

CLAHRCBITE

Brokering innovation through evidence

Can we compare physical activity measured in different studies?



Results

Physical activity measured in large-scale surveys globally using research-grade wrist-worn accelerometers can be compared, if we analyse it identically.

Who needs to know?

- The scientific community
- Public health professionals

What did we do:

Three brands of research-grade wrist-worn accelerometers are used in large-scale surveys globally. We asked adults to wear these three accelerometers on their non-dominant wrist all at the same time while undertaking normal daily physical activities. We processed and analysed the accelerometer data identically using open-source software, then compared the volume of physical activity and time spent in a range of activity intensities recorded by each monitor.

What we found and what does this mean:

Physical activity measured by two of the brands were largely equivalent for all outcomes. The volume of activity measured by the third monitor was approximately 10% lower, but it would be possible to adjust for this. This means that comparable physical activity outcomes can be generated for the many surveys globally that use these wrist-worn accelerometers to assess physical activity.

What next:

As well as different monitor brands, surveys can differ on which wrist monitors are worn on. We will look at equivalence of physical activity outcomes between the wrists as well as the different brands. The importance of comparable physical activity outcomes is recognised by the World Health Organisation's Global Activity Action Plan on Physical Activity 2018-2030, which highlights monitoring physical activity as critical to national strategies to increase people's activity.

Evidence:

Rowlands, A.V., Mirkes, E., Yates, T., Clemes, S., Davies, M., Khunti, K., Edwardson, C.L. (2018). Accelerometer assessed physical activity in epidemiology: Are monitors equivalent? *Medicine and Science in Sport and Exercise*, 50, 257-265.

What is NIHR CLAHRC EM?

NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) are collaborations between the NHS, universities and local organisations. Our goals are to conduct applied health research across the East Midlands and translate our research findings into improved outcomes for the public.

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