

SLEEP PROBLEMS LINKED TO MORE SEVERE AUTISM SYMPTOMS

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In autism, lost sleep means more than just a drowsy morning: it's linked to serious problems. A new study of children with autism shows that those who slept less also had lower intelligence scores and more severe autistic symptoms than kids who slept more.¹ This is important because insomnia affects from 50 to 80 percent of children on the spectrum, according to estimates.^{1,5} They are roughly two to three times more likely to suffer from insomnia than their typically-developing classmates.^{1,6} Children with insomnia have problems falling or staying asleep.

Of course, anyone who has lost sleep knows that it can affect one's thinking, mood, and body. But adequate sleep appears to be particularly important for a child's developing brain. "The more I study sleep, the more I'm learning about how important sleep is for healthy brain development," said Olivia J. Veatch, PhD, a geneticist at the Center for Sleep and Circadian Neurobiology at the University of Pennsylvania.

In one of the largest studies of its kind, Dr. Veatch and other scientists set out to see exactly how poor sleep affected children with autism. They examined data from 2,700 children in the Simons Simplex Collection. The SSC is an autism research project that combines genetic and behavioral information about families who have just one child with autism.

They found that the children who slept fewer hours had more severe social problems, mainly trouble with peer relationships.¹ Those children also had more compulsive rituals that served no purpose. That was true even when researchers took age and intelligence into account. Less sleep was linked to more instances of challenging behavior, attention deficit disorder, depression, and obsessive-compulsive disorder.

Researchers then divided the SSC children into three groups, based on how long their parents reported they slept. An earlier study validated the general accuracy of parents' reports about sleep duration.⁷ At one extreme were the 179 children who slept the least, seven or fewer hours a night. At the other end of the sleep spectrum, they placed the 302 children who slept unusually long (11 or more hours a night). Everyone else (2219 kids) fell into the middle category.¹

According to the Cleveland Clinic hospital, children ages 6 to 12 need 10 to 11 hours of sleep nightly, while teens need about nine hours of shuteye, for good health.⁸ Although children with autism tend to sleep less than their classmates, no one knows for sure if that means their need for sleep is different.

Dr. Veatch's group compared children at both extremes of the sleep spectrum. They found that those who slept the least, seven or fewer hours, had more problems with attention, anxiety, depressed mood, thinking, and behavior at school.

WHAT DOES THIS SLEEP RESEARCH MEAN FOR CHILDREN WITH AUTISM?

So is poor sleep worsening a child's autistic symptoms, or is more severe autism disrupting sleep? Scientists like to point out that "correlation doesn't equal causation." In other words, just because two things are linked, it doesn't necessarily mean one is causing the other. More research would be needed to prove cause and effect. In this case, the researchers admit they don't know yet if inadequate sleep is increasing children's autism symptoms or vice versa. There's also a third possibility. Perhaps insomnia and autism are both caused by something else, such as a shared genetic mutation.

Dr. Veatch said she became intrigued by the autism-sleep connection when she learned that both conditions involve some of the same genes. If researchers could discover how these genetic pathways are linked and functioning, it could lead to better treatments for sleep problems in people with autism, she said. In this study and others, she has been joined by Beth A. Malow, MD, a nationally-recognized expert on sleep disorders in autism and other conditions.

GENES AND THE SLEEP-WAKE CYCLE

Genes affect hormones, such as melatonin, that help regulate a person's circadian rhythm, the 24-hour cycle that affects sleep and other bodily functions. Melatonin peaks at night, triggering sleepiness. Drs. Veatch and Malow have researched genetic variations affecting melatonin in people with autism.^{10,11} These variations may be driving the higher rate of sleep disorders in autism, scientists speculate. But genetics are not the only possible culprit for sleep problems in autism.

BEHAVIOR AS SLEEP BANDIT



Many children with autism may lose sleep for the same reason as typically developing children do: behavior. This has nothing to do with being "bad." "We're not saying the child is behaving poorly,"¹² Dr. Malow explained, in a 2016 webinar for the Interactive Autism Network. Rather, children's sleep is affected, for better or worse, by their evening activities, diet, routine (or lack thereof), and other habits. Although many children may resist bedtime, those with autism may have an even harder time transitioning between being awake and asleep.

Dr. Malow and other experts advise parents to try behavioral strategies to promote healthy sleep. For example, they can⁹:

- Create a calming and predictable bedtime routine,
- Keep the bedroom dark,
- Remove caffeine from the diet, and
- Reduce nighttime use of cell phones, television and other electronic devices. Their light can interfere with the body's production of melatonin for sleep, and exciting games and programs may keep the child too alert.

Of course, what may be calming for one child – taking a warm bath before bed – may have the opposite effect on another.⁹ Similarly, some children may need to watch a video to wind down before sleep. So parents will have to take their child's responses into account.

Parents also may need to look beyond obvious caffeine sources, such as cola, coffee and tea,¹³ to see if their child's diet contains hidden caffeine. Other sodas, chocolate, "energy" drinks, coffee-flavored food, and even some snack bars may contain caffeine, a stimulant. It's important to choose the right bedtime, as well. People are most alert one hour before their natural bedtime, so parents should not put children to bed too early, Dr. Malow said.¹²

LOOKING FOR MEDICAL CAUSES OF INSOMNIA



If behavioral changes don't solve the problem, parents can consult their child's health care provider to look for other causes. Medical conditions such as sleep apnea, reflux, and seizures all can affect sleep, as can some prescription medications. In the SSC study, children on mood stabilizing drugs slept more, while children taking sedatives and ADD drugs slept less.¹ However, medication use did not change the link between sleep and autism severity, Dr. Veatch said.

To understand a child's sleep problem, a physician may order a sleep study to investigate the sleep patterns of the brain.

Another item in the toolbox for better sleep is a nonprescription supplement, melatonin. Some people give low doses (1 to 3 mgs) 30 minutes before bedtime, according to a report by Drs. Veatch, Malow, and Angela Maxwell Horn.⁹ Dr. Malow said melatonin has been researched and is "relatively benign," although people should be careful to use reputable brands.¹² In the United States, the government does not review supplements for "safety and effectiveness" before they're sold, in contrast to the way it regulates prescription medication.¹⁴

A PARENT'S ADVICE

Cathy Blatnik of Michigan knows a lot about poor sleep, and autism. She uses both melatonin and behavioral strategies to improve sleep for her 12-year-old son, who has autism, epilepsy and Attention Deficit Hyperactivity Disorder.

Mrs. Blatnik, who participated in the SSC project, said Dominic has had trouble sleeping since he was very young. When he was 4, she appealed to his psychiatrist for help, and he recommended melatonin at night. "Before melatonin, he was not tired during the day, but

I was," Mrs. Blatnik said. "We started out with 3 mg and about a year or so ago, it had to be upped to 5 mg." Now, he sleeps nine hours, from 10 p.m. until 7 a.m.

Mrs. Blatnik recommends a consistent bedtime – even on vacation – since her son, like others with autism, "thrives on routine." She also said it's wise to limit or cut out caffeine and sugar in the evenings.

SLEEP PROBLEMS IN ADULTS WITH AUTISM

We live in a world where people praise themselves for getting less sleep and not giving their brains time to reset.

What about adults with autism: do they struggle with sleep problems as much as children with ASD do? A large study by Kaiser Permanente Northern California found both good news and bad news on this topic. Adults with autism have fewer sleep problems than have been reported in children. Only about one in five adults with ASD has a diagnosed sleep disorder, including sleep apnea. The bad news? That's still twice as high as the rate of sleep disorders in adults who don't have autism.¹⁵ Unlike the SSC study, which relied on parent reports, the Kaiser Permanente study examined sleep problems documented in patient medical records. Self-reports of sleep problems could be different.

Dr. Veatch said she wants to increase awareness of the importance of sleep, so researchers can help find better treatments for sleep disorders. Many people, including scientists, don't fully appreciate how important sleep is for optimal health, she said. "We live in a world where people praise themselves for getting less sleep and not giving their brains time to reset," she said. Not so with parents of children with autism, she said. "I feel parents know that sleep is an issue." She thanked parents in the SSC for their contributions to sleep research.

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- U.S. Food and Drug Administration [Information for Consumers Using Dietary Supplements](#)
- [The Role of Neurologists in Treating Children with Autism](#)
- [Webinar on Sleep Challenges in Autism](#) with Dr. Beth Malow

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