This scientific information is intended for healthcare professionals.

Therapeutic use of purified EPA (90%), Phosphatidylserine and Astaxanthin

Applications and recommended use

Typical indications for EPA, phosphatidylserine and astaxanthin:

ADHD-like symptoms (lack of concentration, disrupted ability to learn and reason, emotional lability, memory problems, restlessness, oppositional behaviour)
Childhood or adult major depression
Depressive symptoms in the elderly
Psychological distress during menopausal transition
Additional benefit: positive impact on cardiovascular health

Interactions and precautions

No side effects are known when used correctly.

Scientific information

The omega-3 fatty acid **eicosapentaenoic acid (EPA)** acts as a messenger in cells of the central nervous system. EPA modulates synaptic plasticity to help nervous cells communicate with each other, stimulates myelin production, contributes to improved cerebral blood flow, and is the precursor of powerful mediators that inhibit inflammation (3-series prostaglandins, 5-series leukotrienes, E-series resolvins).[1,2]
EPA has a greater anti-inflammatory effect in the brain than DHA, which is explained as important reason why EPA (and not DHA) has an **antidepressant effect**.[2] From a large-scale analysis of clinical trials in a total of 1538 patients diagnosed with depression it was deduced that EPA-predominant formulations demonstrated clinical benefits compared with placebo whereas DHA-predominant formulations did not.[2,3] EPA-rich formulations, mostly at 1 or 2 g EPA/day, demonstrated antidepressant efficacy both as add-on therapy (on top of conventional antidepressants) and in monotherapy.[1,2]
Moreover, EPA also seems to be the most important omega-3 fatty acid to reduce attention problems and emotional lability in subgroups of **ADHD** patients.[4,5] High EPA supplementation positively influenced short-term-memory in ADHD children, especially in cases of omega-3 deficiency.[6,7] Children typically use 500 mg EPA/day.

Phosphatidylserine (PS) contributes to healthy nerve cell membranes and is an important building block of myelin. Oral PS crosses the blood-brain barrier with the help of the “flippase” enzyme, and beneficially influences numerous neurotransmitter systems such as acetylcholine, dopamine, serotonin and noradrenaline.[8,9]
Mostly **cognitive functions** are supported: **memory, concentration, ability to learn and reason, and language skills**.[8] A placebo-controlled study in 4-14 year old **ADHD** children (n=36) showed that PS supplementation (200 mg/day) for 2 months resulted in significant improvements in ADHD symptoms (DSM IV-TR) and short-term memory.[9]
The 200 ADHD children (6-13 years old) participating in a placebo-controlled research with a PS-omega-3 combination (300 mg PS + 80 mg EPA/40 mg DHA for 30 weeks) experienced improvements in restlessness, emotional well-being and oppositional behaviour.[10]

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Astaxanthin is a naturally occurring carotenoid responsible for the red-pink pigmentation in algae, shrimps, lobster, crab and salmon. It is well known for its antioxidant and anti-inflammatory capacities. Current research suggests **neuroprotective** properties to preserve cognitive functioning during normal aging and to help relieve stress-related depression.[11,12]

Both EPA and astaxanthin also contribute to cardiovascular health by preventing excessive blood clotting and protecting LDL cholesterol from oxidation, respectively (amongst other things).[13,14]

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