

OmegAvail™ Maintain



Premium ultra-pure Omega-3 fish oil

OVERVIEW

- > Premium quality, great value fish oil supplement to boost your daily Omega-3 intake
- > Supports general health and wellbeing
- > Supports the health of entire cardiovascular system including the heart and blood vessels
- > Provides support for the health and function of the nervous system.
- > Supports eye and retina health
- > Provides anti-inflammatory support

Active Ingredients (per soft capsule)	
Concentrated fish omega-3 Triglycerides	1.06 g
Equiv. EPA	380 mg
Equiv. DHA	253.33 mg

Directions for Use
Adults, take 1-2 capsules daily with a large glass of water, or as advised by your health professional.

Allergen Information
No added: gluten, dairy, lactose or nuts. Contains: fish products, soya bean products, sulfites and phenylalanine.

Pack Size	180
Serving per pack	90-180 serves

Excipients
Gelatin
Glycerol
Annatto
<i>Bixa orellana</i> (Annatto) seed
Natural lemon oil
Purified water

Prescribing Information:
Caution advised in individuals with bleeding disorders - use under professional supervision. ¹
Theoretically, concomitant use with antiplatelet and anticoagulant medications may increase risk of bleeding. Caution advised. ¹

Designed, encapsulated and packed in Australia from local and imported ingredients.



No Added Gluten



No Added Dairy



No Added Nuts



No Added Lactose





EDUCATION

Background

Concentrated fish omega-3 triglycerides (Fish oils) contain eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are long-chain polyunsaturated essential fatty acids with a wealth of research regarding their impacts on overall health, as well as targeted therapeutic benefits.

Polyunsaturated fatty acids are comprised of two groups of essential fatty acids, omega-6's (linoleic acid) and omega-3's (alpha-linolenic acid), with the latter subsequently converting to eicosapentaenoic (EPA) and docosahexaenoic acid (DHA).^{16,17,18} They are classified as essential because the rate of EPA and DHA biosynthesis from ALA is very low (8% and 1% respectively), consequently maintaining optimal endogenous levels to effectively support physiological functional processes requires regular intake from dietary sources. However, a broad body of evidence confirms that in many Western countries, intake of EPA and DHA across many sub-population groups is inadequate. This is a consequence of both inadequate omega-3 intake and excessive omega-6 consumption.^{17,18} EPA and DHA are also classified as conditionally essential because of the many important physiological functions they are involved in, including supporting heart health, brain and cardiovascular function.^{17,18}

Pharmacokinetics

Omega-3 polyunsaturated fatty acids (n-3 PUFA) are hydrolysed in the intestines to monoglycerides and free fatty acids. These by-products form part of micelles that are then absorbed via passive diffusion into the enterocytes.^{1,2}

Free fatty acids are then involved in chylomicron formation. Chylomicrons enter the circulation and are distributed throughout tissue to be metabolised or stored.^{1,2}

Metabolism of n-3 PUFAs can take place via a number of processes, including beta-oxidation, enzymatic biotransformation, as well as the production of lipid mediators.³

N-3 PUFAs are then incorporated into the phospholipid cell membrane where, upon stimulation, are released and converted to 20-carbon eicosanoids such as prostaglandins, prostacyclins and thromboxanes which go on to have some very influential biological effects in the immune and cardiovascular systems. N-3 PUFAs stored in this way in the brain contribute to the structure of the neuronal membrane and the myeline sheath. When not stored in cell membranes, dietary fats are stored in fatty tissues until they are oxidised and enter the Krebs' cycle.¹⁶

Mechanisms of action

General Health and Wellbeing

As mentioned above, omega-3 fatty acids EPA and DHA are considered to be conditionally essential nutrients. Research has established that these nutrients enhance life quality and reduce the risk of premature death, mostly through their essential functional activity in cell membranes and their contribution to membrane unsaturation. High cellular metabolism correlates with high membrane unsaturation.

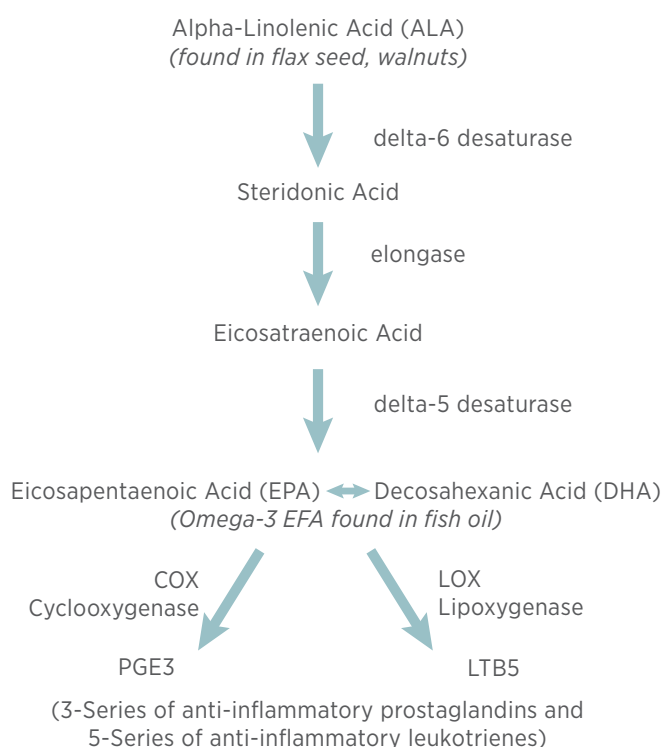
Unsaturation promotes membrane fluidity. The more fluid a membrane, the better regulated is its biochemical functioning. Optimal membrane functioning positively affects membrane-bound enzymes, receptors, transporters and other protein compounds involved in cell signalling and metabolic processes – process which are vital for all life processes. EPA and DHA content in cell membranes (which is proportionate to dietary intake) is therefore critically important for the functioning, survival, growth and renewal of all human cells.²⁷

A number of cohort studies have shown an association between high circulating, plasma lipid, whole blood, red blood cell and adipose tissue EPA and DHA levels with a reduced risk of cardiovascular mortality. Furthermore, the National Institute of Health AARP Diet and Health Study which is the largest prospective cohort study conducted to 2020 which included around 420,000 participants and a 16-year follow-up period, found that there was a significant association between fish, EPA and DHA intake and a number of mortality outcomes.¹⁹

Inflammation

EPA and DHA are responsible for the partial inhibition of multiple inflammatory processes, including the production of prostaglandins, leukotrienes and pro-inflammatory cytokines. EPA and DHA compete with arachidonic acid for the enzymes involved in the production of pro-inflammatory mediators, inhibiting the inflammatory cascade.⁴

OMEGA-3 FATTY ACID PATHWAY





Cyclo-oxygenase-2 (COX-2) is responsible for the stimulation of prostaglandins at inflammatory sites. DHA specifically reduces COX-2 expression and activity, resulting in reduced inflammation.⁵

Part of the anti-inflammatory action of EPA and DHA is due to its ability to inactivate pro-inflammatory transcription factor nuclear factor-kB. This action in turn reduces the expression of pro-inflammatory genes, as well as the activation of anti-inflammatory transcription factor peroxisome proliferator-activated receptor-gamma.⁶

N-3 PUFAs have the same effect as antioxidants by these same anti-inflammatory mechanisms, helping to prevent damage to endothelial cells and even cell death.⁷

Eye Health

DHA is shown to have an integral role in maintaining the structure and function of the retina. DHA is a major structural element of the outer membrane of the retinal photoreceptor.⁹

High PUFA intake is shown to improve the response of the retinal cells to oxidative and inflammatory damage in animal studies.¹⁰

Nervous System

EPA and DHA are useful in supporting nervous system health and function via maintaining the nerve cell membranes. DHA is the most prevalent PUFA in the central nervous system and is required during brain and central nervous system development of the foetus.¹¹ Research has shown that a reduction in DHA can result in a reduced capacity to process sensory input.¹²

There is growing evidence that n-3 PUFAs protect against demyelination through their anti-inflammatory actions, including inhibition of microglia activation by inflammatory cytokines such as interferon-gamma (IFN- γ).¹³

Animal studies have shown that diets rich in n-3 PUFAs also maintain the integrity of the blood-brain barrier thereby supporting optimal brain function.¹⁵

SUSTAINABLE AND RESPONSIBLE

- > Target stock not overexploited.
- > Fishery to generate maximum 8% discarded waste.
- > No by catch of endangered species.
- > No impact to the seabed.
- > Gradual reduction of carbon footprint.



Cardiovascular System

A significant body of evidence has demonstrated an association between endogenous levels of EPA and DHA and cardiovascular health, which is attributed to a significant number of cardioprotective mechanisms.¹⁹ Such mechanisms include antioxidant, antiplatelet, promoting healthy blood lipid levels, cell membrane and vascular endothelial function, as well as reducing pro-inflammatory mediator concentrations (eicosanoids, prostaglandins, leukotrienes, and resolvins).¹⁹⁻²²

This has translated into clinically relevant outcomes, with findings from a broad body of evidence demonstrating a dose-dependent beneficial effect of omega-3 supplementation for improving cardiovascular health as measured by several clinical and biological endpoint subtypes.²¹⁻²⁴

N-3 PUFAs can reduce endothelial dysfunction and arterial stiffness. Oxidative stress can induce endothelial dysfunction by reducing nitric oxide bioavailability – NO is essential for healthy vasodilation and has an anti-atherosclerotic action.⁷

It is thought that the positive effect of n-3 PUFAs on blood lipids is due to their ability to inhibit the production of very low-density lipoprotein (vLDL) in the liver.¹⁴



EDUCATION (Continued)

SUPERIOR PERFORMANCE AGAINST ALL INTERNATIONALLY RECOGNISED QUALITY SPECIFICATIONS

	VivoMega™ Specifications (max)	Best in Class	IFOS 5 Star Criteria	GOED Monograph	EU legislation/ Ph Eur
OXIDATION PARAMETERS					
Peroxide value (meq/kg)	2	✓	5	5	10
Anisidine value	8*	✓	20	20	30
Totox	10*	✓	19.5	26	N/A
Acid Value (mg KOH/g)	1	✓	3.0	N/A	3.0
ENVIRONMENTAL PARAMETERS					
Arsenic (mg/kg)	0.1	NEUTRAL	0.1	0.1	N/A
Cadmium (mg/kg)	0.002	✓	0.1	0.1	1
Mercury (mg/kg)	0.002	✓	0.1	0.1	0.1
Lead (mg/kg)	0.003	✓	0.1	0.05	0.1
PCBs (209 Congeners) (mg/kg)	0.005	✓	0.045	0.09	0.2
Dioxins+Furans (PCDD+PCDF) (pg/g)	1	NEUTRAL	1	1.75	1.75
Dioxins-like PCBs (pg/g)	0.5	✓	1.5	3	N/A
Dioxins+Furans+Dioxin-like PCBs (pg/g)	1.5	✓	N/A	3	6
Sum PAH4 (ng/g)	2	✓	N/A	N/A	10
Benzo(a)pyrene (ng/g)	1	✓	N/A	N/A	2
Pesticides (mg/kg)	0.01	✓	N/A	N/A	N/A

*Platinum products has a standard specification maximum for Anisidine value of 10 and Totox 12, awaiting stability studies results.



EDUCATION (Continued)

MANUFACTURING FLOW FOR VIVOMEGA TG (TRIGLYCERIDE) CONCENTRATED FISH OIL PRODUCTS

