Objective: To investigate the effects of EPA, DHA or placebo on behaviour, cognition and literacy in children with ADHD, to determine if those with lower omega-3 status respond better and to correlate changes in PUFA status with changes in behaviour and literacy/cognition.

Study Design:
- Randomised, three way cross-over, triple-blind (investigators, children and parents), placebo-controlled trial
- 90 children aged 6-12 years old diagnosed with ADHD or with parent-rated symptoms >90th percentile on the Conners Parent Rating Scale (CPRS) and parent reported learning difficulties where literacy performance was behind their level in school
- Given 4 X 500 mg capsules/day of either EPA-rich fish oil (1109 mg EPA & 108 mg DHA), or a DHA-rich fish oil (1032 mg DHA & 264 mg EPA) or placebo for 4 months each for a total of 12 months intervention.

Assessments:
- Red blood cell (RBC) fatty acids status
- Literacy using the Wechsler Individual Achievement Test (WIAT-III)
- Vocabulary performance using the Wechsler Intelligence Scale for Children
- Parent Rated ADHD Symptoms using the long version of the CPRS.

Secondary Outcomes:
- Various forms of attention using the Test of Everyday Attention for Children
- Focused attention using the Sky Search
- Sustained attention using Score! Tasks
- Ability to switch & control attention using Creature Counting
- Divided attention by Sky Search & Score! Tasks
- Inhibition or ability to hold back a response using a computerized Go/No-go task

Conclusion:
- Increases in DHA status through supplementation may improve literacy and behaviour in children with ADHD with the greatest benefits in children having comorbid learning difficulties.