

The "Stand Up Australia" Study

Accelerometer-measured occupational sedentary time in Australian workers

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PURPOSE

- Sedentary time (prolonged sitting) has become a ubiquitous component of daily adult life as a consequence of technological advances and contemporary changes (1).
- For most adults, time spent at work constitutes the largest portion of the waking day (2).
- Workplace sitting time has been shown to be detrimentally associated with overweight and obesity (3), and risk of obesity and type 2 diabetes (4). However, studies investigating time spent sitting for work have been limited to self-report measures (3-5).
- "Stand Up Australia" is a multi-phase study designed to gain a better understanding of sedentary time in Australian workers via the use of objective measures.

AIM : To describe activity patterns and compare accelerometer-derived workplace sedentary time and breaks in sedentary time of Australian employees in different workplace settings.

METHODS

- A convenience sample of 192 adults working a minimum of 4 days a week (aged 20-61 years; 66% female) were recruited via email from four Melbourne-based organisations across three workplace settings: office (n=131), call centre (n=36) and customer service (n=26).
- Demographic (age, sex, marital status, education level, occupational title) and anthropometric (BMI and waist circumference) data were collected.
- Participants each wore an accelerometer (Actigraph model GT1M) for one week during their waking hours and recorded in an event diary their work hours (on workdays only).
- Time at work spent sedentary (<100 counts per minute; cpm), in light-intensity (100-1951 cpm) and moderate-to-vigorous activity (≥1952 cpm) was determined from accelerometer data collected during self-reported work hours.
- Breaks in sedentary time were assessed as the number of occasions that sedentary time (<100 cpm) was interrupted with an active count (≥100 cpm).
- Only participants who provided data for at least two workdays, totalling ≥ 16 hours were included in the analyses (office n=123; call centre n=30; and customer service n=21).

RESULTS

- Overall, the percentage of work hours (median [min,max]) spent at each intensity was: 76.4 [45.2,91.7]% sedentary, 20.6 [7.9,53.0]% light-intensity activity and 2.6 [0.2,9.8]% moderate-to-vigorous intensity activity.
- Activity patterns differed across the workplace settings (Fig 1).
- Adjusted for age, sex and BMI, sedentary time and breaks differed significantly across workplace settings. Call centre workers spent more time sedentary than office or customer service workers. Call centre workers took the fewest breaks, while customer service workers took the most (Fig 2). Further adjustments for education level, marital status and occupational title did not affect results.

Figure 1. Activity patterns during work hours across the three workplace settings



Figure 2. Mean sedentary time and breaks in sedentary time of workers according to workplace setting, standardised to an 8-hour workday

	Office (n=123)	Call Centre (n=30)	Customer Service (n=21)
8-hour FTE work day			
Sedentary time	5.99 hours (5.88, 6.10)	6.53 hours † (6.30, 6.75)	5.74 hours ‡ (5.48, 6.00)
Breaks in sedentary time	44.3 (42.2, 46.4)	38.7 † (34.4, 43.0)	57.3 †† (52.4, 62.3)

Data presented as marginal means (95% CI) adjusted for sex, age and BMI (linear regression). † = significantly different to office workers. ‡ = significantly different to call centre workers. Significance set at p<0.05.

KEY FINDINGS

- Time spent sedentary occupies the majority of working hours (76%) and varies across workplace settings.
- Call centre workers had the greatest workplace sedentary time and customer service workers the least.
- Breaks in sedentary time were greatest for customer service workers during work hours followed by office and then call centre workers.

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