

## **Adenotonsillectomy improves neurocognitive function in children with obstructive sleep apnea syndrome.**

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**OBJECTIVE:** To evaluate neurocognitive functions of children with obstructive sleep apnea syndrome (OSAS), before and after adenotonsillectomy, compared with healthy controls.

**DESIGN:** Prospective study. **PATIENTS AND METHODS:** Thirty-nine children with OSAS aged 5 to 9 years (mean age, 6.8 +/- 0.2 years) and 20 healthy children (mean age, 7.4 +/- 1.4 years) who served as controls, underwent a battery of neurocognitive tests containing process-oriented intelligence scales. Twenty-seven children in the OSAS group underwent follow-up neurocognitive testing 6 to 10 months after adenotonsillectomy. Fourteen children in the control group were also reevaluated 6 to 10 months after the first evaluation.

**RESULTS:** Children with OSAS had lower scores compared with healthy children in some Kaufman Assessment Battery for Children (K-ABC) subtests and in the general scale Mental Processing Composite, indicating impaired neurocognitive function. No correlation was found between neurocognitive performance and OSAS severity. Six to 10 months after adenotonsillectomy, the children with OSAS demonstrated significant improvement in sleep characteristics, as well as in daytime behavior. Their neurocognitive performance improved considerably, reaching the level of the control group in the subtests Gestalt Closure, Triangles, Word Order, and the Matrix analogies, as well as in the K-ABC general scales, Sequential and Simultaneous Processing scales, and the Mental Processing Composite scale. The magnitude of the change expressed as effect sizes showed medium and large improvements in all 3 general scales of the K-ABC tests. **CONCLUSIONS:** Neurocognitive function is impaired in otherwise healthy children with OSAS. Most functions improve to the level of the control group, indicating that the impaired neurocognitive functions are mostly reversible, at least 3 to 10 months following adenotonsillectomy.

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