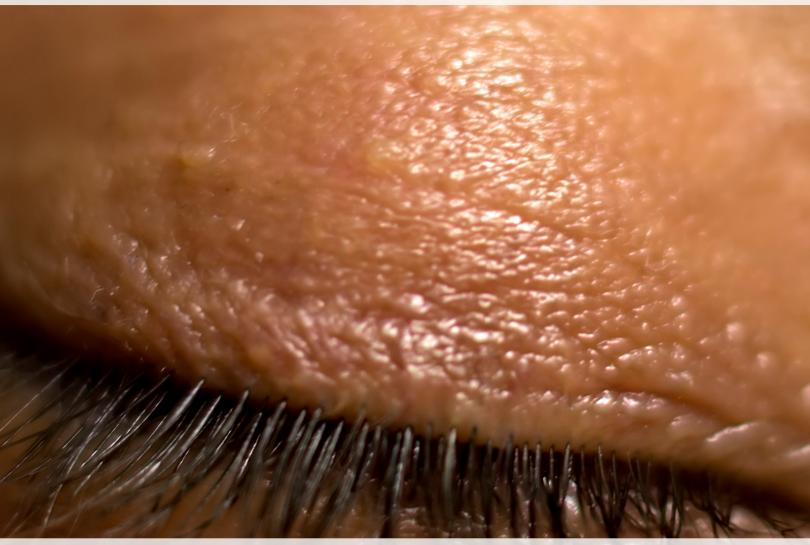
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# Sleep and the Immune System



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During sleep, breathing and muscle activity slows down, freeing up energy for the immune system to perform critical tasks.

Getting sufficient hours of high-quality sleep enables a well-balanced immune defence that features strong innate and adaptive immunity, efficient response to vaccines, and less severe allergic reactions.

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In contrast, serious sleeping problems, including sleep disorders like insomnia, sleep apnea, and circadian rhythm disruption, can interfere with the healthy functioning of the immune system.

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In people with healthy sleep, inflammation during the night recedes back to a normal level before waking up. In people who don't get enough sleep, though, this normally self-regulating system fails, and inflammation persists.

This low level of systemic inflammation contributes to an elevated risk of diabetes, cardiovascular disease, pain, and neurodegenerative diseases.

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Sleep is an important factor that helps determine the effectiveness of vaccines. Studies of vaccines for hepatitis and swine flu (H1N1) have found that when people don't sleep the night after receiving a vaccine, the body's immune response is weaker.

In some cases, this reduces the vaccine's protection and may even require additional dose(s)

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Recent research has identified that a person's circadian rhythm is involved in regulating the body's reaction to allergens.

When the circadian rhythm is disrupted, it may increase the likelihood and severity of allergic reactions.

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In the short-term, the risk of infections has been found to be higher in people who sleep less than six or seven hours per night. Studies have found that insufficient sleep makes it more likely to catch the common cold or the flu.

Persistent inflammation due to poor sleep has also been associated with depression, which may explain the high rates of this disorder among people with sleeping problems.