Pain & Inflammation

Natural products to help reduce pain and inflammation are available in this office that can help reduce your pain levels more quickly and do not have the inherent risks and side effects that have been found with the usual pharmaceutical interventions for pain and inflammation.
Pain and Inflammation:

The following is from a paper written by Alex Vasquez, D.C., N.D., D.O. in 2005 called:

“Therapeutic nutrition and botanical medicines for the promotion of wellness and alleviation of pain and inflammation:”

- At any given time nearly 30% of the American population suffers from musculoskeletal pain, joint swelling, or limitation of movement.(1)
- Approximately 1 of every 7 visits (14% of total) to a primary health care provider is for treatment of musculoskeletal pain or dysfunction.(2)
- Numerous adverse effects are produced as a direct result of pharmaceutical management of benign musculoskeletal pain.(3)
- According to a review by Singh, “Conservative calculations estimate that approximately 170,000 patients are hospitalized annually for nonsteroidal anti-inflammatory drug (NSAID)-related gastrointestinal (GI) complications and at least 16,500 NSAID-related deaths occur each year among arthritis patients alone.(3)
- More recently following the withdrawal of the arthritis drug fofecoxxib (Vioxx) in late September 2004, Topol extrapolated that as many as 160,000 adverse cardiovascular events (including stroke, myocardial infarction, and death) may have resulted from the collusion of Merck’s intentional failure to withdraw what was known for years to be a dangerous drug, the FDA’s failure to enforce regulatory standards to protect the public, and the overutilization of Vioxx.(4)
- Soon after the removal of Vioxx from the healthcare market, several other so-called “anti-inflammatory drugs” such as valdecoxib (Bextra),(5) celecoxib (Celebrex),(6) and naproxen (Aleve) (7) were likewise associated with excess cardiovascular injury and death.
- Although the advertising-induced feeding frenzy on Celebrex made it the most successful drug launch in US history with more than 7.4 million prescriptions written within its first 6 months,(8) within 2 years of its release evidence linking the drug to a wide range of adverse effects such as membranous glomerulopathy and acute interstitial nephritis, acute cholestatic hepatitis, and toxic epidermal necrolysis.(9)
- Bextra/valdecoxib when compared to placebo is associated with a 3-fold to 4-fold increased risk of heart attack, stroke, and death,(10) and at the time of this paper in 2005, 7 million arthritis patients, many of whom were already at high risk for cardiovascular disease, were being treated by this drug.(5)
- It is tragically paradoxical that many of the pharmaceutical drugs used for suppression of arthritis symptoms and advertised as “arthritis relief” actually exacerbate joint destruction and chronic inflammation by interfering with the biosynthesis of the glycosaminoglycans that are essential components of joint cartilage while also promoting destruction of subchondral bone.(11), (12),(13),(14).

The following references were taken from his paper to give evidence of the statements above.
References:


(6) “Patients in this clinical trial taking 400 mg of Celebrex twice daily had a 3-4 times greater risk of CV events compared to placebo. For patients in the trial taking 200 mg of Celebrex twice daily, the risk was 2.5 times greater. The average duration of treatment in the trial was 33 months.” FDA Statement of the Halting of a Clinical Trial of the Cox-2 inhibitor celebrex. http://www.fda.gov/bbs/topics/news/2004/NEW01144.html January 4, 2005

(7) “Preliminary information from the study showed some evidence of increased risk of cardiovascular events, when compared to placebo to patients taking naproxen” FDA Statement on Naproxen. http://www.fda.gov/bbs/topics/news2004/NEW01148.html January 4, 2005


(11) “At concentrations comparable to those in the synovial fluid of patients treated with the drug, several NSAIDs suppress proteoglycan synthesis. These NSAID-related effects on chondrocyte metabolism are much more profound in osteoarthritic cartilage than in normal cartilage, due to the enhanced uptake of NSAID’s by the osteoarthritic cartilage.” Brandt KD. Effects of nonsteroidal anti-inflammatory drugs on chondrocyte metabolism in vitro and in vivo. Am J Med 1987 Nov 20. 83(5A): 29-34

As more awareness of the negative effects of pharmaceutical management of musculoskeletal pain, patients and healthcare providers have searched for more natural means for musculoskeletal pain and inflammation.

**The Inflammatory Process:**

The process of inflammation may be said to begin with the translation of an environmental trigger into a biochemical signal that initiates the inflammatory pathway.

**Environmental triggers for inflammation can include the following:**

- Injury
- Radiation
- Infection
- Oxidative stress – (see definition below)
- Certain foods – particularly those high in fat and those with a high glycemic index (ie, “simple sugars”)

Definition of oxidative stress – following is the best definition of this that I could find.

**oxidative stress**

A term used to describe the effect of oxidation in which an abnormal level of reactive oxygen species (ROS), such as the free radicals (e.g. hydroxyl, nitric acid, superoxide) or the non-radicals (e.g. hydrogen peroxide, lipid peroxide) lead to damage (called oxidative damage) to specific molecules with consequential injury to cells or tissue. Increased production of ROS occurs as a result of fungal or viral infection, inflammation, ageing, UV radiation, pollution, excessive alcohol consumption, cigarette smoking, etc. Removal or neutralization of ROS is achieved with antioxidants, endogenous (e.g. catalase, glutathione, superoxide dismutase) or exogenous (e.g. vitamins A, C, E, bioflavonoids, carotenoids). Oxidative damage to the eye, particularly the retina and the lens, is a contributing factor to age-related macular degeneration and cataract.

The current understanding is that any or all of the above environmental triggers may lead to activation of what is referred to as the NF-kappaB cascade, which is a major pathway for the amplification of inflammatory processes. NF-kappaB can be thought of as the major intracellular “amplifier” which ultimately increases the production of the direct mediators of inflammation such as the following:

- Cytokines
- Prostaglandins
- Leukotrienes
- Nitric oxide
- Other reactive oxygen species (“free radicals”)

These start a complex series of reactions resulting in the inflammation and pain experienced individuals.

Overall, this inflammatory response plays a part in the genesis and perpetuation of numerous inflammatory disorders, such as osteoarthritis, cancer, rheumatoid arthritis and other autoimmune diseases, and numerous conditions associated with pain and inflammation.

**What does all this mean for my pain and inflammation?**

As a natural health care practitioner, I feel that I should at least give you the natural options to help with your inflammation and pain.

**Physical options you can do yourself in an acute injury:**

After an injury such as a sports injury the first steps should be as follows:

- Rest the injured area – don’t keep aggravating it.
  - If you have suffered a sprain or strain, the actual injury involves tearing of either muscle, tendon, or ligament fibers. This will involve some bleeding.
  - Your body’s first reaction is to stop the bleeding by forming a clot around the injured tissues. This fibrin clot is very fragile and it is important to allow its formation and preventing its disruption.
- Ice – Cold Packs
  - This cools the injured area and creates a numbing effect, thereby reducing pain by slowing the transmission of pain signals along the nerves from the injured area to the central nervous system.
  - The bleeding in the injured area causes swelling. As more cells move into the area to begin the repair process, the need for oxygen and nutrients at the injury site is greatly increased. However, because of the swelling in the area, the actual supply of oxygen and nutrients is greatly decreased. So some cells that do not get enough oxygen end up dying. This is referred to as secondary hypoxia. One
of the major benefits of ice is to limit this secondary hypoxia, or secondary tissue death. This is achieved by reducing the need for oxygen. Ice has a cooling effect, and in turn, reduces the metabolism of the cooled tissues. This reduced metabolism decreases the need for oxygen. Cells that would normally die because of a lack of oxygen can now survive.

- Compression
  - Applying some type of compressive wrap to an injured area can greatly reduce the amount of initial swelling. Swelling is a major factor in prolonged rehabilitation. Swelling will occur very rapidly, however, it takes a much longer time to get rid of it. It has to be removed through the lymph system, and this is a very slow, passive process. Compression helps to control swelling by not allowing extra fluid to pool in the spaces between the cells.

- Elevation
  - Elevation is the final component of the RICE principles. It simply refers to keeping the injured body part in a position higher than or equal to the level of the heart. For an ankle sprain, this would mean propping your foot up while lying down or sitting. Elevation works on a simple premise. Gravity. Gravity pulls things down, and this is especially true with swelling. Remember, swelling is removed through the lymph system. The lymphatic drainage system can be speeded up by contracting and relaxing the muscles while the limb is elevated. So while you are resting to protect that newly formed clot and scar matrix, and are icing and using a compression wrap, keep that injured part elevated.

Heat should be avoided in the first 24-48 hours post traumatic injury. The application of heat to the area increases blood flow and therefore more blood and fluid in the area; this results in more swelling. This is not advised in the initial stage of healing.
Aspects of diet that you can change to reduce inflammation:

The Anti-Inflammatory Diet

Dietary advice by:

G. Douglas Andersen, DC, DACBSP, CCN

Table 1: Common Dietary Imbalances That Inflame

Too many calories
Too much saturated fat
Too much sugar and refined carbs
High omega-6 to omega-3 ratio
High sodium to potassium ratio

Table 2: Sources of Pro-Inflammatory Imbalances

Too much fast food
Too much fried food
Too much junk food
Too many soft drinks
Too many meals out
Too many servings per meal
Too much processed food
Too much high-fat animal food
Too many desserts
Too much alcohol
Foods Generally Considered Pro-Inflammatory

1. American cheese, bacon, bologna, bratwurst, brownies, (white)
2. breads - including buns, rolls and bagels, butter, cake, candy,
3. cereals,* cheese (American, cheddar, creamed, gouda, jack,
4. mozzarella, provolone, Swiss) cookies, corn chips, corn syrup,
5. crackers*, cream, croissants, Danish, doughnuts, egg
6. rolls, French fries, French toast, (deep) fried foods, fruit juices,
7. granola,* hamburgers, hash browns, honey, hot dogs, ice cream,
8. jam/jelly, margarine, molasses, muffins, noodles,* onion rings,
9. pancakes, pastrami, pepperoni, pie, pickles, pita bread,* pizza,
10. pasta,* popcorn, potato chips, pretzels, puddings, relish, ribs
11. (beef or pork), rice (white), salami, sausage, sherbet, shortening,
12. sodas/soft drinks, syrup, tortillas (flour), tortilla chips, waffles,
13. whipped cream, whole dairy.

*Unless 100% whole grain and high fiber

Foods Generally Considered Anti-Inflammatory

1. Acai, amaranth, anchovies, apples, apricots, arugula, artichokes,
2. asparagus, avocado, bananas, beans (green beans, black beans,
3. kidney beans, garbanzo beans, pinto beans, lima beans, soy
4. beans), bean sprouts, beets, berries (blackberries, blueberries,
5. boysenberries, goji berries gooseberries, raspberries,
6. strawberries) bok choy, broccoli, brussels sprouts, cabbage,
7. canola oil, cantaloupe, carrots, cauliflower, celery, cherries,
8. cranberries, cucumbers, dairy (nonfat), eggplant, endive,
9. gooseberries, grapes, grapefruit, herring, honeydew, kale,
10. lemons, lentils, mackerel, mango, mangosteen, millet,
11. mushrooms, mustard greens, nectarines, noni, nuts - raw
12. (almonds, Brazil nuts, cashews, chestnuts, filberts, hazelnuts,
13. macadamia, pecans, peanuts, walnuts), oats, okra, olive oil,
14. onions, oranges, papaya, parsnips, pears, peas, peaches, peppers
15. (bell and hot), persimmons, pineapple, pomegranate, plums,
16. poultry (no skin), prunes, pumpkin, quinoa, rhubarb, rutabaga,
17. salmon, sardines, scallions, seeds (flax, poppy, pumpkin, sesame,
18. sunflower), spices (cinnamon, cayenne, garlic, ginger, green tea,
19. parsley, pepper, nutmeg, oregano, rosemary, turmeric), spinach,
20. squash (butternut, crook neck, summer, winter, zucchini), sweet
21. potatoes, tomatoes, trout, tuna (water-packed), turnips, water
22. chestnuts, watermelon, wild game, yams.
For example, we have known for many years that overeating sugar and fat leads to postprandial hyperglycemia and hyperlipemia; however, we now know that the degree of hyperglycemia and hyperlipemia is associated with increasing levels of systemic inflammation. Additionally, we have always known that being “overfat” can be associated with diabetes and heart disease. We now know that excess body fat functions as a factory that produces inflammatory mediators.

There are some very basic and accurate things we can do. For example, visual inspection is helpful.

Anyone who is overweight is moving toward a state of chronic inflammation. We add excess pounds by eating pro-inflammatory foods such as sugar, refined flours, and too many fat calories. So, [in general] an overweight person should be viewed as one who eats too few vegetables, fruit, and lean meat and fish.

If a patient is regularly taking NSAIDs or Tylenol, this tells us to look at diet. Linoleic acid from seed/legume oils (corn, safflower, sunflower, cottonseed, peanut, and soybean) converts into arachidonic acid, which we find in obese meat from domesticated animals. The arachidonic acid is converted into prostaglandin E2 by the now-famous COX enzymes, which are inhibited by NSAIDs and Tylenol.

A diet history for 3-7 days is also helpful. It becomes readily apparent that patients do not eat enough vegetation, lean meat, and fish. They can also use the “deflamming” guidelines I have on my Web site, www.deflame.com, which contains an inflammation checklist and dietary/supplement recommendations

The key to deflaming is really diet, not supplements. The lion’s share of calories should come from vegetation, lean meat, fish, sweet potatoes, raw nuts, and seeds such as hemp, chia and flax. A bare-bones supplement approach to support the deflaming process includes magnesium, fish oil and vitamin D. I think adding a multivitamin and a probiotic are also good choices if the patient can afford it. People can easily deflame by shopping at Super Walmart or other large stores. Lean meat, chicken breast and fish are affordable. Five-pound bags of frozen vegetables are inexpensive, as are family-size bags of frozen fruit. Sweet potatoes are also very inexpensive, and so are regular potatoes. And when a modest potato portion is consumed with protein, the glycemic response [from the potato] is blunted. If people eat this way for 80-90% of their calories, then the remaining percentage can be used for pizza, drive thru’s and dessert.

As you know, we are learning that our genes can be protective against disease or promoters of disease. So, I think the overweight issue is dependent on our unique genetic makeup, which we can get an idea about by looking at some basic blood tests. For example, high-sensitivity C-reactive protein (hsCRP) should be below 1 mg/dL. Fasting glucose should be below 100. When these rise, we should be thinking that an overweight patient is inflamed. And we should be more concerned if elevated hsCRP and glucose are coupled with substantially elevated cholesterol and triglycerides.

An even more basic marker is blood pressure. We know that elevated blood pressure reflects chronic systemic inflammation. Some individuals are able to handle more weight and keep
these markers within normal limits; it is a mixed bag and should be considered on an individual basis. However, in general, excess body fat is considered to be a reservoir of inflammatory mediators. In fact, macrophages are attracted to excess adipose tissue, where they can become activated and overproduce inflammatory mediators.

Adipose tissue itself produces mediators called adipokines - some are pro-inflammatory and some are anti-inflammatory. With excess adipose tissue, we produce excessive pro-inflammatory mediators like resistin and leptin, and less anti-inflammatory adiponectin.

The gut-brain appetite connection is complex, as is the effect of diet on the endocrine system. The inflammation connection is more palpable and understandable for me. I cannot tell if inflammatory foods actually stimulate appetite or if anti-inflammatory foods function to suppress appetite. Lean protein and fiber tend to make us feel satiated, so we eat less.

Additionally, I am not sure to what degree the emotional attachment to inflammatory foods plays a role. I do know that people have variable negative visceral responses when they are told to eat less sugar and flour, and to eat more anti-inflammatory foods. I wonder if there is an actual subtle addiction mechanism at work here that propels people to overeat. In this regard, the movie “Super Size Me” should make us all pause and think about our eating behaviors.

References:

* Dynamic Chiropractic – September 23, 2009, Vol. 27, Issue 20 By G. Douglas Andersen, DC, DACBSP, CCN

* Dynamic Chiropractic – October 21, 2009, Vol. 27, Issue 22 By G. Douglas Andersen, DC, DACBSP, CCN

* Dynamic Chiropractic – November 18, 2009, Vol. 27, Issue 24 By G. Douglas Andersen, DC, DACBSP, CCN

**Dr. Andersen’s references are:**

*References*


**Natural products by reputable companies which can help reduce inflammation and pain.**

(These products are available at this office and sometimes similar products are available in health food stores and pharmacies.)

Biotics Research has the following products:

- **KappArest**
  - This product helps to stop or slow the development of inflammation and is quite effective if taken as directed. It is designed to slow the release of NF-kappaB which can be thought of as the major intracellular “amplifier” which ultimately increases the production of the direct mediators of inflammation.

- **Bio-Allay**
  - This product is to help reduce pain.

- **ChondroSamine Plus**
  - This product helps to heal joints that are damaged by arthritis and I have found it effective for osteoarthritis especially when used in combination with KappArest.

Metagenics has the following products:

- **Kaprex**
  - This product is designed to help control the inflammatory process and is an effective alternative to some of the prescription without the risk of serious side effects. It is formulated to help slow the release of NF-kappaB which can be thought of as the major intracellular “amplifier” which ultimately increases the production of the direct mediators of inflammation.

- **Kaprex AI**
  - This product is designed to help control the inflammatory process for patients with auto-immune diseases such as rheumatoid arthritis.

- **Inflavonoid**
  - This product is high in turmeric, ginger, and bioflavonoids which help control inflammation. This product can be very effective in higher doses.

- **Inflavonoid Intensive Care**
  - This product is the same as the above with some added ingredients to have a more intense anti-inflammatory effect.

- **Acute Phase**
- This is a 3 day supply of a combination of the best of the above to get a patient out of an inflammatory crisis. There are 9 packets to be taken 1 packet 3 times per day between meals.
- EC Matrixx
  - This product is designed to help a patient in the sub-acute phase of treatment and is designed to help improve flexibility.