

ATTENTION DEFICIT DISORDERS

PUFA SUPPLEMENT IN ADHD: META ANALYSIS

Researchers at Hammersmith Hospital, London, and Academy of Nutritional Medicine, Cambridge, UK, conducted an updated meta-analysis of randomized controlled trials (RCTs) in ADHD, using data on PUFA content obtained from independent fatty acid methyl ester analyses of each study PUFA regimen. Standardized mean differences (SMD) in inattention, hyperactive-impulsive and combined symptoms were assessed as rated by parents, teachers or all raters. The pooled estimate from 18 studies showed that combined ADHD symptoms rated by all raters decreased with PUFA supplementation ($P < 0.001$). When analyzed by rater, only parent-rated symptoms decreased significantly. Multivariable meta-regression showed that longer study duration, γ -linolenic acid (GLA), and the interaction between GLA and eicosapentaenoic acid (EPA) were associated with significant decreases in inattention. PUFA regimen content was unrelated to changes in hyperactive-impulsive symptoms, but the potential psychoactivity of certain fatty acids in placebo preparations could not be excluded. The meta-analysis provides modest evidence of PUFA effectiveness in ADHD, especially a reduction of inattention symptoms by GLA and EPA. (Puri BK, Martins JG. Which polyunsaturated fatty acids are active in children with attention-deficit hyperactivity disorder receiving PUFA supplementation? A fatty acid validated meta-regression analysis of randomized controlled trials. **Prostaglandins Leukot Essent Fatty Acids** 2014 Feb 3. [Epub ahead of print]).

COMMENTARY. In patients who fail to respond or with parents opposed to medication, dietary methods in treatment of ADHD such as omega-3,-6 supplements may warrant a trial. Polyunsaturated fatty acid (PUFA) preparations contain variable quantities and combinations of omega-3, -6 and -9 fatty acids [1], and the optimal dosage is not well defined. Unlike medication for ADHD, the effect of treatment with fatty acid supplements is judged by weeks or months rather than hours or days. The demonstration that EPA/GLA interaction and not the docosahexaenoic acid (DHA) component of omega-3 account for the decreased inattentiveness provides a more discrete measure of the potential effectiveness of PUFA in ADD. EPA but not DHA is also responsible for the efficacy of omega-3 long chain PUFA supplementation in depression [2].

Interest in the role of diet in the treatment of ADHD extends from centers in London and Cambridge to the University of Southampton in the UK. Evaluation of reviews and meta-analyses of 11 randomized controlled trials found evidence of a small effect of free fatty acid supplements in ADHD, and an uncertain benefit of artificial color elimination [3]. Similar conclusions are expressed by parents of patients in our neurology clinic for ADHD in children and adolescents at Ann & Robert H. Lurie Children's Hospital of Chicago.

References.

1. Millichap JG, Yee MM. *Pediatrics*. 2012 Feb;129(2):330-7.
2. Martins JG. *J Am Coll Nutr*. 2009 Oct;28(5):525-42.
3. Stevenson J, Buitelaar J, Cortese S, et al. *J Child Psychol Psychiatry*. 2014 Feb 19. [Epub ahead of print].