

From the LDC Writing Group: **Congratulations** to **Tom, Joe, Charlotte, Danielle, Kamlesh** and **Melanie** on their article, published together with a colleague based in Australia, in the July issue of *Preventive Medicine*, Volume 78, pages 79-83.



Objectively measured sedentary time and



associations with insulin sensitivity: Importance of re-allocating sedentary time to physical activity

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Abstract

Objective

The aim of this study is to quantify associations between objectively measured sedentary time and markers of insulin sensitivity by considering allocation into light-intensity physical activity or moderate- to vigorous-intensity physical activity (MVPA).

Methods

Participants with an increased risk of impaired glucose regulation (IGR) were recruited (Leicestershire, United Kingdom, 2010-2011). Sedentary, light-intensity physical activity and MVPA time were measured using accelerometers. Fasting and 2-hour post-challenge insulin and glucose were assessed; insulin sensitivity was calculated by HOMA-IS and Matsuda-ISI. Isotemporal substitution regression models were used. Data were analysed in 2014.

Results

508 participants were included (average age=65years, female=34%). Reallocating 30min of sedentary time into light-intensity physical activity was associated a 5% (95% CI 1, 9%; $p=0.024$) difference in Matsuda-ISI after adjustment for measured confounding variables. Reallocation into MVPA was associated with a 15% (7, 25%; $p<0.001$) difference in HOMA-IS and 18% (8, 28%; $p<0.001$) difference in Matsuda-ISI. Results for light-intensity physical activity were modified by IGR status with stronger associations seen in those with IGR.

Conclusions

Reallocating sedentary time into light-intensity physical activity or MVPA was associated with differences in insulin sensitivity, with stronger and more consistent associations seen for MVPA.

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