

## **Dark adaptation, motor skills, docosahexaenoic acid, and dyslexia.**

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Dyslexia is a widespread condition characterized by difficulty with learning and movement skills. It is frequently comorbid with dyspraxia (developmental coordination disorder), the chief characteristic of which is impaired movement skills, indicating that there may be some common biological basis to the conditions. Visual and central processing deficits have been found. The long-chain polyunsaturated fatty acids (LCPUFAs) are important components of retinal and brain membranes. In the preliminary studies reported here, dark adaptation was shown to be impaired in 10 dyslexic young adults when compared with a similar control group ( $P < 0.05$ , repeated-measures analysis of variance); dark adaptation improved in 5 dyslexia patients after supplementation with a docosahexaenoic acid (DHA)-rich fish oil for 1 mo ( $P < 0.05$ , paired t test on final rod threshold); and movement skills in a group of 15 dyspraxic children improved after 4 mo of supplementation with a mixture of high-DHA fish oil, evening primrose oil, and thyme oil ( $P < 0.007$  for manual dexterity,  $P < 0.02$  for ball skills, and  $P < 0.03$  for static and dynamic balance; paired t tests). The studies were small and had designs that did not allow firm conclusions to be made. However, when considered with other evidence from another closely related condition, attention-deficit hyperactivity disorder, for which reduced ability to elongate and desaturate the essential fatty acids linoleic acid and alpha-linolenic acid to arachidonic acid and DHA, respectively, has been proposed, the studies suggest that more research, including double-blind, placebo-controlled studies, would be useful to clarify the benefits of LCPUFAs in dyslexia and other closely related conditions.