

Shift workers at risk for heart disease, stroke and type 2 diabetes

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Shift workers are at a significantly increased risk for sleep disorders and metabolic syndrome, which increases a person's risk for heart disease, stroke and type 2 diabetes mellitus. Individuals, employers and physicians can all take steps to mitigate these risks, according to a clinical review in *The Journal of the American Osteopathic Association*.

Researchers say [night-shift workers](#) are especially prone to developing [sleep disorders](#) and [metabolic syndrome](#). The risks increase even more for those who work irregular or rotating shifts.

"The strength of our economy and safety of our society depend heavily on night shift workers," says Kshma Kulkarni, OMS III at Touro University College of Osteopathic Medicine, and lead study author. "It is critical we address the [health issues](#) facing people in this line of work."

A significant portion of the workforce

Kulkarni says 17.7% of the U.S. labor force works outside the hours of 6 am and 6 pm. She adds that shift workers are central to the travel, hospitality and ecommerce industries, as well as the 24-hour support needed from nurses, physicians and first-responders, like police and firefighters.

One study found 9% of night-shift nurses developed metabolic syndrome, compared to only 1.8% of day shift nurses. Other studies

have noted that risks gradually increase with accumulated years of shift work.

Working nights disrupts individuals' circadian rhythm, the body's internal clock responsible for neural and hormonal signaling. Once a person's circadian rhythm is desynchronized from their sleep/wake cycle, they will likely experience disturbances in hormonal levels, including increased cortisol, ghrelin and insulin and decreased serotonin, among others.

The cascade of hormonal changes is what prompts the development of metabolic disorders and causes people to develop multiple chronic conditions. Kulkarni recommends the following measures to prevent serious health issues associated with shift work.

It starts with sleep

The first essential step for night shift workers is to establish consistent sleeping hours, says Kulkarni. Employers can help by eliminating rotating shifts that disrupt sleep patterns even further. They can also schedule shifts to start before midnight and last no more than 11 hours to help workers adjust and stabilize their new circadian rhythm.

She adds that workers can maximize their rest by following some basic tips:

- Sleep in a 7- to 8-hour block every 24 hours, ideally at the same time each day
- Schedule the main block of sleep as close to evening or night as possible to minimize circadian disruption
- Take an additional nap for 20 to 120 minutes earlier in the day to prevent fatigue

Controlling light exposure

Exposure to [light](#) promotes wakefulness in general, so researchers recommend night shift workers increase their [light exposure](#) prior to and throughout their shifts. In addition, employers can install high-intensity lights (~3,000 lux) to simulate daylight exposure and assist circadian adaptation.

Conversely, when coming off shift, workers should minimize their blue light exposure. Blue light is prominent in electronic screens and can delay melatonin production. Research shows avoiding blue light 2 to 3 hours before sleep can improve sleep quality. Kulkarni says workers can stay off their devices and/or wear orange tinted goggles to block out blue light.

Diet and exercise

Prior studies have shown shift workers are more likely to eat snacks higher in sugar and saturated fat while consuming less protein and vegetables, and more likely to skip meals. Kulkarni points out that diet is even more critical for people at risk for metabolic disorder and recommends the following to improve nutrition:

- Eat three meals a day at close to the same time each day, with more calories consumed earlier in their wake cycle
- Make sure meals and snacks primarily incorporate protein and vegetables
- Employers can assist by offering nutritious options in vending machines and break rooms, and by scheduling regular breaks earlier in the shift.

Similarly, exercise plays an outsized role in the health of shift workers,

and can help reestablish the circadian rhythm. Kulkarni recommends [shift workers](#) exercise at a similar time each day, at least 5 hours before they go to bed. In addition, they should incorporate aerobic exercise into their physical activity, as it has specifically been indicated to improve sleep quality.

"It's true that getting enough sleep, eating right and exercising are critical to everyone's health," says Kulkarni. "However, the nature of shift work is so disorienting and discordant with those principles, we really need to help people in those jobs strategize ways to get what they need."

More information: Kshma Kulkarni et al, Shift Workers at Risk for Metabolic Syndrome, *The Journal of the American Osteopathic Association* (2020). [DOI: 10.7556/jaoa.2020.020](https://doi.org/10.7556/jaoa.2020.020)

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