

# ISMPB

International Society for the  
Measurement of Physical Behaviour



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# Newsletter ISMPB

## March, 2017

[WWW.ISMPB.ORG](http://WWW.ISMPB.ORG)

## Message from the president

### ISMPB Statement regarding recent US travel ban

Dear ISMPB members and colleagues,

The International Society for the Measurement of Physical Behaviour (ISMPB) aims to promote and facilitate the study and application of the objective measurement and quantification of free-living physical behaviour and its related constructs using wearable devices.

As an international society, we value and appreciate the input and contributions of colleagues and researchers throughout the world. We view the international involvement of all of our members as a critical and important component to the successful exchange of knowledge and ideas and the

promotion of the Society's scientific and research agenda. As such, the ISMPB strives to bring together people from a wide variety of backgrounds and expertise, regardless of religion, nationality, or ethnicity.

In the wake of the recent US travel ban for citizens of certain countries, we wish to reiterate our commitment to the inclusion and support of scientists and their scientific endeavours without regard to nationality. We pledge to support all of the members by continuing to provide an outlet to network with peers and to share research widely and remain fully committed to fostering international collaborations.

With regards to our upcoming international conference that will be held this June, the extent to which the recent temporary ban will influence our members' ability to attend the conference is currently unclear. We will continue to monitor events carefully.

We greatly value all ISMB members from all over the world. If need be, we will take steps, to the degree possible, to accommodate those whose participation in the conference may be negatively affected by the US travel ban.

If you have specific questions or requests regarding your participation in the conference, we will do our best to accommodate them. Please e-mail me ([j.b.j.bussmann@erasmusmc.nl](mailto:j.b.j.bussmann@erasmusmc.nl)) with your question or request.

Thank you for your ongoing support of the ISMPB.

We look forward to a productive conference this June, with full international representation.

Yours sincerely,  
on behalf of the Board of the ISMPB

**Hans Bussmann**

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## News!

### LATE BREAKING POSTER ABSTRACT SUBMISSION NOW OPEN!

In order to present the most current scientific research possible, the fifth International Conference on Ambulatory Monitoring of Physical Activity and Movement (ICAMPAM) would like to reopen submissions for Late Breaking Poster Abstracts. Poster submissions will be accepted until Sunday, March 26th at 11:59 CST. We will be accepting abstracts on a first come, first served basis. Please visit

<http://www.ismpb.org/abstract-submission/>.

### EARLY BIRD REGISTRATION DEADLINE EXTENSION

In correlation with our Late Breaking Abstract deadline, our Early Bird Registration rates will be now available until Saturday, April 15th at 11:59 CST. Please visit

<http://www.ismpb.org/registration/>.

### MEMBERSHIP NOW DUE!

The first term of membership has finished. Membership can be purchased as part of ICAMPAM registration fees or separately.

<http://www.ismpb.org/membership/>

## Member profile

by Aiden Doherty

**Everybody has a unique career path to their current destination. Can you share some of your stops along the way?**

My BSc (Uni. Ulster) and PhD (Dublin City Uni) awards were both in computer science. The PhD provided the opportunity to pursue my interest in using technology to objectively measure lifestyle health behaviours. Specifically, I designed a set of processes to organise, store, and extract episodes of behaviour (such as walking and cycling) from wearable camera data. I then had a postdoctoral internship at the headquarters of Microsoft Research in the United States where I developed a mobile phone platform to gather and process wearable sensor data for health applications (which immediately became obsolete as various iPhone releases came out!).

**Tell us about a current project you are working on.**

Most of my team's work is focused on precisely characterising behavioural phenotypes from sensor data and their health consequences in a range of very large cohort studies. We do have a couple of fun side projects too, one of which has involved the development of a Raspberry Pi home-garage wearable camera!

**What do you think are the most important research advancements in this area?**

Stephen Intille's 2004 Pervasive, Rick Troiano's 2008 MSSE, Genevieve Healy's 2008 Diabetes Care, I-Min Lee's 2014 BJSM, and Greg Welk's 2014 consumer device validity articles are some of my favourite papers. I am biased on recent papers, but Kat Ellis and the folk at San Diego have published terrific work showing the necessity of developing methods in naturalistic free-living environments. The recent UK Biobank paper is also an important milestone showing that we really have few excuses against collecting



accelerometer data in decent numbers of people.

**Have you participated in any ISMBP events? If so, can you please describe your experiences?**

I attended the Limerick event in 2015, where I regularly and anxiously checked my phone due to the imminent arrival of twin boys. Thankfully they didn't arrive early, and a symposium organised with Johanna Hanggi and Kat Ellis went well.

**In the future, what would you like to see from the ISMBP?**

The field of wearables has attracted much interest from a range of communities, and it will be important for ISMBP to focus on staying relevant. This probably should involve a focus on clinical evaluation, rather than device or data processing development.

### IS THERE ANYTHING YOU WANT TO FOLLOW UP WITH AIDEN?

aiden.doherty@dph.ox.ac.uk  
Contact Info

KEEP UP TO DATE ON OUR WEBSITE  
<http://www.ismpb.org/>

CONTRIBUTIONS CONTACT:

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CHERYL HOWE: [howec@ohio.edu](mailto:howec@ohio.edu)



# ICAMPAM 2017

National Institutes of Health (NIH),  
Bethesda, Maryland

Clear your calendar for June 21-23, 2017 and head to Bethesda for the 5th International Conference on Ambulatory Monitoring of Physical Activity and Movement

## Amazing ICAMPAM Keynote Speakers

Nick Wareham: "UK Biobank data"



Mike McConnell: "Use of Consumer Devices in Research"



Heiner Boeing: "German National Cohort Study"

Bjorn Eskofier: "Smart shoes reach the clinic: Wearable sensor-based instrumented gait analysis for movement disorders"

James McClain: "Participant Technology and Assessment in the All of Us Research Program: Current Status and Future Innovations"



Jennifer Hicks: "Planetary Scale Smartphone Data Reveal Relationships Between Physical Activity, Environment, & Health"

### KEYNOTE SPEAKER COMMENT:

Conferences like ICAMPAM are great to look beyond the rim of your daily work. Personally I am looking forward to ICAMPAM because it'll allow me to network with fellow scientists. In my keynote, I'll touch base on the future of health and I'll focus on how ubiquitous sensors and machine learning will change the way we deliver medical treatment.

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And there's  
more....

## Invited Speakers

Deborah Estrin: "Using small data to personalize, sustain and study health behavior"

Tommi Vasankari: "Use of mean amplitude deviation as an approach to acceleration data processing - experiences from Finnish population based studies"

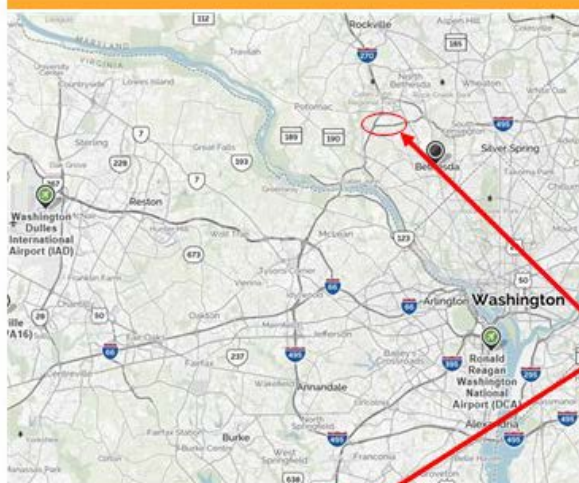
Matthew Smuck: "Physical Performance Monitoring and Clinical Applications in Orthopedics"

Diane Cook: "Activity-Aware Smart Homes for Health Assessment and Intervention"

Kate Lyden: "Measuring Physical Behavior: Insights from Device Manufacturers and Academic Research Laboratories"

John Reilly: "When does it all go wrong?: changes in physical activity and sedentary behaviour across childhood and adolescence"

## Where is Bethesda?



Drive time to Bethesda from Washington DC downtown 11mins, Ronald Regan airport 16 mins, Dulles airport 31 mins (all traffic dependant).

Bethesda is to the north of Washington DC downtown and the NIH is just North East again and one stop further on the Metro Red Line.



Public transport time to Bethesda from Washington DC downtown 25mins (Red line), Ronald Regan airport 39 mins (Blue then Red lines), Dulles Airport 1h 23mins (Bus and 2 trains).

### SOME HELPFUL LINKS FOR GETTING AROUND:

TO AND FROM DULLES AIRPORT [HTTP://WWW.FLYDULLES.COM/IAD/PARKING-TRANSPORTATION](http://www.flydulles.com/iad/parking-transportation) ;  
TO AND FROM RONALD REAGAN AIRPORT [HTTP://WWW.FLYREAGAN.COM/DCA/PARKING-TRANSPORTATION](http://www.flyreagan.com/dca/parking-transportation) ;  
GETTING AROUND BY METRO [HTTPS://WWW.WMATA.COM/](https://www.wmata.com/)

## Did you know???

Registration includes pre-conference workshops held on Tuesday 20<sup>th</sup> June

Functional Data Analysis for Wearables: Methods and Applications

Grasping Physical Activity: Using 3D printers to visualise physical activity

Novel analytics, signal processing and exercise science

ALPHABET: Consensus meeting on the development of a taxonomy of 24 hour activity cycle data

Compositional Data Analysis – Hands on Demonstration

And many more.

See:

<http://www.ismpb.org/pre-conference-workshops/>

# Member activity

What's new in the world of physical activity measurement? Look what our members have been up to.

**Measurement down under:** In December last year, the NHMRC Centre of Research Excellence on Sedentary Behaviour and Health: Mechanisms, Measurement and Interventions met in Melbourne, Australia. There were a series of excellent presentations on the work being done by Australian researchers in the area of measurement development: 'Advances in analysing activity monitor data' by Elisabeth Winkler and 'Measuring the context of change in sitting time' by Bronwyn Clark, both from The University of Queensland; and 'Children's changes in activity patterns in response to reducing sitting time' by Nicky Ridgers and Simone Verswijvere, from Deakin University. To view these and other presentations visit: <http://www.sittingcre.com/videos.html>

Sports Med  
DOI 10.1007/s40279-016-0663-1

REVIEW ARTICLE

## Step Counting: A Review of Measurement Considerations and Health-Related Applications

David R. Bassett Jr.<sup>1</sup> · Lindsay P. Toth<sup>1</sup> · Samuel R. LaMunion<sup>1</sup> · Scott E. Crouter<sup>1</sup>

Medicine & Science  
IN  
Sports & Exercise

The Official Journal of the American College of Sports Medicine  
WWW.ACASM-MSSE.ORG

... Published ahead of

## The activPAL™ Accurately Classifies Activity Intensity Categories in Healthy Adults

Kate Lyden<sup>1</sup>, Sarah Kozey Keadle<sup>1</sup>, John Staudenmayer<sup>2</sup>, and Patty S. Freedson<sup>1</sup>

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<sup>2</sup>Department of Mathematics and Statistics, University of Massachusetts, Amherst, MA

sensors MDPI

Article

## Performance Evaluation of State of the Art Systems for Physical Activity Classification of Older Subjects Using Inertial Sensors in a Real Life Scenario: A Benchmark Study

Muhammad Awais<sup>1,\*</sup>, Luca Palmerini<sup>1</sup>, Alan K. Bourke<sup>2</sup>, Espen A. F. Ihlen<sup>2</sup>, Jorunn L. Helbostad<sup>2</sup> and Lorenzo Chiari<sup>1,3</sup>

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<sup>3</sup> Health Sciences and Technologies Interdepartmental Center for Industrial Research, University of Bologna, Bologna 40126, Italy  
\* Correspondence: muhammad.awais2@unibo.it; Tel.: +39-051-209-3188

PLOS ONE

RESEARCH ARTICLE

## Large Scale Population Assessment of Physical Activity Using Wrist Worn Accelerometers: The UK Biobank Study

Aiden Doherty<sup>1,2\*</sup>, Dan Jackson<sup>3</sup>, Nils Hammaria<sup>4</sup>, Thomas Plötz<sup>5</sup>, Patrick Olivier<sup>6</sup>, Malcolm H. Granat<sup>7</sup>, Tom White<sup>8</sup>, Vincent T. van Hees<sup>9</sup>, Michael I. Trenell<sup>6</sup>, Christopher G. Owen<sup>7</sup>, Stephen J. Preece<sup>8</sup>, Rob Gillions<sup>9</sup>, Simon Sheard<sup>9</sup>, Tim Peakman<sup>9</sup>, Soren Brage<sup>10</sup>, Nicholas J. Wareham<sup>2,11</sup>

<sup>1</sup> Big Data Institute, Nuffield Department of Population Health, BHF Centre of Research Excellence, University of Oxford, Oxford, United Kingdom, <sup>2</sup> Institute of Biomedical Engineering, Department of Engineering Science, University of Oxford, Oxford, United Kingdom, <sup>3</sup> Open Lab, Newcastle University, Newcastle, United Kingdom, <sup>4</sup> School of Health Sciences, University of Salford, Manchester, United Kingdom, <sup>5</sup> MRC Epidemiology Unit, University of Cambridge, Cambridge, United Kingdom, <sup>6</sup> MoveLab, Department of Health, Behavior and Society, Johns Hopkins University, Baltimore, United States of America, <sup>7</sup> School of Health and Life Sciences, Aston University, Birmingham, United Kingdom, <sup>8</sup> Department of Health, Behavior and Society, Johns Hopkins University, Baltimore, United States of America, <sup>9</sup> Department of Health, Behavior and Society, Johns Hopkins University, Baltimore, United States of America, <sup>10</sup> Department of Health, Behavior and Society, Johns Hopkins University, Baltimore, United States of America, <sup>11</sup> MRC Epidemiology Unit, University of Cambridge, Cambridge, United Kingdom

Condello et al. BMC Public Health (2016) 16:1145  
DOI 10.1186/s12889-016-3800-8

RESEARCH ARTICLE Open Access

## Using concept mapping in the development of the EU-PAD framework (European-Physical Activity Determinants across the life course): a DEDIPAC-study

Giancarlo Condello<sup>1\*</sup>, Fiona Chun Man Ling<sup>2,3</sup>, Antonino Bianco<sup>4</sup>, Sebastien Chastin<sup>5</sup>, Greet Cardon<sup>6</sup>, Donatella Ciarapica<sup>7</sup>, Daniele Conte<sup>1</sup>, Cristina Cortis<sup>8</sup>, Marieke De Craemer<sup>9</sup>, Andrea Di Blasio<sup>9</sup>, Masar Gjaka<sup>1</sup>, Sylvia Hansen<sup>10</sup>, Michelle Holdsworth<sup>11</sup>, Licia Iacoviello<sup>12</sup>, Pascal Izacupo<sup>9</sup>, Lina Jaeschke<sup>13</sup>, Liliana Leone<sup>1,14</sup>, Livia Manoni<sup>1</sup>, Cristina Menescardi<sup>15</sup>, Silvia Migliaccio<sup>1</sup>, Julie-Anne Nazare<sup>16</sup>, Camille Perchoux<sup>16</sup>, Caterina Pesce<sup>1</sup>, Frank Pierik<sup>17</sup>, Tobias Pischon<sup>13</sup>, Angela Polito<sup>7</sup>, Anna Puggina<sup>18</sup>, Alessandra Sannella<sup>9</sup>, Wolfgang Schlicht<sup>10</sup>, Holger Schulz<sup>19</sup>, Chantal Simon<sup>16</sup>, Astrid Steinbrecher<sup>13</sup>, Ciaran MacDonncha<sup>2</sup>, Laura Capranica<sup>1</sup> and on behalf of the DEDIPAC consortium

ELSEVIER

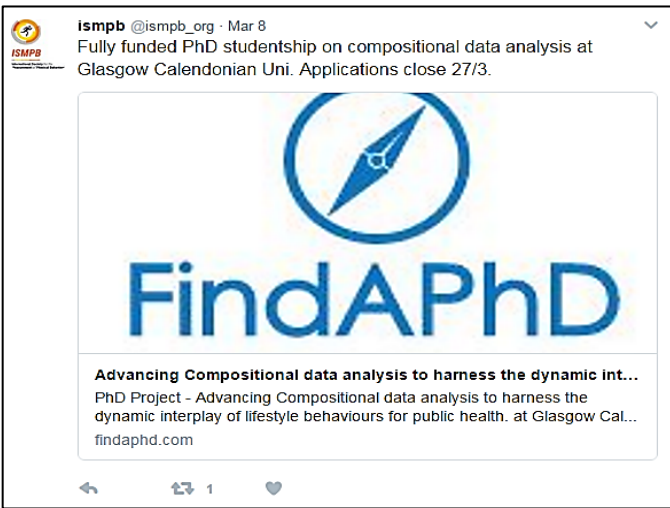
Preventive Medicine Reports

Associations of objectively measured moderate-to-vigorous-intensity physical activity and sedentary time with all-cause mortality in a population of adults at high risk of type 2 diabetes mellitus

Kishan Bakrania<sup>a,b,c,d,e</sup>, Emmanuel Stamatakis<sup>f,g</sup>, Charlotte L. Edwardson<sup>h,i</sup>, Mark Hamer<sup>j,k</sup>, Melanie J. Davies<sup>b,c,d</sup>, Kamlesh Khunti<sup>b,c,e</sup>, Thomas Yates<sup>b,c,d</sup>, Joseph Henson<sup>b,c,d</sup>

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<sup>c</sup> National Institute for Health Research (NIHR) Leicester Clinical Trials Research Unit, Leicester, Leicestershire, LE1 4RH, United Kingdom  
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<sup>e</sup> Department of Health Sciences, University of Leicester, Leicester, Leicestershire, LE1 4RH, United Kingdom  
<sup>f</sup> Department of Health Sciences, University of Leicester, Leicester, Leicestershire, LE1 4RH, United Kingdom  
<sup>g</sup> Department of Health Sciences, University of Leicester, Leicester, Leicestershire, LE1 4RH, United Kingdom  
<sup>h</sup> Department of Health Sciences, University of Leicester, Leicester, Leicestershire, LE1 4RH, United Kingdom  
<sup>i</sup> Department of Health Sciences, University of Leicester, Leicester, Leicestershire, LE1 4RH, United Kingdom  
<sup>j</sup> School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, Leicestershire, LE11 3TU, United Kingdom  
<sup>k</sup> School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, Leicestershire, LE11 3TU, United Kingdom

# What's happening for ISMPB on social media?



### International Children's Accelerometry Database (ICAD)

Objective methods, such as accelerometers, have become a preferred option when measuring population levels of physical activity, examining trends in activity patterns and when examining associations between activity and health outcomes in young people.

The International Children's Accelerometry Database (ICAD) project is a consortium including 20 partners which pooled and reduced raw accelerometer data using standardized methods to create comparable outcome variables in 32,000 young people aged 3 to 18 years across studies from Europe, the US, Brazil and Australia.

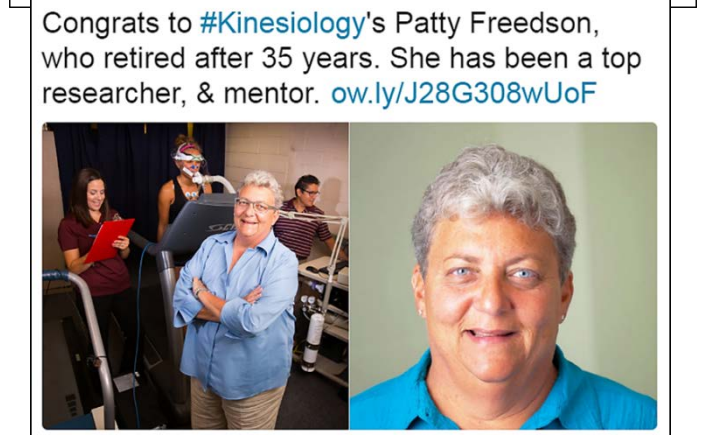
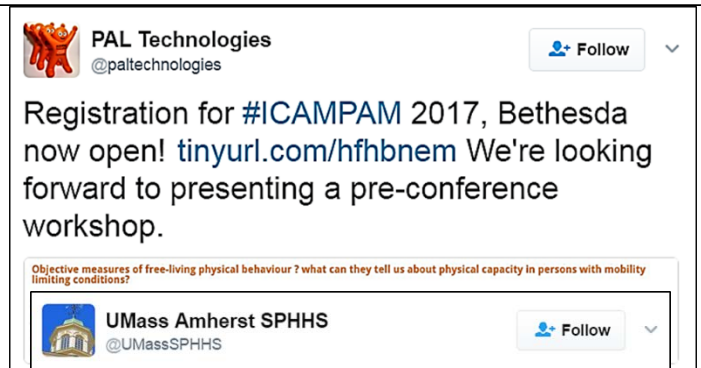
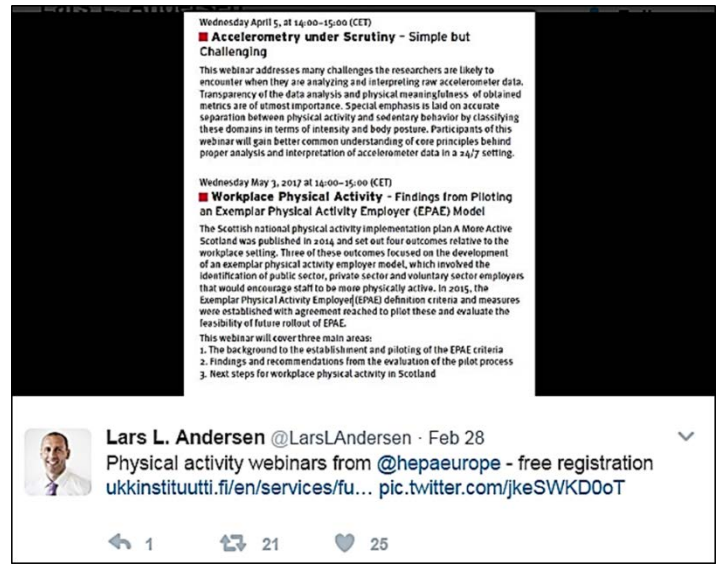
By pooling and reanalysing accelerometer data from different studies the ICAD has the potential to: a) increase statistical power due to a large sample size, b) create a more heterogeneous and potentially more representative sample, c) standardize and optimize the analytical methods used in the generation of outcome variables, and d) provide a means to study the causes of inter-study variability in physical activity.

The ICAD project was funded by the National Prevention Research Initiative in the UK and is led by a Steering Committee including representatives from all contributing partners. A collaborative ICAD Working Group from the MRC Epidemiology Unit, Loughborough University and Norwegian School of Sport Sciences manages the day-to-day running of ICAD. The ICAD Working Group consists of: Dr. Andrew Atkin, Prof. Ulf Ekelund, Dr. Dale Eslinger, Dr. Borge H Hansen, Dr. Lauren Sherar, and Dr. Esther van Sluijs.

The database is managed by the MRC Epidemiology Unit and is publicly available for data requests.

#### Applying to use ICAD data

The ICAD is open for data request as a supported access resource. Please find information regarding the application process to access the data below. Data will be released in chronological order by date of accepted proposals and usually within 5 to 10 working days. Please contact Dr Lauren Sherar with data requests using the application form below:



# A word from the membership committee

Warm greetings from the Membership Committee!

We are currently on count down to the 5th ICAMPAM conference, which will be hosted by the National Institutes of Health in Bethesda from 21-23rd June 2017. Remember to renew your ISMPB membership to access the members' registration fees! There are some great free pre-conference workshops that are included (see <http://www.ismpb.org/pre-conference-workshops/>) covering a broad range of measurement innovations. There's even a chance to try some of these innovations for yourself. Don't forget to attend the ISMPB General Membership Meeting too. We will be looking forward to hearing your thoughts about the society and the types of activities the Membership would like to see as we move forwards.

Our Facebook (<https://www.facebook.com/ISMPB.org/>) and Twitter (@ismpb\_org) feeds are busy disseminating the latest measurement research, job opportunities, PhD opportunities, and updated conference information. If you have any research or opportunities that you think will be of interest please feel free to contact us (email: [ismpb.org@gmail.com](mailto:ismpb.org@gmail.com)).

**Nicky Ridgers**

Chair, Membership Committee

**\*\*MEMBERSHIP HAS EXPIRED. PLEASE REMEMBER TO RENEW YOUR MEMBERSHIP EITHER AS PART OF YOUR ICAMPAM REGISTRATION OR BY CLICKING THE MEMBERSHIP LINK BELOW.**

## Become a member of ISMPB

### Who can become a member?

Membership in ISMPB is open to everyone from around the world involved in the measurement of free-living physical behaviour.

Membership fees support the mission of ISMPB in creating a vibrant community bringing together people from a wide variety of backgrounds and expertise, including researchers, clinicians, therapists, signal analysts, computational scientists and commercial companies.

Link <http://www.ismpb.org/membership/>

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ISMPB

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