

Circadian Rhythms, Shift Work & Workplace Injuries



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In many industries, such as healthcare, manufacturing, and emergency services, shift work is an essential component to allow organizations to operate efficiently and effectively. However, demands associated with shift work can disrupt a worker's circadian rhythm. Workers typically sleep less and have lower quality of sleep when sleeping during the day compared to the night.

The circadian rhythm is the body's internal clock that regulates sleep-wake cycles and other bodily functions over a 24- hour period. It is influenced by light, food, stress, and physical activity. When circadian rhythms are disrupted, this may result in sleep disorders, fatigue impairment, health risks, and reduced performance. Fatigue reduces attention, judgement and reaction time, which can ultimately impact injury risk and quality of output.

The key to minimizing impact to circadian rhythms is to optimize shift schedules. **Some considerations include:**

- Design schedules that progress from day to evening to night. It is easiest for workers to adjust to changing shifts using this clockwise rotation, as it is easier to delay sleep rather than sleeping earlier.
- Consider a compressed work week with longer hours (e.g. 3-4 days of 10-12-hour shifts) to allow for increased time and adjustment period between. However, it is important to note that there is a tradeoff where an extended shift may increase fatigue and have decreased performance at the end of the shift. Consider scheduling physically or cognitively demanding tasks earlier in the shift, when workers tend to be more alert.
- Consider permanent shifts or longer periods between shift changes as the consistency will help workers adjust their internal clock
- Adjust shift times to allow workers to get some sleep during normal sleep times to minimize the circadian rhythm disruption

Overall, optimizing shift schedules helps to minimize loss of sleep, which results in a more alert, attentive, and efficient worker; and can help maximize the worker's time for family life and social contact leading to improved worker morale and satisfaction.

Our Certified Ergonomists can assist you with comprehensive Ergonomics Assessments that account for all aspects of the work environment, tasks, and systems to keep your workers safe and healthy. Contact [ERGO Inc.](#) for further ergonomics expertise.

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