

Comparing Physiological and Cognitive Effects of Different Sitting Break Interventions in Office Work

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Breaking up prolonged sitting can mitigate the adverse effects of sedentary work. Among four practical interventions, light office walking proved to be the most effective overall strategy.

Objectives

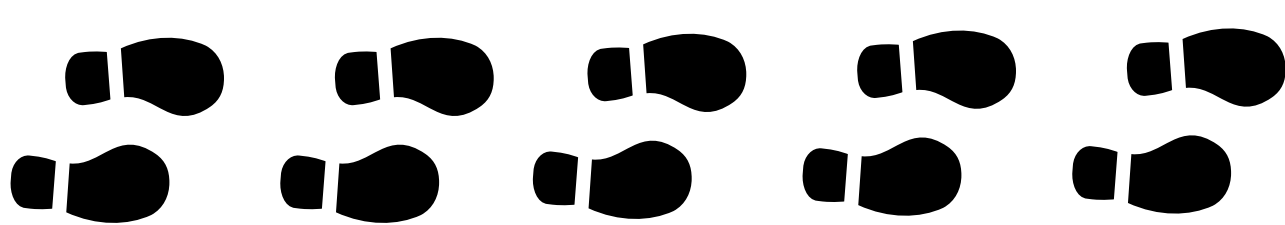
- To evaluate the physiological and cognitive effects of prolonged sitting during office work.
- To determine the most effective strategy for breaking up sitting.
- To develop evidence-based recommendations for workplace sitting breaks.



Figure 1 Simulated office work during laboratory measurements (standing). Fifteen healthy adults completed five randomized sessions comparing four sitting-break interventions with uninterrupted sitting. Physiological and cognitive responses were assessed during 2 h of simulated office work.

Results: Effects of uninterrupted sitting

- Simulated office work was classified as light-intensity activity (1.9 ± 0.2 MET).
- Recovery-related heart rate variability increased during the task.
- Continuous sitting increased musculoskeletal loading, leg swelling, and perceived discomfort.



Results: Overall Effectiveness of Sitting-Break Interventions

Table 1 Overall effectiveness of the sitting-break interventions. Scores were derived from a multivariate and sum variable analysis including 24 subjective, physiological, cognitive, and work-performance variables. Higher scores indicate greater overall effectiveness.

Intervention	Effectiveness score
WALK (28 min sitting + 2 min walking)	1.68
25+5 (25 min sitting + 5 min standing)	1.25
30+30 (30 min sitting + 30 min standing)	1.20
SQUAT (5 squats every 30 min)	1.08
REF (uninterrupted sitting)	0.08

Key Conclusions

- Prolonged sitting negatively affected physiological responses and increased discomfort.
- Walking breaks provided the greatest overall benefit among the tested interventions.
- Two minutes of light walking every 30 minutes is a feasible and effective strategy for breaking up sedentary office work.