Wednesday 10th June

Oral Session 1: Physical Activity: Measurement & General Issues 1

Location: B10-23

Chair: TBC

09:15 – 09:30

01.1 Combining global positioning systems and accelerometry to identify physical activity hotspots" in adolescents residing in downtown Vancouver"
Christine Voss¹, Nolan Lee¹, Vivian Chung¹, Heather McKay¹, Meghan Winters²
¹University of British Columbia, Vancouver, British Columbia, Canada, ²Simon Fraser University, Vancouver, British Columbia, Canada.

09:30 – 09:45

01.2 Can do vs actually does: investigating the association between sensor-based functional measures and long-term physical activity monitoring
Sabato Mellone¹, Marco Colpo², Stefania Bandinelli², Lorenzo Chiari¹
¹Department of Electrical, Electronic and Information Engineering, University of Bologna, Bologna, Italy, ²Azienda Sanitaria Firenze, Florence, Italy.

09:45 – 10:00

01.3 Classification of cycling as a subcategory of locomotion with an accelerometer on the lower back
Siete C. Frouws¹, Rob van Lummel¹, Jaap van Dieën²
¹McRoberts, The Hague, Netherlands, ²VU University Amsterdam, Amsterdam, Netherlands.

10:00 – 10:15

01.4 Reliability of accelerometer-determined moderate-to-vigorous physical activity in children: A 12 country study
Tiago Barreira¹, John Schuna Jr², Jean-Philippe Chaput³, Timothy Church⁴, Mikael Fogelholm⁵, Gang Hu⁶, Rebecca Kuriyan⁶, Estelle Lambert⁷, Carol Maher⁸, Jose Maia⁹, Victor Matsudo10, Timothy Olds⁸, Vincent Onywera¹¹, Anura Kurpad⁶, Olga Sarmiento¹², Martyn Standage¹³, Mark Tremblay¹³, Pei Zhao¹⁴, Peter Katzmarzyk⁴
¹Syracuse University, Syracuse, New York, USA, ²Oregon State University, Oregon, USA, ³St. Johns Research Institute, Bengaluru, Karnataka, India, ⁴University of Cape Town, Cape Town, South Africa, ⁵University of South Australia, Adelaide, South Australia, Australia, ⁶Faculdade de Desporto, University of Porto, Porto, Portugal, ⁷Centro de Estudos do Laboratório de Aptidão Física de São Caetano do Sul (CELAFICS), Sao Paulo, Brazil, ⁸Kenyatta University, Nairobi, Kenya, ⁹Universidad de los Andes, Bogotá, Colombia, ¹⁰University of Bath, Bath, North East Somerset, UK, ¹¹Tianjin Women’s and Children’s Health Center, Heping, Tianjin, China.
Oral Session 2: Sedentary Behaviours: Measurement & General Issues 1

Location: C10-63

Chair: TBC

09:15 – 09:30

02.1 Empirically derived cut-points for sedentary behaviour for weekdays and weekends: are we sitting differently?
Alexandra Clarke-Cornwell¹, Tracey Farragher², Penny Cook¹, Lindsey Dugdill¹, Malcolm Granat¹
¹School of Health Sciences, University of Salford, Manchester, UK, ²The University of Leeds, Leeds, UK.

09:30 – 09:45

02.2 MVPA, and not sedentary time, is associated total and regional adiposity in a sample of UK adults
Deirdre Harrington¹, Charlotte Edwardson¹, Joe Henson¹, Kamlesh Khunti¹, Thomas Yates², Melanie Davies¹
Leicester Diabetes Centre, University of Leicester, Leicester, UK, ²NIHR Leicester-Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit, Leicester General Hospital, Leicester, UK.

09:45 – 10:00

02.3 Sedentary behavior: different types of operationalization influences outcomes
Johannes Bussmann¹, Malou Fanchamps¹, Rita van den Berg-Emons¹
¹Erasmus MC University Medical Center, Rotterdam, Netherlands.

10:00 – 10:15

02.4 Seasonal and weather-related physical activity and sedentary behaviour patterns accelerometer-measured among UK older adults
Claudio Sartini¹, Richard Morris², S Goya Wannamethee¹, Steve Iliffe¹, Sarah Ash¹, Lucy Lennon¹, Peter Whincup⁴, Barbara Jefferis³
¹University College London Medical School, Hampstead Campus, London, UK, ²University of Bristol, Bristol, London, ³St George’s University, London, UK, ⁴St George’s University, London, UK.
Oral Session 3: Measuring and Optimising Physical Behaviours in Clinical Populations

Location: C10-63

Chair: TBC

14:30 – 14:45

03.1 Comparing physical activity levels based on self-report and accelerometry in those with and those without knee joint pathology
Sean Hurley¹, Sarah Kozey Keadle², William Stanish¹, Cheryl Hubley-Kozy²
¹Dalhousie University, Halifax, Nova Scotia, Canada, ²National Cancer Institute, Maryland, USA.

14:45 – 15:00

03.2 Older people who feel fatigue have restricted ability to accumulate physical activity
Thorlene Egerton¹, Dorthe Stensvold¹, Ulrik Wisløff¹, Jorunn Helbostad¹, Sebastien Chastin²
¹Norwegian University of Science and Technology, Trondheim, Sør Trøndelag, Norway, ²Glasgow Caledonian University, Glasgow, Scotland, UK.

15:00 – 15:15

03.3 The detection and isolation of tremor in people with multiple sclerosis (MS) using a wrist worn sensor
Stefan Teufl¹, Jenny Preston¹, Frederike van Wijck¹, Ben Stansfield¹
¹Glasgow Caledonian University, Glasgow, Scotland, UK.

15:15 – 15:30

03.4 A behavior intervention focusing on an active lifestyle is effective in persons with recent SCI: a randomized controlled trial
Carla Nooijen¹, Henk Stam¹, Michael Bergen², Rita van den Berg-Emons¹, Act-Active Research group¹
¹Erasmus MC University Medical Center, Rotterdam, Netherlands, ²Rijndam Rehabilitation Institute, Rotterdam, Netherlands.

15:30 – 15:45

03.5 The effects of activity and glucose on fatigue in type 2 diabetes: Elucidating relationships by time aggregate and gender
Cynthia Fritschi¹, Chang Park¹, Laurie Quinn¹
¹University of Illinois at Chicago, Chicago, Illinois, USA.

15:45 – 16:00

03.6 Objective measures of physical performance normalize following surgery for lumbar spinal stenosis
Matthew P Buman¹, Matthew Smuck², Ming-Chih Kao², Christy Tomkins-Lane², Agnes Ma², William Haskell²
¹Arizona State University, Phoenix, Arizona, USA, ²Stanford University, Stanford, California, USA.
Oral Session 4: Validation and Calibration

Location: B10-23

Chair: TBC

14:30 – 14:45  
04.1 Stride-to-stride gait variability in daily life measured using accelerometers attached to the wrist
Benedikt Fasel¹, Kamiar Aminian¹
¹Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland.

14:45 – 15:00  
04.2 Agreement between Sensewear Armband Mini and wrist worn GT3X+ Monitors in Youth: Emphasis on nonwear time classification
Pedro Saint-Maurice¹, Youngwon Kim¹, Gregory Welk¹
¹Iowa State University, Ames, Iowa, USA.

15:00 – 15:15  
04.3 Accuracy of a low-cost commercially available GPS data logger/receiver to estimate the slope during outdoor walking
Pierre-Yves de Müllenheim, Ségolène Chaudru, Marie Gernigon, Guillaume Mahé, Sandrine Bickert, Jacques Prioux, Bénédicte Noury-Desvaux, Alexis Le Faucheur
Laboratory of Sport, Health and Movement, University of Rennes 2, Rennes, France.

15:15 – 15:30  
04.4 Assessing the impact of environmental conditions on GPS accuracy during human walking
Pierre-Yves de Müllenheim¹, Ségolène Chaudru², Marie Gernigon³, Guillaume Mahé⁴, Sandrine Bickert³, Jacques Prioux⁶, Bénédicte Noury-Desvaux⁶, Alexis Le Faucheur⁵
Department of Sports Sciences and Physical Education, Ecole Normale Supérieure de Rennes, Bruz, France, ²Centre d'Investigation Clinique (CIC, INSERM, 1414), ³Laboratoire des Explorations Fonctionnelles de l'Exercice (LEFE, CHU d'Angers), ⁴Centre d'investigation clinique (CIC, INSERM, 1414), ⁵ENS.

15:30 – 15:45  
04.5 Validation of an automated algorithm to identify waking and sleeping time in 24 hour accelerometer data
Julianne Van Der Berg¹, Paul Willems¹, Jeroen van der Velde¹, Hans Savelberg¹, Nicolaas Schaper¹, Miranda Schram¹, Simone Sep¹, Pieter Dagnelie¹, Hans Bosma¹, Coen Stehouwer¹, Annemarie Koster¹
¹Maastricht University, Maastricht, Limburg, Netherlands.

15:45 – 16:00  
04.6 Utility of sedentary behaviour questionnaires in older men; comparisons with accelerometer data
Barbara Jefferis¹, Claudio Sartini¹, Sarah Ash¹, Lucy Lennon¹, S Wannamethee¹, Peter Whincup²
¹University College London Department of Primary Care & Population Health, London, UK, ²St George’s, University of London, London, UK.
Thursday 11th June

**Oral Session 5: Sleep**

**Location:** C10-63

**Chair:** TBC

08:00 – 08:15

**05.1 Does the composition of the day matter for health? A compositional data analysis paradigm for physical activity, sedentary behaviour and sleep research**
Sebastien F Chastin, Javier Palarea-Albaladejo

1Glasgow Caledonian University, Glasgow, Scotland, UK, 2Biomathematics and Statistics Scotland, Edinburgh, Scotland, UK.

08:15 – 08:30

**05.2 The stability of actigraphic measures of sleep from 3 to 7 years of age**
Rachael Taylor¹, Sheila Williams¹, Victoria Farmer¹, Barry Taylor¹

¹University of Otago, North Dunedin, Dunedin, New Zealand.

08:30 – 08:45

**05.3 Comparing an automated accelerometer algorithm against expert visual detection of children's overnight sleep**
Kim Meredith-Jones¹, Sheila Williams¹, Barbara Galland¹, Gavin Kennedy¹, Rachael Taylor¹

¹University of Otago, North Dunedin, Dunedin, New Zealand.

08:45 – 09:00

**05.4 Activity Monitoring in The Irish Longitudinal Study on Ageing: Data Processing Methods**
Hugh Nolan¹, Rose Anne Kenny¹

¹Trinity College Dublin, Dublin, Ireland.
Oral Session 6: Balance and Falls

Location: B10-23

Chair: TBC

08:00 – 08:15

06.1 Quality of mobility during daily life is compromised in elderly fallers
Martina Mancini¹, Mahmoud El-Gohary², Jeffrey Kaye¹, Fay Horak¹
¹Oregon Health & Science University, Portland, Oregon, USA, ²APDM Inc, Portland, Oregon, USA.

08:15 – 08:30

06.2 Smartphone-based Fall Detection Algorithm and Validation
Joana Silva¹, Bruno Aguiar¹, Tiago Rocha¹, Filipe Sousa¹, Ines Sousa¹
¹Associação Fraunhofer Portugal Research, Porto, Portugal.

08:30 – 08:45

06.3 From gait labs to the real world - a new generation of outcome measures based on mobile accelerometry in ageing research: results from an international symposium
Marttiin Daumer¹, Timur Nuritdinow¹, Christian Lederer¹
¹SLCMSR e.V. - The Human Motion Institute & Trium, Munich, Germany.

08:45 – 09:00

06.4 WISEL: Wireless Insole for Independent and Safe Elderly Living
Richard Harte¹, Monica Casey¹, Patrick Hayes¹, Gearóid ÓLaighin¹, Elisenda Reixach², Carlos Carenas³, Cristina Rusu⁴, John Rosevall⁵, Stefan Burkard⁶, Jordi Chamaguë⁷, Liam Glynn¹
¹National Centre for Biomedical Engineering and Science, National University of Ireland, Galway, Ireland, ²CETEMMSA, Av. d'Ernest Lluch 36 - Parc Científic i de la Innovació TecnoCampus, 08302, Mataró, Barcelona, Spain, ³CETESSMA, Av. d’Ernest Lluch 36 - Parc Científic i de la Innovació TecnoCampus, 08302, Mataró, Barcelona, Spain, ⁴Acreo, Swedish ICT AB, Sensor Systems Department, Kista, Sweden, ⁵Acreo, Swedish ICT AB, Sensor Systems Department, Kista, Sweden, ⁶Spring techno GmbH & Co. KG, Hermann-Köh-Str. 7, 28199, ⁷T.I. GEISA, s.l., C. Ramon LLull s/n, P.I. Can Trias, 08232, Viladecavalls, Barcelona, Spain.
Oral Session 7: Physical Activity: Measurement & General Issues 2

Location: C10-63

Chair: TBC

14:00 – 14:15 07.1 Using a machine learning approach to enhance prediction of children's energy expenditure
Kelly Mackintosh¹, Alexander Montoye², Karin Pfeiffer³, Melitta McNarry¹
Swansea University, Swansea, Wales, UK, ²Ball State University, Muncie, Indiana, USA, ³Michigan State University, Michigan, USA.

14:15 – 14:30 07.2 Video Direct Observation to Assess Children's Free-Play Physical Activity during School Recess
Cheryl Howe¹, Kimberly Clevenger¹, Joann Benigno¹
¹Ohio University, Athens, Ohio, USA.

14:30 – 14:45 07.3 Smartphone Based Physical Activity Recognition with Geospatial Awareness
¹John J Guiry, ¹Pepijn van de Ven, ¹John Nelson
Department of Electronic and Computer Engineering, University of Limerick, Limerick, Ireland.

14:45 – 15:00 07.4 Development of wrist-independent energy expenditure prediction models from raw accelerometer data
Alexander Montoye¹, James Pivarnik², Lanay Mudd², Subir Biswas², Karin Pfeiffer²
¹Ball State University, Muncie, Indiana, USA, ²Michigan State University, Michigan, USA.
Oral Session 8: Measuring and Optimising Physical Behaviours in Clinical Populations

Location: B10-23

Chair: TBC

14:00 – 14:15

08.1 Further development of the instrumented Bath Ankylosing Spondylitis Functional Index (iBASFI) in axial spondyloarthritis: the added value of complex accelerometry-derived movement features for activity capacity assessment

1Lieven Billiet, 1Thijs Swinnen, 1Milica Milosevic, 1Wim Dankaerts, 1Sabine Van Huffel, 1René Westhovens, 1Kurt de Vlam

KU Leuven, Leuven, Vlaams-Brabant, Belgium.

14:15 – 14:30

08.2 Treating gait impairments of patients with Parkinson’s disease by means of real-time biofeedback in a daily life environment: The Cupid System

Lorenzo Chiari¹, Pieter Ginis², Moran Dorfman³, Anat Mirelman³, Alice Nieuwboer², Alberto Ferrari¹

¹University of Bologna, Bologna, Italy, ²KU Leuven, Leuven, Vlaams-Brabant, Belgium, ³Tel Aviv Sourasky Medical Center, Tel Aviv, Israel.

14:30 – 14:45

08.3 Measurement of physical activity by accelerometry and doubly labeled water predicts growth in preschool-aged children

Nancy Butte¹, Maurice Puyau¹, Yan Liu¹, William Wong¹, Theresa Wilson¹, Anne Adolph¹, Roman Shypailo¹, Issa Zakeri²

¹Baylor College of Medicine, Houston, Texas, USA, ²Drexel University, Philadelphia, USA.

14:45 – 15:00

08.4 Relationship between Changes in MVPA Time and peak 30-min Cadence

Catrine Tudor-Locke¹, John Schuna, Jr.², Damon Swift³, Sandra Larrivee¹, Corby Martin¹, William Johnson¹, Timothy Church¹

¹Pennington Biomedical Research Center, Baton Rouge, Louisiana, USA, ²Oregon State University, Oregon, USA, ³East Carolina University Greenville, North Carolina, USA.
Friday 12\textsuperscript{th} June

**Oral Session 9: Sedentary Behaviours: Measurement & General Issues 2**

**Location:** C10-63

**Chair:** TBC

10:45 – 11:00  **09.1 Reallocating time from sitting to standing or to stepping: cross-sectional associations with cardiometabolic risk biomarkers in Australian adults**  
Genevieve Healy\textsuperscript{1}, David Dunstan\textsuperscript{2}, Elisabeth Winkler\textsuperscript{1}, Neville Owen\textsuperscript{2}  
*The University of Queensland, Brisbane, Queensland, Australia, \textsuperscript{2}Baker IDI Heart & Diabetes Institute, Melbourne, Victoria, Australia.*

11:00 – 11:15  **09.2 Objectively measured sedentary behaviour patterns according to diabetes status: The Maastricht Study**  
Annemarie Koster\textsuperscript{1}, Julianne van der Berg\textsuperscript{1}, Hans Bosma\textsuperscript{1}, Jeroen van der Velde\textsuperscript{1}, Paul Willems\textsuperscript{1}, Hans Savelberg\textsuperscript{1}, Miranda Schram\textsuperscript{1}, Simone Sep\textsuperscript{1}, Carla van der Kallen\textsuperscript{1}, Ronald Henry\textsuperscript{1}, Pieter Dagnelie\textsuperscript{1}, Nicolaas Schaper\textsuperscript{1}, Coen Stehouwer\textsuperscript{1}  
*Maastricht University, Maastricht, Netherlands.*

11:15 – 11:30  **09.3 Associations between sedentary behaviour, moderate to vigorous physical activity and cortical bone size in children**  
Rebecca Meiring\textsuperscript{1}, Lisa Micklesfield\textsuperscript{2}, Andrew Green\textsuperscript{1}, Joanne McVeigh\textsuperscript{1}  
\textsuperscript{1}Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, Gauteng, South Africa, \textsuperscript{2}MRC/Wits Developmental Pathways for Health Research Unit, University of the Witwatersrand.

11:30 – 11:45  **09.4 Validity of objectively measured sedentary behaviour against waist circumference**  
Pauliina Husu\textsuperscript{1}, Jaana Suni\textsuperscript{1}, Kari Tokola\textsuperscript{1}, Henri Vähä-Ypyä\textsuperscript{1}, Harri Sievänen\textsuperscript{1}, Tommi Vasankari\textsuperscript{1}  
\textsuperscript{1}The UKK Institute for Health Promotion Research, Tampere, Finland.
Oral Session 10: Data Processing, Analysis and Statistics

Location: B10-23

Chair: TBC

10:45 – 11:00

10.1 Actigraphy features for predicting mobility function in older adults
Todd Manini¹, Catrine Tudor-Locke², Robert Axtell³, Matthew Buman⁴, Roger Fielding⁵, Nancy Glynn¹, Don Hire⁶, Jack Guralnik⁷, Abby King⁸, Dan White⁹, Michael Miller⁶, Juned Siddique¹⁰, Peter Brubaker⁶, W. Jack Rejeski⁶, Stephen Ranshous¹, Matin Kheirkhahan¹, Marco Pahor¹, Sanjay Ranka¹
¹University of Florida, Gainesville, Florida, USA, ²Pennington Biomedical Research Center, Baton Rouge, Louisiana, USA, ³Southern Connecticut State University, New Haven, Connecticut, USA, ⁴Arizona State University, Phoenix, Arizona, USA, ⁵Tufts University, Massachusetts, USA, ⁶Wake Forest School of Medicine, North Carolina, USA, ⁷University of Maryland, Maryland, USA, ⁸Stanford University School of Medicine, Stanford, California, USA, ⁹Boston University, Massachusetts, USA, ¹⁰Northwestern University, Illinois, USA.

11:00 – 11:15

10.2 Open Platforms to Sustain and Reuse Component Contributions
Jon Moon¹, Jared Sieling¹, Erik Iverson¹
MEI Research, Edina, Minneapolis, USA.

11:15 – 11:30

10.3 Validation of an automated STATA algorithm developed for isolating waking wear data in activPAL data
Charlotte Edwardson¹, Kishan Bakrania¹, Danielle Bodicoat¹, Tom Yates¹, Genevieve Healy², Elisabeth Winkler²
¹Diabetes Research Centre, University of Leicester, Leicester General, Leicester, Leicestershire, ²The University of Queensland, Brisbane, Queensland, Australia.

11:30 – 11:45

10.4 Trajectory patterns for Australian adults? Sedentary behaviour and moderate-to vigorous-intensity physical activity over 12 years
Paul Gardiner¹, Libby Holden¹, Brigid Lynch², Genevieve Healy¹, Natasha Reid¹, Bronwyn Clark¹, David Dunstan³, Neville Owen³
¹The University of Queensland, Brisbane, Queensland, Australia, ²Cancer Council Victoria, Melbourne, Victoria, Australia, ³Baker IDI Heart and Diabetes Institute, Diabetes Institute, Melbourne, Victoria, Australia.