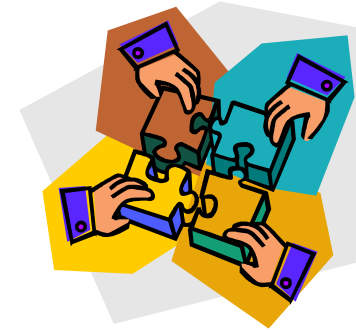




The LEND Program at the Nisonger Center

Leadership Education in
Neurodevelopmental and
Related Disabilities Program

Autism: Putting the pieces together

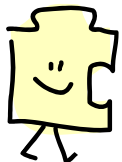


Reference citations used in this publication available on the LEND website.

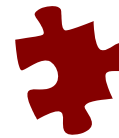
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*Nutrition & Dietary Supplement Pamphlets updated
regularly and available on the*

LEND website: www.nisonger.osu.edu
-click on LEND
-click on Family Resources



Created by Kristen Marschner & Dr. Geraghty **May 2008**
Revised by ody Wall RD, LD & Dr. Geraghty **Nov 2009**



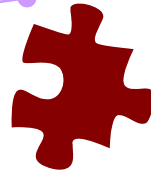
Essential Fatty Acids (EFAs) and Autism Spectrum Disorder (ASD)

Omega-3 fatty acids, fish
oil, cod liver oil



The goal of this publication is to provide
evidence-based information regarding
dietary supplements. This is a fast
growing area of research with new
developments being reported regularly.





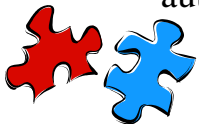
NOTES

What are Essential Fatty Acids (EFAs)?

- Also known as omega-3 and omega-6 fatty acids, Essential Fatty Acids are needed for many different functions in the body including heart health and brain development.
- They can only be obtained through diet; hence the term “*essential*”
- Omega-3 fatty acids include DHA (Docosahaexanoic acid) and EPA (Eicosapentaenoic acid) found in fish oil, and ALA (Alpha-Linolenic acid) found in some nuts and seeds.
- Omega-6 fatty acid is called ARA (Arachodonic Acid)
- **Cod liver oil is high in Vitamins A & D; too high for regular administration to a child already on a vitamin with Vitamin A in it.**

What's the Theory?

- Children with Autism may have higher levels of an enzyme that breaks down essential fatty acids. This means that they may possibly “go through” more EFAs than other kids.
- It has been suggested that through supplementation, autistic symptoms such as cognition, eye contact, and sociability may improve



NOTES

Evidence-Based Practice

- Defined as the use of the most current and best evidence available in making decisions for each individual child
- This provides valuable information when researching possible treatments by answering:
 - * What has been studied ?
 - * Does it work?
 - * Is it safe?



What the Evidence Says

- Some biochemists report that there are deficiencies of omega-3 fatty acids in children with ASD and ADHD. There are studies showing efficacy in ADHD with fish oil and improvements in visual sustained performance.
- Investigators of a small, randomized, controlled trial reported no difference in tantrums or aggression, but did find improvements in hyperactivity and stereotypy with 6-weeks of fish oil supplementation in children with autism.
- A recent review of 143 studies on fish oil and autism only identified 6 small studies (ranging from 1 to 30 children) that showed insignificant improvements in outcomes ranging from language to learning to anxiety.
- Some scientists suggest that using both EPA and DHA together work better than either alone. (They have synergy).





What to Look for in a Supplement

1) Safety: How much is too much?

- Keep this in mind, there is no RDA (Recommended Dietary Allowance) for EFAs
- The US Food and Drug Administration classifies Omega-3 fatty acids from fish as Generally Regarded as Safe (GRAS)
- ALA is likely safe when you get it through food
- In adults, doses of fish oil greater than 3 g/day may increase risk of bleeding and suppress immune response. Thus, for a child, greater than 1 gram (1000 mg) a day can lead to bleeding problems and a weakened immune system.
- ***If you choose to use fish oil, do not exceed:***

Age	Dosage
>4 years	600-800 mg/day
<4 years	300-400 mg/day

2) Efficacy: How well does it work?

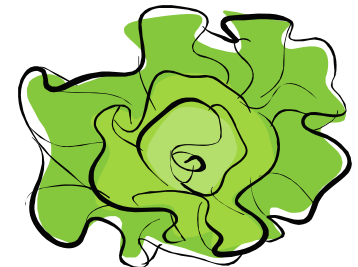
- Does current literature support its use? For EFAs, the jury is out. Larger, controlled studies are needed.
- Keep in mind that a supplement may be safe but not work very well *or* it may work but be unsafe.

Food Sources

- Flaxseed
- Walnuts
- Almonds
- Sunflower Seeds



- Canola Oil
- Olive Oil
- Cooked Soybeans
- Leafy Vegetables
- Winter Squash



- Halibut
- Salmon
- Lean Meats
- Eggs

