

A Brief Review of Omega-3 Fatty Acids and the Anti-Inflammatory Diet (AID)

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, although a term unfamiliar to many, is the condition for which dietary compounds 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 analogy familiar to most is that of rust in which the oxidative compound, oxygen, reacts with the iron in steel resulting in rust, ferric oxide. In this situation iron has become oxidized and damaged by reacting with oxygen and water.

The anti-inflammatory diet 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, Docosaexaenoic 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 fatty acids, mostly alpha-linoleic 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.

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 almost 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 generally recommended that one take in between 2000 and 3000 mg per day, depending on the expert opinion you choose to follow. The only way to gain these levels in one's diet is to eat certain omega 3-rich marine-based foods with approximately five servings a week. Blood tests can determine levels consistent with gaining the benefits described above and can be used to guide dietary dosing. The foods most capable of providing the level of DHA and EPA include.

- Salmon
- Fresh and frozen tuna, not canned (limited to 5-6 oz/week due to mercury)
- Mackerel, fresh or canned
- Sardines
- Fresh anchovies
- Oysters
- Mussels
- Crawfish tails (1/2 - 1 lb)

Outside of eating these particular foods, it would be difficult to achieve the levels needed to obtain the desired benefits noted above.. When one's dietary preferences do not allow for adequate intake of these foods, one can turn to oral supplements of fish oil or krill oil. The following intake recommendations include diet plus supplements of fish or krill oil.

Diet-based recommended intakes of EPA plus DHA

Low dietary intake of omega-rich foods (<3 servings/week):

Consume an average of at least **2,250 mg/day** of EPA plus DHA

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

Consume at least 1,000–1,500 mg/day of EPA plus DHA

Omega-3 Index-based recommended intakes of EPA plus DHA

Omega-3 of <4%:

Consume **1,500–2,250 mg/day** of EPA plus DHA

Omega-3 of 4 to 6%:

Consume **1,000–1,500 mg/day** of EPA plus DHA

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

For more information, please see the Omega Fatty Acids section on www.accurateclinic.com.
<https://accurateclinic.com/accurate-education-omega-fatty-acids/>