



## Waking up to the call: fighting grogginess after sleep

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### Tired of waking up tired?

Do you ever feel more tired when you wake up than you did before you went to sleep? This grogginess after waking is called sleep inertia.<sup>1</sup> Luckily, this feeling doesn't typically last very long. We usually feel more awake after we hit the snooze button or sip a cup of coffee.

Unfortunately, some people don't have the luxury of slowly easing their way into wakefulness. For example, think about emergency service workers and doctors. They are often "on call" around the clock. Some work such long hours that they nap while on shift. When responding to a call, these workers must make important decisions, perform safety-critical tasks, and drive within minutes after waking up and/or in the middle of the night.<sup>2</sup> Essentially, these individuals are expected to perform potentially life-saving work before they are fully awake! However, it isn't just emergency service workers and doctors who are expected to work shortly after awakening or during the night. Did you know that almost half of the workforce works hours outside the normal "9 to 5"?<sup>3</sup>

### Waking up on the right side of the bed

*What causes sleep inertia?* Sleep inertia occurs when the brain transitions from sleep to wake.<sup>4-6</sup> During sleep inertia, you may feel sleepy. Also, you may not be able to think clearly or perform tasks normally. Typically, these symptoms return to normal within 20 minutes after waking.<sup>7,8</sup> However, there are a few things that can cause sleep inertia to last longer or be more severe:

- Waking up during the night<sup>9</sup>
- Waking up from a deep sleep<sup>10</sup>
- Not getting enough sleep in the prior day or week<sup>11,12</sup>

*What are the consequences of sleep inertia?* Sleep inertia can have severe consequences. Did you know that sleep inertia was initially coined "sleep drunkenness"? In fact, scientists have shown that during sleep inertia, your brain is as impaired as when it is intoxicated with alcohol!<sup>8</sup> Like alcohol, sleep inertia can:<sup>13,14</sup>

- Reduce reaction time



- Impair decision-making
- Impair ability to solve math problems
- Increase errors

You may be thinking, “Who cares if I can’t do math right when I wake up?” However, imagine if a doctor needs to calculate a medicine dose. What if an airline worker needs to calculate the amount of fuel required for a flight? An error in these calculations could have detrimental consequences in the real world! In fact, sleep inertia has played a role in several aviation, maritime, and military accidents.<sup>15-20</sup>

*How can you counteract sleep inertia?*

There are a few things you can do to reduce sleep inertia *before* going to sleep:

- Avoid waking up during the night
- Take shorter naps (longer naps increase the risk of waking up from a deep sleep)
- Avoid prior sleep loss
- Consume caffeine before a pre-planned nap<sup>21,22</sup>
  - Consuming caffeine after waking up may not be effective because there is a delay in absorption (so you may not feel the effects in time)

There are also things you can do to reduce sleep inertia *after* waking up:<sup>23</sup>

- Turn on lights when you wake up during the night<sup>1</sup>
- Engage in a short bout of exercise<sup>24</sup>

There are a few things to consider about the proposed strategies to counteract sleep inertia:

- These strategies have primarily been studied in the laboratory; it is unknown if they can be easily implemented in real-world workplaces
- It is important to consider how these strategies to improve wakefulness may impact the ability to fall asleep after work<sup>25</sup>
- More research is needed to determine the most effective strategy or combination of strategies

***The most effective, risk-free strategy is to delay safety-critical tasks whenever possible.***

## **To sleep or not to sleep...?**

Some nurses<sup>26</sup>, emergency service workers<sup>27</sup>, and helicopter pilots<sup>28</sup> avoid sleeping in order to avoid sleep inertia. This is *not* the solution! Sleep is critical for optimal alertness, performance, and well-



being. After you wake up, wait at least 20 minutes before you make an important decision or perform a safety-critical activity. This includes driving a car! If you can't wait that long, use strategies to restore alertness more quickly. This will help minimize potential errors and mistakes.

## Infographic

**WAKE UP!**  
**HOW TO MANAGE SLEEP INERTIA**

**ALLOW RECOVERY TIME**  
Try to wait at least 20 minutes before engaging in tasks that require attention, decision-making, or are safety-critical.

**PRE-PLAN IF YOU CAN**  
Getting adequate sleep, planning naps for daytime hours, keeping naps short (<30min) can help to minimize sleep inertia symptoms.

**RISE AND SHINE**  
Research suggests that bright light can help to promote alertness after waking at night. More research is needed to see if this is feasible in the workplace!

**RISK MANAGEMENT**  
Even with proactive and reactive strategies, sleep inertia may still impair performance, so it's best to cross-check your work with a co-worker!

**WATCH THIS SPACE!**  
Research is ongoing to better understand the causes of, and countermeasures to, sleep inertia!

**WAKE UP! HOW TO MANAGE SLEEP INERTIA**



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### Suggested reading

For a deeper dive into the state of the science on sleep inertia:

Hilditch, C. J., & McHill, A. W. (2019). Sleep inertia: current insights. *Nature and Science of Sleep*, 11, 155-165. doi: 10.2147/NSS.S188911

For insight into the challenges in managing sleep inertia faced by on-call workers:

Kovac, K., Vincent, G.E., Paterson, J. L., & Ferguson, S. A. (2022). "I want to be safe and not still half asleep": Exploring practical countermeasures to manage the risk of sleep inertia for emergency service personnel using a mixed methods approach. *Nature and Science of Sleep*, 14, 1493-1510. doi:<https://doi.org/10.2147/NSS.S370488>



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