Reference:

Omega-3 Fatty Acid Supplementation in Children with Autism: A Double-Blind Randomized, Placebo-controlled Pilot Study

Wozniak J et al., Eur Neuropsychopharmacol.,6-7: 440-447,(2007)

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Summary:

The present clinical trial was initiated due to assorted reports in the evidence-based literature that the long-chain omega-3 fatty acids found in fish/fish oils as DHA+EPA may modify the risk of selected adult neuropsychiatric disorders and that imbalances in these polyunsaturated fatty acids may be of relevance to some childhood neurodevelopmental disorders. Furthermore, the parents of children with autism have reported upon their impressions that improvements in overall health and associated clinical characteristics and behaviour were apparently exhibited upon supplementation with fish oils enriched in omega-3 fatty acids. Consequently, the present double-blind, placebo-controlled pilot trial with supplemental omega-3 fatty acids as DHA/EPA combined was inducted.

The autistic children (see brief definition of ‘autism’ below) numbered 13 participants (age 5-17 years) who were attending a specialized daycare centre dedicated to the long-term treatment of autistic children. All the children (mostly male) met the official medical criteria for the diagnosis of autistic disorder as established by the American Psychiatric Association. The trial excluded children who were receiving a psychotropic drug effective for the treatment of aggression, tantrums, or behaviour which was considered to be self-injurious. Various clinical measurements were taken on all the subjects at baseline (before supplementation) and following 6 weeks of supplementation with a placebo (coconut oil) or encapsulated fish oil supplementation daily providing 700 mg DHA + 840 mg EPA (total of 1540 mg combined DHA/EPA daily). The authors reported a tendency for a greater remission of hyperactive
symptoms in the fish oil – supplemented group as compared to the placebo (control) group with an approximate overall 10% reduction in the mean score for hyperactivity with DHA/EPA (combined) supplementation whereas no such reduction was exhibited in the placebo group. No significant effect or trend towards improvement for other aberrant behaviours was observed with omega-3 supplementation (including irritability, social withdrawal, and inappropriate speech). The side effects observed included mild to moderate stomach distress, including diarrhea, which were found to be of relatively short duration and were reduced by consuming the capsules with food. The authors concluded that omega-3 fatty acid supplementation with DHA/EPA may be an effective treatment for children with autism and that the overall risk:benefit ratio for such treatment appeared to be favourable.

**Autism:** Includes a wide spectrum of neuropsychiatric disorders which are characterized by deficits in communication and social interactions accompanied oftentimes by unusual and repetitive behaviour. Also, some patients with autism are non-verbal. The diagnosis of autism is usually confirmed before age 6 although diagnosis during infancy may be possible in some individuals. The severity of autism can vary considerably from mild to more severe symptomology such that those patients which are severely afflicted may appear to be significantly retarded. The various mechanisms resulting in autism are highly complex and still under investigation and may include combinations of genetic effects, abnormalities in the immune system, as well as environmental and biochemical perturbation. Various treatments for autism are available including specialized education programs that are targeted to the needs and developmental level of individual children.

**Dr. Holub's Comments:**

The present study should be regarded as very preliminary considering the very limited number of subjects which were enrolled in this trial—only 5 in the placebo group and 7 in the fish oil-supplemented group. Nonetheless, the study is of considerable interest based on the evidence supporting some potential moderate benefit with respect to hyperactivity in these patients upon omega-3 supplementation at a level (approximately 1.5 g of DHA/EPA omega-3 daily) which is generally considered to be safe for most adults and adolescents. The Food and Drug Administration in the U.S. have stated that up to 3 g (300 mg) of DHA/EPA (combined) per day is considered to be safe for the general adult population on the provision that no more than 2000 mg is coming from direct supplementation such as in encapsulated fish oil concentrates. This present report from Austria indicates that future long-term studies using differing doses of DHA/EPA (combined) and ratios thereof will be of considerable interest with respect to the possible eventual use of such omega-3 supplementation as adjunct management for children with autism.