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## **Chronic Inflammation: Taming the Fire Within**

It is behind many diseases that afflict us as we age, but it can be fixed!

- Jorg Mardian
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What do heart disease, diabetes, arthritis, cancer and a host of autoimmune diseases have in common? They all have to do with inflammation.

Inflammation is the body's natural response to attacks from viruses, bacteria or injuries. Acute inflammation occurs after you cut your finger, for example, or when your body is fighting an infection. It is essential to a healthy immune system, an effective defense against anything foreign and potentially deadly.

However, your body may lose its ability to recover from inflammation. This creates ongoing inflammation, orchronic inflammation. In this condition, your immune system keeps attacking your body, setting off cascading biological reactions that seriously affect your health and can lead to some of the worst illnesses of middle and old age.

The good news is, life changes can prevent and even tame this condition.

Chronic inflammation can affect most parts of the body. The more obvious signs include joint pain and stiffness. General symptoms include lack of energy and headaches. But even without these symptoms, you may still be affected by chronic inflammation.

This disorder originates in the gut, where trillions of bacteria reside in a symbiotic relationship. If the balance is upset, an opportunistic parasite called candida will overwhelm beneficial bacteria, disrupting digestion and nutrient assimilation. Candida then burrows into the gut lining, penetrating its wall and allowing proteins, sugars, infectious microbes and other particles into the bloodstream. This condition is known as leaky gut.

Research published in *Nutrition in Clinical Practice* shows that unbalanced gut flora can affect many bodily processes including metabolism, immune function, energy production, body weight, and whether your disease-inducing genes are suppressed or turned on. Essentially, the immune system gets overburdened as inflammatory triggers cycle continuously through the blood.

"When they wash over pancreatic tissue, diabetes may result," wrote Alison Garwood-Jones. "When they find their way inside joint tissues, rheumatoid arthritis can kick in. And when they bombard artery linings, it may lead to heart disease. Researchers also think that the brains of Alzheimer's patients become inflamed—what's referred to as 'brain on fire'—before plaque accumulates between the nerve cells, gradually wiping out the patient's memory. On the cancer front, studies show that the same hormones that turn up the inflammatory response in our bodies also stimulate cells to divide more frequently and increase malignancy risk."

Yet your lifestyle choices can have strong effects on inflammatory diseases. Sometimes dietary changes alone can eliminate up to 80 percent of symptoms. Though there is a long, varied list of offending substances, the three main things to consider are sugars (or refined carbohydrates), unhealthy fats and toxins.

"When you eat sugar, you deplete the enzymes that help you to digest protein," said Renae Norton, an eating disorder specialist. "So the protein gets into the bloodstream as a partially digested protein and is attacked by the immune system." Dietitian Desiree Nielsen suggests avoiding refined carbohydrates, as they send blood sugar off kilter and promote inflammatory damage.

Vegetable oils, trans fats (hydrogenated) and packaged goods also contain too many omega-6 fatty acids and lack fiber and nutrients. Refined starches lack proper probiotic and yeast cultures and are highly hybridized, with gluten content more inflammatory than previous varieties. Wheat, rice, spelt and soy also contain large amounts of lectins that cause leaky gut. Genetically modified organisms and hybridized foods tend to be highest in lectins since they have been modified to fight off bugs.

Dr. Andrew Weil, in his book *Healthy Aging*, suggests stocking up on foods rich in omega-3s—greens, seeds and nuts, and oily, cold-water fish like salmon, sardines and black cod. Correcting omega imbalances brings the typical North American diet closer to the Mediterranean diet, which has lower obesity, heart disease and chronic inflammation rates. Sprouting and fermenting grains reduces phytates and lectins, making these foods easier to digest.

Additionally, to foster healthy gut bacteria through diet, choose foods rich in probiotics and prebiotics. Probiotics include live beneficial bacteria and yeasts naturally created by fermentation in foods like yogurt, sauerkraut, miso soup and kimchi. They line the gut and help nutrient absorption, fixing leaky gut. Prebiotics are non-digestible food components in foods like bananas, onions, garlic, Jerusalem artichoke, apple skins and beans. Prebiotic fiber goes through the small intestine undigested and is fermented when it reaches the large colon. Prebiotics help increase the beneficial bacteria in the gut by promoting production of butyric acid in the colon, which is extremely anti-inflammatory.

Our body is a "connected system that works best when everything is optimized. ... If your lifestyle has included a poor diet, being overweight, inactivity and stress, it may well have been contributing to chronic inflammation," says Nielsen. Other factors thought to contribute to chronic inflammation include smoking, excessive alcohol, environmental pollutants in food, and poor sleep.

Chronic inflammation contributes to many diseases. But an anti-inflammatory plan that combines diet with lifestyle modifications can help you feel better, lose weight and live longer. •