

Health News from 3Care Therapeutics

Omega-3 in Combination with Vitamins and Minerals May Reduce Aggressive Behavior

Nutritional supplements containing vitamins, minerals, omega-3 and omega-6 fatty acids were associated with a 34 per cent reduction in violent incidents, according to findings of a randomized, double-blind, placebo controlled trial with over 200 young adult offenders published in *Aggressive Behavior*. On the other hand, a 14 per cent increase in the number of reported incidents in participants in the placebo group were **reported by the Dutch scientists**.

“The prospect of influencing aggression and rule-breaking with nutrients in moderate doses is important enough to warrant further research,” wrote the researchers. “This is particularly true as adequate supplementation may also have beneficial effects on mental health and cognitive functioning.”

Despite the reductions in violent incidents, which were documented by the prison staff, no significant differences were reported by the prisoners themselves when asked to rate their aggression or general health. “Yet, the results in terms of a substantial reduction in reported incidents seem promising, as this outcome measure in particular may have practical relevance,” wrote Zaalberg and co-workers.

Commenting independently on the research, Professor Michael Crawford, director of the Institute of Brain Chemistry and Human Nutrition at London Metropolitan University stated that the study follows on from a study in England by Bernard Gesch at Oxford University (*Br J Psychiat*, 2002, Vol. 181, pp 22-28) which found that supplementation of young violent offenders with fatty acids and micronutrients reduced violent offences by some 39 per cent or more. Dr Gesch’s study was a double blind, placebo-controlled clinical trial, which used the outcome measure used by the UK Home Office and Prisons to assess behavior for legal purposes such as parole. “The measures were pretty robust,” said Prof Crawford.

Milestone in the Study of Nutrition’s Effect on Behavior

The area of fatty acid supplementation and aggression was described as “an important development, and about to become more important”, by Prof Jack Winkler, director of the Nutrition Policy Unit at London Metropolitan University. Prof Winkler said the Zaalberg study extended the data of Gesch and confirms the basic finding: “A good diet reduces aggression,” he said.

“In my view, this could be milestone research, the research that finally makes the world take seriously the connection between diet and mental ill health, in all its forms,” said Prof Winkler. No challenge to the methods of the new Oxford study has come forward, noted Prof Winkler. “If the results turn out similar to the Gesch and Dutch studies, then it could be a significant breakthrough,” he said.

Professor Crawford added that the link between diet and aggressive behavior “makes sense on the basis of evidence of links between major depression, suicide and homicide reported by Dr Joseph Hibbeln at the National Institutes of Health in the USA and of course our stuff demonstrating the absolute dependence of the brain on the long chain essential fatty acids.”

Source: *Aggressive Behavior*

March/April 2010, Volume 36, Issue 2, Pages 117-126

“Effects of nutritional supplements on aggression, rule-breaking, and psychopathology among young adult

prisoners”

Authors: A. Zaalberg, H. Nijman, E. Bulten, L. Stroosma, C. van der Staak

Omega-3 may boost brain function in boys

Supplements of the omega-3 fatty acid DHA may alter the function of the brain associated with working memory, according to results of a new study with healthy boys.

Scientists from the University of Cincinnati showed for the first time using neuro-imaging that supplementation with DHA alters the functional activity in cortical attention networks in humans. “The present findings add to an emerging body of evidence from preclinical and clinical imaging studies that suggest that dietary DHA intake is a robust modulator of functional cortical activity,” wrote lead author Robert McNamara in the American Journal of Clinical Nutrition.

Supports Earlier European Research

The study follows hot on the heels of, and vindicates, backing from the European Food Safety Authority for DHA-related brain and eye health claims for infants. EFSA’s Panel on Dietetic Products, Nutrition and Allergies said DHA levels of 100mg of per day were appropriate for 7-24 month-old infants along with 200mg per day for pregnant and lactating women.

The DHA claims relating to brain health stated: “DHA intake can contribute to normal brain development of the fetus, infant and young children” Another shorter chain, omega-3 fatty acid, ALA, was affirmed as important for the normal brain development of children up to the age of 18 but no levels were specified.

While there is a growing body of evidence linking DHA to cognitive function, Dr McNamara and his co-workers note that it is unknown how DHA supplementation may affect functional cortical activity in humans. In order to fill this knowledge gap, they recruited 33 health boys aged between 8 and 10 and randomly assigned them to receive one of two doses of DHA (400 or 1200 mg per day) or placebo for eight weeks.

Brain activation patterns were measured using functional magnetic resonance imaging during a test of sustained attention (playing video games). The results showed that DHA levels in the membrane of red blood cells increased by 47 and 70 per cent in the low and high dose DHA group, while the placebo groups experienced an 11 per cent drop in DHA levels.

The “main finding” from the data was an indication of significant increases in the activation of the dorsolateral prefrontal cortex part of the brain in the DHA groups – an area of the brain associated with working memory. Changes in other parts of the brain, including the occipital cortex (the visual processing centre) and the cerebella cortex (plays a role in motor control) were observed.

“These findings suggest that this imaging paradigm could be useful for elucidating neurobiological mechanisms underlying deficits in cortical activity in psychiatric disorders associated with DHA deficiencies, including ADHD and major depression,” wrote the researchers.

Source: American Journal of Clinical Nutrition

Published online ahead of print, doi:10.3945/ajcn.2009.28549

“Docosahexaenoic acid supplementation increases prefrontal cortex activation during sustained attention in healthy boys: a placebo-controlled, dose-ranging, functional magnetic resonance imaging study” Authors: R.K. McNamara, J. Able, R. Jandacek, T. Rider, et al.