

I sit at work, because it's what I always do – Ambulatory Assessment to examine contexts and habit strength of prolonged sitting bouts

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Purpose: Sedentary time and especially prolonged sitting (≥ 20 min) is a health risk factor distinct from physical inactivity. Sitting occurs in multiple settings during the day and within varying contexts. Context-specific sitting may have distinct environmental, social and psychological correlates. Furthermore, it can be assumed that sedentary behaviors are to a large extent regulated automatically in daily life as sedentary behaviors are often a subcomponent of actions such as working, talking, reading etc. Habit, which implies an automatically triggered (behavioral) impulse, might be an important psychological correlate of sitting. Until now, contexts and correlates have almost exclusively been studied retrospectively, focusing on between-person differences. This study applied an ambulatory assessment design to address within-person variability and to assess contexts and environmental and psychological correlates (habit strength) of prolonged sitting bouts in everyday life.

Methods: Sitting was assessed during four consecutive days using thigh-worn accelerometers, which were coupled with smartphones via bluetooth. Whenever persons sat for 20min a short questionnaire was triggered on the smartphone. The questionnaire included questions regarding the context (where?, what?, with whom?), whether there was an option to stand and the perception of automaticity (“I automatically sat down”) and frequency (“I sat down because I always do so in this situation”).

Results: Data of 62 persons (31 female, $M=29.5$ years, $SD=2.2$) with accelerometer wear times ≥ 10 h/day were used for preliminary analyses. In sum, 3,406 questionnaires were triggered and 1,926 were answered. There was a high intra-individual variability in perceived automaticity and frequency of sitting: 55% ($ICC_A=0.45$) and 67% ($ICC_F=0.33$) of the variance were caused by within-person variability. For 33.5% of the prolonged sitting bouts, persons stated that there was an option for standing instead of sitting. The perception of options for standing differed according to the contexts: at work (25.5%) less options for standing were perceived than during leisure time (43.2%; $\chi^2=39.77$, $p>.001$).

Conclusions: The results indicate meaningful within-person variability of habit strength and context-specific differences between options for standing. Information about contexts of sitting and its environmental and psychological correlates is crucial to detect those contexts and sitting bouts that are susceptible to change via targeted interventions.