DE-PASS Training School 2, Amsterdam, 4-6 April 2022:

"State of the art in physical activity behaviour (PAB) data collection, research harmonisation, integrated and federated data analysis across multiple cohorts and countries"

Location:
Aurora Lecture Hall
Vrije Universiteit Amsterdam
Main Building *(move right from the main entrance – signs will point you to the Aurora lecture hall)*
De Boelelaan 1105
1081 HV Amsterdam

Preliminary program

Monday, April 4

	Workshop: Accelerometer data harmonising	
13.00-13.15	Welcome & opening	Eco de Geus
13.15-13.45	The need for standardization & harmonisation in physical activity assessment – learnings from DEDIPAC	Hidde van der Ploeg
13.45-14.15	Accelerometer data harmonisation – International Children's Accelerometer Database (ICAD)	Bjørge Herman Hansen
14.15-14.45	Accelerometer based population surveillance – the Norwegian system	Elin Kolle & Oda Bjørge Kaupang
14.45-15.15	Coffee & Tea break	
15.15-16.15	ONLINE keynote lecture "How data harmonization has advanced physical activity and health research"	Jakob Tarp (Chair Bjørge Herman Hansen)
19.00-20.30	Dinner with participants, lecturers & workshop staff	

Tuesday, April 5

	Workshop: harmonising PAB data collection and analysis across countries from a self-report perspective	
10.00-10.15	Introduction and aims	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen
10.15-10.45	1. Design and aim 2. Target population Group discussion	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen

10.45-11.30	3. Sampling method 4. Recruitment 5. Data collection and survey administration Group Discussion	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen
11.30-12.00	6. Talk – Norwegian survey example	Oda Bjørge Kaupang
12.00-13.00	LUNCH	
13.00-13.45	7. Other demographic variables 8. Measurement instrument Group Discussion	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen
13.45-14.30	9. Data processing 10. Data analysis and reporting Group Discussion	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen
14.30-15.00	Final discussion, conclusions and summary	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen
15.00-15.30	Coffee & Tea break	
15.30-16.30	ONLINE keynote lecture "Research harmonisation in the Maelstrom project"	Isabella Fortier (Chair Eco)
dinner	Dinner at your own convenience (nothing organised)	

Wednesday, April 6

	Workshop: Journal club discussion of papers on integrated data analysis, e.g. using DataSHIELD or running analyses in Trusted Research Environments	
10.00-10.20	Introduction and aim	Tessa Strain & Paul Kelly
10.20 – 10:50	Reading timeslot	
11:00-12:30	Discussion based on materials	Tessa Strain, Paul Kelly & Charlotte Lund Rasmussen
12.30-13.30	Lunch	
13.30-14.30	ONLINE keynote lecture "Federated analysis: Take the analysis to the data, not the data to the analysis"	Tom Bishop (Chair Paul Kelly)
14.30-14.45	Closing	Eco de Geus

Training school learning objectives

After attending the training school participants will be able to:

1. Understand the need for harmonizing physical activity data

2. Understand the challenges of harmonizing self-report as well as accelerometer data

3. Critique the steps of physical activity surveillance using self-report approaches

4. Consider how these may or may not relate to accelerometer surveillance and measurement

Recommended pre-reading (provided)

Atkin AJ, et al. (2017) Harmonizing data on the correlates of physical activity and sedentary behaviour in young people: Methods and lessons learnt from the international Children's Accelerometry database (ICAD). *International Journal of Behavioral Nutrition and Physical Activity* 14:174 https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-017-0631-7.

Fortier I, et al. (2019) Harmonization of the Health and Risk Factor Questionnaire data of the Canadian Partnership for Tomorrow Project: a descriptive analysis. *CMAJ Open*. 7(2):E272-E282. https://www.cmajopen.ca/content/7/2/E272.long

Fortier I, et al. (2017) Maelstrom Research guidelines for rigorous retrospective data harmonization. *Int J Epidemiol.* 46(1):103-105. https://academic.oup.com/ije/article/46/1/103/2617181?login=true

Hansen BH, et al. (2019) Monitoring population levels of physical activity and sedentary time in Norway across the lifespan. *Scand J Med Sci Sports.* 29(1):105-112. https://onlinelibrary.wiley.com/doi/10.1111/sms.13314

Paluch A, et al. (2022) Daily steps and all-cause mortality: a meta-analysis of 15 international cohorts. *Lancet Public Health.* 7(3):e219-e228. https://pubmed.ncbi.nlm.nih.gov/35247352/

Sherar LB, et al. (2011) International children's accelerometry database (ICAD): Design and methods. *BMC Public Health.* 11:485 https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-11-485.

Strain T, et al (2020) How are we measuring physical activity and sedentary behaviour in the four home nations of the UK? A narrative review of current surveillance measures and future directions; *Br J Sports Med.* 54:1269–1276. http://dx.doi.org/10.1136/bjsports-2018-100355

Ekelund U, et al. Dose-response associations between accelerometry measured physical activity and sedentary time and all cause mortality: systematic review and harmonised meta-analysis. https://pubmed.ncbi.nlm.nih.gov/31434697/

Pastorino S, Bishop T, et al. (2018) Associations between maternal physical activity in early and late pregnancy and offspring birth size: remote federated individual level meta-analysis from eight cohort studies. *BJOG.* 126(4):459-470. https://pubmed.ncbi.nlm.nih.gov/30230190/

Pastorino S, Bishop T, et al. (2021). Heterogeneity of Associations between Total and Types of Fish Intake and the Incidence of Type 2 Diabetes: Federated Meta-Analysis of 28 Prospective Studies Including 956,122 Participants. *Nutrients.* 13(4):1223.
https://pubmed.ncbi.nlm.nih.gov/33917229/

Other recommended background reading

Aadland E, Ylvisåker E. (2015) Reliability of objectively measured sedentary time and physical activity in adults. *PLoS One.* 10(7):e0133296.
https://pubmed.ncbi.nlm.nih.gov/26192184/

Bergman, P., Hagströmer, M. (2020) No one accelerometer-based physical activity data collection protocol can fit all research questions. *BMC Med Res Methodol.* 20:141.
https://doi.org/10.1186/s12874-020-01026-7

Lee PH. (2018) Determining the optimal number of wearing-days given a fixed number of accelerometers in population-level study. *J Epidemiol.* 29(11):432–43.
https://pubmed.ncbi.nlm.nih.gov/30344200/

Loyen A, et al. (2017) Sedentary time and physical activity surveillance through accelerometer pooling in four European countries. *Sports Medicine* 2017;47(7):1421-1435.
https://pubmed.ncbi.nlm.nih.gov/27943147/

Loyen A, et al. (2016) Variation in population levels of physical activity in European adults according to cross-European studies: a systematic review within DEDIPAC. *International Journal of Behavioral Nutrition and Physical Activity* 13:72.
https://pubmed.ncbi.nlm.nih.gov/27350359/

Mattocks C, et al. (2008) Use of accelerometers in a large field-based study of children: protocols, design issues, and effects on precision. *J Phys Act Health.* 5(Suppl 1):S98–111
https://pubmed.ncbi.nlm.nih.gov/18364528/

Migueles JH, et al. (2017) Accelerometer data collection and processing criteria to assess physical activity and other outcomes: a systematic review and practical considerations. *Sports Med.* 47:1821–45
http://www.ncbi.nlm.nih.gov/pubmed/28303543

Migueles JH, et al. GRANADA consensus on analytical approaches to assess associations with accelerometer-determined physical behaviours (physical activity, sedentary behaviour and sleep) in epidemiological studies *Br J Sports Med.* 56(7):376-384
https://pubmed.ncbi.nlm.nih.gov/33846158/

Ojiambo R, et al. (2011) Impact of methodological decisions on accelerometer outcome variables in young children. *Int J Obes*. 35(Suppl 1):S98–103
https://pubmed.ncbi.nlm.nih.gov/21483428/

Pedisic Z, Bauman A. (2015) Accelerometer-based measures in physical activity surveillance: current practices and issues. *Br J Sports Med.* 49(4):219–U25.
https://pubmed.ncbi.nlm.nih.gov/21483428/

Strain T, Wijndaele K, Pearce M, & Brage S. (2022). Considerations for the Use of Consumer-Grade Wearables and Smartphones in Population Surveillance of Physical Activity, *J Meas Phys Behav* (published online ahead of print 2022).
https://journals.humankinetics.com/view/journals/jmpb/5/1/article-p8.xml

Vanhelst J, et al. (2012) Comparison of two ActiGraph accelerometer generations in the assessment of physical activity in free living conditions. BMC Res Notes. 5:187.
https://pubmed.ncbi.nlm.nih.gov/22534207/

Wolff-Hughes et al. (2016). Number of accelerometer monitoring days needed for stable group-level estimates of activity. *Physiol Meas.*37(9):1447–55.
https://pubmed.ncbi.nlm.nih.gov/27510765/