**Objective:**
Total sedentary (absence of whole-body movement) time is associated with obesity, abnormal glucose metabolism, and the metabolic syndrome. In addition to the effects of total sedentary time, the manner in which it is accumulated may also be important. We examined the association of breaks in objectively measured sedentary time with biological markers of metabolic risk.

**Research Design and Methods:** Participants (n = 168, mean age 53.4 years) for this cross-sectional study were recruited from the 2004-2005 Australian Diabetes, Obesity and Lifestyle study. Sedentary time was measured by an accelerometer (counts/minute(-1) < 100) worn during waking hours for seven consecutive days. Each interruption in sedentary time (counts/min > or = 100) was considered a break. Fasting plasma glucose, 2-h plasma glucose, serum triglycerides, HDL cholesterol, weight, height, waist circumference, and resting blood pressure were measured. MatLab was used to derive the breaks variable; SPSS was used for the statistical analysis.

**Results:** Independent of total sedentary time and moderate-to-vigorous intensity activity time, increased breaks in sedentary time were beneficially associated with waist circumference (standardized beta = -0.16, 95% CI -0.31 to -0.02, P = 0.026), BMI (beta = -0.19, -0.35 to -0.02, P = 0.026), triglycerides (beta = -0.18, -0.34 to -0.02, P = 0.029), and 2-h plasma glucose (beta = -0.18, -0.34 to -0.02, P = 0.025).

**Conclusions:** This study provides evidence of the importance of avoiding prolonged uninterrupted periods of sedentary (primarily sitting) time. These findings suggest new public health recommendations regarding breaking up sedentary time that are complementary to those for physical activity.
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