

Abstract for tropEd website

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- **Year:** 2013
- **Title:** Child overweight and obesity are associated with reduced executive cognitive performance and brain alterations: a magnetic resonance imaging study in Mexican Children
- **Key words:** neuropsychological assessment, volumetric MRI, hippocampus, cerebellum, corpus callosum, and executive cognitive function
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- **Abstract:**
 - **Objective:** Overweight and obesity in childhood is associated with negative physical and psychological effects. The purpose of this study was a neurobiopsychological approach to examine the association between overweight and obesity, brain structure and a pediatric Neuropsychological Assessment in Mexican children between 6 and 8 years of age.
 - **Design:** We investigated the relation between the Body Mass Index (BMI), brain volumetric segmentation of subcortical gray and white matter regions obtained with magnetic resonance imaging (MRI) and the Neuropsychological Assessment of Children standardized for Latin America.
 - **Subjects:** 33 healthy Mexican children between 6 and 8 years of age, divided into normal weight (18 children) and overweight/obese (15 children) groups.
 - **Results:** Overweight/obese children showed reduced executive cognitive performance on neuropsychological evaluations (i.e. verbal fluidity, $p = 0.03$) and presented differences in brain structures related to learning and memory (reduced left hippocampal volumes, $p = 0.04$) and executive functions (larger white matter volumes in the left cerebellum, $p = 0.04$ and mid-posterior corpus callosum, $p = 0.03$).
 - **Conclusions:** The findings support a relationship between BMI, executive cognitive performance, and brain structure and suggest that the

neurobiological and neuropsychological differences observed in overweight/obese children may underlie the causal chain that leads to obesity in adulthood.