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TECHNOLOGY FOR SELF-MONITORING SEDENTARY BEHAVIOUR: A SYSTEMATIC REVIEW

JP Sanders[1,2], SJH Biddle [1,2] & DW Esliger [1,2]

[1] Loughborough University, Loughborough, UK, [2] The NIHR Leicester-Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit, Leicester, UK

J.Sanders2@lboro.ac.uk

Purpose

In recent years, Sedentary Behaviour (SB) has been found to be an independent risk factor for cardio-metabolic health. At the same time, self-monitoring has been established as one of the most robust behaviour change techniques available. The growing number of technologies in the consumer electronic (CE) sector provides a unique opportunity for individuals to self-monitor their behaviour. Therefore this paper systematically reviews novel technologies that assess SB and their utility for self-monitoring.

Methods

To identify technologies, four scientific databases were systematically searched using key terms related to inactivity and sedentary behaviour, measurement and population. To identify technologies from the CE sector, systematic searches of 3 internet search engines were also performed.

Results

Searches identified 106 technologies. The most widely used were the Actigraph, SenseWear Armband, RT3, Actical and ActivPAL. These devices are accelerometer-based and therefore have the disadvantage of relying on lack of movement to determine SB. Systematic internet searches identified 4 potentially promising technologies for the measurement of SB with a focus on sitting time.

Conclusion

The LUMOback, which uses posture sensors as a measure of SB, provides both vibratory and visual feedback. The Sensoria Fitness and SmartMove rely on footware based measures of SB and provide mobile phone application feedback. Finally the ActivPAL VT, provides vibrotactile feedback. Newer technologies from the CE sector show great promise for the measurement and self-monitoring of SB.