

【Original Article】

**Effects of Epoch Length on Outcome Measures of Physical Activity
with a Triaxial Accelerometer Active Style Pro**

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Abstract

Objective: Accelerometers are objective and valid tools that have been used extensively to monitor activity patterns in field settings to assess free-living physical activity. However, several data processing issues may produce differences in outcome measures of physical activity. This study examined the effects of epoch length on outcome measures of locomotive and non-locomotive activity by using a triaxial accelerometer Active Style Pro (Omron Healthcare, Kyoto, Japan).

Methods: The participants were 213 overweight adults who were recruited for a weight-loss intervention study. The data from 209 of them were considered valid and were analyzed. The participants wore the accelerometers for 14 consecutive days for the assessment of baseline physical activity. A valid day was defined as having 10 hours or more of wear time. Total daily minutes of locomotive and non-locomotive activity were evaluated if there were valid records for more than 2 weekdays and 1 day on the weekend. Outcome measures of physical activity were compared between the epoch lengths 10 seconds and 60 seconds.

Results: Total daily minutes of moderate-to-vigorous (≥ 3 METs) locomotive and non-locomotive activities were lower in epoch length of 60 seconds compared with that of 10 seconds. Total daily minutes of sedentary-to-light (< 3 METs) locomotive activity was lower and those of non-locomotive activity was higher in an epoch length of 60 seconds compared with that of 10 seconds. Effect sizes (Cohen's *d*) of moderate-to-vigorous and sedentary-to-light non-locomotive activity (2.81 and 3.33, respectively) were larger than those of locomotive activity (1.43 and 0.30, respectively).

Conclusion: These findings suggest that the choice of epoch length affects outcome measures of physical activity and that this effect is more apparent in non-locomotive activity than in locomotive activity.

Key words: accelerometer, physical activity, epoch length, locomotive activity, non-locomotive activity

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