

Abstract

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Fatty acid status and behavioural symptoms of attention deficit hyperactivity disorder in adolescents: a case-control study.

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BACKGROUND: Most studies of Attention-deficit hyperactivity disorder (ADHD) have focused on either young children or older adults. The current study compared 11 ADHD adolescents with 12 age-matched controls. The purpose was to examine differences in dietary intake, particularly of essential fatty acids, and determine whether this could explain the typical abnormalities in red blood cell fatty acids observed in previous studies of young children. A secondary purpose was to determine if there were relationships between circulating concentrations of essential fatty acids and specific ADHD behaviours as measured by the Conners' Parent Rating Scale (CPRS-L).

METHODS: Eleven ADHD adolescents and twelve age-matched controls were recruited through newspaper ads, posters and a university website. ADHD diagnosis was confirmed by medical practitioners according to DSM-IV criteria. Blood, dietary intake information as well as behavioural assessments were completed.

RESULTS: Results showed that ADHD adolescents consumed more energy and fat than controls but had similar anthropometry. ADHD children consumed equivalent amounts of omega-3 and omega-6 fatty acids to controls, however they had significantly lower levels of docosahexaenoic acid (DHA, 22:6n-3) and total omega-3 fatty acids, higher omega-6 fatty acids and a lower ratio of n-3:n-6 fatty acids than control subjects. In addition, low omega-3 status correlated with higher scores on several Conners' behavioural scales.

CONCLUSION: These data suggest that adolescents with ADHD continue to display abnormal essential fatty acid profiles that are often observed in younger children and distinctly different from normal controls of similar age. Further these red blood cell fatty acid differences are not explained by differences in intake. This suggests that there are metabolic differences in fatty acid handling between ADHD adolescents and normal controls. The value of omega-3 supplements to improve fatty acid profiles and possibly behaviours associated with ADHD, need to be examined.

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