

Brain scans in boys reveal Omega-3 may counter ADHD

SEAFOOD.COM NEWS [Vital Choices] by Craig Weatherby - Aug 27, 2010 - Unprecedented brain scans of healthy boys given supplemental omega-3 DHA revealed brain activity patterns opposite from those seen in boys with ADHD.

A growing body of evidence links higher blood levels of DHA to better cognitive function and attention, and visual development (Hoffman DR et al. 2009).

But studies using functional MRI (fMRI) brain scans have just begun to explore whether and how dietary omega-3s — especially DHA — affect activity in regions of the human brain.

The children involved performed attention tasks while inside a brain scanner, to see if regions of their brains 'lit up' differently (McNamara RK et al. 2010).

A researcher team from the University of Cincinnati recruited 33 healthy boys aged eight to 10 years old, and randomly assigned them to one of three groups of 11 boys each: Placebo capsules, Low-dose DHA (400mg per day), and High-dose DHA (1200mg per day).

DHA levels in red blood cells increased by 47 and 70 percent in the low- and high-dose DHA groups respectively, while the placebo group experienced an 11 percent drop in DHA levels.

The scientists subjected the boys to fMRI brain scans during a test of sustained attention called the identical-pairs continuous performance task (CPT-IP).

The boys with the highest blood levels of omega-3 DHA showed the speediest reaction times, but there were no other significant differences in test scores among the three groups.

Omega-3 groups show brain activity patterns furthest from ADHD patterns The fMRI scans taken during the attention test showed that both DHA groups experienced significant activity increases in an area of the brain associated with working memory, called the dorsolateral prefrontal cortex.

And, the low-dose and high-dose DHA groups showed greater decreases in activity in the occipital cortex and cerebellar cortex — a good thing when it comes to mental focus.

Relative to the low-dose DHA group, the boys taking high-dose DHA showed greater decreases in activation of the bilateral cerebellum — another good thing with regard to attention.

These results simply mean that, compared with the placebo group, the boys taking DHA showed brain activation patterns further from the patterns seen during attention tests in boys with ADHD.

The authors pointed to a prior fMRI study, which found that kids with ADHD showed brain activity patterns opposite to those seen in the two omega-3 groups in the new study.

As the authors wrote, 'These findings suggest that DHA may modulate cerebellar-PFC attention networks.'

Needless to say, a small study like this is not proof of anything.

But it fits with the generally positive findings of clinical studies testing omega-3s in kids with ADHD.

And the results help make sense of studies that find lower DHA blood levels in kids with ADHD, while shedding light on the brain effects of omega-3 DHA.

This imaging trial had some limitations, according to the authors.

First, the high level of performance exhibited by all three groups (80–90 percent accuracy) on what was a relatively easy attention test may have prevented the detection of potential performance-enhancing effects of DHA.

Second, the duration of DHA supplementation was relatively short at only eight weeks, so greater changes in regional brain activation patterns might have been observed had the boys taken DHA for a longer period before being tested.

Last, the relatively small number of subjects in each group may not be a representative sample of this age group.

As the authors wrote, 'Therefore, a larger and longer controlled imaging study using a more difficult version of the CPT will be required to replicate and extend the present findings.'

The trial was supported in part by the National Institutes of Health, and by grants that the researchers requested from Martek Biosciences Corporation (a DHA supplement maker) and the Inflammation Research Foundation.