The Acute Metabolic and Vascular Impact of Interrupting Prolonged Sitting: A Systematic Review and Meta-Analysis

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Setting the scene:

To conduct a systematic review and meta-analysis analyzing the impact of up to 24 h of prolonged sitting on postprandial glucose, insulin and triglyceride responses, blood pressure and vascular function, in comparison to sitting interrupted with light- to moderate-intensity physical activity.

What did they do?

Studies had to examine the impact of prolonged sitting lasting <24h in apparently healthy males or females of any age. Study quality was assessed using the Downs and Black checklists. Forty four studies met the inclusion criteria for the systematic review: of these 20 were included in the Meta analysis, which compared prolonged sitting to the effects of interrupting sitting with regular activity breaks on postprandial glucose, insulin and triglycerides. When compared to prolonged sitting, regular activity breaks lowered postprandial glucose (d=−0.36, 95% confidence interval [CI] −0.50 to −0.21) and insulin (d=−0.37, 95% CI −0.53 to −0.20), but not triglyceride responses (d=0.06, 95% CI −0.15 to 0.26). Subgroup analyses indicated reductions in postprandial triglyceride responses only occurred 12–16 h after the intervention. The magnitude of the reductions in glucose, insulin or triglyceride response was not modified by the intensity of the activity breaks, the macronutrient composition of the test meal, or the age or body mass index of participants.

Takeaway message:

Prolonged sitting results in moderate elevations in postprandial glucose and insulin responses when compared to sitting interrupted with activity breaks.