

Study stresses the importance of staying physically active and the negative effects of even short-term inactivity

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A new study presented at this year's Annual Meeting of the European Association for the Study of Diabetes (EASD) in Barcelona, Spain (16-20 September) highlights the negative health effects of even short periods of physical inactivity and stresses the importance of staying physically active.

The research was conducted by Dr. Kelly Bowden Davies, Newcastle University, UK and the University of Liverpool, UK and colleagues, and analysed the effects of a short-term reduction in [physical activity](#) on metabolic profiles, body composition and cardiovascular (endothelial) function.

Low levels of physical activity and sedentary lifestyles are known to confer a significantly increased risk of metabolic problems including obesity, insulin resistance, type 2 diabetes, and [cardiovascular disease](#). The goal of the study was to determine whether adverse effects linked to these conditions would begin to appear in previously active individuals after a period of just 14 days of reduced physical activity.

The team recruited a study group of habitually active (>10,000 steps/day) individuals (18 female, 10 male) with a mean age of 32 and an average BMI of 24.3 kg/m² (within the 'healthy' range). Assessments were performed at baseline, 14 days after adopting a more [sedentary lifestyle](#), and 14 days after resuming their previous activity level.

Participants' [cardiorespiratory fitness](#) (V O₂ peak), [body composition](#) (dual-energy X-ray absorptiometry/magnetic resonance spectroscopy) and cardiovascular function (flow mediated dilation; FMD) were determined at each time point, and their physical activity (SenseWear armband) was monitored throughout.

Study participants reduced their step count by an average of around 10,000 steps/day measured in comparison to each individual's baseline activity, increasing their waking sedentary time by an average 103 minutes/day.

Cardiovascular function as measured by FMD decreased by 1.8% following 14 days of relative inactivity, but returned to comparable baseline levels 14 days after the resumption of normal activity. The researchers also found that: "In parallel, total body fat, waist circumference, liver fat, insulin sensitivity and cardiorespiratory fitness were all adversely affected by 14 days step-reduction, but returned to comparable baseline levels following resumption of habitual activity."

The authors conclude: "In young non-obese adults, short-term physical inactivity and increased sedentary behaviour led to decreased cardiorespiratory fitness and increasing [waist circumference](#), liver fat deposition and [insulin resistance](#), and led to a significant decline in endothelial function, a sign of developing cardiovascular disease."

They add: "Public health messages need to emphasise the harmful effect of even short-term physical inactivity, and that habitual activity appears to offset these negative consequences. Even small alterations in physical activity in daily living can have an impact on health—positively, or negatively. People should be encouraged to increase their physical activity levels, in any way possible. Often, we hear of 'barriers to exercise', such as energy or lack of enjoyment, but simply increasing daily physical activity can have benefit, as shown here by only changes

daily steps."

Provided by Diabetologia

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