Pain and Inflammation

No one wants to be in pain! We will do practically anything to not be in pain. Most people turn to prescription and non-prescription Non-Steroidal Anti-Inflammatory Drugs, also known as NSAIDS for pain relief. Why? People are very familiar with these drugs from the massive amount of advertising by the pharmaceutical companies.

After reading this information, you will have a better understanding of NSAIDS, something pharmaceutical companies don't want you to know. You will learn some troubling facts and adverse side effects caused by NSAIDS. Most important, you will learn about dietary and nutritional supplementation alternatives to NSAIDS.

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I. List of Non-Steroidal Anti-Inflammatory Drugs (NSAIDS)

Salicylates (Aspirin)
Acetaminophen (Tylenol)
Ibuprofen (Nuprin, Advil, Motrin)
Naproxen (Aleve, Naprosyn)
Oxycodone & Acetaminophen (Percocet, Tylox)
Sulindac (Clinoril: discontinued)
Diflunisal (Dolobid)
Piroxicam (Feldene)
Indomethacin (Indocin)
Meclofenamate (Meclomen)
Diclofenac (Voltaren)
Etodolac (Lodine)
Flurbiprofen (Ansaid)
Cox-2 Inhibitors:
Celecoxib (Celebrex)
Rofecoxib (Vioxx: discontinued)
Valdecoxib (Bextra: discontinued)
And Etc.

II. The Trouble with NSAIDS

- Each year over 100,000 people are hospitalized with serious side effects from taking NSAIDS
- Each year over 16,000 people die from the serious side effects from taking NSAIDS
- More people die from NSAID side effects than from AIDS each year
- More than 4 times as many people die from NSAID side effects as from Cervical cancer each year
- Only 1 in 5 people who have serious problems from taking NSAIDS have warning symptoms
- 20% of all chronic NSAID users will develop a peptic ulcer. NSAID users have a greater risk, 3 to 4 times higher, to having upper gastrointestinal bleeding, perforation, or both
- 81% of patients hospitalized with serious NSAID induced complications had no previous gastrointestinal symptoms
- 21% of all adverse drug reactions in the United States are due to NSAID use
- People over 60 years of age have a significantly higher probability to experiencing complications associated with NSAID use
- In the United States, there are over 13 million regular users of NSAIDS, 70 million NSAID prescriptions written every year, and 30 billion over-the-counter NSAID tablets sold annually

III. Adverse Side Effects of NSAIDS

- Cause G.I. Hemorrhage
- Encourage "Leaky Gut"
- Destroy Vitamin C
- Antagonize Folic Acid
- Enhance Leukotrienes: Up to 1000 times as inflammatory as histamine
- Slow Fracture Healing
- Create Muscle Imbalances
- Increase Cardiovascular Risk
- Decrease Sulfur Levels: Impairing Liver Detoxification (Phase 2) for many drugs and hormones (steroids); Impairing Cartilage Synthesis for Joint Repair, i.e. Glycosaminoglycans (GAGS) including chondroitin sulfate are the major structural component of articular cartilage
- Interfere with Immune System (T-regulatory cells)

Increase gastrointestinal hemorrhage:

Gomes JA: Roth SA: Zech J: Bruyn GAW:Woods EM: Geis GS: Double-blind comparison of efficacy and gastroduodenal safety of diclofenac/ misoprostol, piroxicam, and napraxen in the treatment of osteoarthritis. Annals of Rheumatic Diseases. 1993: 52: 881-885.

Decrease gut immunity and increase leaky gut:

Gomes reference above.

Decrease folic acid activity:

Baggott JE: Morgan SL: Ha T: Vaughn WH: Hine RJ: Inhibition of folate dependent enzymes by non-Steroidal anti-inflammatory drugs. Biochem J 1992 Feb 15: 282 (pt 1). 197-202.

Enhance leukotrienes:

Vaananen PM: Keenam CM: Grisham MB: Wallace GL: Pharmacological investigation of leukotrienes in the pathogenesis of experimental NSAID gastropathy. Inflammation 1992 Jun: 16(3): 227-40.

Decrease bone healing (rats):

Varghese D, Kadakat S, Patel H. Non-steroidal anti-inflammatories should not be used after orthopedic surgery. BMJ 1998; 316: 1390 (Letter).

Decrease availability of sulfates and interfere with gags synthesis:

Jung U. Yoo, Robert S. Popay, Charles J. Malemud. Suppression of proteoglycan synthesis in chondrocyte cultures from canine disc. Spine, Vol. 17, No. 2, 1992. 221-224.

P.M. van der Kraan, Elly L. Vitters, Bernard J. de Vries, Wim. B. van den Berg. High susceptibility of human articular cartilage glycosaminoglycan synthesis to changes in inorganic sulfate availability. J. Ortho Res. Vol. 8, No. 4, 1990. 565-571.

Increase cardiovascular risk:

Julia Hippisley-Cox, Carol Coupland, Risk of myocardial infarction in patients taking cyclo-oxygenase-2 inhibitors or conventional non-steroidal anti-inflammatory drugs; population based nested case-control analysis. BMJ 2005; 330:1366 (11 June), doi:10.1136/bmj.330.7504.1366.

Interfere with immune system:

Tricia M. McKeever, Sarah A. Lewis, Henriette A. Smit, Peter Burney, John R. Britten and Patricia A. Cassano, The Association of Acetaminophen, Aspirin and Ibuprofen with Respiratory Disease and Lung Function. Am J. Respir. Crit Care Med 2005, 171:966-971.

Animal studies have suggested that high doses of acetaminophen lower levels of the important antioxidant glutathione in lung tissue. Therefore, regular users of acetaminophen may, through depletion of glutathione, be at increased risk of lung tissue damage and ultimately of respiratory disease. No similar association between the use of either aspirin or ibuprofen and prevalence of either asthma or COPD.

IV. Effects on Inflammation

NSAIDS function by inhibiting the conversion of pro-inflammatory fats derived from milk, shellfish, mollusks and red meat into pro-inflammatory hormones (PG2 family, i.e. hormones that promote inflammation). On the surface, this sounds like a good idea, but NSAIDS also inhibit the conversion of Omega-3 and Omega-6 fatty acids (EFAs) into their respective anti-inflammatory hormones (PG1 and PG3), which in turn, promotes inflammation.

All of these hormones (PG1, PG2 and PG3) are made from fats in your diet. So, in a real sense, you are what you eat. Bottom line: If you respond to NSAIDS for chronic pain, you have an EFA imbalance.

Anti-inflammatory PG hormones are made from Omega-3 fatty acids (e.g. Flax Seed Oil, Fish Oil and Walnut Oil) and Omega-6 fatty acids (e.g. Safflower Oil, Black Currant Seed Oil, Borage Oil and Primrose Oil). Pro-inflammatory hormones (PG2 family) come from arachidonic acid (e.g. fats in milk, shellfish, mollusks and red meat). Imbalances in dietary fats promote inflammation.

Research suggests that the use of NSAIDS should be limited to three days following acute trauma. Omega-6 and/or Omega-3 fatty acids and their co-factors (vitamins and minerals that help them become PG1 and PG3, respectively) are then more effective than NSAIDS in encouraging increased anti-inflammatory activity and healing.

V. Dietary and Nutrient Alternatives to NSAIDS

Dietary Considerations:

- Avoid Partially Hydrogenated (Trans) Fat
- Decrease Saturated Fat (Animal and/or Vegetable)
- Decrease Refined and/or Simple Carbohydrates

Essential Fatty Acid Considerations:

- Flax Seed Oil
- Fish Oil (Marine Lipids)
- Black Currant Seed Oil
- Evening Primrose Oil

Essential Fatty Acid Cofactor Considerations:

- B-3
- B-6
- Magnesium
- Niacin
- Zinc

Herbal Considerations:

- Boswelia
- Tumeric
- Ginger
- Quercetin
- Resveratrol

Leukotrienes can be blocked by:

- Vitamin E
- EPA
- Zinc
- Quercitin
- Glutathione
- Aloe
- Selenium