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DHA supplementation improved both memory and reaction time in healthy young adults: a randomized controlled trial.

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Abstract

BACKGROUND:

Docosahexaenoic acid (DHA) is important for brain function, and its status is dependent on dietary intakes. Therefore, individuals who consume diets low in omega-3 (n-3) polyunsaturated fatty acids may cognitively benefit from DHA supplementation. Sex and apolipoprotein E genotype (APOE) affect cognition and may modulate the response to DHA supplementation.

OBJECTIVES:

We investigated whether a DHA supplement improves cognitive performance in healthy young adults and whether sex and APOE modulate the response.

DESIGN:

Healthy adults (n = 176; age range: 18-45 y; nonsmoking and with a low intake of DHA) completed a 6-mo randomized, placebo-controlled, double-blind intervention in which they consumed 1.16 g DHA/d or a placebo. Cognitive performance was assessed by using a computerized cognitive test battery. For all tests, z scores were calculated and clustered into cognitive domains as follows: episodic and working memory, attention, reaction time (RT) of episodic and working memory, and attention and processing speed. ANCOVA was conducted with sex and APOE as independent variables.

RESULTS:

RTs of episodic and working memory improved with DHA compared with placebo [mean difference (95% CI): -0.18 SD (-0.33, -0.03 SD) (P = 0.02) and -0.36 SD (-0.58, -0.14 SD) (P = 0.002), respectively]. Sex × treatment interactions occurred for episodic memory (P = 0.006) and the RT of working memory (P = 0.03). **Compared with the placebo, DHA improved episodic memory in women [0.28 SD (0.08, 0.48 SD); P = 0.006] and RTs of working memory in men [-0.60 SD (-0.95, -0.25 SD); P = 0.001].** APOE did not affect cognitive function, but there were some indications of APOE × sex × treatment interactions.

CONCLUSIONS:

DHA supplementation improved memory and the RT of memory in healthy, young adults whose habitual diets were low in DHA. The response was modulated by sex.