

Study links irregular sleep schedules to adverse metabolic health in women

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A new study suggests that frequent shifts in sleep timing may be related to adverse metabolic health among non-shift working, midlife women.

Results show that greater variability in bedtime and greater bedtime delay were associated with higher insulin resistance, and greater bedtime advance was associated with higher body mass index (BMI). In

prospective analyses, greater bedtime delay - for example, staying up 2 hours later than usual - also predicted an increase in insulin resistance 5 years later. The cross-sectional and prospective associations between these measures were significant only when both weekdays and weekends were included in the analysis, suggesting that large deviations in bedtime between work days and free days contributed to impaired glucose regulation.

"Irregular sleep schedules, including highly variable bedtimes and staying up much later than usual, are associated in midlife women with insulin resistance, which is an important indicator of metabolic health, including diabetes risk," said senior author Martica Hall, PhD, professor of psychiatry at the University of Pittsburgh. "We found that weekday-weekend differences in bedtime were especially important."

Study results are published in the February issue of the journal *Sleep*.

"This study emphasizes the important health benefits of keeping a regular sleep schedule," said American Academy of Sleep Medicine President Dr. Nathaniel Watson, who was not involved in the study. "In addition to sleeping 7 or more hours per night on a regular basis, adults should strive to maintain a consistent schedule by going to bed and waking up at the same times on weekdays and weekends."

Led by Hall and lead author Briana J. Taylor, the research team analyzed data from the SWAN Sleep Study, an ancillary project to the Study of Women's Health Across the Nation (SWAN). The community-based sample comprised 370 Caucasian, African American and Chinese non-shift working women between the ages of 48 and 58 years. Daily diary-reported bedtimes were used to calculate four measures of sleep timing: mean bedtime, bedtime variability, bedtime delay and bedtime advance. BMI and [insulin resistance](#) were measured at baseline and again an average of 5 years later.

"The results are important because diabetes risk increases in midlife women," said Hall. "Our study suggests that irregular sleep schedules may be an important piece of this puzzle. The good news is that sleep timing is a modifiable behavior. Metabolic health was better in women who had more regular sleep schedules, including regular bedtimes across weekdays and weekends."

According to the authors, irregular bedtime schedules expose the body to varying levels of light, which is the most important timing cue for the body's circadian clock. By disrupting circadian timing, [bedtime](#) variability may impair glucose metabolism and energy homeostasis.

The authors suggest that future studies of [sleep](#) timing and metabolic health should examine potential mechanisms including melatonin as well as other hormones that are relevant to metabolic health and sensitive to circadian misalignment, including leptin, ghrelin and cortisol.

More information: "Bedtime Variability and Metabolic Health in Midlife Women: The SWAN Sleep Study," or the commentary, "How Much Day-To-Day Variability in Sleep Timing Is Unhealthy?", www.journalsleep.org/ViewAbstract.aspx?pid=30447

Provided by American Academy of Sleep Medicine

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