

For more information please refer to the following websites and articles below:

1. American Academy of Orthopaedic Surgeons at <http://orthoinfo.aaos.org/topic.cfm?topic=A00284>

2. Masso Gonzalez, EL et al. (2010). Variability among nonsteroidal antiinflammatory drugs in risk of upper gastrointestinal bleeding. *Arthritis Rheumatology*, 62(2), pp. 1592-601.

3. Fosbol EL, et al. (2010). Cause-specific cardiovascular risk associated with nonsteroidal antiinflammatory drugs among health individuals. *Circulation: Cardiovascular Quality and Outcome*, 3(4), pp. 395-405.

4. Dieticians of Canada at <http://www.dietitians.ca/Your-Health/Nutrition-A-Z.aspx>

5. Goldberg, RJ & Katz, J. (2007). A meta-analysis of the analgesic effects of omega-3 polyunsaturated fatty acid supplementation for inflammatory joint pain. *Pain*, pp. 210-223.

6. Cleland et al. (2009). Dietary fats and inflammation: The medical use of fish oil. *Nutrition & Dietetics*, 66, pp.4-6.



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Non-Steroidal Anti-Inflammatory Drugs



VS.

Fish Oils



What are NSAIDs?



The American Academy of Orthopaedic Surgeons defines NSAIDs as Non-steroidal anti-inflammatory drugs that are said to help relieve pain and inflammation in the joints of the body. They are the most commonly prescribed medication for the treatment of arthritis, bursitis, and tendonitis. Some common examples of over the counter NSAIDs are ibuprofen, aspirin, Naproxen, and Nabumetone. Other use for NSAIDs, especially Aspirin, are to help reduce blood clots and protect against Heart Disease.¹

How do NSAIDs work in the body?

NSAIDs work to prevent an enzyme called Cyclooxygenase (COX) from functioning properly in the body. COX enzymes play a key role in prostaglandin production. Prostaglandins are pro-inflammatory proteins that can cause swelling and pain in joints. There are two types of COX enzymes; COX-1 which protects the stomach lining from hard acids and digestive chemicals, and also maintains kidney function, and COX-2 which is a negative bi-product that is produced when joints are injured.¹

What are the risks of NSAID use?

Taking medication such as NSAIDs does not come without risk. Because traditional NSAIDs block both COX-1 and COX-2, individuals can develop undesirable side effects of the stomach lining, ie.: development of ulcers. Newer NSAIDs only block COX-2 which is less harmful to the body but still presents with side effects. There is no doubt of the short term benefits of NSAID use and evidence supports this notion; however, there is not much research on the long term effects of NSAID use! Prolonged use of NSAIDs has been shown increase the chance of upper GI bleeds² and nonfatal stroke.³

Positive Effects of NSAIDs	Negative Effects of NSAIDs
<ul style="list-style-type: none"> •Short term benefits of pain relief •Short term benefits of reduced inflammation •Protective effect against heart disease (reduces blood clotting) •Help to lower fevers 	<ul style="list-style-type: none"> •Abdominal pain, nausea, indigestion •Upper GI bleeds with both short term and long term use •Nonfatal stroke •Kidney disease

What are Fish Oils?



Fish oils are derived from tissue of fish and contain Omega 3 fatty acids; eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).⁶

Health Benefits of Fish Oils

The Dieticians of Canada⁴ state that EPA and DHA have many health benefits such as:

- ❖ Improving brain function, nerve and eye development in infants
- ❖ Can reduce risk of heart disease
- ❖ May improve immune system
- ❖ Protection against some types of Cancer
- ❖ May help in prevention of dementia and Alzheimer's disease

Research shows that fish oils have an *anti-inflammatory effect* in the treatment of rheumatoid arthritis and osteoarthritis⁵.

How do Fish Oils work?

In joint pain, pro-inflammatory interleukins (proteins) such as Prostaglandin E₂ (PGE₂), IL-1, IL-6, IL-12 are released in the joint which increases sensitivity to pain. Fish oils (EPA and DHA) have been shown to inhibit PGE₂ synthesis and other interleukins; therefore, relieving symptoms in arthritic joints.⁶

Risks/Contraindications of Fish Oil Use

Because fish oils are a natural food supplement, there are little side effects associated with consumption; however, in large quantities or in some individuals with high sensitivity, fish oils have been associated with steatorrhea (excessive fat deposits in stool). It is not recommended to take fish oils in those who are on anti-coagulants or have fish-related allergies.⁵

Why Fish Oils?

Concerns with the harsh side effects with long term use of NSAIDs has prompted the search for alternative treatments. Fish oils have become increasingly popular in the research world for the treatment of chronic inflammatory pain.⁵ Health Canada suggests eating at least 2 servings of fish per week to maintain a healthy diet (0.3-0.45 gs of EPA or DHA per day).⁴ Some researchers suggest an elevated intake of EPA and DHA for arthritic joints (2g to 4g),⁵ but consultation with your MD and/or dietician is suggested.