

## Chronic Pain & Inflammation

Every disease process is either caused by or strongly influenced by inflammation.

*Jack Challem, Author of The Inflammation Syndrome*



Getting "Back2Strength" involves helping our patient's achieve an optimal level of health. Whether you are interested in getting back in shape, or getting back "in the game" we are here to help. We combine the proven benefits of gentle chiropractic treatment with a "state of the art" core spinal strengthening program. This combination of services allows our patients to benefit from a truly integrative approach to health care.

The restoration of body strength and spinal function goes hand in hand. Lack of proper strength, joint alignment, and joint mobility can lead to chronic irritation of the nerves and surrounding tissues. When our bodies are strong, properly aligned, well nourished, and flexible, you will feel vital and energetic. It's never too late! This feeling is possible at any age. Our bodies are designed to heal and maintain themselves when we give them the proper attention and care they deserve.

AntiAging - Diet

Allergies - Cold - Flu - Immune

Cardiovascular

Detoxification

Digestion - Heartburn

Joint - Bone - Muscle

Men's Health

Women's Health

Other

Medically speaking, if you have pain for less than six weeks, it is considered *acute*, whereas any pain lasting longer is termed *chronic*.

Pain is most often accompanied by some level of inflammation. Inflammation is the body's natural reaction to an injury, irritation or infection (both viral & bacterial). The key symptoms of inflammation are: heat, swelling and redness at the affected site.

The type of pain and inflammation that most of us are familiar with is joint pain. In fact, just a few short years ago, chronic inflammatory diseases were defined largely by arthritis and other '-itis' diseases. Over the past several years however, medicine has started to recognize the fundamental role of inflammation in nearly every disease process.

As previously mentioned, inflammation normally helps fight infections and initiates the healing process after an injury. This is true regardless of whether the injury results from a cut, burn, bruise, infection, or even an autoimmune disease such as rheumatoid arthritis. When inflammation occurs, chemicals from the body's white blood cells are released into the blood, or the

affected tissues in an attempt to rid the body of foreign substances. This release of chemicals increases the blood flow to the area and may result in red

ness and warmth. Some of these chemicals cause leakage of fluid into the tissues, resulting in swelling.

Even after trauma, however, the inflammatory response may be excessive and result in unnecessary pain. In some conditions, as with rheumatoid arthritis, the inflammation serves no useful purpose and is actually a component of the disease rather than part of the healing process.

Research now shows that many types of arthritis, periodontal disease, obesity and diabetes all share the common denominator of chronic systemic inflammation.

Newsweek's Anne Underwood wrote, "Researchers are linking inflammation to an ever-wider array of chronic illnesses. Suddenly medical puzzles seem to be fitting together, such as why hypertension puts patients at increased risk of Alzheimer's, or why rheumatoid-arthritis sufferers have higher rates of sudden cardiac death. They're all connected on some fundamental level."

And that's not all...

Even our crow's feet and laugh lines are due to an inflammatory process in the skin!

Celebrity anti-aging doctor, **Dr. Nicholas Perricone**, author of *The Perricone Weight Loss Diet: The Wrinkle Cure*, considers inflammation "the single most powerful cause of the signs of aging."

The question is: *Why does there appear to be a surge of inflammatory diseases?* The answer: Modern food processing and eating habits are preludes to an array of nutrient deficiencies. These diets typically contain inflammation-promoting dietary oils and fats (*including the so-called HEALTHY oils*) as well as large amounts of sugars and refined simple carbohydrates, which *PROMOTE and SUSTAIN INFLAMMATION*.

Today we know that essential nutrient deficiency is a key contributor in the massive inflammation epidemic that lies at the root of all our major health problems. When essential nutrients run low, inflammation goes unchecked, damaging cells, tissues and eventually whole organs and systems. Again, this condition is called *chronic systemic inflammation*.

So...

What sort of steps can we take to help ensure inflammation does not compromise our body's health, or if it has: what can we do to help stop it in its tracks? The following steps will go a long way in strengthening your body's defenses against runaway inflammation:

- **Proper diet:** Read full article of *Regaining your Health & the pH Connection* on our website.
- **Regular Exercise:** Research has shown that physical activity can lower a person's risk of developing cancer and increase the rate of survival. Studies reveal one reason may be because regular aerobic exercise reduces inflammation, a culprit behind many chronic diseases.
- **Antioxidants: (Vitamins 'C' and 'E'):** Inflammation produces unstable molecules in the body called "free radicals." They damage cells by grabbing electrons from healthy molecules in a cell's outer membrane. Free radicals stimulate inflammation. Antioxidants help stop a free radical *free-for-all* by offering up their own electrons, thereby directly counteracting the free radical's proinflammatory effects.
- **Consume a proper balance of ESSENTIAL FATTY ACIDS:** *The importance of this step cannot be overestimated!!!!* In the body, essential fatty acids (EFAs) are primarily used to produce hormone-like substances that regulate a wide range of functions, including blood pressure, blood clotting, blood lipid levels, the immune response, and the inflammation response to injury infection.

## Essential fatty acids

Essential fatty acids (EFAs) are *essential* because they cannot be manufactured by the body and must be obtained through diet and/or supplementation.

There are two families of essential fatty acids: **Omega-3 fatty acids** and **Omega-6 fatty acids**. They are termed "essential" because they cannot be produced by the body, and must therefore be obtained from the diet. Both are polyunsaturated fats that differ from each other in their chemical structure, and both interact with each other, so the balance between them is crucial for good health. Together they affect the production of hormonal type messengers called *eicosanoids*, which has an impact on inflammation in the body and all functions at a cellular level.

As just mentioned, both omega-3 and omega-6 are considered polyunsaturated fats but differ in their chemical structure. Research often lumps polyunsaturated fats into one category of benefits. This is misleading and needs to be corrected.

Omega-3 fatty acids are extremely important for our health, in fact, they are probably the **most** important of the EFAs, given our modern diet of processed and fast foods. The major reason for their importance is they tend to suppress inflammation. They do this by countering the **pro-inflammatory** effects of omega-6.

Omega-6 is also very important; however, the difference is that the typical American diet gets way too much omega-6, and relatively little omega-3.

Omega-6 is abundant in many of our common "healthy" vegetable

## HEALTH FACT:

Proper diet, regular aerobic exercise, antioxidants and a proper balance of the essential fatty acids, will go a long way in fighting runaway inflammation.

cooking oils: soybean oil, sunflower oil, canola oil, corn oil as well as animal meats. As stated, most of us have a heavily imbalanced ratio of omega-6 to omega-3. From a biochemical standpoint, this imbalance, sets the stage for powerful and chronic pro-inflammatory reactions. Without a proper balance of omega-6 and omega-3, inflammation becomes chronic and problematic, which can lead to alitany of degenerative health issues.

### **Runaway inflammation!**

Again, without a proper balance of omega-6 and omega-3, inflammation becomes chronic and problematic, which can lead to a litany of degenerative health issues. The ratio of omega-6 to omega-3 should be somewhere between 2:1 and 4:1. Instead, most of us are getting somewhere between 20:1 and 50:1.

For instance, one tablespoon of canola oil, (a rich source of omega 6), contains 14 grams of fat.

Of these 14 grams of fat, 1 gram is saturated, 9 grams are Monounsaturated, and the remaining 4 grams are polyunsaturated.

These polyunsaturated fats are of the omega-6 variety; therefore, to meet a 2:1 ration of omega-6: omega-3 you would need to consume an additional 2 grams of omega-3 to counteract the PRO-inflammatory response offered by omega-6.

### **The IMPORTANCE of FAT**

The human body is dependent on fat for optimal health. Fat functions as an insulator to preserve body heat, and protect our internal organs. Fat-soluble vitamins, such as A, D, E & K need fat for absorption and transportation within the body.

The primary function of fat is as an energy reserve for all of our daily activities. Fat also plays a crucial role in signal transduction between certain cells. Just be aware, that all fat is NOT the same. As mentioned in this article, even so called "healthy" fats can cause serious health issues if they are exclusively of the pro-inflammatory variety, such as Omega-6s.

### **Sources of Omega-3**

Adding more omega-3 fatty acids to your diet is easy to do.

Wild salmon is the best source at approximately 1700 mg per 3-ounce serving. Other fish sources include: tuna, mackerel, trout sardines and cod. A general rule of thumb: The fattier the fish, the more omega-3 it has. However, some people may dislike or be allergic to fish. Others may avoid fish or limit their consumption due to the danger of ingesting mercury.

High-quality fish oil supplements made by manufacturers who test for mercury and other toxins do not pose a high risk of mercury contamination. Read labels carefully and check for purity, or ask your doctor to help you find the best quality omega-3 supplements.

herring are particularly good sources.

Vegetarians, who do not eat fish, have no direct source of EPA and DHA in their diet, so they rely on the body converting a simpler omega-3 fatty acid, alpha-linolenic acid (ALA), into EPA and DHA. ALA is found in green vegetables and some nuts and seeds (such as walnuts, brazil nuts and flaxseed), although the best concentrated source is flaxseed (linseed) oil.

Although some people can obtain enough EPA and DHA without consuming fish or seafood, others may have difficulties with this. The conversion process for making these complex omega-3 fats from ALA can be inefficient – either because of diet and lifestyle, or for constitutional reasons. For example, low levels of certain vitamins and minerals, or high stress levels, can impair this process, and it also appears to be less efficient in males than females. Conversion is also limited in young infants, and tends to decline in the elderly, but individual metabolic differences might impair some people's ability to make EPA and DHA from ALA at any age.

EPA and DHA are converted into anti-inflammatory prostaglandin

## **Omega-3 from Fish or Flax?**

### *Which is best?*

For vegans, good sources of omega-3 are: flaxseed oil, tofu (soy protein), walnuts, wheat bran and oat germ.

The two most important omega-3 fatty acids for brain function and brain development are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). These can be found directly only in fish and seafood. Oily fish contains more EPA and DHA than white fish. Sardines and pilchards, anchovies, mackerel, salmon and

PG3. Prostaglandins are master hormones that regulate inflammation in the body. EPA and DHA have been shown to reduce platelet stickiness, and therefore reduce risk of clots that can cause heart disease; lower risk of atherosclerosis; lower high triglycerides; lower elevated blood pressure; and reduce inflammation.

You can get EPA and DHA directly from fatty fish found in cold waters. However, omega 3 (found in raw flax seeds and oils, raw

nuts, and leafy green vegetables) can also be converted into EPA and DHA, albeit in much smaller amounts.

### What is the conversion rate of ALA to EPA/DHA?

The rate at which the average human body can convert ALA to EPA has been measured to be 2.7% per day of the ALA administered. If the person also gets the recommended amounts of all other essential nutrients, which are vital co-factors for conversion of ALA to EPA, especially B3, B6, C, magnesium, and zinc, the conversion rate can be higher. Based on the average conversion rate, if a person has no ALA in their body and takes 2 tablespoons of raw flaxseed oil each day, of which 57% is ALA, their body can make 378 mg of EPA, which is what two capsules of fish oil will typically supply. For those who are depleted in omega 3 and have a condition of inflammation, 3-5 tablespoons of raw seed oil per day is recommended, which will provide as much EPA as 3-5 capsules of fish oil.

### So, what is the best source of omega 3?

The answer is that there is benefit in both ALA and EPA/DHA. ALA, particularly from flax has beneficial properties that EPA/DHA from fish oil does not, and vice versa.

### Benefits of Flax

Flax seed contains lignan, a substance that has been proven by research to have anti-cancer properties. Flax seed and seed oil, when combined with other foods, help stabilize blood sugar, reduce insulin production, reduce triglycerides, lower cholesterol, and speed fat burning. Flax seeds and their oils are also convenient to use with foods, and more stable than fish oil. You can add the oil or seeds to your *EnergyFirst Shake*, salad dressings, vegetables, yogurt, cottage cheese, or your favorite raw nut butters (which is a great way to increase your children's intake of omega 3 fats).

### Benefits of Fish Oil

EPA and DHA have been recognized by researchers as being vitally important to achieving optimal health, energy, and longevity. EPA and DHA are the building blocks for the cells in your vital organs and your body requires these Omega-3s to function properly.

### Recommended Levels of Dietary Fat

Nutrition recommendations in North America and Europe call for a reduction in total fat intake to 30% and saturated fat intake to less than 10% of total energy.

### Additional Note:

To prevent inflammation, avoid foods that have *hydrogenated vegetable oils, partially hydrogenated vegetable oils, or shortening* listed in the ingredients, or trans fats listed on the nutrition information label.

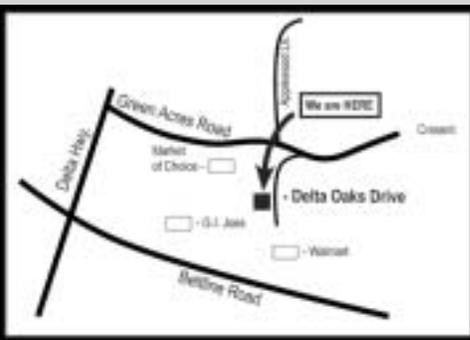
In conclusion, remember that every disease process is either caused by or strongly influenced by inflammation. Recall that the following steps will go a long way in strengthening your body's defenses against runaway inflammation:

- **Proper diet**
- **Regular Exercise**
- **Antioxidants**
- **Consume a proper balance of ESSENTIAL FATTY ACIDS**

Recommendend Dosage is 2 grams, (2000 mg) per day.

**IMPORTANT NOTE:** If you are currently taking prescription medications, especially for blood-thinning medications, you need to consult your healthcare provider prior to taking this nutrient in supplement form.

**Important Note:** We must state that the information in this article is not intended to replace the advice of your healthcare practitioner. If you are pregnant, nursing or currently taking medications, most especially blood thinning prescriptions, we strongly advise you to consult with your practitioner before making any alterations to your diet.



## At Back2Strength...

Our Mission is to relieve pain, restore function and reduce the need for spinal surgery.

Come on in and take a tour of our facilities!

