

## **Neurocognitive abilities in children with adenotonsillar hypertrophy.**

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**OBJECTIVE:** Sleep apnea is one of the most deleterious disorders in children with adenotonsillar hypertrophy because it can induce hypoxemia of brain. Sleep apnea may lead to failure to thrive or to physical and mental delay in development, including cognitive disturbances. The aim of this study was to analyze the influence of adenotonsillar hypertrophy, causing obstructive sleep apnea on neurocognitive abnormalities. We were interested in sensorimotor coordination, perception, memory, learning ability, concentration, focused attention and language reception. **MATERIALS AND METHODS:** We examined 221 children. One-hundred and seventeen children had sleep apnea caused by adenotonsillar hypertrophy: 87 children aged 6-9 years and 34 children aged 10-13 years. The control group, without adenotonsillar hypertrophy, consisted of 104 healthy children. Both groups of children with and without apnea were examined psychologically to determine abilities and minor neurocognitive deficit. The token test (TT), diagnosis test of brain dysfunction (DCS-test), Luria auditory verbal learning test (LAVLT) and Rey complex figure test (RCFT) were applied to both groups. The tests: TT, DCS-test, RCFT were used to investigate the level of sensorimotor integration and perception processes. Memory and learning abilities were measured using LAVLT. The TT assessed language dysfunction in children. **RESULTS:** This study shows that adenotonsillar hypertrophy in children aged 6-9 years is associated with neurocognitive abnormalities such as: memory problems, concentration of attention deficits, learning disability, language dysfunction, lower sensorimotor integration and perception. The older children (aged 10-13 years) with adenotonsillar hypertrophy had memory problems and learning disabilities. They are likely to be caused by of concentration of attention deficits. The older children were found to have more severe language dysfunction. **CONCLUSIONS:** Our study shows that sleep apnea may lead to neurocognitive deficits. The results may be helpful in the process of making decision for or against surgery in doubtful cases. It is important to know the problems connected with apnea in order to recognize them and help the child develop by providing adequate treatment and cognitive stimulation.

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