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## **Omega-3 Fatty Acids for ADHD: Reviewing the Mechanisms, Safety, and Efficacy of an Adjuvant**

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Integrative medicine incorporates evidence-based complementary medicine alongside conventional practices to promote global wellbeing and sustain positive change. One modality, omega-3 fatty acids ( $\omega$ -3 FAs), has increased drastically in its use since 2007. The  $\omega$ -3 FAs known as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are formed from alpha-linoleic acid (ALA) and can be found in marine life. Meta-analyses, review articles, animal studies, cohort, and placebo-controlled trials were examined to assess the mechanisms, efficacy, and safety of  $\omega$ -3 FAs in the treatment of ADHD symptoms. Mechanisms include DHA increasing fluidity of mitochondria, synaptosomes, and grey matter structures and EPA being metabolically active such that it gets shunted through the arachidonic acid pathways, creating anti-inflammatory products responsible for upregulating genes of synaptic proteins, phosphatides, and receptors. In terms of efficacy, four meta-analyses found significant effect sizes for reducing symptoms ranging from 0.14 to 0.38 (Cohen's d) with doses of 500mg or more of fish oil proving most effective for ADHD symptoms. There are no interactions between  $\omega$ -3 FAs and psychotropic medications. Side effects such as GI discomfort tended to resolve with time, did not affect most individuals, and have little correlation with dosing, even at doses as high as 16.2-60 grams daily. Data reports that  $\omega$ -3 FAs may help ADHD symptoms, treat FA imbalances, reduce neuroinflammation, and protect dopaminergic neurons by providing favorable biochemical environments and acting as genetic drivers of neural development and neuronal longevity. In the field of psychiatry, these nutrients are safe and useful as adjuvant therapy for ADHD though they have modest and at time conflicting measures of efficacy.

### **Biography**

Benjamin Andrew Casola is a 28-year-old psychiatry resident in Augusta, Georgia. He published a poster with the GPPA in 2019 and was recently published in the JECT for a case report. He has published three works of poetry and short stories "Winterbrook", "Tesoro", and "Ex Tenebris". He also won the Bruce Dearing Award in poetry for his work in the "The Healing Muse". He will continue publishing while working to become a holistic child psychiatrist.

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