

Towards objective population monitoring in the Europe:

Physical Activity, Sedentary Behaviour and Fitness



Webinar and workshop

by the UKK Institute in collaboration with HEPA Europe

Purpose

The webinar in April and subsequent Workshop in June held at the UKK Institute, Tampere, Finland offer up-to-date information about reliable assessment methods and practical tools for objective population monitoring, seeks partners interested in collaboration within Europe, and explores opportunities for grants and other financing resources.

Why?

When objective accelerometer measurements have been compared to self-report measures, people typically overestimate their moderate to vigorous physical activity (MVPA) and underestimate the time spent sitting. Furthermore, the current objective data on sedentary behaviour (SB) is commonly determined as “very light physical activity” below a specified activity count (AC) such as <100 and <20 counts per minute (cpm). This choice may render upright activities with little movement such as standing being misclassified as SB, and thus overestimating the time spent in SB. This is of great importance as standing may have potential health benefits.¹⁻³ Furthermore replacing sitting with standing or light physical activity (PA) is the key message to reduce SB.

How?

Accelerometer-based prevalence estimates of PA and SB are largely dependent on the investigators' choice of cut-off points of intensity, epoch lengths and metrics used. Thus, standardised accelerometer data collection, and processing and analysis methods are required in the development of cross-European surveillance systems to ensure comparability. The comparability between countries and continuity in secular trends is best achieved by collecting the accelerometer data in the raw mode. Basically, all modern triaxial accelerometers, if waist-worn, are suitable for this purpose.

Each participating country may conduct their national population surveys as seen feasible. The UKK Institute will illustrate an elaborated scheme for a population-based survey of PA, SB and fitness. Besides objective PA and SB data collection, the proposed scheme includes a short three-item battery of fitness-tests for working aged and elderly people.

What is the role

of the UKK Institute?

During years 2010–2015 the UKK Institute has developed universal and valid methods to measure PA and SB with triaxial accelerometer. The intensity of the activity is measured with the mean amplitude deviation (MAD) of the resultant acceleration.⁴⁻⁶ The body posture is determined using the angle for posture estimation (APE), which is based on the two facts: (1) the direction and magnitude of Earth's gravity vector is constant and (2) the body posture during walking is upright. Simultaneous assessment of MAD ensures that there is no bipedal movement during static body postures. With this novel MAD-APE method lying while standing was separated from sitting with 94 % accuracy. The results are comparable to those obtained with a thigh-worn accelerometer, considered the golden standard for posture assessment.

The UKK Institute will provide collaborating partners with the universal MAD-APE algorithms for data analysis. Hands-on guidance on how to use these methods in the proposed cross-European population surveillance will also be given.

Free of charge
excluding meals and refreshments

Webinar and workshop

by the UKK Institute in collaboration with HEPA Europe

1

April 5, 2017 at 14-15 CET
HEPA Europe Webinar

Accelerometry under Scrutiny - Simple but Challenging

by Research Director Harri Sievänen, D.Sc., Adjunct Professor, UKK Institute, Tampere, Finland

Registration and detailed webinar info:
www.ukkinstituutti.fi/en/

Contact information related to the Webinar

Anne-Mari Jussila
Education and Development Director
+358 44 288 2123
anne-mari.jussila@uta.fi

2

June 7-8, 2017
Workshop at UKK Institute, Tampere, Finland

Towards objective population monitoring in the Europe:
Physical Activity, Sedentary Behaviour and Fitness

Program outline

Wednesday, June 7, 2017

09:45 Why?

Opening of the workshop

*Jaana Suni, Research and Development Manager of the UKK Institute
Chair of the HEPA Europe working group "Monitoring and surveillance of physical activity"*

10:00 How?

MAD-APE: the novel method for raw data processing for both PA and SB – how does it work and is it accurate enough?

Harri Sievänen, Research Director of the UKK Institute

11:00 Universal data processing with MAD-APE algorithms:

www.ukkinstituutti.fi

*Harri Sievänen, Research Director of the UKK Institute
Henri Vähä-Ypyä, Laboratory Engineer, M.Sc.*

11:30 Current status and experiences of objective population monitoring of PA and SB in Finland

Tommi Vasankari, Director of the UKK Institute

12:15 Associations of objectively measured PA and SB on non-communicable diseases

*Pauliina Husu, Senior Researcher of the UKK Institute, D.Sc.
Ville Vasankari, Ph.D. Student of Medical School of Kuopio, Finland
Jaana Suni, Research and Development Manager of the UKK Institute*

13:00 Lunch break

14:00 The importance of fitness testing as part of objective population monitoring

Jaana Suni, Research and Development Manager of the UKK Institute

14:30 Personal feedback on accelerometer measurement – what interests have people?

Henri Vähä-Ypyä, Laboratory Engineer, M.Sc.

15:00 Discussion on the main topics for the Workshop on Thursday
Selection of working-groups needed to solve the main issues

Coffee break

16:00 Exercise for fun and fitness

18:00- Sauna by the lake Näsijärvi

19:30- After Sauna Snack & Drinks by the lake Näsijärvi (20 €/persons)

Thursday, June 8 2017

9:00-12:00

Workshop on possibilities for funding, equipment, problems...



How to apply to the Workshop?

- We encourage researchers with experience of population monitoring and national interest to actual measurements on populations level to apply to the Workshop
- The participants are also asked to provide topics related to the main issues/ barriers that need to be solved in order to reach the proposed goal
- Maximum of 30 participants can be accepted.

Application form by April 13, 2017

www.ukkinstitutti.fi/en/

Contact information related to the Workshop

Jaana Suni
Research and Development Manager
jaana.h.suni@uta.fi
+358 3 2829 265

Contact information related to travelling and accommodation

Tiina Inkovaara
Research secretary
tiina.inkovaara@uta.fi
+358 3 2829 258

Contact information the UKK Institute

+358 3 2829 111



References

1. Thorp AA, Kingwell BA, Sethi P, et al. Alternating bouts of sitting and standing attenuate postprandial glucose responses. *Med Sci Sports Exerc* 2014; 46: 2053–61.
2. Henson J, Davies MJ, Bodicoat DH, et al. Breaking-up prolonged sitting with standing or walking attenuates the postprandial metabolic response in postmenopausal women: a randomized acute study. *Diabetes Care* 2016; 39:130–8.
3. Zeigler ZS, Mullane S, Crespo NC, et al. Effect of standing and light intensity activity on ambulatory blood pressure. *Med Sci Sports Exerc* 2016; 48:175–81.
4. Aittasalo M, Vaha-Ypya H, Vasankari T, Husu P, Jussila AM, Sievanen H. Mean amplitude deviation calculated from raw acceleration data: a novel method for classifying the intensity of adolescents' physical activity irrespective of accelerometer brand. *BMC Sports Sci Med Rehabil* 2015;7:18.
5. Vaha-Ypya H, Vasankari T, Husu P, Suni J, Sievanen H. A universal, accurate intensity-based classification of different physical activities using raw data of accelerometer. *Clin Physiol Funct Imaging* 2015;35:64–70.
6. Vaha-Ypya H, Vasankari T, Husu P, et al. Validation of Cut-Points for Evaluating the Intensity of Physical Activity with Accelerometry-Based Mean Amplitude Deviation (MAD). *PLoS One* 2015;10:e0134813.