

Associations of Fast Walking with Sleep Quality and Duration in Older Adults

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Purpose: Poor sleep has been associated with negative health outcomes in older adults. Since walking is the most popular form of physical activity in older adults, we examined the effects of daily steps and fast walking on sleep quality and duration.

Methods: This cross sectional study included 402 older adults (56% women; 72 years old). Participants wore an accelerometer-based pedometer (Omron) during waking hours for 7 days. We used total average daily steps and average daily fast walking steps defined as ≥ 100 steps/min. Sleep duration and quality were measured using the Pittsburgh Sleep Quality Index (PSQI). Poor sleep quality (PSQ) was defined as a PSQI global score of >5 , and inadequate sleep duration (ISD) was defined as <7 hours/night. Odds ratios (ORs) and 95% confidence intervals (CIs) for PSQ and ISD were calculated among 4 groups: no daily fast steps and tertiles (thirds) of fast steps. Covariates were sex, age, body mass index, smoking, heavy alcohol intake, depression, anxiety, diabetes, hypertension, hyperlipidemia, and sleep apnea.

Results: On average, participants took 5,764 steps, 1,598 fast steps (70% had at least 1 daily fast step), had a PSQI score of 4.6, and a sleep duration of 7.1 hours. Total steps were not associated with quality or quantity (both $p > 0.05$). However, fast walking was associated with sleep quality with ORs (95% CIs) of 0.47 (0.24-0.90), 0.53 (0.27-1.04), and 0.82 (0.35-1.92) for <940 (lower third), 941-2600 (middle third), and >2600 (upper third) of fast steps, respectively, compared with no fast steps, adjusting for the confounders including total daily steps. Obtaining any fast steps was associated with 0.52 (0.30-0.90) reduced odds of PSQ compared with no fast steps. However, no associations were observed between fast steps and ISD. In a joint analysis, compared with those who took $<5,000$ daily steps and 0 fast steps, there were reduced odds of PSQ among those with $<5,000$ steps and >1 fast steps (0.43 [0.23-0.83]) as well as those with $\geq 5,000$ steps and >1 fast steps (0.42 [0.24-0.74]), suggesting the benefits of fast walking on sleep quality regardless of total daily steps.

Conclusion: These results indicate that even small amounts of fast walking, rather than total daily steps, are associated with better sleep quality in older adults.

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