



## Progressing information and research in the treatment of Apraxia

Recently published research regarding omega-3 and vitamin E supplementation and the role it plays in Verbal Apraxia



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### NEW STUDY PUBLISHED!

Syndrome of Allergy, Apraxia and Malabsorption: Characterization of a neurodevelopmental phenotype that responds to Omega 3 and Vitamin E supplementation.



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The study Syndrome of Allergy, Apraxia, and Malabsorption: Characterization of a Neurodevelopmental Phenotype that Responds to Omega 3 and Vitamin E Supplementation published in the July/August 2009 journal of [Alternative Therapies in Health and Medicine](#) describes the improvements noted in 97% of participants while taking an omega-3 and vitamin E speech formulation.

The study identifies the symptoms of vitamin E deficiency as mirroring those of Apraxia and the concurrent need for higher doses of vitamin E in addition to omega-3.

#### SYNDROME OF ALLERGY, APRAXIA, AND MALABSORPTION: CHARACTERIZATION OF A NEURODEVELOPMENTAL PHENOTYPE THAT RESPONDS TO OMEGA 3 AND VITAMIN E SUPPLEMENTATION

Claudia R. Morris, MD; Marilyn C. Agin, MD

**Objective** — Verbal apraxia is a neurologically based motor planning speech disorder of unknown etiology common in autism spectrum disorders. Vitamin E deficiency causes symptoms that overlap those of verbal apraxia. Polyunsaturated fatty acids in the cell membrane are vulnerable to lipid peroxidation and early destruction if vitamin E is not readily available, potentially leading to neurological sequelae. Inflammation of the gastrointestinal (GI) tract and malabsorption of nutrients such as vitamin E and carnitine may contribute to neurological abnormalities. The goal of this investigation was to characterize symptoms and metabolic anomalies of a subset of children with verbal apraxia who may respond to nutritional interventions.

**Design and Patients** — A total of 187 children with verbal apraxia received vitamin E + polyunsaturated fatty acid supplementation. A celiac panel, fat-soluble vitamin test, and carnitine level were obtained in patients having blood analyzed.

**Results** — A common clinical phenotype of male predominance, autism, sensory issues, low muscle tone, coordination difficulties, food allergy, and GI symptoms emerged. In all, 181 families (97%) reported dramatic improvements in a number of areas including speech, imitation, coordination, eye contact, behavior, sensory issues, and development of pain sensation. Plasma vitamin E levels varied in children tested; however, pretreatment levels did not reflect clinical response. Low carnitine (20/26), high antigliadin antibodies (15/21), gluten-sensitivity HLA alleles (10/10), and zinc (2/2) and vitamin D deficiencies (4/7) were common abnormalities. Fat malabsorption was identified in 8 of 11 boys screened.

**Conclusion** — We characterize a novel apraxia phenotype that responds to polyunsaturated fatty acids and vitamin E. The association of carnitine deficiency, gluten sensitivity/food allergy, and fat malabsorption with the apraxia phenotype suggests that a comprehensive metabolic workup is warranted. Appropriate screening may identify a subgroup of children with a previously unrecognized syndrome of allergy, apraxia, and malabsorption who are responsive to nutritional interventions in addition to traditional speech and occupational therapy. Controlled trials in apraxia and autism spectrum disorders are warranted. (*Altern Ther Health Med*. 2009;15(4):34-43.)

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### Strategic Partnerships & Anticipated Clinical Trial

- CHRCO License
- Formulation Patent
- CRODA
- Clinical Trial

#### About CHRCO

Research efforts at Children's Hospital & Research Center Oakland are coordinated through Children's Hospital & Research Center Oakland (CHRCO). Children's Hospital Oakland is Northern California's only freestanding and independent children's hospital. CHRCO's internationally renowned biomedical research facility brings together seven centers of excellence that are devoted to Clinical and basic science research to treat and prevent disease. CHRCO has approximately 300 staff members and an annual budget of more than \$49 million. The National Institutes of Health is CHRCO's primary funding source. The institute is a leader in translational research, bringing bench discoveries to bedside applications. These include providing cures for blood diseases, developing new vaccines for infectious diseases and discovering new treatment protocols for previously fatal or debilitating conditions such as cancers, sickle cell disease and thalassemia, diabetes, asthma, HIV/AIDS, pediatric obesity, nutritional deficiencies, birth defects, hemophilia and cystic fibrosis.

#### Formulation Patent

An omega-3.vitamin E nutritional formulation has been patented from CHRCO (Children's Hospital & Research Center of Oakland).

The formulation was developed by a pediatrician and published researcher whose preliminary findings, along with numerous anecdotal reports from parents, show great promise for helping children.

US Patent Application 20080213239 was published by the US Patent & Trademark Office in September 2008. The formulation and method of use patent comprises omega-3, vitamin E, and other nutrients and further provides methods of treating various conditions.

### ApraxiaResearch Partners with Croda

#### A Partnership in Omega-3 Excellence

The manufacturer of the omega-3/vitamin E speech formulation has partnered with UK-based chemicals manufacturer Croda, the British developer of "Lorenzo's Oil" for the highly concentrated omega-3 used in the formulation. This partnership ensures that the formulation contains the purest pharmaceutical grade oils with the ideal ratio of active EPA and DHA for the treatment of late talkers.

#### Lorenzo's Oil and ALD (Adrenoleukodystrophy)

Adrenoleukodystrophy, or ALD, is a genetically determined neurological disorder that affects 1 in every 17,900 boys worldwide. Awareness was made of this condition in the 1992 film [Lorenzo's Oil](#) ⇨ starring Nick Nolte and Susan Sarandon. Symptoms usually appear between the ages of 4 and 10. With ALD, the myelin sheath is stripped from the brain's nerve cells which results in progressive deterioration, vegetative state, or even death.

More information can be found at The Stop ALD Foundation [www.stopald.org/ald/whatisald.asp](http://www.stopald.org/ald/whatisald.asp) or at The ALD Foundation [www.aldfoundation.org](http://www.aldfoundation.org).

According to The Stop ALD Foundation:

Lorenzo's oil is a combination of two fats extracted from olive oil and rapeseed oil. It was developed by Augusto and Michaela Odone to treat their son, Lorenzo, after he was diagnosed with ALD in 1982. The mixture of fatty acids in Lorenzo's oil works to reduce the levels of very long chain fatty acids, which are known to cause ALD.

Recent studies indicate that Lorenzo's oil may be effective in staving off the onset of symptoms in boys with the disease who have not yet become symptomatic. A study published in the Archives of Neurology in July 2005 followed 89 boys with ALD who took Lorenzo's oil and ate a low-fat diet. The boys had normal MRIs and no symptoms of ALD, but had been screened for the disease because they had an affected relative. After an average follow-up of seven years, 74% of the boys still had normal MRIs and no neurological symptoms.

#### Advanced Technology Yields Quality Ingredients

The strict quality control procedures at Croda's UK-certified pharmaceutical ingredient production facilities have resulted in some of the finest quality oil in the world. Using an advanced purification and concentration technology branded as Puremax™, Croda's oils attain the highest quality standards demanded by the healthcare and nutrition markets. This state-of-the-art production method can also be calibrated to ensure the highest bioavailability and efficacy of the oils for specific health conditions such as apraxia. The densely concentrated oil also allows Croda to deliver a potent supplement using less oil than in common low potency omega-3 supplements.

#### Learn More About Croda

To learn more about Croda, a publicly traded company employing over 4,000 people worldwide, visit their health and nutrition page at the Croda Worldwide website (<http://www.croda.com/home.aspx?d=content&s=1&r=70&p=204> ⇨).

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