

# Tonsil, adenoid removal found to improve sleep quality, some behavioral problems in children with mild sleep apnea

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According to a randomized control trial led by researchers at Brigham and Women's Hospital and the Harvard Pilgrim Health Care Institute,

surgery to remove tonsils and adenoid glands was associated with improved quality of life, sleep symptoms, and blood pressure 12-months post-surgery, but did not improve the children's neurodevelopmental functioning.

Between 6% and 17% of children suffer from sleep-disordered breathing, characterized by habitual snoring, increased respiratory effort, and sleep apnea. If left untreated, the disorder may put children at higher risk of neurodevelopmental impairment, reduced [quality of life](#), and cardiovascular and metabolic diseases.

Enlarged tonsils are one of the main risk factors for sleep-disordered breathing, and adenotonsillectomy—surgical removal of the tonsils and adenoid glands—is a first-line treatment for children with the disorder. However, there is limited data to either support or refute the benefits of this [surgery](#) for children with mild forms of the disease.

In the randomized clinical trial, the team evaluated the effects of early adenotonsillectomy. The surgery did not result in a significant difference in the study's two primary endpoints of executive function and attention, but it did lead to improved sleep quality, reduced snoring, and was associated with improved behavior and reduced [daytime sleepiness](#) for children with mild sleep-disordered breathing.

Children who received the surgery also had reduced [blood pressure](#) and were less likely to show signs of disease progression compared to children in the control group. The findings are reported in [JAMA](#).

"Our data suggests that for children with no symptoms other than snoring, it's reasonable to monitor them over time without proceeding to surgery," said first author Susan Redline, MD, MPH, director of Programs in Sleep Medicine Epidemiology and Sleep and Cardiovascular Medicine.

"On the other hand, for children who are having issues with disturbed sleep, daytime sleepiness and [behavioral problems](#), our data suggest that surgery may be a very reasonable option, even if a sleep study shows that they don't have frequent apneas."

To examine the impact of early adenotonsillectomy on neurodevelopment, sleep quality, behavior, and overall health, the researchers performed a [randomized clinical trial](#) of 459 children with mild sleep-disordered breathing (defined as habitual snoring without frequent apnea events ("breathing pauses") and enlarged tonsils.

The children—half of whom received adenotonsillectomies—ranged in age from three to 12.9 years and were enrolled at seven academic sleep centers across the United States. The team collected measurements of sleep quality, cognition, behavior, and overall health before treatment and during six- and 12-month follow-up appointments. Caregivers also completed questionnaires regarding their child's social behavior and executive function.

Though adenotonsillectomy had no significant impact on measures of neurodevelopmental function, the treatment was associated with improvements in [sleep quality](#) and reduced snoring, and reduced behavioral problems, daytime sleepiness, and blood pressure. Children who received surgery were also less likely to show disease progression—at the 12-month follow-up, only 1.3% of children in the adenotonsillectomy group progressed to having more than three apnea events per hour compared to 13.2% of children in the [control group](#).

"We're hoping that our data will provide evidence to inform future clinical guidelines to help surgeons, pediatricians, and sleep physicians practice evidence-based care," said Redline. "And for parents, we hope that this information can be communicated by physicians in a way that will help parents decide—alongside their physician—whether their

children should in fact go forward and have surgery."

Next, the researchers plan to investigate the impact of adenotonsillectomy on [health care utilization](#), and hope to also investigate the longer-term impacts of surgery. "Our team is very interested in a longer term follow-up of [children](#)," said Redline. "There are open questions about the impact of having tonsils removed over a child's lifetime, as well as its impact on trajectories of growth and development beyond a year."

**More information:** Redline, S et al, Adenotonsillectomy for snoring and mild sleep apnea in children: A Randomized Clinical Trial, *JAMA* (2023). DOI: [10.1001/jama.2023.22114](https://doi.org/10.1001/jama.2023.22114).  
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