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Omega-3 (Therapeutic)

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Accurate Education

Omega-3 Fatty Acids

Chronic pain is driven by two conditions, systemic inflammation and oxidative stress. As a reminder, systemic inflammation is what it sounds like - it is widespread inflammation that affects the nervous system in the form of neuro-inflammation, the joints as in arthritis, and inflammatory processes that affect the organs, including the liver, pancreas and the heart and blood vessels.

Oxidative stress, a term unfamiliar to many, is the condition which dietary nutrients known as *antioxidants* are needed to fight. Oxidative stress is a condition in which compounds called free radicals that are found in our environment and in our bodies that are created as a result of inflammation and from metabolic processes. Free radicals are highly reactive and they damage tissues, including our organs and blood vessels.

The anti-inflammatory diet (AID) is a diet that stresses foods that suppress inflammation and avoids foods that promote inflammation. It also includes foods high in antioxidants to protect our tissues from oxidation. Therefore, the anti-inflammatory diet is essentially a diet directed at maintaining health - simply put, a healthy diet particularly important for patients with chronic pain and chronic inflammation and oxidative stress.

Omega-3 fatty acids are probably the most important compounds found in foods that reduce inflammation. However, only some omega-3 fatty acids provide the most benefit. These are the omega-3 fatty acids found in a small number of marine-based foods, Docosaenoic acid (DHA) and Eicosapentaenoic acid (EPA). These are the most important omega-3 fatty acids involved in physiological functions and the only omega-3's that research has demonstrated the most potential for health benefits. The omega-3 fatty acids, mostly alpha-linolenic acid (ALA), that are found in plant food products such as nuts and seeds, are healthful and help reduce inflammation but they do not have the greater benefits compared to DHA and EPA.

These two fatty acids, DHA and EPA, when ingested in high amounts, have been shown to reduce the joint pain of arthritis and the severity of chronic pain including headaches. They also likely reduce the risk of transitioning from acute to chronic pain as seen in traumatic injuries, including nerve injuries and they reduce the risk of having a heart attack or stroke.

To gain these benefits, however, a significantly higher intake of DHA and EPA than usually found in an otherwise healthy anti-inflammatory diet is required. One could argue that at the level of intake recommended, one is actually ingesting pharmacologic doses of DHA and EPA in what could be considered a *therapeutic diet* rather than simply a *healthy diet*. In this case, a therapeutic diet directed at the conditions noted above. In order to gain these benefits, it is recommended that one ingest 2000-3000 mg/day (EPA+DHA). Blood tests can be used to help guide dietary intake.

The best way to gain these levels is to eat DHA and EPA omega 3-rich marine-based foods, approximately 5 servings/week:

- Salmon, sardines, fresh anchovies, mackerel, pickled herring
- Fresh and frozen tuna, not canned (limited to 5-6 oz/week due to mercury)
- Oysters & Mussels, Crawfish tails (1/2 - 1 lb)

Omega-3 Supplements: Triglyceride [TG] fish oil is the natural, more bioavailable, and more stable form of omega-3 while ethyl ester [EE] omega-3 (i.e. **Lovaza**) is a lower cost, concentrated, synthetic form with less efficient absorption, potential side effects, and a greater tendency to oxidize. For maximum benefit and easier digestion, the TG form is generally preferred, but the EE form can be acceptable for those on a budget or requiring very high concentrations of EPA and DHA.

When purchasing an Omega-3, Fish or Krill Oil supplement, pay careful attention to identify the total amount of EPA + DHA per serving (not the total Omega-3 amount on the label).

EPA+DHA intakes to reach **recommended level** Omega-Check of 5.5% (or Omega-Index of 8%):

1. Diet-based recommended intakes of EPA+DHA:

___ Very low dietary intake of omega-rich foods (<3 servings/week):

- Consume **3000 mg/da** (EPA+DHA) for 12-16 weeks to correct deficiency
- (EPA:DHA ratio ___ 1:1 or 2:1 for inflammatory pain; ___ 1:2 for neuropathic/nerve pain)

___ Low to moderate dietary intake of omega-rich foods (3-4 servings/week):

- Consume **2000 mg/day** (EPA+DHA) for 12-16 weeks to correct deficiency
- (EPA:DHA ratio ___ 1:1 or 2:1 for inflammatory pain; ___ 1:2 for neuropathic/central pain).

2. Omega-Check (or Omega-3 Index) -based recommended intakes of EPA + DHA:

___ **Omega-Check of <3.8%** (or Omega-3 of <4%): **Your level:** ___ % **Date:** _____

- Consume **3000 mg/day** (EPA+DHA) for 12-16 weeks to correct deficiency
- (EPA:DHA ratio: ___ 1:1 or 2:1 for inflammatory pain; ___ 1:2 for neuropathic/nerve pain)

___ **Omega-Check of 3.8-5.4%** (or Omega-3 Index of 4-8%): **Your level:** ___ % **Date:** _____

- Consume **2000 mg/day** (EPA+DHA) for 12-16 weeks to correct deficiency.
- (EPA:DHA ratio: ___ 1:1 or 2:1 for inflammatory pain; ___ 1:2 for neuropathic/nerve pain)

- It may require >12-16 weeks to reach an Omega-Check of 5.5% (or an Omega-Index of 8%)
- A dose of 1 gram/day EPA+DHA lowers serum triglycerides by about 7-10% in 2-3 weeks
- When Omega-Check reaches $\geq 5.5\%$ (or Omega-3 Index reaches $\geq 8\%$):

Maintenance: 1,000-1,500 mg/day (EPA+DHA) to sustain levels (varies by body weight)

Insurance (Rx): Lovaza (EPA-465mg / DHA-375mg) [EE] /capsule

1. Routine (Lovaza only):

- **Lovaza:** 2 gelcaps 2x/day (1860mg EPA:1500mg/day DHA [EE])
- **TOTAL: 3,360mg** EPA+DHA/day (**EPA:DHA = 1.2:1**)

2. Neuropathic Pain (Lovaza with Protocol for Life 1000)

- **Lovaza-** 1 gelcap/day (375mg DHA:465mg EPA [EE] /day
- **Protocol for Life 1000** - 1 gelcap 2x/day 2000mg DHA [TG] /day
- **TOTAL: 2840mg** DHA+EPA /day (**5:1 DHA:EPA**)

No Insurance

1. Routine

Ocean Blue 2100 only - 1 caps 3x/day. (**2925mg/day**) 2025mg EPA:900mg DHA [EE] (**EPA:DHA = 2:1**)

2. Neuropathic Pain

OmegAvail Ultra only - 2 caps 2x/day (**2400mg/day**) 2000mg DHA::400mg EPA [TG] (**DHA:EPA = 5:1**)



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