

# Abstract

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## **Lipid profile, fatty acid composition and pro- and anti-oxidant status in pediatric patients with attention-deficit/hyperactivity disorder.**

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**OBJECTIVE:** Attention-deficit/hyperactivity disorder (ADHD) is the most prevalent behavioral disorder in children and the pathophysiology remains obscure. In addition to the pharmacotherapy, which is the primary treatment of ADHD, nutritional intervention may have a significant impact on ADHD symptoms.

**METHODS:** We studied lipid and lipoprotein profiles, fatty acid (FA) composition, and oxidant-antioxidant status in 37 pediatric ADHD patients and 35 healthy control subjects.

**RESULTS:** Our results show that plasma triacylglycerols and phospholipids were lower, whereas free cholesterol, HDL, and apolipoprotein A-I were higher in ADHD patients compared with controls. The proportion of plasma EPA and DHA was higher, but that of oleic and alpha-linolenic (ALA) acids was lower. As expected from these findings, the proportions of both total saturates and polyunsaturates fatty acids (PUFA) were higher and lower, respectively, in ADHD patients than in controls, which led to a significant decrease in the PUFAs/saturates ratio. On the other hand, the ratios of eicosatrienoic acid to arachidonic acid and of palmitoleic acid to linoleic acid, established indexes of essential fatty acid (EFA) status remained unchanged revealing that EFA did not affect ADHD patients. Similarly, the activity of delta-6 desaturase, estimated by the ratio of 18:2(n-6)/20:4(n-6), was found unaffected, whereas ALA/EPA was diminished. Lessened lipid peroxidation was noted in ADHD subjects as documented by the diminished values of plasma malondialdehyde accompanied by increased concentrations of gamma-tocopherol.

**CONCLUSIONS:** In conclusion, significant changes occur in the lipid and lipoprotein profiles, as well as in the oxidant-antioxidant status of ADHD patients, however, the FA distribution does not reflect n-3 FA deficiency.

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