ISMPB

International Society *for the*
Measurement *of* Physical Behaviour

JUNE 23-24, 2021

8TH INTERNATIONAL CONFERENCE ON AMBULATORY MONITORING OF PHYSICAL ACTIVITY AND MOVEMENT

ICAMPAM

VIRTUAL CONFERENCE
JUNE 23-24, 2021

ISMPB.ORG

ICAMPAM PROGRAM

Los Angeles	New York	London	Paris	Tokyo	Sydney
PDT	EDT	BST	CEST	JST	AEST
1:30	4:30	9:30	10:30	17:30	18:30
2:00	5:00	10:00	11:00	18:00	19:00
2:30	5:30	10:30	11:30	18:30	19:30
3:00	6:00	11:00	12:00	19:00	20:00
3:30	6:30	11:30	12:30	19:30	20:30
4:00	7:00	12:00	13:00	20:00	21:00
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14:00	17:00	22:00	23:00	6:00	7:00
14:30	17:30	22:30	23:30	6:30	7:30
15:00	18:00	23:00	0:00	7:00	8:00
15:30	18:30	23:30	0:30	7:30	8:30
16:00	19:00	0:00	1:00	8:00	9:00

Pre-Conference DAY
Tuesday, June 22

Pre-conference Sessions

An introduction to GENEActiv data analysis in R : behaviour classification, measures & visualisation Activinsights Sponsor Workshop

Clinical research relevant outcomes from free-living Physical Behaviour data
Pal Technologies Sponsor Workshop

Tomorrow's healthcare begins today
ProtoKinetics Gait Analysis Walkways Workshop

The 24-Hour Activity Cycle –
Measure every minute that matters
Movisens Sponsor Workshop

Posters available to view in Whova (on demand)

DAY 1
Wednesday, June 23

Session I (Duration 2 h 30 min)

Welcome

Keynote presentation: **Lynn Rochester and Ronenn Roubenoff.** Newcastle University and Novartis, UK (30 minutes + 15 minutes Q&A)

Live Poster Session #1 (90mins)
gather.town

Session II (Duration 1 h 45 min)

Keynote presentation: **Alex Clarke-Cornwell**. University of Salford, UK (20 minutes + 10 Minutes Q&A)

Break

Keynote presentation: **Jaap van Dien**. Vrije Universiteit, The Netherlands (20 minutes + 10 Minutes Q&A)

Keynote presentation: **Masi Mohammadi** (20 minutes + 10 Minutes Q&A)

Session III (Duration 2 h 15min)

Keynote presentation:**Aiden Doherty.** University of Oxford, UK (20 minutes + 10 Minutes Q&A)

Keynote presentation: **Giorgio Quer.** Scripps University, USA (20 minutes + 10 Minutes Q&A)

Break

Keynote presentation: **Jennifer Schrack.** John Hopkins University, USA (20 minutes + 10 Minutes Q&A)

Keynote presentation: **Jacob J Sosnoff**. University of Kansas Medical Center, USA (20 minutes + 10 Minutes Q&A)

Session IV (Duration 90min)

Live Poster Session #2 (90mins)
gather.town

Posters available to view in Whova (on demand)

DAY 2
Thursday, June 24

Session V (Duration 2h)

"Is it time to wave goodbye to accelerometer thresholds? **S Trost** and **M. Chin A Paw** (45 min)

Break

Keynote presentation: **Joanne McVeigh.** Curtin University, AUS (20 minutes + 10 Minutes Q&A)

Keynote presentation: **Anat Mirelman**. Tel Aviv Souraski Medical Center, Israel (20 minutes + 10 Minutes Q&A)

Session VI (Duration 2h)

Live Poster Session #3 (90 mins)
gather.town

Keynote presentation: **Andreas Holtermann**. National Research Center for the Working Environment, Denmark (20 minutes + 10

Breakout Discussion Groups In Gather.town
Informal chats on specific topics

Session VII (1 h 45 min)

Keynote presentation: **Luigi Ferrucci.** National Institute on Aging, USA (20 minutes + 10 Minutes Q&A)

Break (15 min)

DEI session. **Toyin Ajisafe**, NIH, USA (20 minutes + 10 minutes Q&A)

DEI session.**Inácio Crochemore M da Silva**, Federal University of Pelotas, Brazil (20 minutes + 10 minutes Q&A)

Session VIII (2 h 15 min)

Keynote presentation: **Jennifer Goldsack**. Digital Medicine Society, USA (20 minutes + 10 Minutes Q&A)

Keynote presentation: **Matt Buman**. Arizona State University, USA (20 minutes + 10 Minutes Q&A)

Keynote presentation: **John Omura.** CDC, USA (20 minutes + 10 Minutes Q&A)

Poster Award, GMM, and Closing Ceremonies

Posters available to view in Whova (on demand)

- Clinical Application
- COVID-19 Related
- Smart Homes
- Older adults
- Patient perspective
- Sleep
- DEI
- Big Data/ Cohort Studies
- Workplace
- DEBATE

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WELCOME TO ICAMPAM

WELCOME EVERYONE!

First, we want to take this opportunity to acknowledge the challenging circumstances of the past 18 months due to the covid-19 pandemic. We have all been affected by the pandemic, personally and professionally. We are very pleased to see that the vaccines are making a big difference and we hope that we will be able to return to a face-to-face format next year.

Back in June 2020, we had to make the decision to postpone our in-person conference in Keystone, Colorado to June 2022. As with many of you, all of us had been greatly looking forward to this event, to meet with colleagues and friends, to keep up with current, state-of-the-art research and to enjoy a beautiful Coloradan setting. Rather than skipping the year entirely, the ICAMPAM board decided to get together virtually.

We are excited to present our first Virtual ICAMPAM hosted on the Whova platform. The conference is designed with the intent of providing a forum for researchers and students to discuss the latest developments in physical behavior monitoring using wearable devices. As usual, we anticipate that the conference will serve as a meeting point for young scientists and renowned experts in the field of health sciences, engineering, medical sciences, physiology, psychology, sports sciences and more. This year, however, some of you may be wearing pajama bottoms and relaxing at home, instead of more formal dress-wear.

The organizing committee paid special attention to create a conference program where many young scientists have the opportunity to present their work. A challenge of hosting an international virtual meeting is timing. The web is able to bring us together, but we still are faced with world-wide time zones. If anyone has suggestions for dealing with that in the future, please let us know. We've shifted start times across the two days to try to accommodate different continents. In addition, we hope that the mix of Live and Pre-recorded talks will help to accommodate multiple time-zones. There is plenty of time for interactions during poster sessions and social events, and don't forget that all talks will be available for you to watch for 90 days after the conference.

The virtual format has also allowed us to try out new ideas. We have 20 invited speakers giving live or pre-recorded talks on a wide range of topics, including a major collaborative venture between pharma and academia, a DEI session, and a lively Debate that will keep you glued to your screen (at least that is what we hope for!). All the Q&A sessions will be LIVE: type your questions in the chat at any time and be ready for those 10-15 minutes live session. This will be done using the Whova platform.

Posters are available anytime, as the Pre-recorded talks on the Whova app. Visit as many 'posters' as you can in your own time; but don't forget the Live Posters Session are there to interact virtually with the speakers. We are using "Gather.town", which allows you to stroll through a virtual space to discuss posters with ever-changing groups of colleagues. It not as good as face-to-face, but its pretty good. Give it a try. Lastly, don't overlook the fact that we have saved time for an informal social event around some discussion topics. Bring your own breakfast/lunch/dinner and drinks and join us! This will also take place in Gather.town.

It wouldn't be fair to end this letter without thanking the ICAMPAM Board for their efforts in preparing this conference, and our Scientific Committee for going above and beyond in helping putting together an excellent scientific program and for reviewing abstracts. Their effort will continue during the conference, in fact, the Scientific Committee will be moderating the talks and judging posters for the 6 Posters Awards.

Finally, special thanks to Lauren Moline, our Conference Manager from Podium Conference Specialists. Every year the support from Podium is essential to running a smooth meeting; however, this year, the virtual meeting would not have happened without the effort of Lauren. Thank you very much!

We wish you a good and challenging conference with lots of positive and interesting interactions.

And remember, ICAMPAM face-to-face meetings are very informal, with lots of room for questions and thought-provoking discussions. Let's try to keep that spirit going here too.

On behalf of the organizing committee,

Jeff Hausdorff & Martina Mancini
ICAMPAM 2021 Co-chairs

Malcolm Granat
ISMPB President

ABOUT ISMPB

The International Society for the Measurement of Physical Behaviour (ISMPB) is a non-profit scientific society which focuses on the issues related to ambulatory monitoring, wearable monitors, movement sensors, physical activity, sedentary behaviour, movement behaviour, body postures, sleep and constructs related to physical behaviours. Therefore the Society specifically focuses on the objective measurement and quantification of physical behaviours which include:

- all free-living physical behaviours (including sleep) in its different forms (volumes and patterns which could give an indication of quality)
- measurements that are unrestricted, prolonged and unsupervised
- measurements of physiological responses (e.g. energy expenditure) that are directly related to physical behaviours
- a wide range of applications: clinical, public health, behavior sciences, end users etc.

The Society aims to promote and facilitate the study and applications of objective measurement and quantification of free-living physical behavior(s) and its related constructs (e.g. energy expenditure, context) using wearable devices. The Society is characterised by:

- its multidisciplinary focus; including engineering, signal analysis, physiology, medical sciences, public health, psychology, ergonomics and sports.
- bringing together people from a wide variety of backgrounds and expertise, including researchers, clinicians, therapists, signal analysts, computational scientists and commercial companies.

ISMPB hosts a biennial International Conference on Ambulatory Monitoring of Physical Activity and Movement (ICAMPAM). The first ICAMPAM Meeting took place May 21 – 24, 2008 at the Beurs-WTC Congress Center in Rotterdam, Netherlands.

The first meetings took place in Rotterdam (2008), Glasgow (2011), Amherst (2013), Limerick (2015), Bethesda (2017), and Maastricht (2019).

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GENERAL INFORMATION

WHOVA VIRTUAL CONFERENCE PLATFORM
WHOVA EVENT APP

Pre-Registration

If you have completed your registration for the virtual conference, please enter the platform through the ICAMPAM website, and follow the instructions.

Registration

If you wish to register and have not yet done so, please register here [https://www.confmanager.com/main.cfm?cid=2824&tid=32].

Note: Registrations completed after June 20, 2021 will experience a potential delay to access the virtual conference platform.

Code of conduct

By entering the virtual platform and participating in the ICAMPAM Virtual conference you are agreeing to a code of conduct. As a scientific community, ISMPB aims to provide a supportive space for scientific dialogue. We believe that scientific progress depends on the free exchange of ideas in an environment in which all participants are treated equitably and with respect. To this end, we are committed to fostering a safe and supportive community in which all scientists are able to contribute fully regardless of age, gender, race, ethnicity, national origin, religion, gender identity or expression, sexual orientation, disability or any other applicable basis proscribed by law. Harassment of any form has no place in a healthy scientific enterprise. We expect all of our members as well as other attendees at ISMPB-organized events to behave in ways that promote the supportive and productive exchange of ideas.

Conference Timelines

Real time streaming of the ICAMPAM Virtual Conference will take place the following times:

Tuesday, June 22	15:00 – 18:45 CEST
Wednesday, June 23	15:00 – 0:00 CEST
Thursday, June 24	10:45 – 23:15 CEST

General Members Meeting

An update on the Society Business will be provided in the closing event and will be available to view anytime on-demand for 90 days to follow the conference. We encourage you to attend this session to learn more about your society.

Q&A Sessions

With the virtual conference platform, you can as questions via a text chat or in the Q&A Zoom option within the live sessions.

ICAMPAM Live Poster Sessions

Join Gather.town (https://gather.town/app/nhm05ZKG-JtyPwdgb/ICAMPAM) for all poster sessions to engage directly with all poster presenters. Virtually wander by all the booths to view the posters and chat with video & audio to those you walk up to. There are some virtual games and spaces for more informal discussions with other attendees.

Technical help during the virtual conference

If you encounter any technical issues during your virtual experience, please contact the software provider directly by emailing support@whova.com.

2021 POSTER AWARD WINNERS

Best Poster Award (Applications)

WINNER

Fabienne Fox, *German Center for Neurodegenerative Diseases*

1-B-18 The relation between accelerometer-derived physical activity and brain structure: A population-based study

RUNNER UP

Tal Yahalom-Peri, *Sheba Medical Center, Israel*

3-B-124 Comparison of Physical Function and Incidental Physical Activity Between Two Categorical Blood Glucose Levels in a Target Range Amongst People with Type 2 Diabetes

Best Poster Award (Measurement & Analysis)

WINNER

Kristin Suorsa, *University of Turku*

3-B-127 Changes in 24-hour movement behavior during the transition to retirement: The Finnish Retirement and Aging Study (FIREA)

RUNNER UP

Adrien Chanteau, *University of Rennes*

3-D-138 Comparison of activity monitors and bouts analysis methods in the study of daily-life walking pattern in older adults

Best Poster Award (Technnology and Algorithm Development)

WINNER

Johanna O'Day, *Stanford University*

2-A-61 Detecting freezing of gait using raw inertial sensor data from people with Parkinson's disease

RUNNER UP

Serena Moscato, *University of Bologna*

3-J-153 Effect of physical activity on PPG signal quality

2021 ICAMPAM PROGRAM OVERVIEW

**Timing below is in Central European Summer Time (GMT +2)

TUESDAY, JUNE 22

3:00pm - 3:45pm **An introduction to GENEActiv data analysis in R : behaviour classification, measures & visualization**

4:00pm - 4:45pm **Clinical research relevant outcomes from free-living Physical Behaviour data - the use of locus of activity, posture allocation and stepping behaviour to define novel biomarkers of physical capacity and participation**

The goal of this workshop is to provoke discussion and reflection on the use of wearable sensors for the objective measurement of free-living physical behaviours for both epidemiological studies and clinical research.

5:00pm - 5:45pm **ProtoKinetics' Vision: Tomorrow's healthcare begins today**

ProtoKinetics interacts with leaders in their fields:

- Transitioning novel uses of gait analysis from the research setting to in-clinic use
- Robotics laboratory's work with wearable technology bringing laboratory quality data into a real-world setting
- A blockchain data solution to improve data security and global collaboration

6:00pm - 6:45pm **The 24-Hour Activity Cycle – Measure every minute that matters**

Including the four main physiologic mechanisms the 24-Hour Activity Cycle (24-HAC) offers a comprehensive model for exploring inter-relatedness of health effects of physical activity. The 24-HAC model intends to show how synergies between the four daily activities could contribute to a better well-being and the prevention of diseases. The paradigm can be used either for research, intervention or public health recommendations. movisens presentation at ICAMPAM shows researchers ways toprecisely access the four components of the 24-HAC model with our wearable sensor technologies. We'll focus on the objective measurement of the time-spent in every activity, the optimal wear position of our sensors as well as applying precise analytic methods to the 24-HAC model.

WEDNESDAY, JUNE 23

Session I (Duration 2 h 30 min)

Moderators: Beatrix Vereijken and Luca Palmerini

3:00pm - 3:15pm **Welcome Ceremonies**

3:15pm - 4:00pm **LIVE - Digital mobility outcomes for assessing clinical outcomes: The mobilise-D experience as viewed from pharma and academia**

- Lynn Rochester (Speaker) Professor of Human Movement Science, Newcastle University
- Ronenn Roubenoff (Speaker) Novartis Institutes for Biomedical Research

Mobility (such as walking speed) is an important indicator of health, a target for intervention and is what people care about. Tools to measure mobility are limited and inconsistently applied. A more sophisticated and harmonised approach to capture mobility, when and where it counts (e.g. continuously in the real-world) could stimulate therapeutic development and enhance clinical care. Digital technology (e.g. wearable devices) together with algorithms to measure digital mobility outcomes are being validated in Mobilise-D in a large global consortia effort. This talk will bring the perspective from pharma and academia together around the topic of mobility as they collaborate to make digital mobility outcome assessment a reality for clinical trials and healthcare.

4:00pm - 5:25pm **Poster Session #1**

Session II (Duration 1 h 45 min)

Moderators: Claudine Lamoth and Philippa Dall

5:30pm - 6:00pm **LIVE - Get up, Stand up: The new normal of home working**

- Alex Clarke-Cornwell (Speaker) Lecturer in Public Health, University of Salford

As part of the UK Government national restrictions to help stop the spread of coronavirus, employees were encouraged to work at home where possible, and this is where many desk-based workers have been for the past year. These restrictions will undoubtedly have changed people's participation in their normal daily activities. Many employees will likely continue to work from home for the foreseeable future. This talk will present results from two online surveys that were sent to employees during COVID-19 restrictions to identify any changes in peoples' daily lifestyle behaviours related to working practices, sitting time, physical activity, and musculoskeletal conditions.

6:00pm - 6:15pm **Break**

6:15pm - 6:35pm **Ambulatory measurement and feedback of low-back load in occupational settings**

- Jaap H. van Dieen (Speaker) Professor of Biomechanics, Vrije Universiteit Amsterdam

High mechanical load on the low back in occupational settings is a risk factor for low-back pain. To reduce low-back pain incidence, ambulatory measurements of low-back loads could be used in risk assessment, feedback, and control of exoskeletons. Unfortunately, estimates of low-back loads are at present based on laboratory measurements or imprecise. I will discuss the trade-off between complexity of ambulatory sensor sets used to estimate low back load and precision. In addition, I will present promising results on the effects of feedback and exoskeleton support on low-back loads during lifting.

6:35pm - 6:45pm **Live Q&A - Ambulatory measurement and feedback of low-back load in occupational settings**

- Jaap H. van Dieen (Speaker) Professor of Biomechanics, Vrije Universiteit Amsterdam

6:45pm - 7:15pm LIVE - House as carer

- Masi Mohammadi (Speaker) Professor, Eindhoven University of Technology

The greatest promise of our increasingly smart society is to empower us. Smart homes and neighbourhoods are considered as enablers for living comfortably and independently at old age. With emerging technologies, the next stadium of smart homes and neighbourhoods has been introduced. This lecture gives an account of the House-as-Carer: an emotionally intelligent place that 'knows' who you are; is able to recognize and interpret your actions and adapts itself to your needs in an emphatic fashion. Such a living environment stimulates and supports the capacity of (older) people (with dementia) to deal with physical, social and emotional challenges in their daily lives.

Session III (Duration 2 h 15min)

Moderators: Lena Granovsky and David Bassett

8:30pm - 8:50pm Reproducible machine learning of movement behaviours in UK biobank: What to do when you have 100,000 participants?

- Aiden Doherty (Speaker) Associate Professor, University of Oxford

My group has worked closely with UK Biobank to measure physical activity status in ~100,000 participants who agreed to wear a wrist-worn device for seven days. These measurements are now actively used by epidemiologists worldwide to demonstrate associations between physical activity, sleep, circadian rhythms and disease outcomes. In this talk I will share my group's work on reproducible machine learning of sleep and physical activity behaviours; and how they are facilitating new genetic and epidemiological insights.

8:50pm - 9:00pm Live Q&A - Reproducible machine learning of movement behaviours in UK biobank: What to do when you have 100,000 participants?

- Aiden Doherty (Speaker) Associate Professor, University of Oxford

9:00pm - 9:20pm Detect COVID-19 with wearable sensor data

- Giorgio Quer (Speaker) Director of AI, Scripps Research Translational Institute

Large longitudinal physiological data open new opportunities for exploiting statistical learning in healthcare. Our retrospective study with 100,000 individuals with a personal sensor showed potential in predicting viral infections. Based on these results, we launched DETECT, an app-based, clinical study enrolling 37,000 individuals to determine if individualized tracking of changes in heartrate, activity and sleep can provide early diagnosis for COVID-19. We demonstrated that a combination of symptom and sensor data resulted in an AUC of 0.80 for discriminating between symptomatic individuals testing positive or negative for COVID-19. This continuous, passive system is complementary to virus testing, providing a more frequent risk assessment.

9:20pm - 9:30pm Live Q&A - Detect COVID-19 with wearable sensor data

- Giorgio Quer (Speaker) Director of AI, Scripps Research Translational Institute

9:30pm - 9:45pm Break

Moderators: Claudia Mazza and Jeffer Sasaki

9:45pm - 10:05pm Novel Application of wearable device data to enhance physical activity research in older adults: Is it time to go beyond summary metrics?

- Jennifer Schrack (Speaker) Associate Professor, John Hopkins University

Physical activity is a well-established predictor of health and longevity. Wearable accelerometers produce high-frequency, time series data that capture multiple aspects of daily physical activity across the spectrum of intensity. Historically, the majority of accelerometry-based physical activity research has employed summary threshold metrics. Although these measures are important for understanding compliance with physical activity guidelines, they underutilize the potential of this data. Novel, translatable measures of activity quantity and patterns are needed to advance the science of physical activity and create a deeper understanding of the quantities and patterns of daily physical activity most informative for health outcomes.

10:05pm - 10:15pm Live Q&A - Novel Application of wearable device data to enhance physical activity research in older adults: Is it time to go beyond summary metrics?

- Jennifer Schrack (Speaker) Associate Professor, John Hopkins University

10:15pm - 10:35pm Smartphones for community-based fall risk assessment

- Jacob J. Sosnoff (Speaker) Associate Dean of Research and Professor, University of Kansas Medical Center

Falls are the leading cause of injury-related death in older adults and are associated with numerous adverse outcomes in other clinical populations. Due to various constraints, objective fall risk screening is seldom performed in clinical settings. Smartphones due to their ubiquitous nature, offer the potential to provide fall risk screening in community settings. In a series of investigations, we have examined the useability, validity, and implementation of smartphone-based approaches to quantify postural control along with other aspects of fall risk in older adults and other clinical populations. The promise and the pitfalls of this approach will be discussed.

10:35pm - 10:45pm Live Q&A - Smartphones for community-based fall risk assessment

- Jacob J. Sosnoff (Speaker) Associate Dean of Research and Professor, University of Kansas Medical Center

Session IV (Duration 1 h 30min)

10:45pm - 12:15am (June 24th) Poster Session #2

THURSDAY, JUNE 24

Session V (Duration 2 h)

Moderators: Alex Rowlands and Brigid Lynch

10:45am - 11:30am LIVE Debate: "Is it time to wave goodbye to accelerometer thresholds?"

- Stewart Trost (Speaker) Professor and Associate Director Ihbi, Queensland University Of Technology
- Mai Chin A Paw (Speaker) Professor and University Research Chair Professor, Amsterdam UMC

11:30am - 11:45am Break

Moderators: Rachel Taylor and Brian Caulfield

11:45am - 12:05pm Longitudinal measurements of physical activity, sedentary behaviour and sleep over critical developmental life stages: Novel insights from the raine study

- Joanne McVeigh (Speaker) Associate Professor, Curtin University

The Raine Study (one of the largest and most successful prospective studies of pregnancy, childhood, adolescence, and now adulthood in the world) possesses both repeated pregnancy data and trends in many important movement behaviours at regular intervals across the past 30 years. Activity behaviours (including TV watching, sports participation and sleep) over critical developmental periods such as childhood and adolescence have been shown to be related to important health outcomes. However, the interplay between these multiple activity behaviours and health outcomes in young adulthood is not well understood. The Raine Study provides a unique opportunity to gain insight into these behaviours over time.

12:05pm - 12:15pm Live Q&A - Longitudinal measurements of physical activity, sedentary behaviour and sleep over critical developmental life stages: Novel insights from the raine study

- Joanne McVeigh (Speaker) Associate Professor, Curtin University

12:15pm - 12:35pm **Tossing and turning in bed: Insights into Parkinson's disease and nocturnal behavior using an IMU and novel EEG "tattoo"**

- Anat Mirelman (Speaker) Associate Professor, Tel Aviv Souraski Medical Center

Sleep disturbances are one of the most common non-motor symptoms in PD, with an estimated prevalence as high as 40-90%. Sleep disturbances in PD are an independent risk for cognitive decline and dementia and are increasingly recognized as a major contributor to disease burden and reduced quality of life in PD.

The "gold standard" evaluation of nocturnal sleep is polysomnographic monitoring (PSG). PSG consists of measuring neural function, eye movements and muscle activity while the person sleeps over-night in a laboratory setting. This assessment allows for quantification of the different sleep stages. However, PSG is time, cost and labor-intensive, may not reflect the typical behavior of the person due to the unfamiliar environment and irregular sleeping conditions, and more importantly, only provides information on one night of sleep. In recent years, there is heightened interest in home-based sleep monitoring via wearable sensors to address these shortcomings. Body-fixed electrophysiological sensors can objectively quantify sleep quality, while IMU sensors can provide a detailed map of the person's sleeping pattern and nocturnal movements. In this talk, recent discoveries will be presented in this area.

12:35pm - 12:45pm **Live Q&A - Tossing and turning in bed: Insights into Parkinson's disease and nocturnal behavior using an IMU and novel EEG "tattoo"**

- Anat Mirelman (Speaker) Associate Professor, Tel Aviv Souraski Medical Center

Session VI (Duration 2h)

Moderators: Rachel Taylor and Brian Caulfield

12:45pm - 2:15pm **Poster Session #3**

2:15pm - 2:45pm **LIVE - Measurement systems of physical behaviours for surveillance and cohorts: In the making of dreams come true**

- Andreas Holtermann (Speaker) Professor, National Research Centre for the Working Envrionment

Valid and meaningful information on physical behaviours (physical activity, sedentary behavior and sleep) is core for research, guidelines and promotion of better health for all. Current measurement systems of physical behaviors are costly and demanding (high burden on both participants/administrators), and less feasible to be implemented in surveillance and large population-based cohorts, including low-and-middle-income countries and other less privileged populations.

In collaboration with the sister ProPASS consortium, we established the SurPASS project, aiming to develop and evaluate a highly automated and low cost physical behavior measurement system which involves minimal administrative and participant burden. Our vision for SurPASS is to make it easier to carry out high-quality research in less privileged populations, and enable prospective physical behaviour data harmonization at large scale globally.

Session VII (1 h 45 min)

Moderators: Karin Pfeiffer & Rachel Colley

5:00pm - 5:20pm **Wearable devices in epidemiological studies of aging: Current evidence and future potential**

- Luigi Ferrucci (Speaker) National Institute on Aging

The study of mobility is central to understanding the ultimate consequences of aging. In the time course of mobility decline, individuals may implement compensatory strategies that are aimed at maintaining normal mobility function. These strategies can be quite successful for a long time. Current conventional clinical measures of mobility are unable to capture the complexity of these strategies because some of these rely on behavioral and environmental factors that are not reflected in performance-based testing or in self-report questionnaires. Wearable devices bring the assessment of physical activity and mobility to real-life. A sophisticated analysis of the complex signals that they produce can provide novel information of the pathway to mobility loss that may be important to design preventive interventions. This presentation reviews insights gained from using wearable devices in the Baltimore Longitudinal Study of Aging and other epidemiological studies and describes a road-map for future studies of aging.

5:20pm - 5:30pm **Live Q&A - Wearable devices in epidemiological studies of aging: Current evidence and future potential**

- Luigi Ferrucci (Speaker) National Institute on Aging

5:30pm - 5:45pm **Break**

5:45pm - 6:05pm **Diversity of opinion as a starting point for increased transparency and accessibility in science**

- Toyin Ajisafe (Speaker) National Center for Medical Rehabilitation Research (NCMRR) & Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

The Advisory Committee to the National Institutes of Health (NIH) Director convened a public forum on February 26, 2021. At the meeting, a new NIH initiative, UNITE, aimed at strengthening diversity, equity, and inclusion was lunched. Recommendations included directly engaging stakeholders, e.g., Minority Serving Institutions, and releasing a series of Funding Opportunity Announcements to help address infrastructure needs and develop progress evaluation tools. This talk will describe the UNITE initiative and present considerations, including health inequities-driving issues around ethical AI and COVID-19 vaccine hesitancy, to underscore why diversity in the biomedical research enterprise cannot be merely aspirational.

6:05pm - 6:15pm **Live Q&A - Diversity of opinion as a starting point for increased transparency and accessibility in science**

- Toyin Ajisafe (Speaker) National Center for Medical Rehabilitation Research (NCMRR) & Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

6:15pm - 6:35pm **Objectively measured physical activity during early life transitions in low- and middle- income setting: Perspectives from the brazilian birth cohorts**

- Inacio Crochemore M da Silva (Speaker) Assistant Professor, Federal University of Pelotas

The first Pelotas (Brazil) Birth Cohort began in 1982, and subsequent studies have been launched every 11 years up to 2015. Since 2010, accelerometer data have been collected in all follow-ups, providing a unique experience of extensive data collection and processing in a low- and middle-income country (>35000 assessments). Methodological aspects address challenges for purchasing devices, data collection logistics, and data processing demanding setting-specific decisions. The descriptive epidemiology of accelerometer data presents different specificities from the global north evidence, such as socioeconomic patterns and meaningful interpretations on physical activity transitions during early childhood, childhood, adolescence, and early adulthood.

6:35pm - 6:45pm **Live Q&A - Objectively measured physical activity during early life transitions in low- and middle- income setting: Perspectives from the brazilian birth cohorts**

- Inacio Crochemore M da Silva (Speaker) Assistant Professor, Federal University of Pelotas

Session VIII (2 h 15 min)

Moderators: Sarah Kozey Keadle & Kerri Winters-Stone

9:00pm - 9:30pm **LIVE - Measuring physical behavior using digital sensors: Current state and future promise**

- Jennifer Goldsack (Speaker) Executive Director, Digital Medicine Society (DiME)

The COVID-19 pandemic has driven enormous interest in rapid development of digital measures of health, disease, and behavior. In this digital era of health, what is the responsibility of measurement experts to ensure that decades of expertise in the field remain the bedrock for digital measurements? And what new considerations must be built upon this foundation?

9:30pm - 9:50pm **Sit less, move more, sleep better: Using research and consumer wearables in 24-hr behaviour change intervensions**

- Matt Buman (Speaker) Professor, Arizona State University

Rapid advancements in smartphone, wearable, and smart home technologies – coupled with updates to national and global guidelines acknowledging more integration across sleep, sedentary, and physical activity behaviors for optimal health – create new opportunities for innovation in behavior change strategies that target the full spectrum of 24-hour behaviors. This talk will cover innovative approaches that leverage smartphone and wearable technologies that either singly or in combination target sleep, sedentary, and/or physical activity behaviors and outline an ambitious set of future directions to use technology, algorithms, and behavioral synergies to optimize health outcomes and reduce health disparities.

9:50 pm - 10:00 pm **Live Q&A - Sit less, move more, sleep better: Using research and consumer wearables in 24-hr behaviour change intervensions**

- Matt Buman (Speaker) Professor, Arizona State University

10:00pm - 10:20pm **Progress in modernizing physical activity surveillance data in the US**

- John Omura (Speaker) CDC Physical Activity and Health Branch

National and state physical activity behavior surveillance in the US currently relies primarily on population-based surveys that collect self-reported data from survey participants. However, these surveillance activities for physical activity behavior are currently limited in their ability to be assessed for more granular geographic levels and their ability to provide data that is more proximal to real-time. The Centers for Disease Control and Prevention (CDC) and other federal agencies are undertaking efforts to help modernize data to overcome these limitations. This presentation will provide an overview of current efforts undertaken within CDC's Division of Nutrition, Physical Activity, and Obesity.

10:20pm - 10:30pm **Live Q&A - Progress in modernizing physical activity surveillance data in the US**

- John Omura (Speaker) CDC Physical Activity and Health Branch

10:30pm - 11:15pm **Closing Ceremonies: Poster Awards & General Members Meeting**

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POSTER SESSION 2
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POSTER SESSION 3
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Poster numbers are indicated as follows: Poster session – theme – unique number (Example: 2-A-10)

Poster presenters will be at their poster booth in gather. town during their assigned poster time but the posters are available in Whova to review from June 22nd through 90days after the conference is over.

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POSTER SESSIONS

POSTER SESSION #1
JUNE 23, 2021
4:00PM - 5:30PM CEST

1-A-4 Objective monitoring of functional recovery after total knee and hip arthroplasty using sensor-derived gait measures

Ramon Boekesteijn[1], José Smolders[1], Vincent Busch[1], Noël Keijsers[1], Sander Geurts[2], Katrijn Smulders[1]

[1]Sint Maartenskliniek, [2]Radboud University Medical Centre

1-A-5 The Effects of a Multidisciplinary Exercise Intervention in Patients with Parkinson's disease: In-lab Testing and Community Ambulation Respond Differently

Moriya Cohen[1], Natalie Ganz[2], Talia Herman[2], Yitchak Green[3], Inbal Badichi[3], Tanya Gurevich[2], Jeffrey Hausdorff[2]

[1]Tel-Aviv University, [2]Tel-Aviv Sourasky Medical Center, [3]Ezra Lemarpeh

1-A-7 Monitoring sleep-related parameters using an unobtrusive bed sensor in iSCI and stroke patients

Maartje Hendriks[1], Jaap van Lotringen[1], Marije Vos-van der Hulst[1], Noel Keijsers[1]

[1]Sint Maartenskliniek

1-A-8 Changes in the activity composition over a period of two years in people with type 2 diabetes and prediabetes

Kristina Larsson[1], Philip von Rosen[2], Jenny Rossen[1], Unn-Britt Johansson[1], Maria Hagströmer[2]

[1]Sophiahemmet University, [2]Karolinska Institutet

1-A-9 Parkinson's Disease and Visual Cueing: Effects on Gait Initiation and Walking

Yuri Russo[1], Giuseppe Vannozzi[1], Martina Mancini[2]

[1]University of Roma "Foro Italico", [2]Oregon Health & Science University

1-A-10 Automated event-based algorithm for quantifying daily life ischemic events in peripheral artery disease

Aline Taoum[1], Pierre Jéhannin[2], Ségolène Chaudru[3], Pierre-Yves de Müllenheim[4], Guillaume Mahé[2], Alexis Le Faucheur[1]

[1]University of Rennes, [2]University Hospital, [3]University of Rennes 1, [4]Institute of Physical Education and Sport Sciences (IFEPSA), UCO

1-A-11 Exploring the relationship between real-world walking speed and motor disease severity in Parkinson's disease: insights from cross-sectional and longitudinal data.

Cameron Kirk[1], Rana Rehman[1], Brook Galna[1], Lisa Alcock[1], Saverio Ranciati[2], Luca Palmerini[2], Judith Garcia-Aymerich[3], Clint Hansen[4], Eva Schaeffer[4], Lynn Rochester[1], Silvia Del-Din[1], Alison Yarnall[1]

[1]Newcastle University, [2]University of Bologna, [3]ISGlobal, [4]Christian-Albrecht-University Kiel

1-A-12 Relative importance of overall activity and intensity of physical activity for cardiometabolic risk in adults with and without a chronic condition

Nathan Dawkins[1], Tom Yates[1], Charlotte Edwardson[1], Ben maylor[1], Melanie Davies[1], David Dunstan[2], Patrick Highton[1], Louisa Herring[1], Kamlesh Khunti[1], Aelx Rowlands[1]

[1]University Of Leicester, [2]Baker Heart and Diabetes Institute

1-A-13 Towards the Quantification of Daily-Living Gait Quantity and Quality in Patients with Huntington's Disease: Preliminary Results Based on a Wrist-Worn Accelerometer

Karin Keren[1], Monica Busse[2], Nora Fritz[3], Lisa Muratori[4], Eran Eran Gazit[5], Inbar Hillel[5], Micky Scheinowitz[1], Tanya Gurevich[6], Noit Inbar[6], Nurit Omer[6], Jeffrey Hausdorff[5], Lori Quinn[7]

[1]Tel Aviv University, [2]Centre for Trials Research, Cardiff University, [3]Wayne State University, [4]Stony Brook University, [5]Center for the Study of Movement, Cognition and Mobility, Neurological Institute, Tel Aviv Sourasky, [6]Tel Aviv Medical Center, [7]Colum

1-A-14 Distributional data analysis via quantile functions and its application to modelling digital biomarkers of gait in Alzheimer's Disease

Rahul Ghosal[1], Vijay R. Varma[2], Dmitri Volfson[3], Inbar Hillel[4], Jacek Urbanek[5], Jeffrey M. Hausdorff[6], Amber Watts[7], Vadim Zipunnikov[1]

[1]Johns Hopkins Bloomberg School of Public Health, [2]National Institute on Aging (NIA), National Institutes of Health (NIH), [3]Neuroscience Analytics, Computational Biology, Takeda,, [4]Tel Aviv Sourasky Medical Center, Tel Aviv, Israel, [5]Johns Hopkins University

1-A-15 Role of psychosocial factors on the effect of physical activity on physical function in patients after lumbar spine surgery

Hiral Master[1], Renan Castillo[2], Stephen Wegener[2], Jacquelyn Pennings[3], Rogelio Coronado[3], Christine Haug[3], Richard Skolasky[2], Lee Riley III[2], Brian Neuman[2], Joseph Cheng[4], Oran Aaronson[5], Clinton Devin[6], Kristin Archer[3]

[1]Vanderbilt University, [2]Johns Hopkins University, [3]Vanderbilt University Medical Center, [4]University of Cincinnati, [5]Saint Thomas Medical Partners, [6]Steamboat Orthopedic and Spine Institute

1-A-16 Comparing an Objective Measure of Foot Abduction Brace Non-Wear Time with Self-Reported Measures

Natan Silver[1], Benjamin Griffiths[2], Malcolm Granat[2], Ehud Lebel[3]

[1]Shaare Zedek Medical Center, [2]University of Salford, [3]Shaare-Zedek Medical Center

1-A-17 Monitoring gait developmental trajectory in preterm children: A sensor-based approach

Maria Cristina Bisi[1], Manuela Fabbri[2], Duccio Maria Cordelli[1], Rita Stagni[1]

[1]University of Bologna, [2]IRCCS Institute of Neurological Sciences of Bologna

1-A-69 Sedentary Time and Light Activity Features Differentiate People with Low Back Pain from Healthy Controls

Ruopeng Sun[1], Christy Tomkins-Lane[2], Amir Muaremi[3], Patricia Zheng[4], Manoj Mohan[1], Matthew Smuck[1]

[1]Stanford University, [2]Mount Royal University, [3]Novartis Institutes for BioMedical Research, [4]University of California San Francisco

1-A-70 Real-World Gait Effects Quantization of Orthotic Shoes on Diabetic Peripheral Neuropathy Patients using Inertial Sensors

Phuoc Nguyen[1], Mary Spires[1], James Leonard[1], Lauro Ojeda[1]

[1]University of Michigan

1-B-18 The relation between accelerometer-derived physical activity and brain structure: A population-based study

Fabienne A Fox[1], Kersten Diers[1], Hweeling Lee[1], Martin Reuter[1], Monique M Breteler[1], N Ahmad Aziz[1]

[1]German Center for Neurodegenerative Diseases

1-B-19 Associations between physical activity and cardiovascular risk factors among Dutch children

Gabrielle ten velde[1], Guy Plasqui[1], Maartje Willeboordse[1], Bjorn Winkens[1], Anita Vreugdenhil[1]

[1]Maastricht University

1-B-20 Smartphone-delivered, home-based gait training for persons with Parkinson's Disease: feasibility of a tele-rehabilitation program

Mattia Corzani[1], Giovanna Lopane[2], Valeria Petrone[2], Fabio La Porta[2], Marina Brozgol[3], Nir Giladi[3], Pablo Thumm[3], Jeffrey Hausdorff[3], Lorenzo Chiari[4], Luca Palmerini[4]

[1]University of Bologna, [2]IRCCS Istituto delle Scienze Neurologiche di Bologna, [3]Tel-Aviv Sourasky Medical Center, [4]Health Sciences and Technologies - Interdepartmental Center for Industrial Research (CIRI-SDV)

1-B-21 Cross-sectional Associations Between 24-hr Activity Behaviours and Cardiometabolic Health in Adolescents: A Compositional Data Analysis

Leonard Browne[1], Kieran Dowd[2], Ciarán McDonncha[1], Brian Carson[1], Helen Purtill[1], Ailish Hannigan[1], Matthew Herring[1], Eibhlis O Connor[1], Clodagh O' Gorman[1], Alan Donnelly[1]

[1]University of Limerick, [2]Athlone Institute of Technology

1-B-22 Relationship between selected Psychological factors and Physical activity among undergraduates, University of Ibadan. Nigeria

Ayodeji Fabunmi[1], Esther Uzokife[1]

[1]University of Ibadan

1-B-23 The effect of consumer-based activity tracker intervention on physical activity among recent retirees: the REACT trial

Tuija Leskinen[1], Jesse Pasanen[1], Kristin Suorsa[1], Ilkka Heinonen[1], Sari Stenholm[1]

[1]University of Turku

1-B-24 Is Behaviour Complexity Associated with Functional Ability Among Older Adults?

Timo Rantalainen[1], Erja Portegijs[1], Taina Rantanen[1], Lotta Palmberg[1], Laura Karavirta[1], Sebastien Chastin[2]

[1]University of Jyväskylä, [2]Glasgow Caledonian University

1-C-83 Quantitative physical activity assessment in children during a COVID-19 stay-at-home order

Kirsten Tulchin-Francis[1], Wilshaw Stevens, Jr[2], Cristina Lopez[2], Heather Roberts[3]

[1]Scottish Rite for Children/UT Southwestern, [2]Scottish Rite for Children, [3]Scottish Rite for Children/Texas Woman's University

1-D-26 Factors associated with physical activity and sedentary time in older adults: results from the Whitehall II accelerometer substudy

Mathilde Chen[1], Vincent Van Hees[2], Manasa Yerramalla[1], Aline Dugravot[1], Benjamin Landre[1], Aurore Fayosse[1], Mohamed Amine Benadjaoud[3], Séverine Sabia[1]

[1]Inserm, [2]Accelting, [3]Institute for Radiological Protection and Nuclear Safety

1-D-27 Concurrent validity of the SOFIT and iSOFIT in 7th and 8th grade students from Temuco, Chile

Sebastian Miranda-Marquez[1], Damian Chandia-Poblete[2], Nicolas Aguilar-Farias[1]

[1]Universidad de La Frontera, [2]Queensland University of Technology

1-D-28 Using Mobile Technologies to Investigate Impaired Sleep, Mood, and Energy as Real-Time Triggers of Migraine

Debangan Dey[1], Tarannum Lateef, Kathleen Merikangas[2], Andrew Leroux[3], Vadim Zipunnikov[1], Mike Xiao

[1]Johns Hopkins Bloomberg School of Public Health, [2]National Institute of Mental Health, [3]Colorado School of Public health

1-D-29 Utilizing GPS-derived Objective Technologies to Explore Community Mobility Characteristics in Older Adults

Breanna Crane[1], Kyle Moored[2], Andrea Rosso[2], Michelle Carlson[1]

[1]Johns Hopkins Bloomberg School of Public Health, [2]University of Pittsburgh Graduate School of Public Health

1-D-30 Examining Relative Intensity Estimates from Fitbit-Derived Heart Rate in Exercise Phenotypes: Understanding Where the Errors Live.

Megan Heintzelman[1], Kyle Winfree[2], Matthew Saponaro[3], Richard Suminski[1], Gregory Dominick[1]

[1]University of Delaware, [2]Northern Arizona University, [3]AI Whoo

1-D-31 Intraindividual Variability in GPS-derived Community Mobility Characteristics of Older Adults: Links with Physical and Cognitive Functioning

Kyle Moored[1], Breanna Crane[2], Michelle Carlson[2], Andrea Rosso[1]

[1]University of Pittsburgh Graduate School of Public Health, [2]Johns Hopkins Bloomberg School of Public Health

1-D-32 Preliminary evaluation of a remote digital eHealth sedentary time fractionation intervention for older adult home-based workers during COVID-19

Aidan Buffey[1], Brian Carson[1], Alan Donnelly[1]

[1]University of Limerick

1-D-33 Standing tutorial meetings in higher education

H.Q. Chim[1], Renate de Groot[2], Pascal Van Gerven[1], Mirjam oude Egbrink[1], Roy Erkens[1], Hans Savelberg[1]

[1]Maastricht University, [2]Open Universiteit

1-D-34 Direct Observation of COVID-19 Transmission Behaviors and Physical Activity in Public Open Spaces

Richard Suminski Jr.[1], Gregory Dominick[1], Megan Heintzelman[1]

[1]University of Delaware

1-E-35 Portable monitoring for air pollution exposure assessment during active transportation: procedures, technology integration and data harmonization of diverse sources

Damian Chandia-Poblete[1], Francisco Rubilar-Rocha[2], Marcelo Toledo-Vargas[2], Nicolas Aguilar-Farias[2]

[1]Queensland University of Technology, [2]Universidad de La Frontera

1-G-36 postGGIR: An Open Source R/R-Markdown Package for Post-GGIR Processing of Accelerometer Data

Vadim Zipunnikov[1], Andrew Leroux[2], Kathleen Merikangas[3]

[1]Johns Hopkins Bloomberg School of Public Health, [2]University of Colorado, [3]National Institute of Mental Health

1-I-37 Technical Validation of the ActiGraph wGT3X-BT, GT9X, and Insight Watch Accelerometers

Joe Nguyen[1], Robert Brychta[2], Kong Chen[2]

[1]ActiGraph, [2]NIH/NIDDK

1-I-38 An open-source and wearable system for measuring 3D human motion in real-time

Patrick Slade[1], Ayman Habib[1], Jennifer Hicks[1], Scott Delp[1]

[1]Stanford University

1-J-39 6-Minute Walk Distance Using Inertial Sensors

Carolin Curtze[1], Kristen Sowalsky[2], Ishu Arpan[3], Martina Mancini[3], Patricia Carlson-Kuhta[3], Mahmoud El-Gohary[2], Fay Horak[3], James McNames[4]

[1]University of Nebraska at Omaha, [2]ERT- APDM Wearable Technologies, [3]Oregon Health and Science University, [4]Portland State University

1-J-40 Development and Evaluation of Wearable Devices-Based Physical Activity Intensity Classification Models in Manual Wheelchair Users with Spinal Cord Injury

Zijian Huang[1], Yousif Shwetar[1], Akhila Veerubhotla[1], Steven Knezevic[2], EunKyoung Hong[2], Ann Spungen[2], Dan Ding[1]

[1]VA Pittsburgh Healthcare System, [2]James J. Peters VA Medical Center

2-J-97 Individual vs. group calibration of machine learning models for physical activity assessment using body-worn accelerometers

Alexander Montoye[1], Bradford Westgate[1], Kimberly Clevenger[2], Karin Pfeiffer[3], Joseph Vondrasek[1], Morgan Fonley[1], Joshua Bock[4], Leonard Kaminsky[4]

[1]Alma College, [2]National Cancer Institute, [3]Michigan State University, [4]Ball State University

3-J-155 The importance of time of day for step accumulation

Craig Speirs[1], Kate Lyden, David Loudon[1], Malcolm Granat[2]

[1]PAL Technologies Ltd, [2]University of Salford

1-K-41 Sleep Measurement Using Wrist-Worn Accelerometer Data Compared to Polysomnography.

John Chase[1], Michael Busa[1], John Sirard[1]

[1]University of Massachusetts Amherst

1-K-42 Agreement of Step Metrics Derived from ActiGraph and activPAL Accelerometers Worn Concurrently Among Older Adults

Eric Hyde[1], Steve Nguyen[2], Mikael Anne Greenwood-Hickman[3], Andrea LaCroix[2], Christopher Moore[4], Loki Natarajan[2], Dori Rosenberg[3], Fatima Tuz-Zahra[2], Rod Walker[3], John Bellettiere[2]

[1]San Diego State University/University of California, San Diego, [2]University of California, San Diego, [3]Kaiser Permanente Washington Health Research Institute, [4]University of North Carolina, Chapel Hill

1-K-43 Systematic review of accelerometer-based methods for 24-hour physical behavior assessment in young children (0-5-years-old).

Annelinde Lettink[1], Teatske Altenburg[1], Jelle Arts[1], Vincent van Hees[1], Mai J. Chinapaw[1]

[1]Amsterdam UMC

1-L-45 Sleep and exercise among physicians: does one affect the other?

Mary Hidde[1], Emily Williams[1], Kate Lyden[2], Julia Sharp[1], Heather Leach[1]

[1]Colorado State University, [2]KAL Research & Consulting, LLC

1-L-46 Biometric accuracy from wrist-based wearables

Kevin Abbruzzese[1], Vincent Alipit[1], Sally LiArno[1]

[1]Stryker Orthopaedics

1-L-47 Energy expenditure estimates from wrist-based wearables

Kevin Abbruzzese[1], Andre Freligh[1], Vincent Alipit[1], Sally LiArno[1]

[1]Stryker Orthopaedics

1-O-48 Scalar on time-by-distribution regression and its application to modelling cognitive function in Alzheimer's Disease

Rahul Ghosal[1]

[1]Johns Hopkins Bloomberg School of Public Health

1-Q-49 Wearable-specific indicators of PA behaviour (WIPAB): a scoping review

Anne Backes[1], Vincent van Hees[2], Guy Fagherazzi[1], Laurent Malisoux[1]

[1]Luxembourg Institute of Health, [2]Amsterdam UMC, Vrije Universiteit Amsterdam

POSTER SESSION #2
JUNE 23, 2021
11:00PM - 12:30AM (JUNE 24) CEST

2-A-6 Using an unobtrusive bed sensor to monitor spasticity during the night: preliminary results

Maartje Hendriks[1], Merel Rougoor[1], Marije Vos-van der Hulst[1], Noel Keijsers[1]

[1]Sint Maartenskliniek

2-A-55 Association Between Physical Activity and Sleep Quality Among Hospitalized Older Adults with Dementia

Ashley Kuzmik[1], Marie Boltz[1]

[1]The Pennsylvania State University

2-A-56 Saccade and Fixation Eye Movements during Walking in Mild Traumatic Brain Injury and Healthy Controls

Ellen Lirani-Silva[1], Samuel Stuart[1], Lucy Parrington[2], Kody Campbell[2], Laurie King[2]

[1]Northumbria University, [2]Oregon Health and Science University

2-A-57 Does a Cognitively Challenging Agility Bootcamp (ABC-C) Intervention Improve Daily Physical Activity in Parkinson's disease?

Hao Tan[1], Kristan Dumas[1], Graham Harker[1], Matthew Welinski[1], Patricia Carlson-Kuhta[1], John Nutt[1], Fay Horak[1], Martina Mancini[1]

[1]Oregon Health and Science University

2-A-58 Clinical and mobility measures to discriminate fallers from non-fallers in Parkinson's disease

Rodrigo Vitorio[1], Martina Mancini[1], Patricia Carlson-Kuhta[1], Fay Horak[1], Vrutangkumar Shah[1]

[1]Oregon Health and Science University

2-A-59 The impact of the COVID-19 pandemic on symptoms, activity and quality of life in people living with Dystonia.

Silmara Gusso[1], Rebecca Meiring[1], Lynley Bradnam[1]

[1]University of Auckland

2-A-60 Activity bout accumulation patterns in two clinical samples using the Fitbit Charge 2 activity monitor

Kristina Hasanaj[1], Krista Leonard[1], Sarah Kozey-Keadle[2], Megan Petrov[1], Matthew Buman[1]

[1]Arizona State University, [2]California Polytechnic State University

2-A-61 Detecting freezing of gait using raw inertial sensor data from people with Parkinson's disease

Johanna O'Day[1], Marissa Lee[1], Kirsten Seagers[1], Shannon Hoffman[1], Scott Delp[1], Helen Bronte-Stewart[1]

[1]Stanford University

2-A-62 Comparison of accelerometer daily minimum wear time in healthy children and children with inflammatory bowel disease

Elizabeth Ball[1], Madelyn Byra[1], Brian Timmons[1], Joyce Obeid[1]

[1]McMaster University

2-A-63 Pursuit of Ideal Timing and Distribution of Movement Behaviours for Post-Concussion Symptoms

Nicholas Kuzik[1], Mike Borghese[1], Adrienne Davis[2], Gurinder Sangha[3], Ken Tang[1], Mark Tremblay[1], Andrée-Anne Ledoux[1], n/a n/a[4]

[1]Children's Hospital of Eastern Ontario Research Institute, [2]Hospital for Sick Children, [3]Children's Hospital London Health Sciences Centre, Western University, [4]on behalf of the Pediatric Emergency Research Canada (PERC) Pediatric Concussion Assessment

2-A-64 Using the fitbit to understand the long-term impact of COVID-19 lockdown on activity levels amongst intervention trial participants with type 2 diabetes

Agus Salim[1], Genevieve Healy[2], Alison Carver[3], Neville Owen[1], David Dunstan[1]

[1]Bakert Heart and Diabetes Institute, [2]The University of Queensland, [3]Australian Catholic University

2-A-65 Characterizing Physical Behaviors in Individuals with Aphasia

Delia Moore[1], Sarah Millar[1], Rana Abdulkhaliq[1], Carina Reyes[1], Michelle Gravier[1], Jennifer Sherwood[1], Albert Mendoza[1]

[1]California State University East Bay

2-A-66 Physical activity and sedentary behaviour in patients following attendance at exercise rehabilitation

Sapna Khusal[1], Estelle Watson[1]

[1]Department of Exercise Sciences, University of Auckland

2-A-67 Identifying Digital Biomarkers of Mobility During Daily Living in People Recovering from Mild Traumatic Brain Injury

Kody Campbell[1], Martina Mancini[1], Laurie King[1]

[1]Oregon Health and Science University

2-A-68 Can machine learning activity classification models developed in children with CP be used in children with an Acquired Brain Injury?

Stewart Trost[1], Matthew Ahmadi[2], Margaret O'Neil[3], Emmah Baque[4]

[1]Queensland University of Technology, [2]University of Sydney, [3]Columbia University Irving Medical Center, [4]Griffith University

2-A-71 Feasibility and Effectiveness of an Online Exercise Group to Promote Physical Activity in Chronic Aphasia

Albert Mendoza[1], Jennifer Sherwood[1], Michelle Gravier[1]

[1]California State University East Bay

2-B-72 Relationship between gross motor skills and physical activity in toddlers

Sara King-Dowling[1], Natascja Di Cristofaro[2], Joyce Obeid[3]

[1]The Children's Hospital of Philadelphia, [2]McMaster University, [3]Children's Hospital of Philadelphia

2-B-73 Development of novel accelerometry-based markers to identify performance fatigability during a fast-paced 400m walk in older adults

Jaroslaw Harezlak[1], Robert Boudreau[2], Jacek Urbanek[3], Kyle Moored[4], Jennifer Schrack[3], Eleanor Simonsick[5], Nancy Glynn[2]

[1]Indiana University School of Public Health, [2]University of Pittsburgh, [3]Johns Hopkins University, [4]University of Pittsburgh Graduate School of Public Health, [5]National Institute on Aging

2-B-74 Association between parental and child objectively measured physical activity: results from a Brazilian populational birth cohort study

Luiza Ricardo[1], Ricardo Oliveira[1], Cauane Blumemberg[1], Debora Tornquist[1], Luciana Tornquist[1], Inacio Crochemore-Silva[1]

[1]Federal University of Pelotas

2-B-75 Park features and physical activity among low-income and racial/ethnic diverse children

Scott Ogletree[1], Claudia Alberico[1], Myron Floyd[1], Oriol Marquet[2], Jing-Huei Huang[1], J. Aaron Hipp[1]

[1]North Carolina State University, [2]Universitat Autònoma de Barcelona

2-B-76 Validation of a Multi-Sensor System to Detect Sedentary Screen Time in Overweight/Obese Adults

Alexander Tolas[1], Rachel Lyons[2], Kristina Hasanaj[2], Amanda Tran[1], Lemar Popal[1], Ajay Patel[1], Matthew Buman[2], Sarah Keadle[1]

[1]California Polytechnic State University San Luis Obispo, [2]Arizona State University

2-B-77 The feasibility of an ecological momentary assessment to measure physical activity and sedentary behaviour in shift workers

Malebogo Monnaatsie[1], Stuart Biddle[1], Adam Schmidt[1], Amy Williams[1], Anna Rogers[1], Tracy Kolbe-Alexander[1]

[1]University of Southern Queensland

2-B-78 Agreement of self-report and accelerometer-assessed physical activity and sedentary behavior in primiparous women at 6 months postpartum

Ali Wolpern[1], Jiqiang Wu[2], Timothy Brusseau[2], Wonwoo Byun[2], Marlene Egger[2], Ingrid Nygaard[2], Janet Shaw[2]

[1]The University of Montana Western, [2]University of Utah

2-B-79 Alternatives for measuring sitting accumulation in workplace surveys

Bronwyn Clark[1], Samantha Stephens[1], Ana Goode[1], Genevieve Healy[1], Elisabeth Winkler[1]

[1]The University of Queensland

2-B-80 Examining the difference between weekend and weekday sleeping patterns of preschool aged children enrolled in the Guelph Family Health Study (GFHS)

Bridget Coyle-Asbil[1], Hannah Coyle-Asbil[1], David W Ma[1], Jess Haines[1], Lori Ann Vallis[1]

[1]University of Guelph

2-B-81 Contextualizing device-measured sitting and sitting patterns among older adults using self-reported activities

Mikael Anne Greenwood-Hickman[1], Rod Walker[1], John Bellettiere[2], David Wing[2], Andrea LaCroix[2], Dori Rosenberg[1]

[1]Kaiser Permanente Washington Health Research Institute, [2]University of California, San Diego

2-C-82 Project COPE: An Investigation of Daily Experiences of Stress, Physical Activity, and Sleep during the COVID-19 Pandemic

Rachel Lyons[1], Kristina Hasanaj[1], Kasondra McCracken[1], Cheryl Der Ananian[1], Matthew Buman[1]

[1]Arizona State University

2-D-84 Park Availability and Physical Activity Among Children and Adolescents: Findings from the Healthy Communities Study

Matthew Stewart[1], Manish Verma[1], Alisha Rajbhandari[2], Cathy Antonakos[1], Natalie Colabianchi[1]

[1]University of Michigan, [2]Battelle Memorial Institute

2-D-85 The Role of Age, Sex, and Pubertal Status in Patterns of Objectively Assessed Physical Activity and Sleep Patterns among Youth

Michelle Theodory[1], Yao Xiao[2], Andrew Leroux[3], Vadim Zipunnikov[4], Diana Paksarian[1], Michael Milham[2], Kathleen Merikangas[1]

[1]National Institute of Mental Health, [2]Child Mind Institute, [3]University of Colorado Denver, [4]Johns Hopkins Bloomberg School of Public Health

2-D-86 Is rest-activity rhythm long term associated with mortality? The Como Vai? Study

Andrea Wendt[1], Luiza Ricardo[1], Renata Bielemann[1], Inácio Crochemore-Silva[1]

[1]Federal University of Pelotas

2-D-87 Associating aging with actigraphy-based walking features extracted via structured functional principal components

Verena Werkmann[1], Nancy Glynn[2], Jaroslaw Harezlak[1]

[1]Indiana University, [2]University of Pittsburgh

2-D-88 Time Trends in Physical Activity Using Wearable Devices: Systematic Review and Meta-Analysis of Studies in Children, Adolescents, and Adults, 1995-2017

Scott Conger[1], Lindsay Toth[2], Channie Cretsinger[3], Anders Raustorp[4], Josef Mitás[5], Shigeru Inoue[6], David Bassett[3]

[1]Boise State University, [2]University of North Florida, [3]University of Tennessee, [4]University of Gothenburg, [5]Palacký University, [6]Tokyo Medical University

2-D-90 Sleep parameters and accelerometry: a comparison between common definitions.

Kim Meredith-Jones[1], Rachael Taylor[1]

[1]University of Otago

2-D-91 Computer Vision is a Reliable Method for Counting People on Sidewalks and Streets

Gregory Dominick[1], Richard Suminski[1], Matthew Saponaro[2]

[1]University of Delaware, [2]AI Whoo

2-D-92 Comparing self-report and multiple device-based measures of 24-hour time use

Elisabeth Winkler[1], Abdullah Alzhrani[1], Margaret Cook[1], Kelly Johnstone[1], Genevieve Healy[1], Bronwyn Clark[1]

[1]The University of Queensland

2-D-93 Frequency and severity of device-related complaints, overall and by month of year, in the ABC Study

Weng Chi Lou[1], Nga Nguyen[1], Theresa Whalen[1], Fiona Bruinsma[1], Graham Giles[1], Roger Milne[1], Brigid Lynch[1]

[1]Cancer Council Victoria

2-E-94 The Geosocial Observation Method for studying organized groups and group physical activity outcomes for children

Michaela Schenkelberg[1], Ann Essay[2], Marisa Rosen[2], Chelsey Schlechter[3], Mary Von Seggern[4], Richard Rosenkranz[5], David Dzewaltowski[2]

[1]University of Nebraska Omaha, [2]University of Nebraska Medical Center, [3]University of Utah, [4]University of Nebraska at Omaha, [5]Kansas State University

2-J-95 The Contribution of Gyroscope Data to Accelerometer Estimates of Free-living Physical Behavior Intensity

Robert Marcotte[1], Christos Pedone[1], Patty Freedson[1], John Staudenmayer[1], John Sirard[1]

[1]University of Massachusetts Amherst

2-J-96 Impact of ActiGraph Sampling Rate and Inter-Monitor Comparability on Measures of Physical Activity in Adults

Karin Pfeiffer[1], Kimberly Clevenger[1], Jan Brond[2], Daniel Arvidsson[3], Kelly Mackintosh[1], Melitta McNarry[4], Alexander Montoye[5]

[1]Michigan State University, [2]University of Southern Denmark, [3]University of Gothenburg, [4]Swansea University, [5]Alma College

2-J-98 Correcting the Errors: An Algorithm for Improving Heart Rate Assessment with Commodity PPG Hardware

Tom Nemeth[1], Greg Dominick[1], Kyle Winfree[1]

[1]Northern Arizona University

2-K-99 Convergent validity of Actiwatch and activPAL for assessing time in bed

Paul Hibbing[1], Jordan Carlson[1], Stacey Simon[2], Edward Melanson[2], Seth Creasy[2]

[1]Children's Mercy Kansas City, [2]University of Colorado Denver, Anschutz Medical Campus

2-K-100 Comparison of Wrist-worn versus Hip-worn Actigraph Sensors to Assess Real-Life Physical Activity in Adults: A Systematic Review

Ruopeng Sun[1], Nolan Gall[1], Matthew Smuck[1]

[1]Stanford University

2-L-102 Assessment of cardiovascular demand using wrist-based wearables

Kevin Abbruzzese[1], Vincent Alipit[1], Sally LiArno[1]

[1]Stryker Orthopaedics

2-N-103 A Systematic Review and Repository of Novel Methods for Estimating Physical Activity and Energy Expenditure from Accelerometer Data

Kimberly Clevenger[1], Andrew Kaplan[2], Cailyn Van Camp[3], Alexander Montoye[4], Scott Strath[5], Karin Pfeiffer[3]

[1]National Cancer Institute, [2]Indiana University School of Medicine, [3]Michigan State University, [4]Alma College, [5]University of Wisconsin-Milwaukee

2-P-104 Joint and Individual Variations of Sleep, Physical Activity and Circadian Rhythmicity Features in CoLaus Study

Sun Kang[1], Andrew Leroux[2], Wei Guo[1], Martin Preisig[3], Kathleen Merikangas[1], Vadim Zipunnikov[4]

[1]National Institute of Mental Health, [2]University of Colorado Anschutz Medical Campus, [3]University Hospital of Lausanne, [4]Johns Hopkins Bloomberg School of Public Health

2-Q-105 The effect of including and excluding postural status in estimates of sedentary behavior.

Nicholas Lamoureux[1], Gregory Welk[1]

[1]Iowa State University

2-R-106 Factors contributing to the use of wearables and subsequent engagement in protective health behaviour

Ruhi Bajaj[1], Rebecca Meiring[1], Fernando Beltran[1]

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2-R-107 Comparison of accelerometry-derived physical activity summary measures by age, sex, and BMI

John Muschelli[1], Andrew Leroux[2], Jacek Urbanek[1], Amal Wanigatunga[1], Jiawei Bai[1], Ciprian Crainiceanu[1], Jennifer Schrack[1]

[1]Johns Hopkins University, [2]University of Colorado

2-S-108 Describing 24-h activity patterns of adolescent boys before and during the COVID-19 lockdown in New Zealand using a 24-h activity recall (STAR-24).

Meredith Peddie[1], Tessa Scott[1], Jillian Haszard[1]

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POSTER SESSION #3
JUNE 24, 2021
12:45PM - 2:15PM CEST

3-A-115 Wrist-worn accelerometers overestimate arm use in stroke patients when not correcting for the effect of walking

Ruben Regterschot[1], Ruud Selles[1], Gerard Ribbers[1], Hans Bussmann[1]

[1]Erasmus MC

3-A-116 Assessing gait in the laboratory and in the real world: the impact of environment and bout length on the classification of Parkinson's disease.

Rana Zia UR Rehman[1], Yu Guan[1], Jian Shi[1], Lisa Alcock[1], Alison Yarnall[1], Lynn Rochester[1], Silvia Del Din[1]

[1]Newcastle University

3-A-117 Physical activity levels of patients with chronic low back pain and central sensitization: Insights from a machine learning method

Xiaoping Zheng[1], Michiel Reneman[1], Egbert Otten[1], Claudine Lamoth[1]

[1]University of Groningen, University Medical Center Groninige

3-A-118 Freezing of gait among patients with Parkinson's disease measured during daily living: associations with self-report questionnaires and structured provoking tests

Diana Denk[1], Talia Herman[1], Demi Zoetewei[2], Pieter Ginis[2], Marina Brozgol[1], Pablo Cornejo Thumm[1], Irina Galperin[1], Eva Decaluwe[2], Natalie Ganz[1], Luca Palmerini[3], Nir Giladi[1], Alice Nieuwboer[2], Jeffrey Hausdorff[1]

[1]Tel-Aviv Sourasky Medical Center, [2]KU Leuven, [3]University of Bologna

3-A-119 Using a body-fixed accelerometer to characterize impairments in daily-living physical activity and gait in patients with probable idiopathic Normal Pressure Hydrocephalus

Michal Elias[1], Inbar Hillel[2], Eran Gazit[2], Marina Brozgol[2], Ira Galperin[2], Jeffrey Hausdorff[2], Elissa Ash[2]

[1]Tel Aviv University, [2]Tel-Aviv Sourasky Medical Center

3-A-121 Sensor-derived physical activity in people with Parkinsons disease during the first wave of Covid-19 pandemic - a cross-sectional study from Sweden

Maria Hagstromer[1], Breiffni Leavy[1], David Moulaee Conradsson[1], Erika Franzén[1]

[1]Karolinska Institutet

3-A-122 Physical activity patterns in people with pre- and type 2 diabetes: a latent class analysis of longitudinal data

Philip von Rosen[1], Jenny Rossen[2], Maria Hagströmer[1]

[1]Karolinska Institutet, [2]Sophiahemmet University

3-B-25 Sensor-based ambulatory assessment of gross-motor development in school-children: Influence of age, sex, and anthropometry

Rita Stagni[1], Alice Masini[1], Stefania Toselli[1], Sofia Marini[1], Laura Bragonzoni[1], Andrea Ceciliani[1], Marcello Lanari[1], Alessandra Sansavini[1], Alessia Tessari[1], Davide Gori[1], Laura Dallolio[1], MariaCristina Bisi[1]

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3-B-123 Objective measurement of 24-hour movement behaviors in preschool children using wrist-worn and thigh-worn accelerometers

Marieke De Craemer[1], Marga Decraene[2], Iris Willems[2], Vera Verbestel[2]

[1]Ghent University & Research Foundation Flanders, [2]Ghent University

3-B-124 Comparison of Physical Function and Incidental Physical Activity Between Two Categorical Blood Glucose Levels in a Target Range Amongst People with Type 2 Diabetes

Tal Yahalom-Peri[1,2], Einat Kodesh[3], Yamit Basson-Shleymovich[1,2,4], Michal Azmon[1,5], Veronica Bogina[3], Tsvi Kuflik[3], Tali Cukierman–Yaffe[1,2]

[1]Sheba Medical Center, Israel, [2]Tel-Aviv University, Israel, [3]University of Haifa, Israel, [4]Clalit Health Services, Israel, [5]Ariel University, Israel

3-B-125 Objectively measured physical activity - weekly pattern of 2-6-year-old children over time.

Linnea Bergqvist-Norén[1], Emilia Hagman[1], Claude Marcus[1], Maria Hagströmer[1]

[1]Karolisnka Institutet

3-B-126 Circadian rest-activity rhythm and falls in the older adults: a prospective cohort study in Hong Kong

Zhihui Lu[1], Timothy Chi Yui Kwok[1]

[1]The Chinese University of Hong Kong

3-B-127 Changes in 24-hour movement behavior during the transition to retirement: The Finnish Retirement and Aging Study (FIREA)

Kristin Soursa[3], Anna Pulakka[1], Saana Myllyntausta[2], Tuija Leskinen[3], Jaana Pentti[3], Jussi Vahtera[3], Sari Stenholm[3]

[1]Finnish Institute for Health and Welfare, [2]University of Eastern Finland, [3]University of Turku

3-B-128 Systematic Review of Device-Based Motion Sensors for Monitoring Physical Activity in Manual Wheelchair Users

Kati Karinharju[1], Kelly Clanchy[2], Sjaan Gomersall[1], Stewart Trost[3], Sean Tweedy[1]

[1]The University of Queensland, [2]Griffith University, [3]Queensland University of Technology

3-B-129 Muscle-Strengthening Activities among Lesbian, Bisexual, and Heterosexual Women: National Health Interview Survey, 2013-2018

Andrea Kaniuka[1], Cayla McAvoy[1], Rajib Paul[1], Catrine Tudor-Locke[1]

[1]University of North Carolina at Charlotte

3-B-130 Quantifying activity to study healthy ageing

Stylianos Paraschiakos[1], Arno Knobbe[2], Eline Slagboom[1], Marian Beekman[1]

[1]Leiden University Medical Center, [2]Leiden University

3-B-131 Physical Activity level and Perceived Barriers to Physical Activity Participation among Nurses at the University College Hospital, Ibadan, Nigeria

Ayodeji Fabunmi[1], Oluwafunmilayo Kajero[1]

[1]College of Medicine, University of Ibadan, Nigeria

3-B-132 Classifying Lower-Limb Amputee Postures Using a Single Shank-Mounted Accelerometer

Benjamin Griffiths[1], Laura Diment[2], David Henson[3], Malcolm Granat[1]

[1]University of Salford, [2]University of Southampton, [3]Imperial College London

3-B-133 Physical activity levels, mental health and wellbeing in children and young people in Wales during COVID-19

Liezel Hurter[1], Melitta McNarry[1], Denise Hill[1], Gareth Stratton[1], Kelly Mackintosh[1]

[1]Swansea University

3-B-134 Feasibility of long-term heart rate monitoring compared to accelerometry in older adults

Laura Karavirta[1], Jukka Lipponen[2], Timo Rantalainen[1], Erja Portegijs[1], Taina Rantanen[1]

[1]University of Jyväskylä, [2]University of Eastern Finland

3-C-135 Physical activity behaviour and screen time in Dutch children during the COVID-19 pandemic: pre, during and post school closures

Gabrielle ten velde[1], Judith Lubrecht[1], Lisanne Arayess[1], Christiana van Loo[1], Marijn Hesselink[1], Dorien Reijnders[1], Anita Vreugdenhil[1]

[1]Maastricht University

3-C-136 Objective measurement of the evolution of the distribution of physical activity in different social times during confinement against COVID-19: a longitudinal follow-up of French adolescents to understand the process of resilience in physical activity

Thibaut Derigny[1], François Potdevin[1], Georges Baquet[1], Joseph Gandrieau[1], Christophe Schnitzler[1]

[1]Université de Lille, Artois, Univ. Littoral Côte d'Opale, EA 7369, URePSSS, Unité de Recherche Pluri

3-D-89 The effect of tailored feedback on daily step count over 6 months: A longitudinal study.

Sarah McGarry[1], Joanne McVeigh[1], Hannah Baker[1], Emily Hoops[1], Naomi Jones[1], Rhiannon Halse[1], Leon Straker[1], Deborah Kerr[1]

[1]Curtin University

3-D-137 Investigating an ideal combination of time spent in physical activity and sedentary behavior that is associated with greatest reduction in mortality among older women

Jairo Migueles[1], I-Min Lee, Cristina Cadenas-Sanchez[2], Francisco Ortega[3], Julie Buring, Eric Shiroma[4]

[1]Linköping University, [2]Public University of Navarra, [3]University of Granada, [4]National Institutes of Health, National Institute on Aging

3-D-138 Comparison of activity monitors and bouts analysis methods in the study of daily-life walking pattern in older adults

Adrien Chanteau[1], Aline Taoum[1], Pierre Jéhannin[2], Guillaume Mahé[2], Alexis Le Faucheur[1]

[1]University of Rennes, [2]University Hospital Rennes France

3-D-139 Effects of Two Randomized and Controlled Multi-Component Interventions Focusing On 24-Hour Movement Behavior among Office Workers: A Compositional Data Analysis

Lisa-Marie Larisch[1], Emil Bojsen-Møller[1], Carla Nooijen[1], Victoria Blom[1], Maria Ekblom[1], Örjan Ekblom[1], Daniel Arvidsson[1], Jonatan Fridolfsson[1], David Hallman[2], Svend Erik Mathiassen[2], Rui Wang[1], Lena Kallings[1]

[1]Swedish School of Sport and Health Sciences, [2]University of Gävle

3-D-140 Postural control and proprioception in women with osteoporosis before and after an exercise training

Giuseppe Barone[1], Erika Pinelli[1], Maria Grazia Benedetti[2], Raffaele Zinno[1], Giuseppe Audino[1], Laura Bragonzoni[1]

[1]University of Bologna, [2]Istituto Ortopedico Rizzoli

3-D-141 Calibration and validation of physical activity cut-points for activPAL4: a pilot study

Kaja Kastelic[1], Jure Zitnik[2], Nejc Sarabon[3]

[1]University of Primorska, Andrej Marusic Institute, [2]InnoRenew, CoE, [3]University of Primorska, Faculty of Health Sciences

3-D-142 Defining continuous walking events in free-living activities: Mind the gap?

Abolanle Gbadamosi[1], Benjamin Griffiths[1], Alexandra Clarke-Cornwell[1], Malcolm Granat[1]

[1]University of Salford

3-D-143 Differences in accelerometer measured patterns of physical activity and sleep/rest between ethnic groups across different ages: an analysis of UK Biobank

Nathan Dawkins[1], Tom Yates[1], Cameron Razieh[1], Charlotte Edwardson[1], Ben Maylor[1], Francesco Zaccardi[1], Kamlesh Khunti[1], Alex Rowlands[1]

[1]University Of Leicester

3-D-144 Walkable Neighborhood During an Intervention Focus on Physical Activity Promotion

Antoni Colom[1]

[1]University Hospital Son Espases

3-D-145 Functional scores improvement after 6-month of an exercise program for women with osteoporosis: a randomized trial

Laura Bragonzoni[1], Erika Pinelli[1], Giuseppe Audino[1], Claudio Ripamonti[2], Francesco Benvenuti, Laura Dallolio[1], Sofia Marini[1], Pasqualino Maietta Latessa[1], Raffaele Zinno[1], Giuseppe Barone[1]

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3-D-146 Hourly cumulative physical activity patterns in community-dwelling middle-aged and older adults

Makoto Ayabe[1], Hideaki Kumahara[2], Hideaki Kumahara[3], Kensaku Sasayama[4], Kazuhiro Morimura[5], Takashi Oyama[1], Seiji Saito[1], Yoshihide Inukai[1]

[1]Okayama Prefectural University, [2]Nakamura Gakuen University, [3]MieUniversity, [4]MieUniversity, [5]Shujitsu University

3-D-147 Validity of wrist- and waist-worn ActiGraph wGT3X-BT and Kenz Lifecorder for step counting at walking and running speeds under controlled conditions

Hideaki Kumahara[1], Miwa Agune[2], Yuuichi Watanabe[2], Hibiki Aikawa[2], Makoto Ayabe[3]

[1]Nakamura Gakuen University, [2]Nakamura Gakuen University Graduate School, [3]Okayama Prefectural University

3-D-148 Compositional data analysis of physical behavior among Finnish adults in relation to cardio respiratory fitness

Henri Vähä-Ypyä[1], Kari Tokola[1], Pauliina Husu[1], Harri Sievänen[1], Tommi Vasankari[1]

[1]The UKK Institute for Health Promotion Research

3-D-149 Longitudinal associations between physical activity fragmentation indices and physical function in older adults

Jason Wilson[1], Mathias Skjødt[2], Paolo Caserotti[2], Mark Tully[1]

[1]Ulster University, [2]University of Southern Denmark

3-F-150 Effects of acoustically paced cadence modulation on impact forces in running

Anouk Nijs[1], Melvyn Roerdink[1], Peter Beek[1]

[1]Vrije Universiteit Amsterdam

3-F-151 Joint kinematics and reaction forces in upside-down dog position: Quantitative differences among yoga practitioners

Raffaele Zinno[1], Stefano Di Paolo[1], Erika Pinelli[1], Giuseppe Barone[1], Laura Bragonzoni[1]

[1]University of Bologna

3-H-152 Timing of the associations between objectively-measured physical activity levels and glycemic control and variability indices in the general population: results from the Food & You digital cohort study

Douae El Fatouhi[1], Harris Héritier[2], Marcel Salathé[2], Guy Fagherazzi[3]

[1]Inserm U1018, Centre for Research in Epidemiology and Population Health, [2]School of Life Sciences, École Polytechnique Fédérale de Lausanne (EPFL), [3]Department of Population Health, Luxembourg Institute of Health

3-J-153 Effect of physical activity on PPG signal quality

Serena Moscato[1], Lorenzo Chiari[1]

[1]University of Bologna

3-J-154 Classifying stepping behaviour using a combined cadence-duration heuristic

Craig Speirs[1], Kate Lyden, David Loudon[1], Malcolm Granat[2]

[1]PAL Technologies Ltd, [2]University of Salford

3-J-156 Unsupervised human activity recognition using a hidden semi-Markov model on wearable sensor data

Mariano Bernaldo[1], Jack de Boer[1], Claudine J.C. Lamoth[1], Natasha Maurits[1]

[1]University of Groningen, University Medical Center Groningen (RUG, UMCG)

3-J-157 The development of an open source algorithm for digital biomarkers of step cadence from wrist-worn accelerometer data using the V3 approach.

Joshua Twaites[1], Melvyn Hillsdon[1], Joss Langford

[1]University of Exeter

3-K-158 Calibration and cross-validation of cut-points for sedentary time and moderate-to-vigorous physical activity from hip, non-dominant and dominant wrist in older adults

Jairo Migueles, Cristina Cadenas-Sanchez[1], Juan M Alcantara[2], Javier Leal-Martín[3], Asier Mañas[3], Ignacio Ara[3], Nancy Glynn[4], Eric Shiroma[5]

[1]Public University of Navarra, [2]University of Granada, [3]Universidad de Castilla-La Mancha, [4]University of Pittsburgh, [5]National Institutes of Health

3-K-159 Validity of the wGT3X+ for activity bout analysis using the watershed algorithm

Aline Taoum[1], Quentin Delamare[2], Pierre Jéhannin[3], Guillaume Mahé[3], Alexis Le Faucheur[1]

[1]University of Rennes, [2]IRISA/Inria Rennes, [3]University Hospital

3-K-160 Validation of an automated sleep detection algorithm using multiple accelerometer data

Tatiana Plekhanova, Alex Rowlands[1], Tom Yates[1], Andrew Hall[2], Melanie Davies[1], Kamlesh Khunti[1], Charlotte Edwardson[1]

[1]University of Leicester, [2]University Hospitals of Leicester NHS Trust

3-K-161 Validity of smartphone-based measurement of the Five Times Sit-to-Stand Test

Ronny Bergquist[1], Francesca Gariboldi[2], Ane Øvreness[1], Emma Farina[2], Kristin Taraldsen[1], Beatrix Vereijken[1], Jorunn Helbostad[1], Sabato Mellone[2]

[1]Norwegian University of Science and Technology, [2]University of Bologna

3-K-162 A Comprehensive Statistical Analysis Framework for Validation of Digital Mobility Outcomes

M. Encarna Micó Amigo[1], Anne-Elie Carsin[2], Sarah Koch[2], Tecla Bonci[3], Andrea Cereatti[4], Rana Zia Ur Rehman[1], Cameron Kirk[1], Lynn Rochester[1], Aida Aydemir[5], Claudia Mazzà[3], Judith Garcia-Aymerich[2], Silvia Del Din[1]

[1]Newcastle University, [2]Barcelona Institute for Global Health (ISGlobal), [3]Sheffield University, [4]Politecnico di Torino, [5]a business of Merck KGaA, Darmstadt, Germany

3-L-44 Participants experiences of a six-week remote sedentary fractionation digital eHealth intervention with 24-hour accelerometery monitoring during COVID-19

Aidan Buffey[1], Brian Carson[1], Alan Donnelly[1]

[1]Physical Activity for Health, Research Cluster, Health Research Institute, University of Limerick

3-L-163 Multimodal cues for gait rehabilitation with smart glasses in persons with Parkinson's Disease (PD): a methodology for the selection of effective design solutions

Mattia Corzani[1], Silvia Imbesi[2], Giovanna Lopane[3], Lorenzo Chiari[4], Giuseppe Mincolelli[2]

[1]University of Bologna, [2]University of Ferrara, [3]IRCCS Istituto delle Scienze Neurologiche di Bologna, [4]Health Sciences and Technologies - Interdepartmental Center for Industrial Research (CIRI-SDV)

3-Q-164 Changes in pre-frontal cortex oxygenation during linear and curvilinear walking trajectories: a combined fNIRS and IMUs study

Valeria Belluscio[1], Gabriele Casti[1], Marco Ferrari[2], Valentina Quaresima[2], Jorn Horschig[3], Maria Sofia Sappia[3], Giuseppe Vannozzi[1]

[1]University of Rome Foro Italico, [2]University of L'Aquila, [3]Artinis Medical Systems

3-S-165 The effect of COVID-19 restrictions on level of physical activity and health in older home-dwelling adults in Norway

Arnhild Nygård[1], Kristin Taraldsen[1], Randi Granbo[1], Geir Selbæk[2], Jorunn Helbostad[1]

[1]Norwegian University of Science and Technology, [2]Oslo University Hospital

3-S-166 Number of daily steps among Finnish children and adolescents was lower during Covid-19-lockdown in spring 2020 compared to spring 2018

Pauliina Husu[1], Tommi Vasankari[1], Anne-Mari Jussila[1], Kari Tokola[1], Henri Vähä-Ypyä[1], Sami Kokko[2], Harri Sievänen[1]

[1]The UKK Institute for Health Promotion Research, [2]University of Jyväskylä, Faculty of Sport and Health Sciences

3-V-109 Canadian Health Measures Survey Cycle 7: Changes to the Movement Behaviour Measurement Protocol

Nicholas Kuzik[1], Janine Clarke[1], Rachel Colley[1], Thomas Ferrao[1], Aidan Gribbon[1], Michelle Guerrero[1], Nadjet Oulhaci[1], Jennifer Servais[1], Mélie St-Laurent[1], Mark Tremblay[2]

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