



Natural Anti-inflammatories: Alternatives to Long-term NSAID Use

Published research, some of which dates back to 1995, shows long-term use of non-steroidal anti-inflammatory drugs (NSAIDs) which include ibuprofen, naproxide sodium, indomethacin, ketoprofen, celecoxib can:

- increase osteoarthritis in 180 days to one year of use as shown by hip and knee x-ray. Diclofenac (Voltaren) and indomethacin (Indocin) were studied.
- interfere with tendon and tissue healing. Indomethacin and COX-2 inhibitors (Celebrex) interfered the most.
- interfere with fracture and surgical fusion healing. Ketorolac (Toradol) was the most significant.
- increase fracture risk. This study looked at all NSAID drugs together.

Huskisson ECJ Rheumatol 1995; Reijman M Arthritis Rheum 2005; Mastbergen SC Arthritis Res Ther 2006; Scott DL Rheumatology 2000; Alvarez-Soria MA Rheumatology (Oxford) 2008; Cohen DB Am J Sports Med 2006; Ferry ST American Orthopaedic Society for Sports Medicine 2007; 33 additional studies & articles 1980-2000; Glassman SD Spine 1998; Dahners LE J Am Acad Orthop Surg, 2004; Goodman SB Am Acad Orthop Surg Bulletin 2004 & 2005; Van Staa TP Bone 2000

Ibuprofen and naproxide sodium seemed to cause the least damage in the comparative studies. **The American Academy of Orthopedic Surgeons Bulletin, June 2005, recommended use of suitable alternatives to NSAIDs for pain control when fracture, fusion and tissue healing is required.**

These adverse side effects are in addition to the more well-known side effects of gastrointestinal tract (digestive system), kidney and liver damage caused by NSAID use in general and increased risk of heart attack and stroke caused by COX 2 inhibitors, which include Celebrex, still in use, Vioxx and Bextra which the FDA removed from use in 1995. Hospitalizations due to GI complications cost the healthcare system an estimated \$2 billion a year. Among the available reports, estimates of deaths attributable to NSAIDs have widely varied from 3,200 to higher than 16,500 per year in the U.S. Long-term (more than three months) use of NSAIDs, including ibuprofen, has been linked with a 1.4 times increased risk of erectile dysfunction. Hearing loss in women (and men) is associated with using acetaminophen or ibuprofen (but not aspirin) two or more days a week. The rate of new onset heart atrial fibrillation is higher in new users of NSAID drugs. *Singh J, Rheumatol 1999; Cryer B AGE 2005; Tarone BE Am J Ther 200; Shiri J of Urology 2005; Curhan 2012 Am J Epidemiology; Schmidt M British Medical Journal 2011*

Natural anti-inflammatories have been used by humans for eons. Many are foods. Research from around the world shows we are gaining more data on the effectiveness, the anti-inflammatory value and other health benefits of certain plants. Anti-inflammatory and medicinal properties are found in:

Bromelain. From the pineapple plant, bromelain refers to a group of sulfur-containing enzymes that digest protein. Bromelain was introduced as a therapeutic agent in 1957. Since then more than 200 scientific papers on its therapeutic applications have appeared in medical literature. As an anti-inflammatory, bromelain is one of the most popular natural agents in use. Because it can impact many aspects of inflammation, it is used largely in cases of injury, sprains, strains, arthritis and other inflammatory conditions. It is active later in the tissue damage-inflammation-tissue healing chemical reaction chain and causes breakdown of the excessive fibrotic tissue after tissue healing has occurred. NSAID drugs are active earlier in this chemical reaction, which is why they can interfere with tissue healing. Fresh pineapple (not canned, as heat destroys the enzyme activity) is the best dietary source for bromelain, or it can be obtained in a supplement form, which comes from the stem of the plant. The typical supplement dosage is 250 to 500 milligrams three times per day between meals. Bromelain is generally regarded as safe and side effect-free when taken as directed. People taking "blood-thinners" (anticoagulant or anti-platelet medication), such as aspirin, warfarin (Coumadin), heparin, clopidogrel (Plavix), NSAID's such as ibuprofen (Motrin, Advil), naproxen (Naprosyn, Aleve) should only use bromelain under medical supervision. People taking herbs and supplements that are thought to increase the risk of bleeding, such as ginkgo biloba and garlic, should use caution. *THE HEALING POWER OF HERBS Michael T. Murray, ND, 1995 39 studies; Ako H Arch Int Pharmacodyn Ther. 1981; Taussig SJ J Ethnopharmacology 1988; Walker AF Phytomedicine. 2002; Kamenicek V Acta Chir Orthop Traumatol Cech. 2001; Brien S Evid Based Complement Alternat Med. 2004; Wong 2011*

Capsicum. From cayenne pepper, capsaicin is found in topical preparations. Commercial ointments containing capsaicin are available over the counter. These preparations may offer significant benefit in a number of conditions, including pain disorders such as post-amputation pain, post-mastectomy pain, post-herpetic neuralgia, diabetic neuropathy, cluster headaches, osteoarthritis and rheumatoid arthritis. Sombra is an effective capsaicin ointment. Cayenne pepper exerts numerous beneficial effects on the cardiovascular system and gastrointestinal function. In addition to possessing excellent antioxidant compounds, studies have shown that cayenne pepper reduces the likelihood of developing atherosclerosis by reducing cholesterol and triglyceride levels. Although people with active peptic ulcers may be bothered by "spicy" foods

containing cayenne pepper, spicy foods do not cause ulcers in normal individuals. Capsaicin, though hot to the taste, actually lowers body temperature by stimulating the cooling center of the hypothalamus in the brain. It has recently become available in concentrated capsule forms in health food stores. Capsaicin and capsaizepine may be promising drug candidates for ameliorating inflammatory diseases and cancer. *Kim Chu-Sook Cellular signalling 2003; Young-Joon Surh Journal of the National Cancer Institute, 2002 THE HEALING POWER OF HERBS, Michael T. Murray, ND, 1995 27 studies; Caterina MJ Nature. 1997;*

Curcumin. Found in turmeric (*Curcuma longa*), curcumin is a perennial herb of the ginger family and the major ingredient of curry. Curcumin is as effective as cortisone or phenylbutazone in models of acute inflammation, but only half as effective in chronic models. *Curcuma longa* has been used in Ayurvedic medicine, both topically and internally, in the treatment of sprains and inflammation. The safety and tolerability of curcumin compared to standard drug treatment are major advantages. Turmeric should be consumed liberally in the diet. Curcumin supplement recommended dosage is 400-600 milligrams three times a day. **Because absorption in the GI tract may be limited, curcumin is often formulated with bromelain.** This is available in a supplement or by eating curry dishes. However, 8,000-60,000 milligrams of turmeric three times a day would be required to get a similar amount of curcumin. Curcumin displays virtually no toxicity, and reactions have not been reported at standard dosages. Curcumin has been shown to be effective in treating people with osteoarthritis and has potential therapeutic effects against neurodegenerative, cardiovascular, pulmonary, metabolic, autoimmune and neoplastic (cancer) diseases. *Murray 44 studies; Kuptmiratsaikul V J Altern Complement Med. 2009; Constanze C Arthritis Research & Therapy 2009; Henrotin Y Osteoarthritis Cartilage. 2010 Aggarwal BB The University of Texas M. D. Anderson Cancer Center, Houston, Int J Biochem Cell Biol.2010*

Ginger. Historically known for its use as an anti-inflammatory agent, ginger also helps lower cholesterol and has demonstrated analgesic effects in experimental studies. Ginger demonstrates significant anti-ulcer effects and is noted for its apparent ability to warm the body. Recommended dosage is two to four grams of dry powdered ginger per day. The equivalent of fresh ginger root is 20 grams, two-thirds of an ounce, or roughly a half inch slice. Sliced ginger root in a thermos of hot water makes a nice tea. *Murray 43 studies; Grzanna R J Med Food, 2005*

It is best to include the above in your food choices. If more concentrated levels are required to achieve desired results, combinations and concentrated forms can be found in over-the-counter strengths in health food stores.

Boswellia (frankincense) and gugulipid (myrrh). Shrubby trees native to Arabia and India, boswellia and gugulipid have a long history of medicinal use. These medicinal plants exhibit significant anti-inflammatory action in experimental models and in clinical trials. Standard gugulipid dosage is 25-50 milligrams of guggulsterone three times a day is common. It is usually found as a standardized refined extract the gum guggul. Used in this form, it is virtually nontoxic. Boswellia and curcumin (turmeric) combinations have been studied with promising good results to treat arthritis. Some of these combinations include ginger and/or other plants, including *Withania somnifera* (Ayurvedic), which has been researched in India. Guggul has been shown to have anti-inflammatory effects more marked than those of hydrocortisone and would be useful as an inhibitor of joint destruction in patients with rheumatoid arthritis. *Kimmatkar Phytomedicine. 2003; Chopra A Journal of Clinical Rheumatology 2004; Farid Alternative & Complementary Therapies 2002. Ikuko Bioorganic & Medicinal Chemistry Letters 2001; Young-Rae Life Sciences 2008*

Corydalis yanhusuo. This is a tuber used in Chinese herbal medicine. Experimental studies and clinical investigations show anti-inflammatory activity and other properties. One study shows that after taking a single oral dose, people have less pain scores in a cold-pressor induced finger pain test. *Kubo M, Biol Pharm Bull. 1994; Yun KJ Int Immunopharmacol. 2009; J Clin Pharmacol. 2004*

Homeopathic remedies. Widely used in Europe, homeopathy developed by Hahnemann (1755-1843) is based on the principle of similars (or "like cures like"), and the law of minimum dose in which the substance has left its imprint or "essence," which stimulates the body to heal itself. Our current allopathic system is based on anti-inflammatories. Our immunization system is based on a homeopathic model, meaning giving a diluted substance of what can cause a disease can spur the body's systems to fight and/or heal the disease. There are challenges in studying homeopathy and controversies regarding the field, largely because a number of its key concepts are not consistent with the current understanding of science.

Traumeel. This homeopathic combination remedy is for bruises, sports injuries (sprains and strains), inflammation and muscular pain. Traumeel ointment outperformed a placebo for treatment of acute ankle sprains, resulting in less pain and faster return to athletic training. Internal use of Traumeel has been shown to be safe, can improve symptoms in inflammatory rheumatic diseases, tendinitis and epicondylitis. Experiments showed reduction in the development of local edema/swelling. *Bohmer D, Biological Therapy 1992; Zell J, 1989; Gerhard 1988; Milhoc 1986; Conforti A, International J. Of Integrated Medicine 1997; Arora 2002; Schenider 2005*

Zeel. This homeopathic combination remedy for arthritis is available in oral forms and ointment. (Injectable solutions are available in Europe and by special order to MDs and DOs.) Most of the published studies have been done on the injectable form on people with osteoarthritis. One study showed that human cartilage incubated in a Petri dish in Zeel solution grew three times as deep as the control group, showing promising support for the oral use of Zeel. *Lesiak A, Medycyna Biologiczna 2001; Web L, Biological Therapy 1990; Gottwal R, Medicina Biológica 2000*