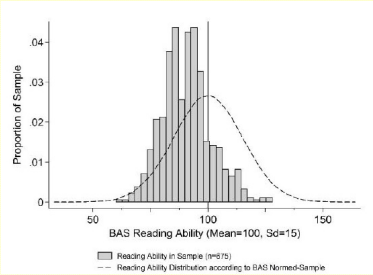
Low DHA Status Predicts Poor Cognitive Performance and Behavior in School Aged Children with Reading Difficulties

Montgomery et al. PLOS ONE 2013;June, 8(6):e66697

Objective: ***To determine the association between whole blood DHA status and children's reading ability, working memory and Attention Deficit Hyperactivity Disorder (ADHD)-type symptoms.***

Study Design:

- *Cross-sectional, observational study*
- *493 children aged 7-9 years from mainstream primary schools in Oxfordshire, UK*
- *All had below average reading performance in national assessments at age 7*

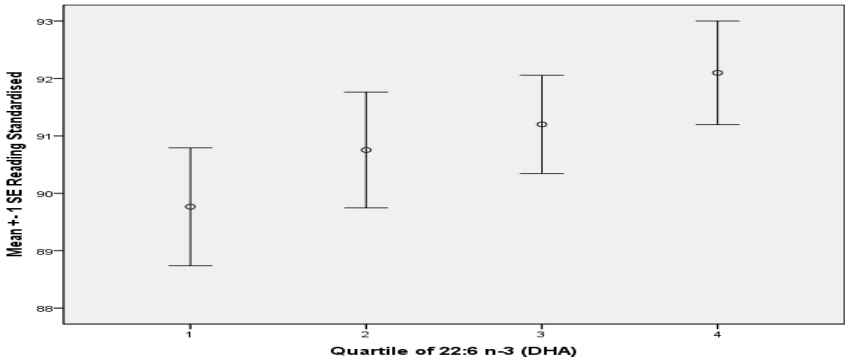


Assessments:

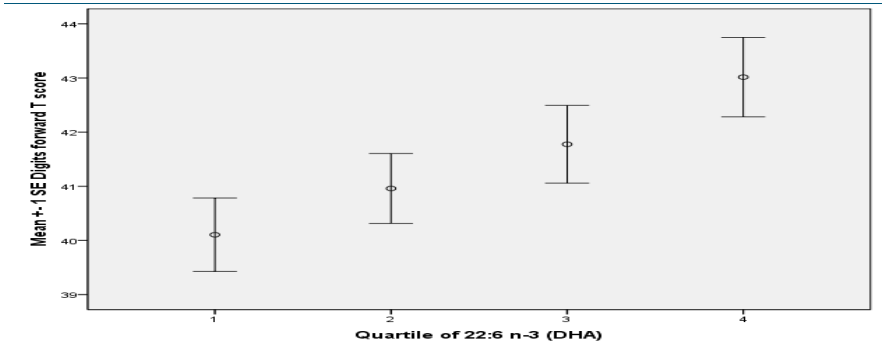
- ***Whole blood docosahexaenoic acid (DHA) status***
- ***Reading ability*** *- using the Word Reading Achievement sub-test of the British Ability Scales 2nd Edition*
- ***Working memory*** *- using the Recall of Digits Forward and Recall of Digits Backward sub-tests from the BAS II*
- ***Behavior*** *(ADHD-type symptoms) - assessed by both parents and teachers using the long versions of the Conners' Rating Scales.*

Summary of Benefits Achieved

Children with Higher Blood DHA were Better Readers



Children with Higher Blood DHA had Better Working Memory



Lower DHA was associated with higher levels of parent rated oppositional behavior, emotional lability, anxiety, psychosomatic symptoms and the Conners' Global Index for ADHD Symptoms.

Conclusion:

- *This is the first study to determine the association of blood fatty acid profiles with cognitive performance and behaviour in healthy children from the general UK population.*
- *It showed that DHA and other Omega-3 LC-PUFAs were low relative to adult cardiovascular health recommendations, and directly related to measures of cognition and behaviour in this group of healthy UK children with below average reading ability.*
- *These findings suggest that previously reported benefits of dietary supplementation with Omega-3 LC-PUFA in people with ADHD, dyspraxia, dyslexia, and related learning disorders might extend to the general school aged population.*

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