Trident SAP 20:10

*Science-based omega-3 fish oil of exceptional purity for optimal health**

Fish oil is an important source of essential fatty acids that can be derived only from the diet, especially omega-3 fatty acids. Since omega-6 fatty acids tend to be predominant in the western diet, supplementing with omega-3 fatty acids helps to mediate inflammatory pathways and maintain cell structure, fluidity, and function.* Although there are several sources of omega-3 fatty acids available through a regular diet containing protein, plant oils, seeds, and nuts, fish oil is naturally able to provide a 2:1 ratio of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) respectively, a ratio that has been used in majority of clinical trials and shown various health benefits.* Due to their anti-inflammatory function, omega-3 fatty acids are beneficial in reducing the risk of cardiovascular diseases such as arrhythmias, hyperlipidemia, and thrombosis.* Supplementation with EPA and DHA can improve symptoms of autoimmune diseases such as rheumatoid arthritis and asthma.* DHA deficiency has been associated with impaired neurotransmission and synaptic activity, due to which DHA has been recommended for fetal development and through infancy.* Omega-3 supplementation, especially EPA and DHA, can vastly improve reproductive health in men and women.*

Trident SAP 20:10 provides the optimum dose and ratio of EPA and DHA in **triglyceride form (TG)** for overall maintenance of good health.*

ACTIVE INGREDIENTS

Serving Size: 1 Teaspoon — **Servings: 48**

	Amount Per Serving	% Daily Value‡
Calories	42	
Calories from fat	42	
Total Fat	4.6 g	6%
Omega-3 Concentrate (sourced from fish oil)	4600 mg	**
Eicosapentaenoic acid (EPA)	790 mg	**
Docosahexaenoic acid (DHA)	395 mg	**

‡ Percent Daily Values are based on a 2,000-calorie diet.
** Daily Value not established

Other ingredients: Rosemary extract, mixed tocopherols, ascorbyl palmitate, and natural lemon oil.
Contains Fish: Wild Atlantic deep-sea anchovy (Engraulis encrasicolus) and/or sardine (Sardina pilchardus).
Contains no: Gluten, soy, wheat, corn, eggs, dairy, yeast, preservatives, artificial colors and flavors, starch, or sugar.
This product is non-GMO.
Trident SAP 20:10 contains 8.12 fl. oz. (240 ml) per bottle.

DIRECTIONS FOR USE

Adults: See indication-specific dosages outlined in the indication-specific dosage table.
Children and adolescents 1–13 years: Take 1 teaspoon once daily or as directed by your healthcare practitioner.
Adolescents and adults 14–18 years: Take 2 teaspoons once daily or as directed by your healthcare practitioner.
Adults 19 years and older: Take 2 to 4 teaspoons once daily or as directed by your healthcare practitioner.

INDICATIONS

Trident SAP 20:10 can help:
- Promote cardiovascular health and improve inflammatory response.*
- Support cognitive and mental health.*
- Foster male and female reproductive health.*
- Enhance development and function of brain, eyes, and nerves.*
- Mitigate symptoms of autoimmune disorders such as multiple sclerosis and rheumatoid arthritis.*

Refrigerate after opening and use within 60 days.
Do not use if seal is broken. Keep out of reach of children.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for each **Trident SAP 20:10** lot number have been tested by an ISO 17025 accredited third-party laboratory for identity, potency, and purity.

Each lot of **Trident SAP 20:10** is tested for PCBs, dioxins, heavy metals, oxidative stability, and microbiological quality. **Trident SAP 20:10** contains a proprietary antioxidant blend to ensure freshness and oxidative stability.

*** These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.**

Scientific Advisory Panel (SAP): adding nutraceutical research to achieve optimum health

NFH®

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WHAT ARE OMEGA-3 FATTY ACIDS?

Omega-3 fatty acids are long-chain polyunsaturated fatty acids and are considered essential fatty acids because they cannot be synthesized by humans, thus must be obtained from the diet.[1] Fish and other marine life are rich sources of a special class of long-chain omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).[1] Plant food and vegetable oils, such as flaxseed, canola, and soybean oil, lack EPA and DHA; however, they do contain the intermediate-chain omega-3 fatty acid α-linolenic acid (ALA). Over the last few decades, numerous health benefits have been attributed to the consumption of the omega-3 fatty acid family, ALA, EPA, and DHA.[1]

THE OMEGA-6–TO–OMEGA-3 BALANCE

The contemporary Western diet is high in omega-6 fatty acids (omega-6 FAs) and deficient in omega-3 fatty acids (omega-3 FAs).[2] This ultimately leads to an imbalance in the cellular concentration of omega-6–to–omega-3 FAs. Although omega-3 FAs are structurally and functionally distinct from the omega-6 FAs, each is metabolized competitively to form eicosanoids, such as thromboxanes (TX), prostaglandins (PG), and leukotrienes (LT).[2][3] Eicosanoids have hormone-like effects and play an important role in cellular activity. Arachidonic acid (AA), a long-chain omega-6 FA, is the precursor for the harmful eicosanoids that promote inflammation (PGE_2, LTB_4), and stimulate platelet aggregation (TXA_2).[3][4] Conversely, EPA is the precursor for the anti-inflammatory and antiaggregatory eicosanoids PGE_3, LTB_5, and TXA_3. By increasing omega-3 FA intake, EPA and DHA are incorporated into cell-membrane phospholipids at the expense of AA, and a balance between the omega-6 and omega-3 FAs is returned, thus promoting healthy cellular structure, fluidity, and activity.[3][4][5]

RECOMMENDED OMEGA-3 INTAKES

Healthy Adults:[6]
- Fish oil ..... 1–2 g/d

Coronary Disease Patients:[7]
- EPA+DHA ..... ~1 g/d

Hypertriglyceridemia:[7]
- EPA+DHA ..... 2–4 g/d

Neurological Disorders:[8]
- EPA ..... 1–2 g/d

Inflammatory Disorders (rheumatoid arthritis):[4]
- EPA+DHA ..... 3 g/d

SAFETY OF OMEGA-3 SUPPLEMENTATION

In 2012 the European Food Safety Authority has advised that a dose of up to 5g/day of EPA and DHA for a period of 16 weeks in supplement form is considered safe for adults and not associated with any lipid peroxidative changes or adverse events in relation to CVD risk. Omega-3 FAs are thus safe and well-tolerated, and can be taken with a wide variety of other supplements.[7][10] Since omega-3 FAs are natural blood thinners, patients taking high dosages of aspirin or medicinal blood thinners should consult their healthcare professional before use.[10]

NATURAL RATIO AND FORM

The majority of scientific literature that reports the health benefits of omega-3 FAs is based on fish-oil research in which the oils provide their natural fatty acid ratios and form.[11] Fish oils are most commonly available in a standard 18:12 ratio (18% EPA and 12% DHA) or a concentrated 2:1 ratio, and supplied in triglyceride or ethyl ester form. Both triglyceride and ethyl ester forms are highly bioavailable and stable.[11]

OMEGA-3 FATTY ACIDS AND NUTRITION RESEARCH

Cardiovascular Disease

Main mechanisms through which EPA and DHA reduce the risk of cardiovascular disease (CVD) and sudden death include reduction in malignant ventricular arrhythmias, suppression of blood clotting and atherosclerosis, improvement in arterial wall tone, and anti-inflammatory effects.[1][12] Intake of 1 g/day of EPA+DHA in CVD patients can exert antiarrhythmic, hypolipidemic and antithrombotic effects, and at least 500 mg/day in patients without CVD can have cardioprotective effects.[13]

Inflammation and Autoimmune Diseases

EPA and DHA have important implications in the prevention and treatment of chronic inflammatory conditions, such as rheumatoid arthritis and asthma.[3] EPA produces the eicosanoids PGE_3 and LTB_5, which reduce the duration and intensity of inflammation. DHA reduces transcription of the proinflammatory cytokines, interleukin 1β, and tumour necrosis factor-α, C-reactive protein (CRP), serum amyloid A.[3][4] New scientific evidence suggests that intake of fish oils may reduce rheumatoid arthritis risk and positively impact blood lipid profile in rheumatoid arthritid patients.

Cancers of the Breast, Prostate, and Colon

Both epidemiological and experimental evidence that the omega-3 FAs EPA and DHA may reduce the risk of breast, colon, and prostate cancer.[5] The possible chemoprotective mechanisms through which fish oils act are suppression of neoplastic transformation, cell-growth inhibition, and enhanced apoptosis and antiangiogenicity.[5] These biological effects are associated with the inhibition of omega-6 FAs (AA)–derived eicosanoids during omega-3 FA supplementation.[5][15]

Central Nervous System Health and Mental Disorders

The central nervous system (CNS) is highly concentrated with long-chain fatty acids, specifically DHA and AA. A deficiency of DHA markedly affects neurotransmission, membrane-bound enzymes and ion channel activities, gene expression, intensity of inflammation and immunity, and synaptic plasticity.[16] Increased intake of fish oils may help to improve signal transduction processes and reduce neuronal changes, symptoms and risk of schizophrenia, depression, stroke, and Alzheimer's disease.[16] During pregnancy and lactation, DHA supplementation is crucial for optimal fetal neuronal development and visual acuity through to infancy.[6]

Sexual and Reproductive Health

Recent evidence from clinical trials has shown positive effects of omega-3 fatty acids on reproductive health in men and women. A prospective cohort study of 100 women undergoing assisted reproductive techniques (ART) showed a positive association between serum long chain omega-3 fatty acid levels and probability of live birth.[17] Supplementation of 1500 mg per day of omega-3 fatty acids for 6 months improved insulin resistance and hirsutism in PCOS patients.[18] A significant improvement in seminal antioxidant status and reduced sperm DNA fragmentation was observed in participants supplemented with 1500 mg of DHA enriched oil for 10 weeks.[19]

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INDICATION SPECIFIC DOSAGE SUMMARY BASED ON HUMAN CLINICAL RESEARCH#

#Please note these suggestions are guidelines based on the clinical studies. Evidence for efficacy and safety have been qualitatively (study quality in terms of study design, sample size, appropriate methods of analysis, use of appropriate placebo/control, bias etc) assessed and have been rated using a 5 star ★ rating classification.

Indication	Suggested Dosage	Supporting evidence and study outcomes	Study design	Outcomes measures/ selection criteria for studies	Safety	Evidence quality rating
Cardiovascular Health						
Cardiovascular disease[1]	Children and adolescents 1-17 years - 1/2-1 tsp per day. Adults 18 years and older - 1 tsp per day	Reduction of triglycerides, systolic blood pressure, diastolic blood pressure, heart rate, C-reactive protein. Increase in LDL and HDL*	171 clinical trials (total n not available), dose range EPA+DHA 180-15000 mg/day, duration range 4-240 weeks. Recommended intake - 250-500 mg/ day EPA+DHA	Lipid profile - total cholesterol, low density lipoprotein (LDL), high-density lipoprotein (HDL), triglycerides (TG), blood pressure, C-reactive protein, other inflammatory markers	No adverse events	★★★★
Cardiovascular health and inflammation[2]	Adults: 2-4 tsp per day	Higher EPA:DHA ratio associated with decrease in CRP*	92 randomized, placebo-controlled trials. Studies included used dose between 2 g-6 g	Total cholesterol, LDL, HDL, TG, blood pressure, heart rate, CRP	No adverse events	★★★★
Cognition and Mental Health						
Depression[3]	Children 1–11 years - 1 tsp per day Adolescents 12–17 years - 2 tsp per day Adults 18 years and older - 2 tsp per day	Reduction in depression scores in trials using EPA+DHA, with EPA ≥ 60%, compared to trials using EPA alone*	15 randomized controlled trials (n=916), dose (avg. 10 trials) EPA+DHA, with EPA ≥ 60% for (avg. 10 trials), duration 11 weeks)	Depression outcomes (Hamilton Depression Rating Scale, Beck Depression Inventory, Montgomery–Asberg Depression Scale, Childhood Depression Rating Scale, Depression, Anxiety, and Stress Scale)	No adverse events	★★★
Psychomotor and visual development[4]	Pregnant mothers - 1 tsp per day	Improvement in visual acuity, mental and psychomotor development indexes*	38 trials (n=5541 - mothers, preterm, and term infants), avg. DHA dose 673 ± 547 mg/day, EPA dose 297 ± 512 mg/day, avg. duration 22 weeks	Bayley Scales of Infant Development mental and psychomotor developmental indexes, intelligence quotient (IQ), visual acuity	No adverse events	★★★

Reproductive Health						
Male fertility[5]	Adult men - 1 tsp per day	Improvement of sperm motility, concentration of DHA in seminal plasma*	3 randomized controlled trials (n=281), dose avg. 968 mg/day for avg. duration 19 weeks	Semen quality - volume, sperm concentration, morphology, motility, DNA fragmentation	No adverse events	★★★
Female reproductive health - PCOS[6]	Adult women - 2 tsp per day	Improved HOMA index, reduced levels of TG and total cholesterol, increase in adiponectin levels*	9 randomized controlled trials (n=591), dose avg. of 8 studies 1600 mg/day for avg. duration 12 weeks	Homeostatic model of assessment (HOMA), TG, adiponectin, insulin resistance, total cholesterol	Mild adverse events in 1 study	★★★
Autoimmune Disorders						
Multiple sclerosis (MS)[7]	Adults with MS diagnosis - 3-4 tsp per day	Improvement in inflammatory markers, glutathione reductase, reduced relapse rate, healthy omega-6:omega -3 ratios*	7 clinical trials (n=240914), dose recommended 4 g/ day of omega-3 or fish oil, duration avg. 6-12 months for 5 studies, 30 months for one study, and 1980-2007 for long term study	MS quality of life questionnaires, dietary habits, inflammatory markers, blood cell profile, glutathione reductase levels	No adverse events	★★★★
Rheumatoid arthritis[8]	Adults with RA diagnosis - 3-4 tsp per day	Improvement of 8 disease biomarkers, reduced leukotriene B4, and improved blood triacylglycerol levels*	20 randomized, controlled trials (n=1252), duration 12-72 weeks, omega-3 fatty acids ≥3 g/d had an impact on global assessment, duration ≥3 months	Early morning stiffness, swollen count, tender joint count, patient and physician global assessment, pain scale, disease assessment, fatigue, body weight.	No adverse events	★★★

C-reactive protein (CRP), interleukin 6 (IL-6), tumor necrosis factor alpha (TNF-α)

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