

## Key Points

1. NSAID's are widely used to treat pain and inflammatory conditions; more than 30 billion are sold annually
2. NSAID's can also have severe side effects and result in more than 100,000 hospitalizations each year and thousands of deaths
3. Fish oil has been widely studied for the health benefits of the essential fatty acids it contains
4. This study asked 250 non-surgical spine pain patients to switch from taking NSAID's to fish oil supplements
5. About 2 months later, 59% had stopped taking NSAID's, but 88% said they would continue to take the fish oil
6. 60% said their pain had improved and 80% were satisfied with the results from fish oil
7. There is a scientific basis for the mechanism by which fish oil can reduce inflammation and pain and growing evidence of its effectiveness
8. FDA has recommended limiting fish intake due to high levels of toxins; care should be taken in selecting a fish oil supplement

## Definitions

**EFA** - essential fatty acid; substance which is important in maintaining healthy cell membranes and must be consumed through diet

**COX-2 Inhibitor** - type of anti-inflammatory drug which works by blocking the COX-2 enzyme; Celebrex and Vioxx are COX-2 inhibitors

**NSAID** - nonsteroidal anti-inflammatory; class of drugs, such as ibuprofen, commonly used for pain and to reduce inflammation

**Omega 3** - an essential fatty acid, thought to be important for health,

## Fish Oil A Good Alternative For Pain

May 20, 2006 -- NSAID's, nonsteroidal anti-inflammatories, are a widely used class of drugs used to treat pain and inflammation. In fact, drugs such as Motrin, Alleve, and Celebrex are prescribed more than 70 million times per year and more than 30 billion tablets are sold over the counter each year. Some publications have estimated that as many as 10% of American adults regularly use NSAID's for pain control.

However, as this publication has previously reported, the use of these drugs can involve serious side effects. As many as 50% of regular NSAID users will suffer from stomach and digestive problems, some of which are serious enough to send more than 100,000 people to the hospital each year. Ultimately, NSAID's are responsible for thousands of deaths each year.

The newer types of NSAID's, known as COX-2 inhibitors (Celebrex, Vioxx) also have problems. While they were thought to be easier on the stomach, large trials found that they can affect the heart in certain people and Vioxx was voluntarily pulled off the market. Now, some people are even beginning to question whether they are more gentle on the stomach than the older class of NSAID's.

Despite the problems that can occur with long-term and high dosage use, the drugs are still very popular because there are so few options available for patients. However, given the recent high profile events associated with these types of drugs, namely trials being halted and drugs being pulled off the market, many researchers have begun to examine substances that traditionally have been considered part of complementary medicine, in an effort to provide patients with pain relief.

Turmeric, white willow bark, and green tea are all thought by some to have anti-inflammatory or analgesic properties, but by far the most promising candidate to date is fish oil. Fish oil contains what are known as essential fatty acids (specifically omega-3). These substances are important for the body's health, but must be supplied through diet. Certain types of fish, such as salmon, are rich in fatty acids like omega-3, which are thought to promote healthy cellular membranes.

There is a growing body of evidence, with hundreds of published research articles, which points to the benefits of the omega-3 fatty acids found in fish oil. These benefits include a lower risk for coronary disease, and many people believe, natural anti-inflammatory properties and improved nerve functioning. In fact, the FDA has even stated that there is supportive, but not conclusive, evidence that the consumption of omega-3 fatty acid lowers the risk of coronary heart disease.

So everyone should eat a lot of fish, right? Not exactly; while certain types of fish are a great source of omega-3, there is also a growing concern about the levels of toxins, like mercury, in these fish due to polluted waters. This has led to government recommendations to *limit* the amount of these types of fish eaten, especially for children and pregnant women.

This, in turn, has led to an explosion of fish oil supplements on the market. These supplements claim to supply the omega-3 fatty acids necessary for good health, but without the toxins. They do this by extracting the oil from the fish, processing it for purifications, and packaging it into liquids and gels.

While the economics of the fish oil supplement industry continue to evolve, so too does the research to evaluate it's potential benefits. With the FDA giving a limited nod to it's impact on heart disease, other researchers have focused on how it might help their own patients.

Along these lines, neurosurgeon, Dr. Joseph Maroon, asked patients he was treating for non-surgical spine pain to try fish oil supplements in place of NSAID's. He published his findings in the April, 2006 issue of the journal, Surgical Neurology.

Between March and June, 2004, two hundred fifty patients were seen for non-surgical spine pain, such as degenerative disk disease. Every patient was taking NSAID's to try to control their pain. For the study, the patients were asked to a fish oil supplement with omega-3. They were to take 2400 mg a day for two weeks, then lower the amount to 1200 mg a day. At the same time, after the initial two weeks, they were asked to taper off taking NSAID's.

A questionnaire was sent to each patient approximately a month after they began taking the fish oil supplement. Out of the initial 250 patients, 125 returned the survey. This group had been taking the fish oil for an average of 75 days and reported very positive results (see Table 1).

Specifically, 60% of the patients reported that their joint pain had decreased and their overall pain level had

found predominantly in fish oil

**Omega 6** - an essential fatty acid found in high concentrations in corn oil

**cerebellar tonsils** - portion of the cerebellum located at the bottom, so named because of their shape

**cerebellum** - part of the brain located at the bottom of the skull, near the opening to the spinal area; important for muscle control, movement, and balance

**cerebrospinal fluid (CSF)** - clear liquid in the brain and spinal cord, acts as a shock absorber

**Chiari malformation I** - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

**decompression surgery** - general term used for any of several surgical techniques employed to create more space around a Chiari malformation and to relieve compression

### Source

1: Maroon JC, Bost JW. [Omega-3 fatty acids \(fish oil\) as an anti-inflammatory: an alternative to nonsteroidal anti-inflammatory drugs for discogenic pain.](#) Surg Neurol. 2006 Apr;65(4):326-31

improved. Additionally, 59% were able to completely stop taking NSAID's and 88% said they would continue to take the fish oil.

A simple study such as this is far from conclusive evidence that fish oil is able to take the place of NSAID's, but it does support previous, more rigorous studies of fish oil and arthritis pain. In addition, there is a strong theory for how omega-3 can act as an anti-inflammatory at the molecular level. Also, in general, fish oil has few side effects, but can increase bleeding at very high doses.

For people thinking about taking fish oil supplements it is important to realize that these products are not regulated and that care should be taken in both deciding to take them and the selection of a product. As always, it is best to speak with a trained medical professional to determine if this type of supplement is right for you. Also, it is important to select a supplement which has removed the toxins that are so prevalent in these types of fish. It should be noted that many products use the term pharmaceutical grade (or medical grade) to refer to oils without the toxins, but these terms do not have a standard definition. Finally, it should be pointed out that commercial interests sometimes come into play when dealing with medical products such as this. The authors of this study, which they readily admit, have an equity position in a company which sells fish oil supplements.

While the verdict is not quite in on the anti-inflammatory benefits of fish oil, given the limited options for people in pain, its possibilities are intriguing. This author, who suffers from near-constant neck, shoulder, and upper back pain (and stopped taking NSAID's a couple of years ago), will try taking fish oil for a couple of months to see if it helps. Stay tuned for the results.

**Table 1**  
**Survey Responses To Fish Oil Supplement Use**

Stopped Taking NSAIDs	59%
Overall Pain Improved	60%
Decreased Joint Pain	60%
Satisfied With Fish Oil Supplement	80%

**Note:** Survey was sent to 250 patients, 125 responded

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