. At baseline, children were in grades 4–7 (ages 10–13). Five times during the follow-up period, participants' physical activity was monitored objectively for seven consecutive days using hip-worn accelerometers (ActiGraph GT3+). The main outcomes were the daily time spent in moderate to vigorous physical activity (MVPA) (> 2295 cpm) and sedentary time (< 100 cpm). The number of participants with valid accelerometer data for at least two weekdays and one weekend day was 771 at baseline and 328 at the fifth follow-up measurement. **Results**: In general, the level of MVPA was 16 min/day higher and ST 4% lower in boys compared to girls. The level of MVPA was higher during weekdays compared to weekend days. Significant gender differences were observed in the change of MVPA and sedentary time during the follow-up period. Total MVPA declined significantly in boys (from 62 to 54 min/day) to but not in girls (from 47 to 46 min/day). Total sedentary time increased both in boys (from 63% to 68%) and girls (from 66% to 70%) similarly. However, when we compared the results during the weekdays and weekend days separately we observed that these unfavourable changes were greater in boys than in girls during the weekend days. Boys' advantage in MVPA levels at baseline seemed to vanish during follow-up because of greater unfavourable behaviour changes than among girls, especially during weekend days. **Conclusions**: Greater decrease in physical activity and greater increase in sedentary time during puberty was observed among boys than girls, especially during weekend days. In order to diminish these unfavourable behaviour changes during puberty we encourage tailoring interventions separately for boys and girls and for weekdays and weekend days.

200. An acceptability and feasibility study of primary school active classroom breaks

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Introduction: Schools are important settings for physical activity (PA) participation. Given curriculum time constraints, it is important to develop feasible, effective and setting-specific strategies for school-based PA. This study aimed to evaluate the acceptability, feasibility, and effectiveness of a classroom-based PA intervention. **Methods:** Year 5 classes (age 9-10 years) in three primary schools implemented classroom active breaks (AB) for four weeks. Following this trial, wrist-mounted ActiGraph GT9X accelerometers were distributed to 111 children (56 girls) to wear for 7 days. Sixteen focus groups were then conducted to explore children's perceptions and experiences of the AB. Three class teachers were interviewed to explore their views on the acceptability of the AB. Raw ActiGraph acceleration files were analysed and paired t-tests investigated differences in moderate-to-vigorous PA (MVPA) and sedentary-time (SED) between 30 minute segments of regular class-time and those which included AB. Focus groups were analysed via thematic analysis and interview data represented by verbatim quotations. **Results:** Primary themes emerging from the focus groups included description of the AB, likes and dislikes of the AB, feelings after an AB, feelings if the AB stopped. Children reported AB to be fun, and beneficial to health, despite causing muscles to ache. Children felt tired afterwards but also calm, relaxed, and more engaged in learning. Teachers reported that children were more settled, calm, quiet and concentrated afterwards. Teacher considerations for the use of AB in classrooms included integrating them into the daily routine, noise of AB to nearby classrooms, behaviour of children during AB, joining in with AB and time for a drink afterwards. MVPA during 30 minute class segments including an active break (M=3.9, SD=1.1 min) was significantly higher than during a 30 minute segment directly before or after (M=0.4, SD=0.4 min; p<.001, d=4.2). SED during 30 minute class segments including an active break (M=14.5, SD=3.1) was significantly lower than during a 30-minute segment directly before or after (M=19.5, SD=0.4 min; p=.01, d=1.5). **Conclusions:** This feasibility trial demonstrates ability to impact MVPA and SED levels of children in the school environment. Children and teachers had positive views of the acceptability and feasibility of AB.

201. How did a referral in a health care setting affect the attendance in a standardized sports club programme? The HEPA-Styria project

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Indroduction: In Austria, adults with minor symptoms such as risk factors for cardio-metabolic diseases can apply for a residential stay in a health resort twice within five years. Stays are financed by health insurance companies and last up to three weeks. The objective of this presentation is to describe how the transition between the referral in the health resort setting affected the attendance in a standardized sports club programme (named JACKPOT) and the reasons related to the drop out. **Methods:** Four hundred and forty four patients from the intervention group (IG) agreed to wear an accelerometer for seven days ahead of the health resort stay. From 309 we obtained valid physical activity measurements and 183 (59.2%) of those agreed to continue the study participation. The intervention consisted of an individualized physical activity counselling conducted by a staff member of the health resort and the study participants were informed about the option to attend 12 sessions of a standardised, sports club based exercise programme in their home neighbourhood free of charge. A standardized excel sheet and attendance lists were used to document the study participants' flow. The sports club trainers made a note about the reasons of drop out. **Results**: About half of the participants (n=90, 49.2%) visited at least one JACKPOT-session. The adherence rate was as follows: 16 participants visited at least 25% of the 12 sessions, 25 visited between >25% to <75%, and the majority (n=49, 54.4%) visited ≥75% of all sessions. From 38 participants we know the reasons why they dropped out or did not continue the JACKPOT-programme after the 12 sessions: 26% mentioned health reasons, 21% time constraints with their job, and 13% plan to continue on their own. All other reasons were raised by less than 10%. **Conclusions**: This is one of the first projects connecting the health and the organized sports sector. The JACKPOT-programme attracted people and the adherence rate was satisfying. Strategies are needed to support people to maintain the sports club based programme after the 12 free of charge sessions. Acknowledgement. The project is supported by the Gesundheitsfonds Steiermark and the Bundessport Förderungsfonds.

202. A fairy tale to scaffold children during learning of motor tasks

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Introduction: As proposed by Vygotsky, learning in zone of proximal development supported by an expert person is the appropriate way to facilitate learning of motor tasks and to foster development. Learning a difficult motor task may also require involvement of executive functions, a set of cognitive processes which include capacity to stay focused, to pay attention and activation of working memory (Diamond, 2016). Can dramatization with a tale facilitate recruitment of executive functions and facilitate learning and execution of a difficult motor task in 4-5 y old children? **Methods**: The "difficult task consisted" in walking and/or running along a trail with the shape of an "eight", 4.5 meters long and 1 meter wide; the two extremities and the crossroad of the "8" were marked with tape on the floor; the test is usually used with 7-9 ys old children (Sigmundsson et al., 2016). Time (seconds) required for executing the task was measured with a chronometer; at the end of the task, perception of competence and level of enjoyment were investigated in each child by interview and selection of emoticons. Four-5 years old children of a same school were divided in two groups (25 children per group). Children of group A were given verbal instructions, demonstration by the educator and allowed to perform trials till full understanding of the task. The same approach was used for children of group but instructions were provided in the form of dramatization of the task with the child playing a role in a fairy tale. **Results**: Both groups of children understood the task, but group A needed more time and more repetition to learn it as compared to children of group B; in addition group children supported by the novel (Group B) executed the task more accurately and faster than children of group A. **Conclusions**: For 4-5 y old children insertion of the learning task in a fairy tale frame improves understanding, remembering and motivation resulting in more accurate and rapid execution of the task. The data highlight the role of the adult/environment in acquisition of child motor competence. This study also has implication on the interpretation of results on motor proficiency obtained from 4-5 years old children.

203. How to identify barriers and motivators for using the local environment in a deprived neighbourhood through the lens of older people

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Introduction: Ageing in place is highly encouraged for both economic reasons as well as for the overall wellbeing of older people (physical, mental and social wellbeing.) Acknowledging that outdoor spaces of neighbourhoods play a key role, this study aims to explore barriers and motivators for using the local environment experienced from a bottom up approach through the lens of older people in a deprived neighbourhood with low socio-economic status (SES). **Methods:** By conducting go-along interviews added a visual dimension, data were collected while exploring the neighbourhood together with 16 residents aged 59-90. Striving to add knowledge to existing recommendations for ageing in place relevant to both policy-makers and practitioners the methods are focusing on how to bridge the meso- and micro-levels of the local neighbourhood. **Results:** The results provide knowledge on both levels, with the social aspect of wellbeing being the overall motivator for using the local environment. On a meso-level, street life is identified as a motivator for social encounters, whereas barriers are associated with too open green spaces and female dominance discouraging males to socially engage. On a micro-level, physical design elements like dimensions of pavements and street corners, good and bad seating, and too much regulation and focus of aesthetics were identified. **Conclusions:** The findings stress the importance of bridging the gap between meso-level planning strategies and micro- level design elements when designing environments for ageing in place and furthermore suggest to actively engage older people in the process.

204. Hollistic Measurement of Physcial Literacy among adults

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Introduction: There has been a growing interest in the term of physical literacy (PL), when facing the globally increased prevalence of physical inactivity and obesity. PL is commonly described as a person's "motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life" (Whitehead, 2013). Generally speaking, PL is indicated to be positively cor-

related with physical activity (PA). Therefore, fostering PL can be considered as an effective resource in promoting PA. Nevertheless, a holistic assessment tool in order to measure the status quo of PL was only developed for children and is lacking for adults so far. Moreover, no attention has been paid to personal factors affecting PL. Hence, the aim of this paper was to develop a new assessment tool of PL for adults and to analyse associations of PL with individual factors. **Methods:** In keeping with the internationally accepted definition of Whitehead (2013) valid and reliable questionnaires and questionnaires subscales were combined to a single tool, covering all essential elements of the PL concept. Subsequently, the instrument was pilot tested among 86 physically inactive persons (43.45±13.38 years, 75% women) in order to discover determinates influencing PL. Information on participants' age, body-mass-index (BMI), education level and occupation was collected additionally. **Results:** The new questionnaire consists of 79 items, assessing five interacting domains of PL (Physical behaviour, motivation, belief/attitude, knowledge, self-confidence/self-efficacy). A total PL score of the whole questionnaire was calculated, where each of the five domains was equally weighted. The total score ranged between 0 and 100, higher scores indicating a greater PL. Mean score values was 58.04 ± 11.26 (range between 15 and 75). PL was inversely related to BMI ($r_s(86) = -.27$, $p < .05$) and positively correlated with education level ($r_s(86) = .27$, $p < .05$). **Conclusions**: Findings provide a first approach of personal factors affecting PL. More sophisticated work with larger sample sizes would to necessary to determine environment factors and additional individual factors of PL. Moreover, further research is required to evaluate the validly of our questionnaire.

205. Level of physical activity in general the French population – a five year study

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Introduction: Multiple studies show an insufficient level of physical activity worldwide. Despite the beneficial role of physical activity (PA) and the political efforts to promote it, the general population remains mostly sedentary. In order to support the development of targeted programs to enhance physical activity practice, there is a great need to measure the evolution of physical activity practice and its determinants at a national level. The objective of the study was to measure the level of daily physical activity and its determinants in a representative French population over a 5 years span. **Activities Undertaken:** One study has been executed and repeated every year, from 2012 to 2016, on a representative sample of the French adult population. The main variables of interest are: daily number of steps, level of PA, BMI, screen time, motivators, barriers, pathologies. **Results:** Less than half of the population is physically active on a regular basis. There is no significant improvement over the past 5 years. Rainy weather, screen time, a higher BMI and the presence of a pathology have a negative impact on the number of daily steps. The main barriers to regular practice are lack of time, motivation or high costs. This study is a unique work in France, managing to measure over an extended period of time the physical activity level of the adult population. It brings valuable information on the number of daily steps, motivators and barriers of regular practice, as well as impacts of lifestyle and health status. The novelty of this study is being able to show the impact of rain and the presence of chronic disease on the level of daily steps. This is a useful stepping stone for future work to improve the public's health.

206. The effects of six months working capacity and productivity coaching on metal industry employees

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Introduction: Physical condition and working capacity of the employees are essential factors in productive and healthy organizations. The purpose of this presentation is to examine the effects of six months Working Capacity and Productivity Coaching –period on the packer`s, dispatcher`s, bender`s and welder`s physical activity and physiological factors in metal industry. **Methods:** All together 60 employees (48 male and 12 female, age 40.7 + 12.7 y, BMI 27.8 + 4.3 kg·m^2, grip strength 48.6 + 11.0 kg,VO2max 37 + 10 ml·min-1·kg-1) participated to this study. Half of the men (n=24) and eight women were selected to the intervention group (IG), the other half and four to the control group (CG), respectively. The frequency and duration of the occupational and leisure-time physical activity were collected separately with the questionnaire. The body composition of the subjects was measured by bioelectrical impedance analysis (InBody720) and grip strength with a dynamometer (Jamar). The cardiovascular fitness (maximal oxygen uptake) was predicted with a Polar OwnIndex Fitness Test. All measurements were executed before and after the six months coaching period. The coaching intervention included three times one-hour group consultation and personal feedback from the measurements done at the beginning of the coaching period. Daily physical activity was collected with questionnaire. The results will be presented as mean + SD or SE. Statistical analyses will be performed using the Statistical Package for Social

Sciences (SPSS 23 for Windows). The Student's t-test with repeated measures will be employed to examine the response of intervention inside the group, and non-repeated measures between the groups before and after the intervention. A priori P-value < 0.05 was chosen to indicate statistical significance. **Results:** At the beginning the grip strength was 46.2 + 11.4 (CG) and 49.5 + 10.4 kg (IG), and the VO2max 36 + 10 and 37 + 10 ml·min-1·kg-1, respectively. The final measurements will be done at the end of the Working Capacity and Productivity Coaching (TTV) –period in November 2017. **Conclusions:** The conclusions will be published in the HEPA2017 conference when the final measurements are done and all the results are ready.

207. Psychosocial health is associated with objectively assessed sedentary time and light intensity physical activity among lung cancer survivors

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Introduction: Moderate to vigorous physical activity (MVPA) may be associated with better patient reported outcomes (e.g., quality of life, fatigue) among lung cancer survivors. However, studies have relied on self-reported estimates of activity behaviours, which may have result in recall error and over-reporting. The objective of this study was to determine associations of accelerometer-assessed light intensity physical activity, moderate-to-vigorous intensity physical activity (MVPA), and sedentary time with psychosocial health among lung cancer survivors. **Methods**: Lung cancer survivors were recruited from the Glans-Look Lung Cancer Database at the University of Calgary. Survivors in Southern Alberta (N=127; 24% response rate) completed a mailed survey that assessed measures of depression, anxiety, satisfaction with life (SWL), and posttraumatic growth (PTG). Participants also wore an Actigraph® GT3X+ accelerometer on their hip for seven days. Accelerometer data were processed in 60-second epochs. Quantile regression was used to examine associations of depression, anxiety, SWL, and PTG with light intensity physical activity, MVPA, and sedentary time. **Results**: The mean age of the sample was 71 years (SD=10.3) and 57% were female. The mean number of months since diagnosis was 76.4 (SD=47), and the mean BMI was 24.1 (SD=13.9 kg/m2). Participants reported high sedentary time (Mean=587.2 min/day, SD=95.7) and low MVPA (Mean=14 min/day, SD=17.9). Total light-intensity physical activity was associated with SWL at the 25th (β=0.04, 95% CI: 0.00-0.07) and 50th (β=0.03, 95% CI: 0.0-0.05) percentiles. Total sedentary time was associated with depression at the 50th percentile (β=0.02, 95% CI: 0.0-0.03). Total MVPA was not associated with any of the psychosocial health outcomes. **Conclusions**: Sedentary time was significantly associated with depression symptoms among participants that were in the 50th percentile of depression scores. Accelerometer assessed MVPA was not associated with any psychosocial health outcomes. Research examining associations of daily activities with psychosocial health outcomes should continue to use objective measures of behaviour to establish more precise associations.

208. An update on the feasibility of objective physical behaviour measurements in The Alberta Moving Beyond Breast Cancer (AMBER) Cohort Study

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Introduction: The Alberta Moving Beyond Breast Cancer (AMBER) Study is one of the first large scale, long term, prospective cohort study of breast cancer survival that includes objectively-measured physical activity and sedentary behaviour (including posture). The purpose of this abstract is to report on the feasibility of objective physical behaviour measurement in a large prospective cohort of newly diagnosed breast cancer survivors. **Methods:** AMBER is currently enrolling 1,500 newly diagnosed stage I (≥T1c) to IIIc breast cancer survivors in Alberta, Canada. Baseline assessments of physical activity and sedentary time are completed soon after diagnosis. In addition, one and three-year follow-ups post-diagnosis are completed on the participants and updates to June 2017 are reported here. Physical activity is measured using the ActiGraph GT3X® (Actigraph, LLC, Pensacola, FL) and participants wear the monitor on their right hip during all waking hours for seven

consecutive days. Simultaneously, sitting time is measured by the activPAL® inclinometer (PAL Technologies, Glasgow, Scotland) which provides information about posture (i.e., sitting, lying, standing, and stepping) and transitions between postures. The activPAL is worn on the anterior thigh for seven consecutive days. **Results:** Between July 2012 and June 21 2017, AMBER recruited its first 1,093 participants from a pool of 3,414 (32%) eligible breast cancer survivors. Participants are on average 55.7 years of age, and have a body mass index of 27.5 kg/m2, with stage I (n=44.4%), II (46.7%), or III (n=8.9%) breast cancer. At baseline (N=1,093), collection of ≥4 days/week of monitoring for the ActiGraph GT3X® and activPAL® were obtained from 94.1% and 91.8% of participants, respectively. At one-year follow-up (N=717), ActiGraph GT3X® and activPAL® were obtained from 91.9% and 88.8% of participants, respectively. At the three-year follow-up time-point (N=261), ActiGraph GT3X® and activPAL® were obtained from 88.9% and 86.2% of participants, respectively. **Conclusions:** To date, AMBER has demonstrated that the majority of newly diagnosed breast cancer survivors (~90%) are willing and able to complete multiple objective physical behaviour assessments, among other measurements at different time points throughout the breast cancer trajectory.

209. Public actors of national health enhancing physical activity: comparison between France and Belgium

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Introduction: Despite evidence on the benefits of health enhancing physical activity (HEPA), only few countries have developed "health in all policies" and specifically inter-sectorial HEPA policies. Paucity of studies has questioned the role of public national actors in PA policies enactment and delivery, the barriers and levers for adopting inter-sectoral HEPA. To cover this gap, the present work seeks at comparing France and Belgium in regard to their competencies of ministries promoting HEPA, the presence of a leadership and coordination in HEPA policies implementation, their key public legal entities working on HEPA. **Methods**: Interviews and document analysis were realized with key ministries, experts and agencies to complete the HEPA policy audit tool (version 2; WHO, 2015) in each country. **Results**: HEPA inter-sectoral policies are at their early stage. A broad diversity of sectors was implicated in HEPA policies: sport, health, transport, environment, and education, but often with weak activity. No leadership or coordination exists to implement HEPA policies, although different public legal entities could work on this aim. Ministries relationships are principally based on formal co-interventions mandated by national public health plans in France, where in Belgium relationship are punctual. **Conclusions**: Implications rely on more lobbying within each sector and in agencies to promote HEPA, as well as the development of institutionalized inter-sectoral coordination.

210. A Randomized Controlled Trial Testing a Social Network Intervention to Promote Physical Activity Among Adolescents by using Smartphones

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Introduction: The current study examined the effectiveness of a social network intervention to promote physical activity among adolescents. Social network interventions utilize the effects that peers have on each other to change behavior throughout the social network. These interventions typically identify a small number of individuals within social networks (i.e. influence agents), and train them to promote specific behaviors. The current intervention is characterized by two innovative aspects: the selection and the training of the influence agents. In previous studies, the selected influence agents were those in the network who received the most nominations. For friendship nominations, popular adolescents will receive more nominations from their peers. However, it is argued that popular adolescents often depend on the social norms of the network to remain popular, and therefore may be reluctant to change their behavior. Selecting adolescents who have close ties with all classmates might be more strategic. Second, previous studies used face to face training, which makes the intervention difficult to carry out on a large scale. Therefore, this study contacts and trains de influence agents via smartphones, and keeps contact with the influence agents during the intervention. **Methods**: A total of 190 adolescents (46.32% boys; M age = 12.17, age range: 11-14 years) were randomly allocated to either the intervention or control condition. Participants received a research smartphone to measure sociometrics and covariates, and an accelerometer to measure physical activity (steps per day) at baseline and during the

intervention one month later. In the intervention condition, the influence agents were trained via the smartphone how they could promote physical activity among their classmates. **Results**: A multi-level model tested the effectiveness of the intervention, controlling for clustering of the data within participants and days. No intervention effect was observed (b= .11, t(599.46) = 1.10, p =.27). **Conclusions**: This was the first study to test whether physical activity could be promoted via influential peers by using smartphones. Unfortunately, the intervention could not increase physical activity in adolescents. Next to other discussion points, the consequences of the smartphone based training and the selection criterion for the influence agents are discussed.

211. Health-enhancing physical activity interventions for children and young people with neuro-disabilities: A Systematic Review Protocol

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Introduction: Regular participation in health-enhancing physical-activity (HEPA) by children and young people (CYP) prevents illness and promotes health and well-being. CYP with neuro-disabilities (disability resulting from damage to the nervous-system and its development) have fewer opportunities to participate in HEPA. Enabling their participation is therefore a public health priority. Healthcare professionals e.g. physiotherapists and occupational therapists play a role in promoting HEPA participation, yet barriers exist to this role within daily practice. Additionally, therapy interventions have traditionally focused on reducing motor impairments and modifying the environment to increase HEPA participation, with little established evidence to support causal links. Coproduction and innovation is required from multiple stakeholders to produce effective and sustainable HEPA participation interventions. The objectives of this systematic review are therefore to: Identify HEPA participation interventions for CYP with neuro-disabilities; Identify intervention core components, active ingredients, mechanisms and outcomes. **Methods**: Web-site searches will identify current policy and services in the United Kingdom (UK) for increasing HEPA participation in CYP with neuro-disability (aged 4-18 years). Allied and Complimentary Medicine (AMED), MEDLINE, MEDLINE in Process, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Excerpta Medica database (EMBASE), PEDro and Scopus databases will be searched for papers published from 2001 onward. In addition, study reference lists will be checked and citations tracked for included studies. Analysis/**Results**: Studies that meet evidence levels 1 – 3 (Sackett, 1989) and have HEPA participation interventions incorporating interaction and engagement with peers in the community, will be included. Study quality assessment will be done using the Critical Appraisal Skills Programme (CASP) (2017). Quality assessment and data extraction will be conducted by one reviewer and checked by a second. Discussion/Conclusions: A comprehensive overview of current evidence regarding HEPA participation interventions and outcomes for CYP with neuro-disabilities will be provided. Specific details regarding types of interventions, environments, theoretical concepts and practical mechanisms and outcomes will be analysed and synthesised. **Conclusions** will inform qualitative research, including all stakeholders, aimed at eliciting meaningful solutions to increase HEPA participation for CYP with neuro-disabilities. Sackett D.L. (1989) Rules of evidence and clinical recommendations on the use of antithrombotic agents. Chest 95: 2S–4S.

212. Unveiling BVI, replacing BMI: An innovative and affordable tool to monitor physical activity health outcomes and gather data for world populations

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Introduction: Inequality in monitoring physical activity health outcomes demands a solution that enhances and improves on the most widely used first-stage biomarker: the Body Mass Index (BMI). The physical activity health landscape is constantly evolving, so public health organisations and policy makers need to provide solutions that reflect the expectations of the population. In an era when costly equipment is used to measure body composition and monitor health outcomes, an affordable and widely available solution to measure weight distribution has now been developed. **Activities undertaken:**A 10-year collaborative research programme with Mayo Clinic and the Medical Research Council now provides a valid alternative to BMI for worldwide public health. The Body Volume Indicator (BVI) has been created as a new bio-marker for the measurement of physical health. BVI monitors progress of a person's physical health journey by recording changes in body composition and body fats, just from a mobile app; simultaneously collecting anonymous data for public health purposes. **Results:**To validate the technology, trials were undertaken against the 'gold standards' of body composition measurement: MRI, Bio-impedance, DEXA and BodPod, against which an almost exact match on 'volume' was found, concluding that BVI equals or betters the other, less-affordable scanning methods. The research has justified a shift in focus from body mass to body volume, as part-volume differenti-

ates the location of muscle and fat to provide an improved baseline indicator to monitor outcomes of physical activity.As a baseline measure for physical activity, BMI is inaccurate and costly machines are unsustainable for population data collection, so the wider need to track health outcomes of populations is not being fulfilled. BVI will become more accepted as distribution of muscle and fat is now measured in a cost-effective, easy and accurate way. Population data will be available to policy makers of physical activity and health outcome measurement to provide more comprehensive data than currently available app-enabled systems. **Conclusions:** This disruptive technology provides an accurate baseline marker for public health organisations to monitor health outcomes of physical activity, but also allows the user to measure the success of their own physical and healthcare journey.

213. Interdisciplinary training program for recreational soccer coaches

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Introduction: Physical training is a cornerstone in the prevention and treatment of lifestyle diseases and leads to a reduction of all-cause mortality by 20-40% (Khan et al. 2012). Fitness effects and health benefits of recreational soccer are well documented (Krustrup et al. 2010, 2013) and are similar to other sports disciplines, like running (Oja et al., 2015). Although recreational soccer is offered more and more frequently, educational programs for instructors are rare. Aim of this project was to develop an interdisciplinary training program for recreational soccer coaches to ensure health benefits and reduce injury risks. **Activities undertaken**: The program was developed by an interdisciplinary expert-group of sport scientists, physiotherapists, dieticians, professional soccer coaches and health promotion experts. The educational objective and the learning content of the curriculum resulted from an iterative process of one year duration. **Results**: The ability of the coaches to conduct health-enhancing physical training by typical soccer-training methods without injury risk was defined as the educational objective. Teaching and learning content comprised 27 unites (45 minutes per unit) in theory and 23 units in praxis consisting of exercise physiology and anatomy, sports injuries and prevention, first aid, health-enhancing physical activity, dietetics and nutrition, methodology of training and teaching skill in sports, functional kinetics in soccer, soccer specific training methods, management and marketing, motivation to initiate and continue health-enhancing physical training. **Conclusions**: Training programs for recreational sport coaches should be developed by an interdisciplinary expert-group to ensure health benefits and reduce injury risks. References: Khan et al. (2012). Lancet 380(9836), 59-64 Krustrup et al. (2010). Scand J Med Sci Sports 20 (Suppl 1), 1-13 Krustrup et al. (2013). Med Sci Sports Exerc 45(3), 553-560 Oja et al. (2015). Br J Sports Med 49(7):434-440.

214. Level of Physical Activity and Attitude to Physical Education classes of the Youth from Eastern Region of Poland

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Introduction: Youth spend a considerable part of the day at school therefore the main focus should be on increasing the attractiveness of heath-enhancing physical activities conducted there. The aim of the study was to determine relationship between the level of physical activity (PA) of school youth from Eastern region of Poland in different domains of everyday life and their attitude to Physical Education (P.E.) classes. Material and **Methods**: A random sample of 916 Polish school youth from Eastern region of Poland aged 16-18 was interviewed in spring 2016 with the use of the official Polish long version of the International Physical Activity Questionnaire (IPAQ). Total PA and physical PA in each of the 4 life domains – work/school, transport, domestic and garden, and leisure-time – were estimated. PA was expressed as metabolic equivalent - minutes per week (MET-min./week). The attitude to P.E. classes was examined by questions from the Health Behaviours Questionnaire developed by the Polish Main Sanitary Inspectorate. **Results**: As many as 92.2% of the youth declared the participation in P.E. classes. Although 77.1% admitted that they liked these classes, only 46.3% wanted to increase the number of hours in this subject. Analysing the relationship between the level of PA of adolescents and their attitude to P.E. classes there was found that pupils who liked these lessons were characterised by higher level of total PA (6207.0 MET-min./week) than the ones who did not like it (5021.8 MET-min./week). And the difference was statistically significant. In the work, domestic and garden, but also in leisure-time domain there were also found statistically significant difference in favour of the students who liked P.E. classes. **Conclu-**

sions: The attitude to P.E. classes influence the level of physical PA of young people. It is therefore important, especially for the age group being at the threshold of adulthood to propose a wide variety of involving, age and gender oriented school P.E. classes that could be easily practised outside the school environment to improve the total level of physical activity.

215. The Acute Effects of Pre-Exercise Vibrating Foam Rolling in Addition to Dynamic Stretching on Anaerobic Power and Flexibility

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Introduction: In the recent years, self-myofascial release has become an increasingly popular technique to support traditional methods in strength and conditioning fields and commercial gyms. This current technique has been seen in the form of total-body foam rolling. The targeted musculature is rolled and compressed with the foam rolling device in which individuals use their own body mass on the device to exert pressure on the affected soft tissues known as fascia by varying body position. Self-myofascial release with foam is commonly used both before and after a workout. There are a lot of study focused on the effects of classical or deep tissue foam roller on anaerobic power in the literature. However, there are limited studies demonstrating the efficacy of pre-exercise self-myofascial release with vibrating foam roller on anaerobic power. The aim of the current study was to determine the acute effects of pre-exercise vibrating foam roller intervention in addition to dynamic stretching on anaerobic power. **Methods**: Fourteen healthy collegian male students (age: 21.42±1.62, height: 177.82±8.33cm, weight: 73.79±11.42kg) were volunteered to participate in the current study. The participants performed a dynamic stretching or the vibrating foam rolling intervention in addition to dynamic stretching and then performed 10 and 30 m. sprint, agility, vertical jump and flexibility tests with two days interval. The Wilcoxon test was used to compare two protocols. Intraclass correlation coefficient test was used to determine correlation between two measurements. **Results**: Flexibility was statistically significant greater when tested after vibrating foam rolling (26.40±4.38cm vs. 23.00 ±3.91 cm, $p<0.05$) while no differences found between two protocols for anaerobic power. **Conclusions**: An acute bout of pre-exercises vibrating foam roller intervention was an effective treatment to acutely increase flexibility without a concomitant deficit in muscle performance.

216. Video-based Marker-less Motion Analysis for Physical Activity Study: Using Directionally-grouped Cubic Higher-order Local Auto-correlation

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Introduction: In measurement of physical activity, the utilization of big data-suited technologies including flexible and intelligent vison systems has attracted increasing attention in recent years. The author et. al. (2010) have proposed a motion index for evaluating inefficiency and exertion of given motions through a video-based marker-less approach, and demonstrated an example of applications in sport performance analysis. This paper presents a model-free and marker-less video-based method suited for time-motion analysis of human motion, and demonstrates applicability of the present method into physical activity research. **Activities undertaken**: In this report, we start with describing the motion feature extraction method called directionally-grouped cubic higher-order local auto-correlation (DgCHLAC), which has been proposed by the author et. al. (2011). The DgCHLAC enables extraction of pixel-wise motion features and estimation of globally dominant orientations and speeds of moving objects over a certain region such as the whole input images. The DgCHLAC requires neither prior knowledge about objects nor time-consuming computational cost. In addition, it is found that the initial DgCHLAC motion features are robustly obtained as low-level spatio-temporal features frame by frame from input image sequences and can be incorporated in flexible vision systems for more refined and higher-level motion analysis. Secondly, we review application examples of CHLAC-approach into computer vision tasks related with sport performance assessment, such as detection and segmentation, scene synchronization of motions of interest and then demonstrate its applicability to sport performance analysis. Finally, we present examples of CHLAC-approach applications in physical activity assessment. The performance indicators including the amount of repetitive motions, and the lapse time from the start to the peak speed, the duration of a series of motion are used and then quantitatively evaluated. **Results**: Several DgCHLAC applications in physical activity analysis are shown, together with experimental results. Physical activities include sedentary partial-body behavior and full-body motions. From experimental results, potential abilities of CHLAC approaches have been shown. **Conclusions**: The effective performance of mainly-presented DgCHLAC motion features has been indicated for actual applications such as quantitative and qualitative motion assessment. It is notable that the proposed approach could suit for big data analysis on physical activity.

217. The role of social media marketing in promoting physical activity and health in students population

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Introduction: Social media changed the way we interact with each other. Using it for business purposes and being present on as many sites as possible has become a basic requirement. A shift from conventional to social media is evident, forcing companies to adapt. Students, as a targeted audience, spend a good share of their time online, making social media physical activity (PA) interventions a legitimate choice when it comes to addressing physical inactivity. **Activities Undertaken**: This paper discuses Instagram as a potential marketing platform to promote PA in the student population showcasing how to reach the right audience with the right content on the example of eleven sport-related companies who mastered the implementation of social media initiatives. **Results and Conclusions**: Social media represents opportunity that surpasses traditional middle-man and gives companies a chance to connect directly with consumers. In addition to other benefits they represent a low-cost tool, as most of the social networking sites are free. Provided is analysis of sport-related companies on Instagram who mastered the implementation of social media initiatives, showcasing how same principles can be implemented to promote PA in student population. However, due to current lack of empirical evidence on Instagram efficiency further research is suggested to determine if social media marketing can become a primary marketing strategy to address physical inactivity among young adults.

SYMPOSIA

SYMPOSIUM 1

Implementation of Physical Activity Guidelines – national, European and global perspectives

Organizers:
Alfred Rütten, Peter C. Gelius
Friedrich-Alexander University Erlangen-Nuremberg, Institute of Sport Science and Sport, Germany

Chairs: Adrian Bauman, Peter C. Gelius
Discussant: Fiona Bull

Description:
In recent years, there have been substantial international and national efforts to a) monitor population physical activity levels and b) to develop recommendations, guidelines, action plans and strategies for physical activity and physical activity promotion. International examples include the WHO Global Physical Activity Action Plan (in preparation), the WHO European Physical Activity Strategy (2015), and the adoption and implementation of the EU Physical Activity Guidelines (since 2008). At the national level, an increasing number of countries are developing their own guidelines for physical activity and physical activity promotion (e.g. Germany, 2016). However, substantial challenges remain. These include the systematic and purposive implementation of guidelines through activating stakeholders, rather than by passive dissemination measures alone, as well as implementation in specific settings (such as primary care) and in specific regional or national contexts. This symposium will provide an overview of current key developments and challenges regarding national and international efforts in both physical activity surveillance and guideline development/implementation. Bringing together representatives of WHO Headquarters, the WHO Regional Office for Europe, and three WHO Collaborating Centres (two from Europe and one from Australia), it will provide a broad range of perspectives and introduce both setting-specific, national, European and global case examples.

Abstract 1

Implementation of health counseling approaches in primary care: Some guidance on how to join forces, gained in Switzerland

Eva Martin-Diener

Introduction Switzerland has developed a national NCD-Strategy, one of its priorities is prevention in the health care setting. A number of scalable counseling interventions are currently at different stages of national implementation: "Free from Tobacco" (smoking cessation), PAPRICA (Physical Activity promotion in PRimary CAre), "Health Coaching" (addressing different health behaviours), "everything under control" (alcohol consumption). However, there was no comprehensive overview of the different approaches and activities. Methods/Activities undertaken The Swiss Federal Office of Public Health mandated an overview of the current approaches. Our strategy was then 1) to write not another report, but an article to be published in a Swiss medical journal describing the shared concepts of the programmes, their specific characteristics and the status of their national implementation, 2) to invite all involved project leaders as co-authors and ask them to draft the description of their programme according to a given structure 3) to further invite as co-authors representatives of the prevention section of the Swiss Medical Association and key researchers from other medical faculties. Results Two related articles were published in the Swiss Medical Forum both in French and in German in November 2016 (manuscript in English ready for submission). The writing process and the written documents have so far been useful for coherent and joint communication with the medical community and for lobbying among policy makers and the public administration in the context of the NCD strategy implementation. Conclusions The procedure of aligning the partners and details of the article contents will be presented.

Abstract 2

Development and dissemination of the German National Recommendations for Physical Activity and Physical Activity Promotion

Alfred Rütten

Introduction Until recently, Germany was one of the few EU nations that did not have officially spelled-out physical activity recommendations. Methods/Activities undertaken Initiated by the Federal Ministry of Health, in the years 2015/16 a group of researchers collaborated to develop such recommendations. The recommendations are structured across the different target groups of children & adolescents, adults, people with pre-conditions, older people, and the general population. For each of these target groups, recommendations for physical activity and physical activity promotion are provided. The recommendations were drafted by conducting large-scale reviews of reviews of the available scientific literature. The recommendations are disseminated to stakeholders in Germany by employing a participatory approach. Stakeholders meet in workshops to jointly develop materials (e.g. website, brochures) and dissemination strategies. Through this process, stakeholder and their respective organizations are activated to deal with the topic of physical activity and, at the same time, are taking the first steps towards the implementation of the recommendations. Results The recommendations were published in both German and English language in 2016. In January 2017, a first workshop to involve stakeholders and organizations in their dissemination was attended by 100 persons. Stakeholders decided on materials they would need to disseminate and implement the recommendations. Through this collaboration, discussions on the broader issue on how to strengthen physical activity promotion in Germany have emerged. Conclusions Lessons learned of developing and disseminating the recommendations will be presented and might inform similar processes in other European Nations.

Abstract 3

Physical activity guidelines and surveillance in the WHO European Region

João Breda

Introduction In 2015, the WHO European Region was the first region to adopt a stand-alone Physical Activity Strategy. This presentation introduces the development process and contents of the strategy and reports on efforts by the WHO Regional Office for Europe to support implementation in Member States through the collection of relevant data. Activities undertaken The Strategy was developed employing a participatory process that involved expert advice, stakeholder involvement, and extensive Member States consultations. It addresses 14 action areas across the entire life-course and suggests a broad range of specific actions and policies to Member States. As part of its activities to support implementation, WHO cooperated with the European Commission to collect data on surveillance, recent developments, physical activity guidelines and policies in EU countries. Results indicate that 19 out of 27 responding Member States have established their own national physical activity recommendations. 22 have implemented dedicated sport for all policies, and 22 have implemented HEPA policies in the health and environment sector. There is considerable diversity in the instruments used to measure physical activity prevalence, and thus in the data generated. Conclusions The Physical Activity Strategy for the WHO European Region serves a good basis for supporting Member States in promoting physical activity. The surveillance and monitoring data collected by WHO provide a good overview of the HEPA-related policies and indicators at national level. They allow for a comparison between EU Member States and could also be used as a basis for Member States to share their experiences.

Abstract 4

Physical activity guidelines and surveillance: Beyond the European experience

Adrian Bauman

This presentation summarises physical activity experiences and work of a WHO Collaborating Centre (CC) beyond Europe. Our WHO has done work in Africa, the Americas and the Asia Pacific region. Some of these pieces of work are discussed in this symposium as case studies in PA guidelines and surveillance. Methods and results: Case study 1 – generalizing the excellent 2015/2016 European PA strategic plan to develop strategic plans in other regions is challenging. Regions beyond Europe may have even greater geographic diversity, cultural variation and differences in the degree of Government engagement. Examples from the Western Pacific region are described. Case Study 2: building PA guidelines in diverse cultural environments is also challenging. An

example of the PA guidelines development process in Brunei Darussalam illustrates this process Case study 3: PA surveillance in low-middle income countries is widely carried out using the STEPS surveillance protocol in many countries across the Asia-Pacific region. Examples of the variation in population estimates of "meeting PA guidelines" are shown, and vary more over time than in European serial PA surveys. Therefore, in one Pacific country, we tested objective measurement of physical activity incorporated into a STEPS surveillance protocol in 2017; the mechanisms and findings can inform PA surveillance in low-middle income countries. Conclusions: These case studies indicate the challenges in global efforts around physical activity guidelines and surveillance, suggesting that some of these challenges are easier to address in the European context, and that Europe provides global demonstration projects and leadership in this area.

SYMPOSIUM 2

National physical activity policies: progress, pitfalls and lessons learned

Organizer: Sonja Kahlmeier

University of Zurich, Epidemiology, Biostatistics and Prevention Institute, Physical Activity and Health Unit, Switzerland

Chair: Brian Martin

Discussant: Alfred Rütten

Description:

Over the last decade, there has been remarkable progress on the international level, providing now a supportive policy framework for physical activity promotion, in particular in the WHO European Region. This includes a global voluntary target of reducing physical inactivity by 10% by 2025 adopted in 2012 through the WHO's Global Action Plan for the Prevention and Control of NCDs 2013-2020 and the launch of the first ever Physical Activity Strategy for the WHO European Region in 2016 as well as an EU monitoring framework. While overall this has been mirrored by an increasing number of national policies addressing physical activity promotion, in many countries these policies have not been fully operational and successful, truly intersectoral approaches are still rare. At the same time, in many countries levels of physical inactivity are not decreasing. This symposium will present an overview of key developments and 3 examples of recent national policy developments from England, Ireland and Portugal. This will be followed by an engaging discussion on progress, pitfalls and lessons learned and will lead to identify where further investments and progress is most needed.

Abstract 1

Developments on international frameworks and national policies to promote health-enhancing physical activity

Sonja Kahlmeier

Introduction: International and national policies are an important element to progress physical activity promotion. Methods: Policy-overview based on existing analyses and desk research and the WHO Nutrition, Obesity and Physical Activity Database (NOPA) Results: Since the early-2000, Europe has witnessed a sustained increase in the development of national PA policy documents, from 3 in 2000 to 27 in 2005 and 117 in 2014. This was the result of the increasing recognition of the importance of PA for health and early international policy frameworks. Stemming from the framework of the nutrition agenda, in 2013 European WHO Member States adopted a Ministerial Declaration, finally calling for the development of a separate physical activity strategy launched in 2016. In parallel, in 2013 the European Commission (EC) published their first ever Council Recommendation on promoting health-enhancing physical activity across sectors. The first round of EC monitoring showed that the majority of EU countries has launched policies on sport, health, education or environment. A challenge remains in ensuring consistent and synergistic implementation within the wider NCD agenda. The Action Plan on NCD prevention 2017-2026 represents an important opportunity to promote these links and synergies. Most recently, the development of a Global Action Plan on Physical Activity has started. Conclusions: While major progress has been made in the policy agenda around physical activity, securing a dedicated workforce as

well as sustained resources and investments over time represent the next challenge to ensure implementation and changes on the population level.

Abstract 2

A brief history of the successes and challenges in physical activity policy in England

Karen Milton

Introduction: There is increasing recognition of the role of policy in addressing population levels of physical inactivity. The focus of the current research was to map the development of physical activity policy in England and to explore the underlying causal mechanisms which have facilitated or hindered progress. Methods: A mapping exercise was undertaken to explore how the physical activity and health policy agenda has evolved over the past 25 years. This mainly involved qualitative content analysis of administrative papers including policy documents, research reports and official statistics, as well as other written records of events including political speeches and official announcements. Results: Physical activity first appeared on the political agenda in England in 1991, following the completion of the first national survey on physical activity prevalence. However it was taken over 25 years to establish firm commitment and political momentum around the physical activity and health agenda. This is predominantly due to a lack of recognition of the importance of the issue and limited collaboration between sectors. However, this situation is changing and we are currently facing a window of opportunity to substantially drive this agenda. Conclusions: Whilst progress in physical activity policy in England has been relatively slow, recent developments and the upcoming WHO action plan on physical activity present an important opportunity to consolidate the government's commitment to this agenda and to mobilise sustained resources.

Abstract 3

Get Ireland Active! The story of the development and implementation of the National Physical Activity Plan for Ireland

Catherine Woods, Ronan Toomey

Introduction: Healthy Ireland (HI), A Framework for Improved Health and Wellbeing 2013-2025 is a national framework for whole of Government and whole of society action to improve the health and wellbeing of people living in Ireland. In 2016, HI published a national physical activity plan (NPAP). This paper will present the NPAP for Ireland, its mission, aims, action areas and its initial implementation achievements. Activities undertaken: Informed by the Toronto Charter and the World Health Organisation NPAP's guiding principles are to increase opportunities, remove barriers, enhance cross-sectoral cooperation, enable supportive environments and promote good practice. Representatives from health, transport, tourism, sport, education, local authority/environment and academia, in line with 2013 EU Council Recommendation on promoting health-enhancing physical activity and the EU physical activity strategy employ a cross-sectoral approach. Results: The plan's goal is to increase the proportion of the population across each life stage undertaking regular physical activity by 1% per annum across the lifetime of HI; and equally to decrease inactivity across each cohort. Baseline figures are cited and to achieve its goal, eight action areas with sixty actions each with clearly identified lead responsibility, partners and timeframe. Over 5 million euro was committed to the plan for 2016, a cross-sectoral working group is monitoring the implementation of the plan and meets quarterly. Conclusion: This plan galvanises a cross-sectoral approach, and through its encouragement of partnership multiple concurrent strategies have the potential to be implemented collaboratively in order to achieve real change and Get Ireland More Active!

Abstract 4

The Portuguese National Physical Activity Promotion Program: Lessons from Year 1

Pedro Teixeira

Introduction: In 2016, the Portuguese Health Ministry launched the National Physical Activity Promotion Program (PNPAF). It followed the publication, in 2016, of the Portuguese Strategy for Physical Activity Promotion. This paper will present the PNPAF's mission, goals and priorities, and describe its key activities so far. Activities undertaken: Initially, effort was placed on establishing a work team and a modus operandi along with undertaking a numerous contacts across sectors and target groups. This aimed at getting to know the reality "on the ground" and introducing PNPAF to society and key stakeholders. Two major events were organized, one on the occasion of world physical activity day and another on the Exercise is Medicine initiative, both with broad coverage. A major mass media campaign to be launched in April 2018 is being produced and several MOU have been signed / are underway. Other activities will be presented. Key Results: An increase in public/policy makers' awareness of physical activity as a key societal topic was accomplished. Also, the introduction of physical activity questions in the national primary care ICT system was completed, followed by a digital tool to facilitate PA brief advice and referral. Finally, an intersectorial/interministerial commission to promote activity was created, tasked with producing a national physical activity plan before the end of 2017. Conclusion: The PNPAF and the health sector's increased involvement in physical activity promotion resulted in a renewed impetus of this agenda nationally. We will reflect on barriers and opportunities which emerged from PNPAF's year 1 experience.

SYMPOSIUM 3

Recent viewpoints about physical activity in clinical cardiology

Organizer: Zdravko Babić

University Hospital Center Sestre Milosrdnice, Clinic for Cardiovascular Diseases, Croatia

Chairs: Zdravko Babić, Hrvoje Pintarić

Description:

Promotion of healthy lifestyle behaviours lead to cardiovascular (CV) risk factor control and reduction of total CV risk. 31.1% of adults are physically inactive on the global level with increasing trend of that percentage. However adults' leisure-time physical activity, including sports participation, has increased in the past 20–30 years in several high-income countries. Same conflicting data could be found in literature about time trend in physical activity level of patients with acute myocardial infarction. The lecturer will discuss last topic and present results of his investigation. Left bundle branch block pattern arrhythmias in athletes could be consequence of athlete's heart but sometimes of life threatening arrhythmogenic right ventricular cardiomyopathy. Athletes with symptoms or ≥ 2 premature ventricular complexes (PVCs) on 12-lead ECG require further evaluation. Frequent PVCs in athletes without heart disease have a long-term benign prognostic significance, while potentially dangerous in athletes are positive family history, complex arrhythmias, other ECG and structural abnormalities. Cardiac rehabilitation is an important component of the current multidisciplinary approach to CV patients, although the figures on its use may not even support the above mentioned. There are different positive physiological and psychological effects of physical exercise on CV health. Using personalized approach to exercise changing the lifestyle will be achieved as a facilitator of self-sustainability of healthy behaviour. Only a small part of sudden cardiovascular deaths in athletes are due to aortic events, but some of this entities requires diagnosis, discussion of eligibility to sports participation and monitoring. Different aspects of of supervised exercise training in patients with symptomatic peripheral artery disease will also be addressed. Patients in routine clinical practice should be approached individually and multidisciplinary in order to detect and eliminate factors that interfere with normal sexual activities (SA) and disturb the quality of life, but further researches and guidelines about SA in certain CV diseases are needed.

Abstract 1

Trends in physical activity level in patients with Acute Coronary Syndrome

Zdravko Babić

Worldwide, 31.1% of adults are physically inactive (17·0% in southeast Asia to about 43% in the Americas and the eastern Mediterranean). Inactivity, increased in almost all developed and developing countries, rises with age, is higher in women than in men, and especially among children. However, with a simultaneous reduction in occupational physical activity and use of active transportation, adults' leisure-time physical activity, including sports participation, has increased in the past 20–30 years in several high-income countries. In Danish investigation (Slol A et all., 2003) of secular trends in patients with acute myocardial infarction (AMI) conducted between 1964 and 1991 increasing of mean physical activity at leisure and declining of physical activity on work with decrease over time in the AMI incidence rate in physically active during leisure time have been found. On the other hand, EUROASPIRE surveys investigators found no significant changes in physical activity level in the last ten years in patients with coronary artery disease. Babić and colleagues investigating the influence of physical activity level on severity and prognosis of acute coronary syndromes in 196 patients between years 2002 and 2005 proved that this syndrome was less severe and had better prognosis in patients with higher level of physical activity, especially those in leisure time. In latest part of this study autors estimated physical activity level of patients with same diagnosis in 2017 and compared this results with those from years 2002 – 2005.

Abstract 2

Athlete with LBBB Pattern Arrhythmias; Athlete's Heart or ARVC

Šime Manola

Arrhythmogenic right ventricular cardiomyopathy (ARVC) ECG represent abnormality in up to 80% with anterior T-wave inversion epsilon wave and LBBB pattern ventricular ectopy. Diagnosis of ARVC is based on: global or regional structural alterations, repolarisation abnormalities, conduction abnormalities, arrhythmias, family history and finally tissue characterisation. Ventricular ectopy in athletes show conflicting data on whether incidence is increased in athletes. Premature ventricular complexes (PVCs) in 70% endurance athletes vs. 55% non-athletes with complex ectopy in 25% athletes vs. 5% non-athletes have been found, while Prakash et al. (2014) shows similar percent of PVCs in athletes and non-athletes. Right ventricle (RV) is placed under greatest stress during exercise suffering the greatest injury/fatigue following prolonged exercise. Chronic endurance training is associated with greater RV remodelling, moreover chronic RV remodeling is associated with arrhythmias in some athletes. Risk of arrhythmia-induced cardiomyopathy with frequent PVCs is increased by male gender, high BMI, asymptomatic PVCs with longer duration and higher burden and QRS duration of PVC > 150ms. Treatment is recommended in symptomatic individuals, affected cardiac function, PVCs triggering malignant, avoiding triggers (caffeine/stimulants), drugs, ablation. in conclusion, athletes with symptoms or ≥ 2 PVCs on 12-lead ECG require further evaluation. Evidences show that high endurance sports can be associated with RV adverse remodeling and associated arrhythmias. Frequent PVCs in athletes without heart disease have a long-term benign prognostic significance. Red flags in athletes are positive family history, complex arrhythmias, other ECG abnormalities and structural abnormalities.

Abstract 3

Cardiac rehabilitation: myths and facts

Viktor Peršić

Although Hellerstein introduced the universally accepted model of comprehensive cardiac rehabilitation in the 1950s, Max Oertel's empiricism at the end of the 19th century was already at least, as far as physical training is concerned, in full compliance with today's scientifically explicable concepts of the positive effects of physical activity on the cardiovascular health. Cardiac rehabilitation is an important component of the current multidisciplinary approach to cardiovascular patients, although the figures on its use may not even support the above mentioned. Endothelial dysfunction has been identified as a predictor of cardiovascular events, so it seems that just the effect on endothelial dysfunction correction has been achieved by regular physical activity which is the most probable exercise effect mechanism for reducing the mortality of patients with coronary heart disease. It is its greatest benefit to the patient, together with the positive physiological and psychological aspects

of the effects of physical exercise on cardiovascular health. We advocate a personalized approach to exercise, taking into account all the characteristics of the disease, the risk profile of the patient and the patient's personal preferences with the aim of changing the lifestyle as a facilitator of self-sustainability of healthy behaviour.
Keywords: cardiac rehabilitation, physical training, personalized approach

Abstract 4

Diseases of the Aorta, Peripheral Artery Disease and physical activity

Mislav Vrsalović

Only a small part of sudden cardiovascular deaths in athletes are due to aortic events. Of note, aortic dimensions in athletes are comparable or only slightly larger compared to sedentary subjects. Aortopathy in patients with bicuspid aortic valve and aortopathy associated with genetic syndromes such as Marfan, Loeys-Dietz, and Ehlers-Danlos will be discussed in the lecture together with diagnosis, eligibility to sports participation and monitoring. In the second part, the benefits of supervised exercise training in patients with symptomatic peripheral artery disease (intermittent claudication) to improve functional performance will be addressed, together with pathophysiological mechanisms, evidence-based medicine and its applicability in routine daily clinical practice**.**

Abstract 5

Sexual activity in patients with cardiac diseases

Hrvoje Pintarić

Sexual activity (SA) in cardiovascular (CV) patients could be loaded with psychological disorders, decreased sexual function and fear of patients or partners. SA is equivalent to mild or moderate physical activity during a short period of time in the range of 3 to 4 metabolic equivalents (METs) (i.e. the equivalent of climbing 2 flights of stairs or walking briskly). For the most patients is mandatory to involve in SA after prior comprehensive evaluation of physical condition. SA is acceptable in patients who can achieve ≥3-5 METs without angina, excessive dyspnea, ischemic ST-segment changes, cyanosis, hypotension or arrhythmias in exercise stress testing. In patients with unstable or severe cardiac symptoms SA should be postponed until their condition is stabilized or optimally controlled. Cardiovascular drugs are rarely the real cause of erectile disfunction (ED), and those which can facilitate symptoms and improve survival should not be discontinued because of concerns about potential impact on sexual function. Further researches and guidelines about SA in certain CV diseases are needed, especially in women and older persons.

SYMPOSIUM 4

How to create an Urban Active Environment: Lessons learnt and case study examples from the SPAcE (Supporting Policy and Action for Active Environments) EU project

Organizer: Diane M. Crone
University of Gloucestershire, Francis Close Hall Campus

Chair: Diane M. Crone

Description:
Physical activity is an essential component of public health. Healthy urban environments help to create conditions in which people can be physically active in daily life. The 3-year Erasmus+ SPAcE project (Supporting Policy and action for Active Environments) brings together local government partners in 5 implementation sites supported by an NGO and academic partners. It aims to develop policies and interventions in the form

of an Urban Active Environment Action Plan to promote physical activity-friendly environments in Latvia (Tukums), Italy (Palermo), Romania (Brasov), Spain (Castilla-La Mancha), and Greece (Trikala). Combining research, practice and lessons learnt this symposium will demonstrate how multi-agency, transnational working can co-produce Action Plans in five EU countries. It includes four presentations that capture both the process and outcomes of the project, including an example Action Plan case study from one of the implementation sites. A summary of the presentations is below: 1. An overview of the SPAcE project, 2. Action Plan development and implementation process, 3. Assessing the economic value of walking and cycling using HEAT in the SPAcE project, 4. An example of a SPAcE Urban Environment Action Plan. The Action Plan case study, from Castilla-La Mancha, Spain, will focus on the actual process undertaken to develop their plan, its specific aims, objectives, and actions, and the planned implementation. It will capture the complexities of co-producing such plans with multi-agencies in the community, and of the specific challenges presented by the physical environment. This symposium details how multi-agency, transnational collaboration can produce real-life Urban Active Environment Action Plans in five countries in the EU, based on published evidence, real-life experience and consultation and collaborative working with other organizations across the EU. It demonstrates shared learning and co-production in the development of action plans to promote and develop urban active environments. As such, the symposium aims to capture both the challenges and solutions to translating evidence into policy and practice, when creating physical activity-friendly environments in local communities across Europe**.**

Abstract 1

Developing sustainable urban 'active environments' in cities and towns across the EU: An overview of the SPAcE EU Project

Diane M. Crone

Introduction SPAcE is a collaborative three year project co-funded by the Sport: Collaborative Partnerships action of the Erasmus+ Programme. The project links together 10 project partners from 8 different EU countries to achieve the objective of developing sustainable urban 'active environments' in cities and towns across the EU. Urban 'active environments' are defined as: "physical or social environments that provide positive encouragement in helping people to be physically active, and to make the active choice." (Cavill, et al., 2016). The overall aim of the SPAcE project is to make the healthy choice the easy choice through creating healthy urban environments in five of the partner countries. Methods (Activities undertaken) and Results This first presentation will briefly outline the project, aims and objectives, method and outcomes. This is followed by the process undertaken to produce the Action plans (Abstract/Presenter 2), the implementation and use of the WHO HEAT Tool in this process (Abstract/Presenter 3), and conclude with an example Action plan from one of the implementation sites (Abstract/Presenters 4). Conclusions Lessons learnt, from the comprehensive mixed method process evaluation of the project will be provided in the conclusion of the symposium. This will help inform other organisations planning to develop action plans for the facilitation of active environments. Lessons include, for example, the construction and operation of the steering group, the challenges of influencing political partners (particularly in the current economic climate), and the process of valuing the likely benefits of increased walking/cycling using HEAT.

Abstract 2

Urban Active Environment Action Plan development and implementation - Assessing the economic value of walking and cycling using HEAT

Nick Cavill

Introduction Integral to the project and the Action Plans was WHO Health Economic Assessment (HEAT) tool. The aim of embedding the HEAT tool was to (i) promote its use across the implementation sites, (ii) train and support staff in its use, and (iii) apply it in the Action Plans. Methods (Activities undertaken) Aims were achieved through (i) initial introductory presentations, (ii) a specific one day workshop for partners to learn about the tool and how it could be used in their individual communities, and (iii) one to one support for each of the five sites throughout the remainder of the project to support its integration into Action Plans. Results For some, the concept of economic appraisal was new, particularly in application to cycling and walking. For many, the HEAT tool was a new concept and method and no partners had used it previously; this presented challenges. However, once overcome, HEAT was incorporated and either used for predictive purposes, or to assess current usage, and to assess the economic impact of predict future usage. Partners reported the process helpful and that the resulting economic assessments were likely to provide some powerful statements to be used in ad-

vocacy for investment in active environments. Conclusions The concept of the economic assessment had not been considered previously by most partners, who were primarily not from the transport sector. Lessons learnt include the need for specific support for the use and implementation of HEAT to make the case for promoting investment in the urban environments.

Abstract 3

Urban Active Environment Action Plan development and implementation in the SPAcE project

Tanja Onatsu

Introduction Fit for Life program (National physical activity promotion program, Finland) led the development of the SPAcE Action Plan's. This presentation presents a review of that process. Methods (Activities undertaken) Five implementation sites developed Urban Active Environment Action Plan's, using six steps including; (i) informed by evidence, (ii) development through consultation and co-production, (iii) use of a template, (iv) review and refine, (v) endorsement and (vi) implementation of the plan and measuring success. The process was developed by Fit for Life, who supported implementation partners through these stages. Each of these steps are examined in detail, and reflected upon for lessons learnt. Results Five unique Action plans have been developed through the six stage process listed above. A summary of the processes undertaken to develop these will be presented. Each plan is diverse demonstrated by their individual vision statements: • Brasov, Romania 'the city where cycling is a way of life'; • Palermo, Italy, the 'home of active and healthy school communities', • Tukums, Latvia, 'In motion in Tukums!' • Trikala, Greece, to 'eliminate all car-use from the extended city centre converting all current roads to pedestrian and introducing cycling lanes.' • Castilla La Mancha, Spain, 'active mobility will become an easy, sustainable and popular alternative in Toledo, for an efficient, safe and healthy daily transportation'. Conclusions The presentation will conclude with recommendations and reflections from undertaking this process to inform other organisations considering the development of Action Plans for the facilitation of active environments in their own communities.

Abstract 4

Development of an Urban Active Environment Action Plan: A case study of Castilla-La Mancha, Spain from the EU SPAcE project

Aurora Sánchez-García, David Sánchez-Mora-Moreno, Susana Aznar-Lain

Introduction Urban environments are central to facilitating the promotion of physical activity for public health. This presentation provides a case study of the development of one of the SPAcE Urban Active Environment Action Plan from Castilla-La Mancha, Spain. Methods (Activities undertaken) Co-production is at the heart of this project, and has been central to developing an Action Plan in Castilla-La Mancha. This has been achieved through the development of a Local Action Group, consisting of key stakeholders and community groups, and in collaboration with Greenways. The process has also involved scientific input, review and support from non-intervention site project partners in the SPAcE project (universities from the UK, Switzerland, Greece) and Fit for Life, Finland, who have provided support, advice on incorporating current evidence, healthy urban planning, peer review and mentoring in the co-production process. Results In Castilla-La Mancha, the creation of an active urban environment is an important consideration for public health due to both high traffic levels and low levels of population physical activity. As such the Action Plan focusses on creating and promoting a transport link from the city of Toledo to neighbouring residential and urban areas for cycling and walking for both transportation and recreation for the whole community. Conclusions. This presentation will outline the process undertaken to produce the Action Plan in Castilla-La Mancha and present the key aims, objectives and actions from it. Reflections on lessons learnt and future plans for implementation will also be presented.

SYMPOSIUM 5

"Keep Youngsters Involved": Insight into an Erasmus+Sport project designed to prevent dropout from youth sport for 12-19 year olds

Organizers: Dorien Dijk[1], Catherine Woods[2]
[1]Knowledge Centre for Sports Netherlands, Netherlands
[2]University of Limerick, Physical Education and Sport Sciences, Ireland

Chair: Anita Vlasveld
Discussant: Paolo Adami

Description:
'Keep Youngsters Involved' is an approved Erasmus+Sport project (collaborative partnership) with a duration of two and a half year from 2017 to mid 2019. The project is designed to prevent youngsters from dropout of sport. Different HEPA partners (especially HEPA working group Youth) are active in this project (KU Leuven, KC-Sport, University of Limerick, Royal Dutch Swimming federation, LIKES, NISR, IPDJ, TAFISA). Physical activity of young people in Europe is decreasing (WHO, 2015). Youngsters from 12-19 drop out from organised sport and are less physically active, with screen-time activities such as watching television and using social media playing as an increasingly prominent role in youngsters' lives. The objectives of the project are: -To share knowledge and experience with European countries on how to keep youngsters in this age group involved in sport and physical activity. What are effective and practice based tools and strategies to keep youngsters connected with and involved in sport and physical activity? Which HEPA, social inclusion and participation projects are effective? -To involve more youngsters at grass-root level in sport and physical activities and keep them connected. By keeping them involved and physically active, they will be able to meet the guidelines of physical activity. The project is relevant for all youngsters with particular focus on adolescents (12-19) with low socio-economic background. This symposium will consist of different abstracts and speakers. We will share the setup of the project and explain the co-creation process. Furthermore, we will elaborate on the different work packages: Workpackage 1: Review and analysis, research information about determinants or correlates of physical activities for youngsters, knowledge of motivation, behaviour changes methods and effective approaches, existing evidence and practice based elements. Workpackage 2: Manual, "Effective ways to keep youngsters connected and involved in sport,"Practise based strategies which influence the factors from WP1." Subsequently, we will present two abstract speakers with research information concerning the topic. We will share what insights we have gained so far and ask feedback from the audience based on their expertise. Furthermore we will ask the audience what they would like to receive from us.

Abstract 1

Set up of the Erasmus+Sport collaborative partnership project: "Keep Youngsters Involved"

Dorien Dijk, Catherine Woods, Jan Seghers

'Keep Youngsters Involved' is a project from research to practice, an important requirement of the Erasmus+. The project is a cooperation between eight partners from six different countries. A variety of universities, sport federations and national sport organisations in between research and practice are involved. Five partners in this consortium will start a cooperation with grass root sport organisations and implement and pilot the working elements, tools and products at local level. The project will be delivered through six work-packages (WP) over five phases. Every WP has an appointed organisation in charge which will prepare the groundwork and lead the work in their respective area. The different WP's are: -Project management -Review and analyses: aims to collect factors and strategies that prevent youngster from dropout in sport based on literature and interventions. -Manual: aims to produce a manual and infographics regarding "Effective ways to keep youngsters connected and involved in sport" structured by practise based strategies. -Toolkit: aims to produce a toolkit with tips, tricks, tools, recommendations, format for workshops, good practices, clips etc. based on the strategies implementability in grassroot sport (to be used by professionals who work with youngsters). -Dissemination of the products and implementation in grass root sport (via partners and HEPA EU- and TAFISA network). -Monitoring and evaluation of the project.

Abstract 2

Factors influencing sports dropout in 12-19 year olds and a proposed model for KYI

Catherine Woods, Joey Murphy, Jan Seghers

Data from a number of European countries suggest that children are willing to get involved in organised sports, but keeping them involved as they progress through adolescence seems to be a great challenge. The purpose of work package 1 (WP1) was to investigate the factors of youth sports dropout (YSD), update our understanding of motivation and behaviour change methods, and collect strategies from grass-root sports organisations for preventing YSD. A rapid review of published literature to identify factors associated with the prevention of YSD was conducted by inputting multiple search syntax (N=4) into various databases (N=4). Subsequently, each partner country was tasked with finding relevant grey literature (i.e. literature produced in print and electronic formats, which is not controlled by commercial publishers) to support and add to the published literature findings. Three review papers containing 56 studies and 10 pieces of grey literature from 5 countries emerged. Fourteen factors associated with preventing YSD were identified. Additionally, a synthesis of the literature resulted in the development of a conceptual framework to guide the work of the KYI project. This section will present the framework that builds on well-established models and seeks to clarify how the factors identified relate to each other and to the development of strategies to prevent YSD. WP1 is currently collecting examples of strategies from grass-root sports organisations in each partner country as exemplars of the KYI framework in practice. These strategies will be mapped onto the KYI framework to help practitioners understand how best to combat YSD.

Abstract 3

Time-use and environmental determinants of dropout in organized youth sport

Ineke Deelen, Dick Ettema, Carlijn Kamphuis

The aim of this study was to investigate how (a change in) time use and characteristics of the physical environment determine dropout in tennis and football among adolescents. Data were collected through online surveys among adolescents aged 13-21 (N = 2.555), including both the dropped outs and those who still continued membership in their football or tennis clubs. Physical environmental determinants (travel distance to the sports club, and neighbourhood density) were measured objectively. Binary logistic regression analyses were carried out for football and tennis separately to examine the associations between time use (time spent on various activities, changes related to the school and adolescents job situation), and environmental factors on the probability of dropping out from sports. Time spent on sports outside the context of the sports club, and time spent on social and/or voluntary activities at the sports club were positively associated with continuing being football and tennis members. Tennis players who changed schools or participated in two sports at the same time had a higher probability of dropping out, whereas tennis players who travelled greater distances were less likely to drop out. In conclusion, time use variables were important predictors of dropout, whereas environmental determinants hardly contributed to a dropout. To keep youngsters involved in organized sports, this study recommends that sports professionals stimulate: 1) flexibility in training and competition, 2) participation in social activities and voluntary work at the sports club, and 3) stimulate intrinsic motivation and involvement, especially among female football players.

Abstract 4

Need-supportive coaching to prevent dropout in youth sport: a case study from Belgium (Flanders)

Jan Seghers, Stijn De Baere, Gert Vandebroek

Based on the Self-Determination Theory (Deci & Ryan, 2000), a key factor that affects children's motivation to engage in physical activity is the need support from significant others. In youth sport, coaches play an important role in youth sport experiences because their behaviors contribute to the motivational climate and to the developmental benefits attained by participating youth. In 2014, the Flemish Government launched the project M-Factor (www.mfactor.be). The aim of M-Factor was to train youth sport coaches to adopt a need-supportive coaching style. The M-Factor program consisted of four workshops in which coaches were learned to support youth athletes' autonomy, competence and relatedness by focusing on both theory and some hand-on practices. The effectiveness of the M-Factor program on coaches' need-supportive behaviour and athletes' motivation

was assessed in a group of 43 youth coaches, randomly assigned to a control (n coaches = 20, n athletes = 198) and intervention group (n coaches = 23, n athletes = 216). Over a period of 3 months, coaches in the intervention condition attended four workshops (every 3 weeks) and were asked to implement the learned need-supportive coaching strategies during their training sessions and matches. Coaches' need-supportive behavior and athletes' motivation were measured through coaches' and athletes' reports. Results showed a positive change in autonomy supportive behaviour of the coaches in the intervention group. Furthermore, athletes in the intervention group reported being more autonomously motivated and engaged during post-test. These results highlight the importance of implementing a need-supportive coaching style in coaches' daily practice.

Abstract 5

Strategies related to factors to prevent youngsters from dropout in sports

Dan Boboc, Paulo Rocha

Bailey's Human Capital Model shows Physical Capital as an important area of development (or "capitals") of a human being. Therefore, it is of highest importance to form and to preserve a real need for physical activity and sport to the young generation. More than this, it is important to keep awaken this need, helping youngsters to remain physically active and involved in any kind of sports they are attracted. During the starting phase of the KYI project, a number of factors have been identified as correlates of sport dropout in youngsters. We found 14 as most important and useful in our quest of keeping youngsters involved in sport. In this next step, we are focusing on the identification, description and analysis of the appropriate strategies, instruments and/or programs to empower sports professional who work with youngsters (12 to 19 y.o.) to use these strategies favoring the physical development of the new generation. The target of this effort will be the elaboration of a general manual of possible solutions, keeping in mind the differences around Europe, as different countries have different systems for schools, sport clubs and associations. Each country can decide later on which part of this end product is the most applicable for them. This abstract is a first step of bringing research of WP1 to practice (WP 2). The next step is creating a toolkit with practical tools and instruments for professionals to keep youngsters involved.

SYMPOSIUM 6

Global surveillance of physical activity policy: experiences from HEPA Europe and the Global Observatory for Physical Activity – GoPA!

Organizers: Michael Pratt[1], Andrea Ramirez Varela[2], Danijel Jurakić[3]

[1]Global Observatory for Physical Activity/ University of California San Diego, Institute for Public Health, United States of America

[2]Global Observatory for Physical Activity/ Federal University of Pelotas/ University of California in San Diego, Postgraduate program in Epidemiology/Institute for Public Health, United States of America

[3]University of Zagreb/Global Observatory for Physical Activity, Faculty of Kinesiology, Croatia

Chairs: Michael Pratt, Sonja Kahlmeier

Discussant: Karen Milton

Description:

The Global Observatory for Physical Activity–GoPA! was developed to contribute to closing the knowledge gaps in global physical activity-PA surveillance, policy and research. In more than two years of operations, GoPA! has obtained, confirmed and published data from 144 (64%) of the world's 217 countries, and presented it as the First Set of GoPA! Country Cards. The cards provide a summary of PA related surveillance, policy and research information up to 2013, and represent the baseline for future GoPA! surveillance efforts. The Country Cards are strong advocacy tools that can be used by the GoPA! community. GoPA! findings indicate that PA surveillance systems, national policies, and research efforts vary substantially by geographic area and by income

group. Specifically, for policy, one hundred six countries have included PA into a national policy, but only ¼ of these are specific to PA, and data gaps are concentrated in low income countries and Sub-Saharan Africa, the region with the highest proportion of countries (85.7%) without a PA plan. The HEPA Policy Audit Tool (PAT), developed through a HEPA Europe working group and first published by the World Health Organization (WHO) in 2011, provides a template for collecting national data on the actions underway to promote PA and provides a benchmarking and monitoring tool for assessing progress towards a comprehensive national approach. To date the PAT has been completed by 27 countries in EURO and EMRO regions. In parallel, the European Commission has launched a monitoring process in collaboration with WHO/Europe, to assess implementation of the EU PA Guidelines. Questions partly overlap with the HEPA-PAT. PA fact sheets for the 28 EU countries were published in 2015. Based on the previous experiences, GoPA! will conduct a global policy assessment pilot using a short instrument adapted from the European Monitoring Framework and HEPA-PAT. Data from 12 countries will be collected prior to the HEPA-2017 conference and results will be presented. The goal of this pilot is to define a practical number of indicators that countries at various stages of development can complete, so that GoPA! can monitor national PA policies more effectively than previously.

Abstract 1

Current status and future steps for physical activity monitoring: GoPA!

Michael Pratt, Andrea Ramirez, Pedro C. Hallal

Background: GoPA! is the first global observatory dedicated to monitoring and reporting on surveillance, policy and research indicators for physical activity. Purpose: Describe GoPA!'s initial products Methods: Physical activity indicators were collected and evaluated for 217 countries and summarized in physical activity profiles called "Country Cards" Results: GoPA! has published data from 144(65%) of the world's 217 countries, representing 85.4% of the world´s population. 83.4% of the countries had national estimates of physical activity; 23.4% had 3 or more national surveys including physical activity questions; 28.1% had a standalone physical activity plan; and, more than 76.0% of the research came from the US and Europe. Africa was the region with the greatest gaps in surveillance, policy and research. Knowledge and use of the Country Cards varied greatly. They were most frequently shown to colleagues (27.3%), students (21.0%) and were most often presented in scientific events (37.8%). Approximately one third of the participants (31.5%) used them to advocate for physical activity surveillance and policy. The main barriers to use were lack of knowledge on how to identify partners, decision makers or stakeholders (16.4%), and uncertainty of what to do with the Country Card (15.1%). Conclusion: An unequal distribution of indicators was found around the world. Country Cards relevance depends on the country specific context. The main users are those working in academia. This information is useful for encouraging countries to take action and increase efforts to develop and implement national policies, surveillance systems, research, and strategies aimed at promoting physical activity.

Abstract 2

Physical activity policy surveillance in Europe: The European Monitoring Framework and HEPA-PAT experiences

Sonja Kahlmeier, Karen Milton, Peter C. Gelius, Alfred Rütten, Fiona Bull

Introduction In 2013, a Recommendation on Health-Enhancing Physical Activity (HEPA) was adopted for the 28 European Union (EU) countries, along with a monitoring framework. The Physical Activity Strategy for the WHO/Europe's 53 countries was launched in 2015. Both provide guidance on actions for promoting physical activity, including national policies across sectors. Activities undertaken In 2015, data was collected for the EU framework across 23 indicators, including some on national policy. The HEPA Policy Audit Tool (PAT) is a science-driven tool to collect national data on actions promoting physical activity. It allows benchmarking and monitoring to assess progress towards a comprehensive national approach. Results In 2016, WHO/Europe published Physical Activity Factsheets for each of the 28 EU countries, based on the EU monitoring framework. A Tender study made recommendations for future improvements of the process. The PAT has been completed by 14 of 53 WHO/Europe countries. A new dissemination tool is developed to communicate headline results. Conclusions Monitoring policy progress is needed to identify successes and challenges. The EU process provided a wide range of data, providing a rich source of information for further analysis and dissemination. For future data collection, including sub-national information was recommended along with methodological updates. While the mandatory EU process allows monitoring of specific indicators, the PAT provides a stock take on the physical activity policy context within a country, and across Europe. The new dissemination tool will facilitate communication of results, supporting advocacy and future policy and practice. Both processes have fostered networking across sectors.

Abstract 3

The Global Observatory for Physical Activity-GoPA! Policy Inventory: Pilot Results

Andrea Ramirez, Michael Pratt, Sonja Kahlmeier, Claire Cooper, Danijel Jurakic, Jorge Mota, Katja Siefken, Ines RAndrea Ramirez, Michael Pratt, Sonja Kahlmeier, Claire Cooper, Danijel Jurakic, Jorge Mota, Katja Siefken, Ines Revuelta, Jaime Leppe, Franklyn Prieto, Thelma Sanchez, Shigeru Inoue, Deborah Salvo, Margarita Claramunt, Gerardo Araya-Vargas, Fernanda Baus, Clemencia Anaya, Inacio Crochemore da Silva, Hiroyuki Kikuchi, Shiho Amagasa, Yukio Oida, Noriko Takeda, Juan Rivera, Catalina Medina, Alejandra Jauregui, Bharathi Viswanathan, Pascal Bovet, Felicia Cañete, Guillermo Sequera, Faisal Barwais, Pedro Hallal. GoPA! Working Group

Objective: To conduct a pilot of a new GoPA! policy indicators. Methods: The instrument was adapted from the European Monitoring Framework and the Health Enhancing Physical Activity (HEPA) policy audit tool and sent to 20 GoPA! Countries with national PA policies in the six WHO regions. Results: Twelve countries responded: Costa Rica, Colombia, Chile, Brazil, Mexico, Paraguay (PAHO); Croatia, Germany, Portugal (EURO); Seychelles (AFRO); Saudi Arabia (EMRO); and Japan (WPRO). Main institutions for HEPA promotion (HEPA-P) were Health/Education ministries (n=12); least cited was Parks and Recreation (n=2). All countries had at least two NGOs engaged in HEPA-P and at least one national plan. Six countries reported having national PA recommendations of which 4 followed the WHO recommendations. 25% of countries reported plans for reducing sedentary behavior and 83% reported national systems measuring PA or sedentary behavior. Eight reported national goals for increasing population PA. Countries reported HEPA plans for increasing PA targeting children/adults (n=11), general population (n=10), seniors (n=9), workforce (n=7), people with disabilities (n=6), women/clinical/sedentary populations (n=5); pregnant women/low socio-economic status/families (n=4), and indigenous peoples/migrant populations (n=3). Five countries reported an active physical activity network. The largest gaps include national plans for reducing sedentary behavior (n=9); and national PA recommendations (n=6). Respondents noted difficulty answering this instrument due to a lack of standardized terms and difficulties finding data. Conclusion: The pilot demonstrated that collecting national physical activity policy data is feasible across a range of countries and that HEPA actions are heterogeneous among countries.

Abstract 4

Croatia, Ireland and Netherlands as members in the Global Observatory for Physical Activity

Danijel Jurakic, Niamh Murphy, Wanda Wendel-Vos

Country contacts will make a short presentation about Croatia, Ireland and Netherlands as members in the Global Observatory for Physical Activity.

SYMPOSIUM 7

Improving Adherence to Physical Activity Interventions Across the Cancer Trajectory: predictors, determinants and type of intervention

Organizer: Anna Campbell

Edinburgh Napier University, Sport, Exercise and Health Sciences, United Kingdom of Great Britain and Northern Ireland

Chair: Anna Campbell

Discussants: Anna Campbell; Julie Midtgaard

Description:

Improved cancer survival rates, along with a growing and aging population, are contributing to increasing cancer prevalence. By 2040 it is estimated that 6.2% of the male population and 8.5% of the female population in the UK will be living with or beyond a cancer diagnosis. Due to a significant and growing evidence base,

recognition of the importance of physical activity for people affected by cancer has improved in recent years. Research into exercise and cancer survivorship is often designed and categorised by the stage of the cancer trajectory at which the exercise intervention is undertaken. Courneya and Friedenreich's PACC Framework proposes four post diagnosis cancer-related time periods (pre-treatment, treatment, survivorship, and end of life). Very little research has been undertaken to compare whether different types of exercise interventions and different outcomes are required at different stages of the cancer journey. The majority of studies to date have concentrated on aerobic interventions during/ post adjuvant treatment in breast cancer survivors. In order to maximize the benefits of exercise, it is important to target subgroups of patients that respond best to a particular intervention. Optimizing benefits of exercise requires a better understanding of important intervention-related characteristics e.g. the timing and mode of intervention delivery and the frequency, intensity, time and type of exercise. This symposium will discuss the efficacy of different exercise interventions e.g. aerobic/ resistance training at different stages e.g. from the prehabilitation/ presurgery phase through to advanced cancer phase. In addition, the aim is to examine the demographic, clinical, personal and social factors that can also moderate the effectiveness of / adherence to these physical activity interventions. Relevance to policy and practice: this symposium is relevant to practice and will contribute to the discussion on how to promote and implement effective exercise interventions and programmes for people living with cancer.

Abstract 1

Effects of resistance training on quality-of-life related health outcomes in breast cancer patients during adjuvant radiotherapy

Karen Steindorf, Martina Schmidt, Cornelia Ulrich, Joachim Wiskemann

Positive effects of exercise have been shown but targeted studies on resistance training or for patients during radiotherapy have been scarce. Methods: We randomly assigned 160 patients with breast cancer stage 0-III undergoing adjuvant radiotherapy to a 12-week progressive resistance training or a 12-week relaxation training. Both trainings were performed group-based at two times per week. Endpoint assessments were via repeated self-report applying EORTC questionnaires for QoL, a 20-item questionnaire for fatigue, and a 10-item questionnaire for sleep characteristics at 6 times from baseline to 12 months post-intervention. Statistical analyses were based on analysis of covariance and ordinal logistic regression models for the individual changes from baseline. Results: Intention-to-treat analyses revealed significant between-group differences favouring the intervention group at the end of intervention for general fatigue (mean between-group difference (MD):-6.79, p=0.04), the subscale physical fatigue (MD:-10.49, p=0.01) but not affective or cognitive fatigue, and for sleep problems (MD:-10.9, p=0.01). With all underlying scales running from 0-100, results were clinically meaningful with medium effect sizes. Further significant between-group differences favouring the intervention group were noted for subscales of quality of life. Conclusions: Our randomized exercise intervention trial confirmed results from earlier but mostly small studies that exercise represents a feasible and effective strategy to maintain or improve important quality-of-life related health outcomes in breast cancer patients during adjuvant radiotherapy.

Abstract 2

Exercise in hematological cancer patients during and after allogeneic stem cell transplantation

Rea Kuehl, Peter Dreger, Martin Bohus, Joachim Wiskemann

Introduction: An allogeneic stem cell transplantation (allo-HCT) is a very demanding treatment for hematological cancer patients. Patients suffer from treatment related side-effects e.g. loss of physical performance, fatigue, pain and anxiety and are at high risk for infections. All these problems reduce the physical activity level and leading to reduced quality of life. Exercise seems to be a promising intervention to improve the rehabilitation process in this patient group. However, exercise adherence data and practical guidelines for exercise prescription are still missing. Methods/Activities undertaken: We conducted two large randomized controlled trials during and after allo-HCT. In the first trial (n=105) we compared a partly supervised training group (endurance and resistance exercise) to a social contact group. The intervention took part during and 6-8 weeks after allo-HCT. In the second trial (n=256, recruitment finished 2017) we expanded the intervention up to one year after allo-HCT. Results: In the first trial we could demonstrate, that our intervention improved fatigue and physical fitness measures. Furthermore, we could show that less fit patients responded better to our exercise program than more fit patients. Data from our second trial indicated, that the adherence was different in dis-

tinct treatment phases. We could identify different determinants for adherence in different treatment periods, e.g. fatigue and endurance performance. Additionally, we discovered, that general exercise prescriptions for endurance exercise may not be applicable in this patient group. Conclusions: Exercise interventions seem feasible and beneficial, but we need to optimize exercise prescriptions to improve adherence and to maximize positive effects.

Abstract 3

Long term physical activity levels among cancer survivors – can participation in a 12 week community-based exercise programme help?

Mairead Cantwell, Niall Moyna, Brona Furlong, Noel McCaffrey, Catherine Woods

Introduction: 'MedEx Move On' is a 12 week community-based exercise rehabilitation programme that provides supervised exercise classes for individuals who have completed treatment for cancer. The aim of this study was to: i) identify cancer survivors' objectively assessed physical activity (PA) levels at baseline, and ii) determine the effect of 'MedEx Move On' on cancer survivors' long term PA levels. Methods: Adults with an established diagnosis of cancer, who had completed their adjunctive therapy, were referred to 'MedEx Move On'. Participants attended two 60 minute supervised exercise classes each week for 12 weeks. Classes consisted of a combination of aerobic and resistance exercise. At baseline and months 3, 6 and 12, participants completed physical fitness tests (incl. 6 minute walk test, timed sit-to-stand test) and questionnaires assessing quality of life (icncl. FACT-G questionnaire). Participants wore an ActivPal accelerometer for 7 days at each time point. Results: Participants' demographic information and the results from a statistical analysis of the accelerometer data will be presented. The analysis will provide an overview of the average time participants' spent engaging in: i) sedentary behaviour, ii) light intensity PA, and iii) moderate-to-vigorous intensity PA at each time point. Conclusion: The majority of cancer survivors are not sufficiently active to achieve health benefits. The results of this study will provide an insight into whether participation in a community-based exercise rehabilitation programme can support cancer survivors to be habitually physically active.

Abstract 4

Intense exercise for survival among men with Metastatic Castrate-Resistant Prostate Cancer (INTERVAL – MCRPC): A Movember Foundation-Funded Multicentre Randomized, Controlled Phase III Study (GAP4)

Fred Saad, Stacey A. Kenfield, June M. Chan, Nicolas H. Hart, Kerry S. Courneya, James Catto, Stephen P. Finn, Rosemary Greenwood, Daniel C Hughes, Lorelei A. Mucci, Stephen R Plymate, Michael N. Pollak, Stephan F.E. Praet, Gillian E. Prue, Emer M. Guinan, Erin L. Van Blarigan, Orla Casey, Mark Buzza, Charles J. Ryan, Robert U. Newton

Background: Self-reported physical activity after prostate cancer diagnosis could lead to a lower risk of mortality. Exercise may affect prostate cancer survival via inflammatory, hormonal, and energy metabolism pathways. Exercise is a promising low-toxicity adjuvant intervention for prostate cancer. This study aims to determine whether 24-months of high intensity aerobic and resistance training with psychosocial support improves overall survival (OS) compared to psychosocial support alone in men with metastatic castrate-resistant prostate cancer (MCRPC). Methods: Randomised controlled trial of men with MCRPC (1:1, stratified on treatment and study site) to either exercise or control. Exercise group consists of high intensity aerobic and resistance exercise, tailored to fitness and disease (metastases sites, treatment morbidity). Initially consists of supervised exercise 3x/week tapering to once per week over 48 weeks with self-managed exercise for additional 48 weeks. Intervention group also receive behavioural and psychosocial support and frequent exercise monitoring and testing. Control group receives psychosocial support only via a monthly newsletter. With an expected median OS of 33.5 months, Hazard Ratio of 0.78, at 80% power and $\alpha = 0.05$ a sample size of 824 is needed, our target is 866 (to allow for attrition). Primary endpoint is overall survival with secondary endpoints of disease progression, skeletal-related events, pain and quality-of-life. Conclusions: First global randomized controlled trial to examine exercise and survival among men with prostate cancer designed to elucidate biological mechanisms by which exercise delays cancer progression. If successful, this study will support exercise as a low-toxicity adjuvant therapy for advanced prostate cancer.

Abstract 5

The role of dyadic coping in prostate cancer survivors' adherence to c ommunity-based football – a focus group study of spouses' experiences

Julie Midtgaard, Mikael Rørth

Introduction: Prostate cancer is often labelled a couple's disease, and spouses are known to play an important role in how well prostate cancer patients manage their illness including the participation of their partner in behavioral lifestyle interventions. The aim of this study was to explore the role of wives in prostate cancer survivors' enrollment in and adherence to community-based football. Methods: Eight audio- and videotaped, semi-structured focus group interviews were conducted with a total of 39 spouses of men with prostate cancer participating in a community-based football program as part of the nationwide FC Prostate Community Trial. Data was managed by means of the software program Nvivo11 and analyzed by means of thematic analysis. Results: Four main themes have emerged during the preliminary analysis: 1) 'Hope of a new beginning' including stories of motivation including hoping that football would mitigate the negative effects of treatment; 2) 'Football first' including stories of mutual commitment; 3) 'Pride' including stories of returned masculinity, and a shift from 'caregiving' to 'admiration'; and 4) 'Soccer Mom' including stories of practical support and sacrifices. Overall, the results confirm that management of prostate cancer and change and adoption of physical activity, warrant cohesion and flexibility within the marital relationship. Conclusions: This study indicates that prostate cancer survivors' participation in community-based sport may facilitate positive dyadic coping, which in turn may support long-term exercise maintenance of men with prostate cancer. Future exercise interventions may benefit from capitalizing on spouses' supportive factor in their husbands' handling of the disease.

SYMPOSIUM 8

Sports Clubs and Coaches Health and Physical Activity Promotion – Sports Club for Health (SCforH) the Comprehensive Approach

Organizer: Sami Kokko

University of Jyväskylä, Faculty of Sport and Health Sciences, Research Center for Health Promotion, Finland

Chair: Sami Kokko

Discussants: Pasi Koski, Jan Seghers

Description:

Sports Club for Health (SCforH) initiative was extended from a program thinking to an approach in the recently ended EU funded SCforH project. The extended view emphasizes, alongside the individual-level factors, club-based factors, like orientation, resources and capacities of a club to invest in physical activity (PA) and health promotion. This symposium will present research findings on 1) club and coaching level activities for health and physical activity promotion, 2) the contribution of sports club participation to fulfilment of the recommended level of physical activity among children and adolescents, and 3) the extent to which sports-based intervention increase PA levels of the participants. These presentations aims to trigger lively discussion on the role and possibilities of sports clubs in health and PA promotion. The symposium participants are also encouraged to contribute to ponder and discuss on the future directions for multidisciplinary research in the given research field.

Abstract 1

Impact of the GAA Healthy Club Project on the Health Orientation of Clubs

Aoife Lane, David Callaghan, Niamh Murphy

Introduction The GAA Healthy Club Project reflects a novel effort by a national governing body to include health as part of the core business of the organisation at grass roots level. Sixteen clubs were recruited to a pilot phase of the project and completed a self-evaluation of their club including a healthy club index, which was adapted from Kokko et al. (2009). Results indicated an improvement in the overall health orientation of participating clubs. The second phase of the project involved a controlled evaluation using the same instrument. Method A convenience sample of fifty-five clubs (14 Phase I, 41 Phase II) taking part in the project, and 27 control clubs submitted completed questionnaires through the clubs health and wellbeing officer. The questionnaire assessed the policy, ideology, pracice, environment and juvenile environment orientation of clubs towards health promotion. Results Scores for the policy domain were among the lowest across all indicators of health promotion in the clubs, particularly in relation to acknowledgement in club constitutions about health and wellbeing. There were above average scores for selecting accredited, suitable coaches but there remained an allegiance to defining success through winning and playing best players when possible. Lower scores were also noted for providing healthy food options and providing health education for members. Conclusion Clubs scored highly in relation to ideology (i.e. philosophy, ethos underpinning the club), and moderately in terms of practice, the environment and their overall score. The policy domain represents the weakest element of health promotion in the clubs**.**

Abstract 2

Sports Clubs Health Promotion orientation in Flanders (Belgium): tracking changes from 2011 to 2015

Jeroen Meganck, Jeroen Scheerder, Jan Seghers

Introduction From a health promotion perspective, sports clubs have a lot of potential as a health promoting setting. However, it is essential to consider the sports club's perspective. This study aims to track the evolution in the health promotion orientation of Flemish youth sports clubs between 2011 and 2015 and to explore the changes in related motives and barriers towards this new responsibility. Methods Data was collected in 2011 (N=153), 2012 (N=217) and 2015 (N=426), with representatives of the board of Flemish youth sports clubs completing an on-line questionnaire which included the Health Promoting Sports Club Index (HPSC-I; Kokko et al, 2009) and the Perceived Motives and Perceived Barriers Index (PMI & PBI; Meganck et al, 2015). Results The overall health promotion orientation (HPSC-I) of Flemish sports clubs improved from 2011 to 2012, then remaining stable in 2015. At the sub-index level, two exceptions were identified: the Environment Index did not change over the four years' period, whereas the Practice Index showed additional improvement from 2012 to 2015. In contrast, the support for the perceived motives (PMI) dropped from 2011 to 2012 but increased again in 2015. The perceived barriers (PBI), on the other hand, increased from 2011 to 2012. Conclusion Between 2011 and 2015, an overall improvement in health promotion orientation of youth sports clubs in Flanders was observed. Nevertheless, continued support from the (local) government and sports federations remains essential to tackle the perceived barriers and to help sport clubs become true health promoting settings.

Abstract 3

Self-reported physical activity and training volume among young Finnish athletes in different types of sports - The Health Promoting Sport Club (HPSC) study

Sami Kokko, Kasper Salin, Lasse Kannas, Jari Villberg, Tommi Vasankari, Olli J. Heinonen, Kai Savonen, Lauri Alanko, Raija Korpelainen, Harri Selänne, Jari Parkkari

Introduction Young athletes training volume, but overall physical activity (PA) too, optimize young athletes' sports performance and athletic development. The purpose of this sub-study of Health Promoting Sports Club study (HPSC) was to investigate self-reported training volume and PA with special reference to current competition level and future goal orientation among young Finnish athletes in different types of sports. Methods Data on sports participation related factors among 671 15-year-old athletes in the ten most popular Finnish sports were collected by a structured questionnaire in 2013. Young athletes self-reported both overall PA during the

last week and weekly sports training volume. Also, the current sport, its competition level and athletes future athletic goals were asked. Results The mean weekly training volume was 11 hours, 41 minutes and the mean PA was 18 hours, 5 min. However, age-appropriate training ratio e.g. training volume versus age (15 years) was exceeded by every third (36.3%) athlete. Endurance sports athletes reported less coach-led training than other athletes (p<0.001-0.07), but more self-directed training than other athletes (p<0.001). There were no differences in PA between different types of sports. Conclusions The weekly training volume of Finnish 15-year-old athletes was less than what is determined as age-appropriate training volume i.e. the same amount of training hours in a week than is the athletes age. Less coach-led training sessions was associated with more overall PA, which is important to notice, when athletes sports training is planned and PA promoted.

Abstract 4

Coaches' and players' perceptions of health promotion activities and coaches' motivational antecedents

Aurelie Van Hoye, Jean-Philippe Heuzé, Jeroen Meganck, Jan Seghers, Philippe Sarrazin

Introduction Despite an extensive literature on coaching efficacy, less is known about their implication in health promotion and their player's perception, as well as the motivational antecedents that could help them to promote health. The present work compare coach's and player's perception of coaches health promotion activities and test a model where coaches basic need satisfaction predict coaches health promotion activities mediated by self-determined motivation to coach. Method A sample of 101 coaches and their 404 players of 18 French soccer clubs completed a questionnaire assessing HP activities' perceptions. Coaches also answered scales on basic need satisfaction, and self-determined motivation. Multivariate analyses were used to compare coaches and players perceptions of HP, where structural equation modeling was used to test the model. Results Similar pattern were found for coaches and players' answers, with only a few differences, especially in the respect for oneself dimension. Moreover, basic need satisfaction predicted respect for oneself and others through self-determined motivation, while self-determined motivation predicted healthy lifestyle, but none were linked to substance use. Conclusion Results underline only few differences between coaches and players perceptions, meaning that the small number of coaches HP activities seems to be perceived by its players. Self-determined coaches were more likely to promote healthy lifestyle and respect for oneself and others. The lack of relationship with substance use could potentially reflect the complexity of drug and alcohol prevention in sport clubs.

Abstract 5

Does sport club participation contribute to physical activity among children and adolescents? A comparison across six European countries

Sami Kokko, Leena Martin, Jari Villberg, Susanna Geidne, Aurelie Van Hoye, Michal Kudlacek, Petr Badura, Aoife Lane, Jeroen Meganck, Jeroen Scheerder, Jan Seghers, Kaisu Mononen, Minna Blomqvist, Pasi Koski

Introduction The majority of children and adolescents in Europe fail to meet the Physical activity (PA) recommendations. However it remains that sports club activity is the most prevalent form of organised leisure activity for youth in many of these countries. While participation in sports club activities is known to enhance the probability of reaching the recommended moderate-to-vigorous PA (MVPA) level, less is known about the contribution of sports club participation to vigorous PA (VPA) and few international comparisons have been carried out. Therefore, the aim is to present if participation in sports club activities contributes to meeting the MVPA and VPA recommendations among children and adolescents across six European countries, namely Belgium (Flanders), Czech Republic, Finland, France, Ireland and Sweden. Methods Analysis were carried out on previous national data sets using descriptive statistics and logistic regression. Results Results indicate that approximately two-thirds (60-69 %) of children and adolescents take part in sports clubs activities. Sports club participants were more likely to meet the MVPA recommendation (OR 2.4-6.4) and the VPA recommendation (OR 2.8-5.0) than non-members in these countries. Conclusions Sports clubs have an important position in PA promotion for younger populations. However there are shortcomings that still need to be tackled, as there still is a significant proportion of sports club participants who do not meet the recommendations for PA. Also more can be done to get girls to participate in sports clubs activities.

Abstract 6

Sporting programs for less active population groups: who benefits?

Linda Ooms, Chantal J. Leemrijse, Dorine Collard, Nicolette Schipper-Van Veldhoven, Cindy Veenhof

Introduction Health-enhancing physical activity (HEPA) strategies and activities are implemented in sports clubs. However, it is not known which less active population groups benefit most with regard to increasing HEPA. This study examined baseline factors associated with increases in HEPA in previously insufficiently active participants of HEPA sporting programs. Methods Data of three Dutch sporting programs, developed for less active adults, were used for this study. These sporting programs were implemented in different sports clubs in the Netherlands. Participants completed an online questionnaire at baseline and six months after baseline (n=458). Of this sample 35% (n=161) was insufficiently active (i.e. not meeting HEPA levels) at baseline. Accordingly, two groups were compared: participants who were insufficiently active at baseline, but meeting HEPA levels after six months (activated, n=86) versus participants who were insufficiently active both at baseline and after six months (non-activated, n=75). Potential associated factors (demographic, social, sport history, physical activity) were included as independent variables in logistic regression analyses. Results Participants in the activated group were more likely to receive support from family members with regard to their sport participation (OR=2.2; 95% CI: 1.1-4.2, p=0.02) and spent more time in moderate-intensity physical activity (OR=1.003; 95% CI: 1.0006-1.006, p=0.02) at baseline compared with participants in the non-activated group. Conclusions HEPA sporting programs can be used to increase HEPA levels of some less active population groups. However, the least active ones are hardly reached. Other strategies are necessary to increase HEPA levels of this group before they engage in organized sports.

SYMPOSIUM 9

Child Obesity: Super Dynamic Food Dudes to the Rescue!

Organizer: Pauline Jean Horne

Bangor University, Wales, School of Psychology, United Kingdom of Great Britain and Northern Ireland

Chair: Pauline Jean Horne

Discussant: Kelly A. Mackintosh

Description:

Eating a diet rich in fruit and vegetables offers protection against many preventable illnesses and may also help reduce childhood obesity. However, the health benefits of regular physical activity and low sedentary behaviour are at least as important for children's health and wellbeing. Unfortunately, few children currently meet the recommended daily targets, whether for fruit and vegetable consumption, or for activity. In this symposium we consider progress on the systematic development and evaluation of Dynamic Dudes, comprising two new, multicomponent behaviour change interventions complementary to the Food Dudes healthy eating interventions. Dynamic Dudes is designed to train and maintain children's performance of the Fundamental Movement Skills (FMS) that underpin a wide range of sports and recreational activities, to increase their Physical Literacy, activity and fitness, and help them discover the intrinsic benefits of being active, both in the short and longer term. In the first presentation we demonstrate that primary school children enjoy and gain significant fitness and activity benefits from learning FMS modelled by the Dynamic Dudes DVD characters (Razz, Rocco, Tom, and Charlie) during daily classroom exercise sessions, and their interaction with multi-access, playground activity stations in free-play breaks and Physical Education lessons. The second presentation describes outcomes of a qualitative evaluation of the controlled study reported in Presentation 1, and identifies the value and scope for increasing yet further the intensity and variety of skills to be performed by children in subsequent trials of the Dynamic Dudes classroom exercise component. In response, the third presentation describes the creation and trial of more intensive and varied classroom exercise DVDs, finding even greater step counts performed by children in class each day, increased fitness, and a protective effect on waist circumference after only 4 weeks of the classroom intervention. The final presentation describes the validation of a new methodology for measuring steps performed by pre-schoolers attending nursery classes at primary school. This accelerometer methodology, together with anthropometric and FV consumption measures evaluated the effects of an innovative multicomponent Early Years Super Dynamic Food Dudes intervention which significantly increased both healthy eating and activity in 3-4 year olds at school.

Abstract 1

Controlled evaluation of the Dynamic Dudes Multi-Component Physical Activity Intervention in UK primary school children

Pauline J. Horne, C. Fergus Lowe, Shona Whitaker, Ellen Dolan, Christie Culleton, Kelly A. Mackintosh, Rebecca Steer, Catherine A. Sharp

Introduction Dynamic Dudes is a whole school, multicomponent behaviour change intervention that harnesses video peer modelling and other social learning principles to train and maintain 5-11 year-old children's fundamental movement skills (FMS), physical literacy, and fitness, to build their intrinsic enjoyment of being active over a wide range of sports and recreational activities. Method The three main intervention components were: a series of daily classroom exercise DVDs increasing in intensity from "Beginner", through "Advanced" to "Pro-Dude" levels; six multi-use, Dynamic Dudes-customised, activity stations permanently installed in playgrounds, for use in free play at break times; a Physical Education (PE) training DVD instructing teachers how to use the playground activity stations as a ready-made circuit during children's PE lessons. The Dynamic Dudes intervention was evaluated in 2 intervention and 2 control UK primary schools using a between-groups repeated-measures design. Over 1000 children took part. Dependent measures were: fitness (20-m shuttle run); BMI; waist circumference; weekday and weekend day steps (accelerometers). Pedometer steps were recorded during the classroom exercise DVDs, and at matched times of day in the control schools. Results Despite no significant differences in dependent variables at baseline, the intervention children's fitness and weekday steps were significantly greater at 9-week and 17-week post-baseline. Significantly more pedometer steps were performed by the intervention children during the 20-min classroom exercise DVDs. There were no effects on BMI, or waist circumference. Conclusion We conclude that the Dynamic Dudes intervention can significantly increase weekday physical activity and fitness in primary school children.

Abstract 2

The effectiveness of the Dynamic Dudes School-Based Physical Activity Intervention: A qualitative evaluation

Kelly A. Mackintosh, Nicole Holland, Pauline J. Horne, Rebecca Steer

Introduction School-based physical activity (PA) interventions have largely concentrated on efficacy through outcome data, failing to account for the identification of influential factors. The optimum implementation strategy for such interventions remains equivocal, with user groups' perceptions rarely incorporated for refinement. Therefore, this study aimed to explore children's and teachers' perceived effectiveness of the Dynamic Dudes PA intervention, as well as influential factors for participation and maintenance. Methods Dynamic Dudes, a multicomponent school-based PA intervention, incorporates in-class DVDs and stationary playground structures/markings. Twelve focus groups were conducted with 59 children (28 boys) aged 10-11 years, with 13 teachers (4 males) participating in two focus groups, from two UK primary schools. Data were analysed deductively using the RE-AIM framework, then inductively to enable emergent themes to be further explored, and presented via pen profiles. Results Dynamic Dudes was perceived by participants to have increased pupils PA levels, specifically within the playground, and numerous health benefits, which were perceived as an influential factor for pupil participation and teacher support. However, concerns regarding the monotony of the DVD component were highlighted, resulting in perceived barriers for participation. Paradoxically, teachers served as both positive and negative role models during the intervention. Conclusions Dynamic Dudes has the potential for delivering innovative, interactive PA interventions to large numbers of people, though participatory approaches that actively involve children and teachers are needed to promote PA in ways that might be better tailored and therefore more sustainable. The results of this study will form an iterative intervention refinement process.

Abstract 3

Creation and trial of New Dynamic Dudes Classroom Exercise DVDs: The effects of increased intensity and variety of modelled target moves

Pauline J. Horne, Catherine A. Sharp

Introduction Presentation 1 showed that Dynamic Dudes classroom exercise DVDs reliably evoke a daily 15-20 minute burst of moderate-to-vigorous physical activity (MVPA) in primary school children making a substantial contribution to the 60 minutes of daily MVPA recommended by the UK Chief Medical Officers, at least 30

minutes of which should be delivered during the school day. However, Presentation 2 identified the need for greater difficulty, and variety of modelled moves in order to sustain the level of challenge as children's fitness levels improved over successive weeks. Method We identified novel, high-intensity moves to incorporate into four new classroom exercise DVDs. Dynamic Dudes look-alikes were recruited from a local secondary school, and practiced the new moves were filmed to create new classroom DVDs subsequently evaluated in two local primary schools. Dependent variables were steps performed during in-class exercise sessions, pre-to-post change in fitness and anthropomorphic measures. Results The intervention children performed significantly more steps than controls, at levels maintained over time at both Key Stage 1 and Key Stage 2, showed significantly less increase in waist circumference, and significantly greater fitness. There was no significant main effect of condition on BMI. Post-evaluation questionnaires confirmed that children and teachers enjoyed taking part, wished to continue use of the Programme, and mentor other schools in the locality. Conclusions The high intensity, increased variety DVDs demonstrate how easily the target of 30 minutes of MVPA can be achieved daily at school, whatever the weather, with rapid impacts on health and wellbeing.

Abstract 4

Evaluation of the Super Dynamic Food Dudes Intervention for 3–4 year old Children at School.

Catherine A. Sharp, Pauline J. Horne, C. Fergus Lowe; Mihela Erjavec, Kelly A. Mackintosh

Introduction Pre-school children already show high levels of overweight and obesity by the time they start preschool with evidence that this tracks into later life. To address this worldwide Public Health issue, early intervention is urgently needed to increase young children's daily fruit and vegetable (FV) consumption and their levels of activity. Method This study first validated the use of Fitbit Zip accelerometers worn in secure pockets in a custom-made rainbow tabard to reliably record pre-schoolers' step counts in a childcare setting. The new methodology was employed to evaluate the Early Years Super Dynamic Food Dudes, a new multicomponent intervention designed to increase FV consumption and activity in 3-4 year-olds at school. In a 7-month controlled trial (N=199 children), two schools were randomly assigned to the intervention and two continued with their standard curriculum. Dependent variables measured in all schools were target FV consumption, total in-school activity, activity during Dynamic Dudes intervention components (classroom exercise and interactive story DVDs), BMI, waist circumference, and blood pressure. Results During the intervention phase, Dynamic Dudes children were consistently more active than control children at comparable times of day. Between-condition change scores found that intervention children increased their step counts at post-intervention significantly more than controls, but there was no difference at 2-month Follow-up. Although FV consumption in the intervention and control conditions was matched at baseline, the intervention children consumed significantly more at post-intervention. Conclusion The combined intervention increased both healthy eating and activity skills in 3–4-year-olds at school.