

Study finds melatonin use soaring among youth

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Nearly one in five school-aged children and preteens now take melatonin for sleep, and some parents routinely give the hormone to preschoolers, according to new research from the University of Colorado Boulder

published Nov. 13 in *JAMA Pediatrics*.

This concerns the authors, who note that safety and efficacy data surrounding the products are slim, such dietary supplements lack full regulation by the Food and Drug Administration.

"We hope this paper raises awareness for parents and clinicians, and sounds the alarm for the [scientific community](#)," said lead author Lauren Hartstein, Ph.D., a postdoctoral fellow in the Sleep and Development Lab at CU Boulder. "We are not saying that [melatonin](#) is necessarily harmful to children. But much more research needs to be done before we can state with confidence that it is safe for kids to be taking long-term."

Calls to poison control centers up

Melatonin is produced naturally in the [pineal gland](#) to signal the body that it is time to sleep and regulate its circadian rhythm—the physiological cycle over a 24-hour period.

In many countries, the hormone is classified as a drug and available by prescription only.

In the United States, however, chemically synthesized or animal-derived melatonin is available over the counter as a [dietary supplement](#), and increasingly available in child-friendly gummies.

"All of a sudden, in 2022, we started noticing a lot of parents telling us that their healthy child was regularly taking melatonin," said Hartstein, who studies how environmental cues, including [light at night](#), impact children's sleep quality and melatonin production.

During 2017–18, only about 1.3% of U.S. parents reported that their

children used melatonin.

To get a sense of the current prevalence of use, Hartstein and colleagues surveyed about 1,000 parents in the first half of 2023.

Among children ages 5 to 9, 18.5% surveyed had been given melatonin in the previous 30 days. For preteens ages 10 to 13, that number rose to 19.4%. Nearly 6% of preschoolers ages 1 to 4 had used melatonin in the previous month.

Preschoolers who used melatonin had been taking it for a median length of a year. Grade-schoolers and preteens had used it for median lengths of 18 and 21 months, respectively.

The older the child, the greater the dosage, with preschoolers taking anywhere from 0.25 to 2 mg and preteens taking up to 10 mg.

A need for caution

In a study published in April, researchers analyzed 25 melatonin gummy products and found that 22 contained different amounts of melatonin than the label indicated. One had more than three times the amount on the label. One had none at all. In addition, some melatonin supplements have been found to contain other concerning substances, such as serotonin.

"Parents may not actually know what they are giving to their children when administering these supplements," said Hartstein.

Some scientists have also raised concerns that giving melatonin to [young people](#) whose brains and bodies are still developing could influence the timing of puberty onset.

The few small-scale [human studies](#) that have looked into this have yielded inconsistent results.

Gummies, specifically, also carry another risk: They look like and taste like candy.

From 2012 to 2021, the authors note, [reports of melatonin ingestion to poison control centers increased 530%](#), largely occurring among children under age 5. More than 94% were unintentional and 85% were asymptomatic.

A place for judicious use

Co-author Julie Boergers, Ph.D., a psychologist and pediatric sleep specialist at Rhode Island Hospital and the Alpert Medical School of Brown University, said that when used under the supervision of a health care provider, melatonin can be a useful short-term aid, particularly in youth with autism or severe sleep problems.

"But it is almost never a first-line treatment," she said, noting that she often recommends that families look to behavioral changes first and use melatonin only temporarily. "Although it's typically well-tolerated, whenever we're using any kind of medication or supplement in a young, developing body we want to exercise caution."

Anecdotally, she has heard from [parents](#) that the supplement often works well in the beginning but over time children may need higher doses to achieve the same effect.

Introducing melatonin early in life could also have another unintended consequence, said Hartstein. It could send a message that, if you have trouble sleeping, a pill is the answer.

The authors caution that the study was relatively small and does not necessarily represent usage nationwide. It is telling nonetheless.

"If this many kids are taking melatonin, that suggests there are a lot of underlying sleep issues out there that need to be addressed," Hartstein said. "Addressing the symptom doesn't necessarily address the cause."

More information: Lauren Hartstein et al, Characteristics of Melatonin Use Among US Children and Adolescents, *JAMA Pediatrics* (2023). [DOI: 10.1001/jamapediatrics.2023.4749](https://doi.org/10.1001/jamapediatrics.2023.4749).

Provided by University of Colorado at Boulder

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