

Recommendations of commercially available fish oil supplements

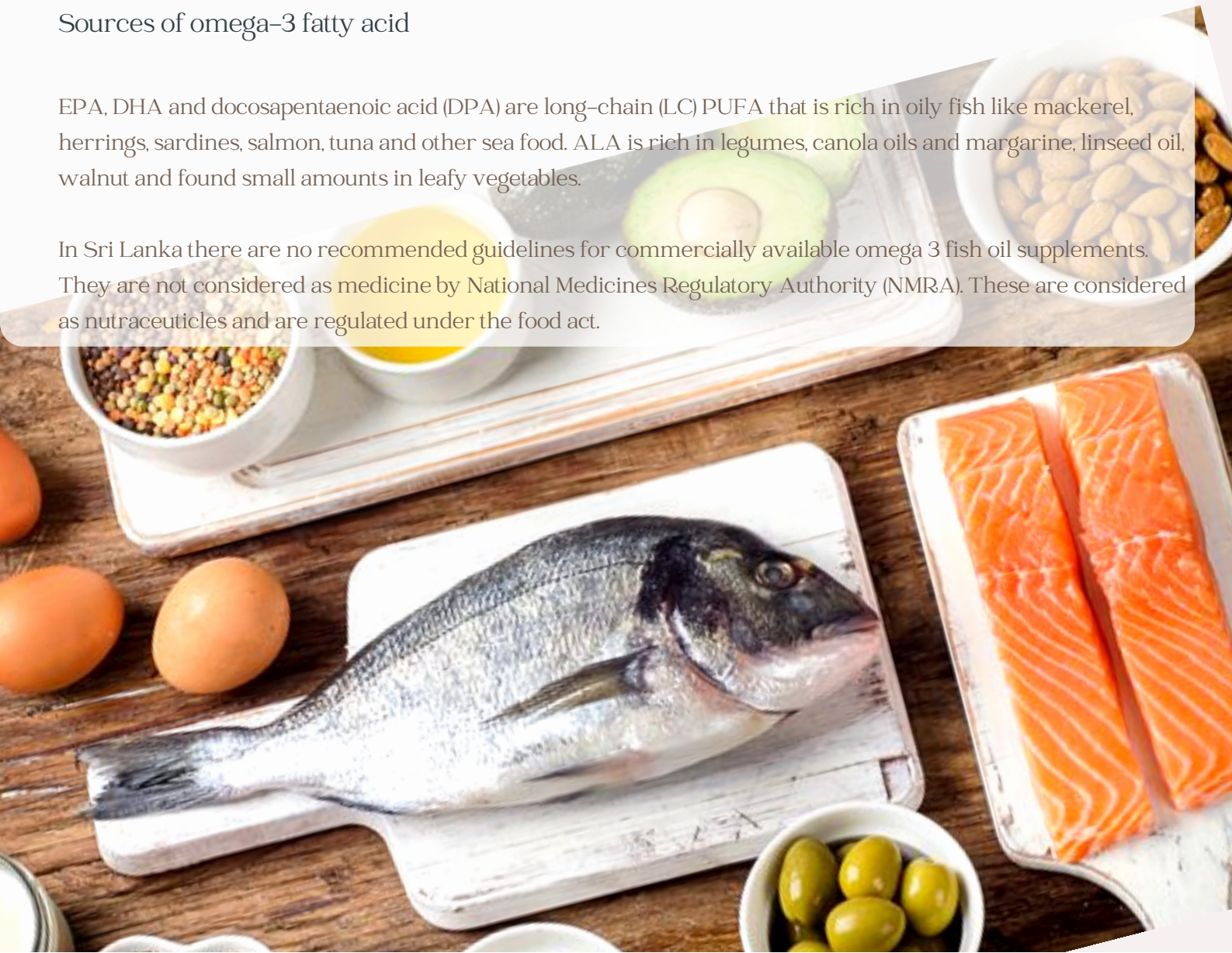
Omega 3 fatty acids are polyunsaturated fatty acid (PUFA). In human physiology, 3 types of omega 3 fatty acids are considered, namely alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA) and decosahexaenoic acid (DHA). Mammals are unable to synthesize omega 3 fatty acid ALA in the body, thus it is an essential dietary constituent. But in the body, ALA can synthesize EPA and DHA in small amounts. Therefore, to get EPA and DHA from food is the main way to increase the omega 3 fatty acid levels in the body.

Body should be in a balance of omega 6 and omega 3 fatty acids. The recommended ratio is 4:1 of omega 6 to omega 3 according to the food based dietary guidelines for Sri Lankans, published in 2021. This ratio is important for the development and functioning of the nervous, vascular, renal and immune systems of the body. The modern diet is abundant in omega 6 PUFA but poor in omega 3 PUFA. The ratio in the diet is more important because it determines the fatty acids in the tissues. High intake of PUFA is associated with a good lipid profile with low risk for coronary heart disease

Sources of omega-3 fatty acid

EPA, DHA and docosapentaenoic acid (DPA) are long-chain (LC) PUFA that is rich in oily fish like mackerel, herrings, sardines, salmon, tuna and other sea food. ALA is rich in legumes, canola oils and margarine, linseed oil, walnut and found small amounts in leafy vegetables.

In Sri Lanka there are no recommended guidelines for commercially available omega 3 fish oil supplements. They are not considered as medicine by National Medicines Regulatory Authority (NMRA). These are considered as nutraceuticals and are regulated under the food act.



How much Omega 3 fatty acids are needed for the body?

In Sri Lanka reference intakes (RI) for omega 3 fatty acids are as follows.

Age group	ALA (E%)	EPA + DHA (mg/day)
7 – 11 months	0.5	100 DHA
1 – 17 years	0.5	250 DHA+EPA
>= 18 years	0.5	250 DHA+EPA
Pregnancy	0.5	+100-200 DHA
Lactation	0.5	+100-200 DHA

E% = percentage of total dietary energy

For primary prevention of cardiovascular diseases in adults, the EFSA panel on Dietetics products, Nutrition and Allergies has proposed an intake of 250mg of DHA and EPA per day. But for a patient with a coronary heart disease, the American Heart Association has advised patients to consume 1g of DHA and EPA per day either from fish or supplements. According to expert opinion, supplementation with DHA and EPA are considered safe at a dose up to 5g/day for healthy adults and 5.4g/day for patients on anticoagulants.

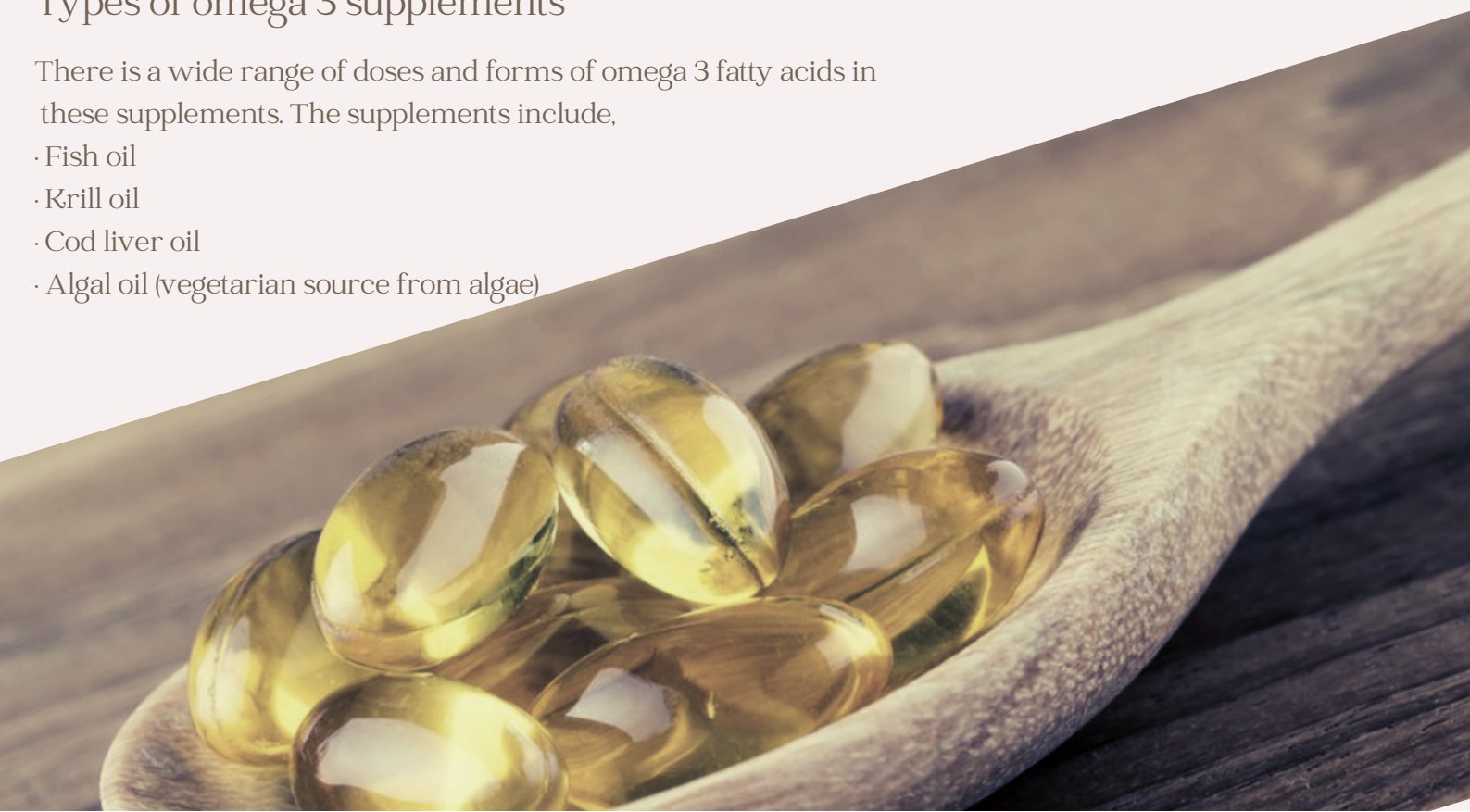
Fish and krill oil supplements are the most widely consumed complementary medicine worldwide.

Studies conducted on fish oil supplements indicate anti-inflammatory dose of fish oil should contain at least 2.7g of omega 3 fatty acids daily and higher doses are effective and safe. To achieve this, at least nine capsules of standard fish oil supplements should be taken daily. Since people who self-medicate take only one or two capsules of omega 3 fish oil supplements have some cardiovascular benefits, it is not sufficient for anti-inflammatory effects

Types of omega 3 supplements

There is a wide range of doses and forms of omega 3 fatty acids in these supplements. The supplements include,

- Fish oil
- Krill oil
- Cod liver oil
- Algal oil (vegetarian source from algae)



Effects of omega-3 fatty acids

- Cardiovascular system effects

According to American Heart Association (AHA), 1–2 servings of seafood per week reduce heart problems. For patients with heart disease, DHA + EPA 1g preferably from fish oil or as supplements under the guidance of a health care professional.

Supplements are not recommended for people who do not have a high risk of cardiovascular disease.

- Cancer Prevention

Some studies suggest a lower risk of breast cancer and colorectal cancer in patients taking more omega 3 fatty acids from food or as supplements.

Other studies suggest no association between omega-3 fatty acids and cancer risk.

- Rheumatoid arthritis (RA)

Omega 3 supplements help RA when taken together with standard RA treatment.

- Alzheimer's, dementia

Reduce the risk of developing Alzheimer's disease, dementia, and other cognitive problems.

- Age-related macular degeneration (AMD)

AMD is a major cause of vision loss in the elderly. With the consumption of omega-3 fatty acids, the development of AMD is low.

- Infant health and development

If diet is deficient in omega 3 fatty acids:

This can cause rough, scaly skin with dermatitis, increased trans-epidermal water loss, and reduced growth.

Contraindications of fish oil supplements

No documented contraindication for the use of omega 3 supplements.

Adverse effects

Fish oil supplements are not associated with serious adverse effects. But long term use raises some theoretical and practical issues.

Side effects include unpleasant taste, heart burn, nausea, diarrhea, headache, stomach discomfort, smelly sweat and breath.

For general consumption 3g/day of EPA and DHA (combined), including up to 2g/day from dietary supplements is considered safe as recommended by U.S. Food and Drug Administration (USFDA). Methylmercury is an industrial contaminant found in long lived fish. It is a neurotoxin which affects neurodevelopment of fetuses and infants.

Interaction of fish oil with drugs

Omega 3 fish oil supplements may have interactions with other drugs.

Higher doses of supplements may cause bleeding if taken with Warfarin or other anticoagulants

Fish and krill oil products are considered to have potential interactions with Warfarin. (Pryce et al., 2016)

Although there are several studies that have been conducted to assess the effect of bleeding with regard to fish oil or krill oil supplements, along with warfarin, only very few have examined or reported bleeding

Most of the studies conducted have concluded that fish oil supplements do not alter warfarin control nor have an effect on major or minor bleeding incidences. Therefore, it is safe for warfarin users to use fish oil supplements and warfarin concurrently.

References

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