SLEEP & STRESS

Melatonin Helps Some Sleep Problems, Not All

The strongest evidence depends on your age, your sleep problem and what researchers chose to measure.

The promise on the nightstand

You are awake again, looking for something that might make tonight different. Melatonin seems like the modest option: not a dramatic intervention, just a natural product and one of the possible aids for sleep problems. The hope attached to it is much bigger. Take this, the thinking goes, and sleep should follow.

But "not sleeping" can describe very different nights. You may struggle to fall asleep, wake repeatedly or open your eyes much earlier than you wanted. You may feel that you barely slept at all. Those experiences can fit insomnia, but sleep can also be disrupted by breathing problems, movement disorders, an irregular work pattern, jet lag, medicines, pain, depression, anxiety or other health conditions.

That distinction is where the melatonin story begins. A product may look as though it answers one simple question-will it help you sleep?-while the research asks narrower ones. Did people fall asleep sooner? Did they sleep longer? Did their sleep become more efficient? Did they rate its quality differently? A positive result for one outcome is not a universal yes.

The evidence is not useless. It is specific. And once you look closely, melatonin appears less like a general answer to a bad night and more like an option whose value depends heavily on who is taking it and what, exactly, is going wrong.

Two reviews, two different answers

A 2022 systematic review of 23 randomized controlled trials found that melatonin improved adults' scores on the Pittsburgh Sleep Quality Index. The participants had various diseases, and the pooled result favored melatonin. In subgroup analyses, benefits appeared among people with respiratory diseases, metabolic disorders and primary sleep disorders, but not among those with mental disorders, neurodegenerative diseases or the other conditions examined.

That sounds decisive until you reach another 2022 systematic review, this one focused on chronic insomnia. Across 24 randomized controlled trials, melatonin did not significantly

improve sleep-onset time, total sleep time or sleep efficiency in adults with insomnia that was not caused by another condition. For adults with another condition alongside insomnia, the review found improved sleep onset-but that conclusion rested on only one adult study.

These findings are not necessarily contradictory. The first review pooled adults with a range of health conditions and evaluated a sleep-quality score. The second concentrated on chronic insomnia and examined several more specific outcomes. Different populations and different yardsticks can produce different answers without either review being wrong.

Still, the broader finding deserves restraint. Results in the sleep-quality review varied substantially from study to study, and health status appeared to account for some of that variation. A pooled benefit does not mean every participant benefited, or that melatonin worked for every kind of troubled sleep. The average can hide a lot of uneven ground.

Melatonin did not appear to be effective for adults with chronic insomnia in the outcomes people usually care about most.

Age changes the picture

The chronic-insomnia review drew one of its clearest lines by age. Among children and adolescents without another condition causing the insomnia, melatonin significantly improved the time it took to fall asleep and total sleep time. The authors concluded that it might be effective for young people with chronic insomnia, whether or not the insomnia occurred alongside another condition.

That is more encouraging than the adult result, but it is not a blank check. The reviewers said further studies were needed to establish both effectiveness and safety by age group. "Might help" is the honest language here. It preserves the signal in the trials without pretending the remaining questions have been settled.

For adults with chronic insomnia, the same review is harder to spin: melatonin did not appear effective. That does not prove no adult will ever notice a difference. It means the collected randomized evidence did not show significant improvements in the central outcomes of falling asleep, staying asleep longer and sleeping more efficiently for adults with non-comorbid chronic insomnia.

Melatonin did not appear to be effective for adults with chronic insomnia in the outcomes people usually care about most. That sentence may disappoint you, especially if the product feels gentler or easier than discussing sleep with a clinician. But an unqualified promise would erase the most relevant evidence.

Your bad night may be pointing elsewhere

Insomnia can be short-lived, following work stress, family pressure or a traumatic event. It can also continue for a month or longer. Chronic insomnia is often secondary to something else, including a medical condition, medicine or another sleep disorder. Caffeine, tobacco and alcohol can also play a part. Treating the underlying problem matters when one exists.

Stress and sleep can also travel together. A 2022 meta-analysis of 34 studies in undergraduate students found moderate associations between stress and both poor sleep quality and insomnia. The studies varied considerably, so the authors urged caution. Even so, the finding captures why a sleep product may not resolve a semester, job or family crisis that is arriving in bed with you.

Then there is sleep apnea. It can cause breathing to stop and restart repeatedly during sleep, preventing the body from getting enough oxygen. Loud snoring, gasping and breathing pauses are important clues, often noticed by someone else. Daytime sleepiness, tiredness, trouble concentrating and repeated nighttime waking can also occur. Untreated sleep apnea raises the risk of stroke, heart attack and other serious problems.

This is where a lifestyle question becomes a medical one. If someone notices that you gasp, choke, snore loudly or stop breathing in sleep-or if daytime sleepiness is affecting your attention or driving-talk with a healthcare provider rather than treating the problem as ordinary sleeplessness. A sleep study may be needed, and sleep apnea has treatments directed at breathing, including CPAP.

Make the question smaller

If melatonin is sitting in your plans, start by dropping the biggest claim: that it simply "fixes sleep." The research does not support that statement. The more useful question is whether evidence suggests it can help someone of your age, with your kind of sleep difficulty, on the outcome that matters to you.

For an adult with chronic insomnia and no other identified condition, the strongest targeted review found no significant benefit for sleep onset, total sleep time or sleep efficiency. For children and adolescents, the results were more promising, but the reviewers still called for more evidence on effectiveness and safety. A broader adult review found better reported sleep quality in selected health groups, with substantial variation between trials.

Check with a healthcare provider before taking any medicine or supplement. That conversation is especially useful when poor sleep has lasted, when another health condition or

medicine could be involved, or when your nights include signs of a different sleep disorder. Chronic insomnia may respond to approaches aimed at the problem itself; cognitive behavioral therapy is an option that can reduce anxiety linked to ongoing insomnia.

For the next week, do not ask a bottle to explain your nights. Notice the question you actually need answered: difficulty falling asleep, repeated waking, early waking, unrefreshing sleep or daytime sleepiness. Ask anyone who hears you sleep whether breathing pauses or gasping occur. Then take that specific problem-not the vague verdict "I sleep badly"-to your provider. That is a much better place to begin.

Where this comes from

- Sleep Disorders

  MedlinePlus, U.S. National Library of Medicine · https://medlineplus.gov/sleepdisorders.html
- Insomnia

  MedlinePlus, U.S. National Library of Medicine · https://medlineplus.gov/insomnia.html
- Sleep Apnea - What Is Sleep Apnea? | NHLBI, NIH

  National Heart, Lung, and Blood Institute · https://www.nhlbi.nih.gov/health/sleep-apnea
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- A systematic review and meta-analysis of poor sleep, insomnia symptoms and stress in undergraduate students.

  Sleep medicine reviews, 2022 · https://pubmed.ncbi.nlm.nih.gov/34922108/
- Effect of melatonin supplementation on sleep quality: a systematic review and meta-analysis of randomized controlled trials.

  Journal of neurology, 2022 · https://pubmed.ncbi.nlm.nih.gov/33417003/
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