Doing a Slow Burn?

Why You Need to Tackle Inflammation to Stay Healthy

By Jack Challem

Most of us know what inflammation feels like – the swelling, tenderness, and redness that comes with an injury or chronic aches and pains. But in recent years, doctors have started to recognize another type of inflammation, one that’s ever-present, low grade, and “silent.” You don’t usually feel this kind of inflammation, but it makes an artery-blocking clot – that is, a heart attack – much more likely.

It turns out that inflammation is involved in nearly every disease process as either a contributing factor or as a consequence. If you accidentally cut your finger with a knife, the body immediately responds with an “acute” inflammatory reaction. The upside is that inflammation activates white blood cells, which protect against infection, and also stimulates the healing process. But in *chronic* inflammation, whether it’s low grade or acute, the body fails to turn off this response. Your body literally does a “slow burn,” sometimes for years.

Most inflammatory diseases use the suffix “itis,” such as in arthritis, allergic rhinitis, dermatitis, or gingivitis. But a few inflammatory disorders don’t have this suffix, including asthma and coronary artery disease.

Your body has built-in mechanisms to regulate inflammation, and under ideal circumstances, it turns on the inflammatory response when needed and off when not needed. All of these innate ways of regulating inflammation are built on a foundation of nutritional building blocks.

INFLAMMATION AND DISEASE

Arthritis. Most people understand that inflammation is a key underpinning of the aches and pains of arthritis, even though there are many different types of arthritis. In osteoarthritis, damage to joint cartilage leads to bone shear, inflammation, and pain. Meanwhile, in rheumatoid arthritis, a chronic autoimmune reaction turns inflammatory immune cells against the body. People with rheumatoid arthritis have twice the risk of developing heart disease compared with people who don’t have arthritis – one example of how inflammatory disorders are related to each other.

Coronary artery disease. The current view of inflammation in heart disease began taking shape in the late 1990s when Paul Ridker, M.D., and his colleagues at Harvard Medical School developed the high-sensitivity C-reactive protein (CRP) test. CRP is both a marker and promoter of inflammation. This test is far more sensitive than previous CRP tests, and it can measure subtle low-grade inflammation that cannot be felt in terms of tenderness, swelling, or pain. Ridker has shown in numerous studies that elevated CRP levels indicate a high risk of coronary artery disease and heart attack. Chronic inflammation also increases the risk of arterial plaque breaking off and causing a clot.

Prediabesity. Once Ridker’s CRP test became available, other researchers began using it to measure low-grade inflammation in people with other diseases. Early on, researchers noted that obese individuals had elevated CRP levels, as did people with type-2 diabetes. In obese individuals, fat cells (particularly those around the belly) secrete CRP and other inflammatory substances; those same fat cells also attract other types of inflammation-promoting immune cells. Meanwhile, in diabetes, high blood sugar leads to increases in inflammation and CRP. It’s no coincidence that obesity is the prime risk factor for diabetes, and both obesity and diabetes are leading risk factors for coronary heart disease. Central to all three of these diseases is chronic low-grade inflammation.

Periodontal disease. Gingivitis, or inflammation of the gums, usually develops after a persistent bacterial infection below the gum line. Untreated, it leads to periodontitis, the breakdown of bone that forms the teeth. Although dentists focus on oral hygiene (flossing and brushing), it is also important to curb systemic inflammation. People with periodontal disease have a higher than average risk of developing heart disease, likely because both diseases share common underlying causes, namely, inflammation.

Autism. This disease is one of the most recent to be linked to cerebral inflammation. Researchers at the University of Arkansas, Little Rock, have reported that high levels of inflammatory substances are found in the brains of autistic children, and the more of these substances, the more intense the autism symptoms.[i] In a Danish study of 700,000 children, researchers found that a mother with rheumatoid arthritis increased her child’s risk of autism by 80 percent, yet another link to inflammation. Similarly, a mother with celiac disease had a 350 percent greater risk of having a child with autism.[ii] The growth of autism roughly parallels that of asthma, another now-common inflammatory disease of children. This research is consistent with other studies showing brain inflammation in multiple sclerosis and depression.

Cancer. According to Bruce N. Ames, Ph.D., a leading cell biologist at the University of California, Berkeley, 30 percent of all cancers result from chronic inflammation or infection (the latter causing an inflammatory response). Chronic inflammation generates destructive molecules called free radicals, which can cause cell mutations. The tumor microenvironment is largely orchestrated by inflammatory cells, says Ron Hunninghake, M.D., a nutritionally oriented physician in Wichita, Kansas. Inflammation also plays a role in breaking down tissue, enabling cancer to spread, and promoting muscle wasting. Many alternatively minded physicians use nutritional therapies as an adjunct to conventional treatments, and these nutrients tend to have anti-inflammatory effects.

ANTI-INFLAMMATORY NUTRIENTS

Multivitamin. Taking a simple multivitamin/multimineral supplement can lower levels of C-reactive protein, a key marker of inflammation.[iii] The reason is that multis guard against nutritional deficiencies, some of which can increase inflammation. For example, zinc deficiency can increase levels of free radicals, which promote inflammation. In addition, some of the B vitamins serve as cofactors in antioxidant activities, again helping to reduce inflammation. *Amount:* Follow label directions.

Omega-3s. The omega-3s, found in fish oils and some algae-derived supplements, are the major players in the body’s regulation of inflammation. Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are the key constituents of omega-3 supplements. EPA boosts the body’s production of prostaglandin E3, a hormone-like compound with anti-inflammatory properties. Meanwhile, DHA increases the body’s production of lesser known resolvins and protectins, both of which also have anti-inflammatory effects. As a general rule, EPA and DHA counteract the pro-inflammatory effects of omega-6 fats, many of which promote inflammation. Chief among these omega-6s is arachidonic acid, which is a building block of pro-inflammatory prostaglandin E2. *Amount:* 1,000-2,000 mg daily.

Gamma-Linolenic Acid (GLA). Although GLA is technically an omega-6, it has strong anti-inflammatory properties. The body uses GLA to make prostaglandin E1, which is anti-inflammatory. In the late 1990s, the Danish Olympic team began using a combination of omega-3 fish oils and GLA to treat athletic overuse injuries. Prostaglandin E1 and E3 work together to reduce the activity of prostaglandin E2. *Amount:* 300 to 700 mg daily.

Antioxidants. This large family of nutrients, including vitamins C and E, carotenoids, and flavonoids, have anti-inflammatory properties. They work in part by quenching harmful molecules called free radicals, which promote inflammation. Many antioxidants also inhibit “adhesion molecules,” which, as the name suggests, encourage inflammatory substances to adhere to cells. *Amount:* Follow label directions.

Curcumin. Curcumin, an extract of the spice turmeric, may be one of the most potent natural anti-inflammatory compounds. It’s distinguished by its ability to reduce inflammation through at least 97 different biological mechanisms, according to an article published in *Biochemical Pharmacology*. For example, curcumin reduces the activity of interleukin-6, nuclear factor kappa beta, macrophage inflammatory protein, lipoxygenase, tumor necrosis factor alpha, several types of protein kinases, adhesion molecules, and genes involved in inflammation. To date, no other substance has been discovered with such far-reaching anti-inflammatory benefits.[iv] [v] [vi] [vii] *Amount:* 300 mg or more of standardized cuminoids.

Pycnogenol®. This supplement is an extract of French maritime pine bark and contains a complex of 40 antioxidants. According to Ron Watson, Ph.D., a researcher at the University of Arizona, Tucson, Pycnogenol® dosages of 150 mg or higher daily have clear anti-inflammatory benefits. A study in the August 2008 *Phytotherapy Research* found that Pycnogenol® supplements reduced osteoarthritic knee pain by 40 percent and lowered overall osteoarthritis symptoms by 21 percent. Two out of every five patients in the study were able to reduce their use of analgesic drugs. In children with asthma, Pycnogenol® supplements led to improved lung function, and many of the children were able to reduce or stop using their medications.[viii] [ix] *Amount:* 150 mg or more daily.

Boswellia. This extract is obtained from the resins of *Boswellia serrata*, a tree native to India. Also known as frankincense, the resins have long been used in traditional

Ayurvedic medicine, and they are rich in a group of anti-inflammatory compounds called boswellic acids. Boswellia works by inhibiting 5-lipoxygenase, one of the enzymes needed for the body’s production of inflammatory compounds. Several studies have used 200 mg of boswellic acid extracts three times daily to ease pain and stiffness in people with rheumatoid arthritis or osteoarthritis. *Amount:* Products vary, so follow label directions.

Ginger. A close botanical relative of turmeric root, ginger is a versatile culinary spice. It’s rich in kaempferol, an antioxidant that inhibits some pro-inflammatory enzymes. Ginger also blocks lipoxygenase, another enzyme involved in the body’s production of inflammatory compounds. Both ginger and ginger-containing supplements have been found helpful in osteoarthritis, rheumatism, and muscular pain. *Amount:* Products vary, so follow label directions.

Along with the supplements listed here, an anti-inflammatory diet can also dampen inflammation. Such a diet emphasizes fish and high-fiber vegetables and de-emphasizes high-glycemic foods, such as sweets, soft drinks, breads, pizzas. Using both diet and supplements, you can maintain a healthy inflammatory balance and avoid the “slow burn” that can lead to the development of disease.

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