

Sugar and Inflammation

By Andrew Pacholyk, MS, L.Ac.

One of the reasons inflammation occurs is from a rapid rise in blood sugar, which causes biochemical changes in the cell. Staying away from sugar and high-glycemic (simple) carbohydrates, which the body rapidly converts to sugar, is one of the best ways to decrease inflammation. C-reactive protein (CRP) is a key factor of inflammation. In a major study, published in the New England Journal of Medicine, people with elevated CRP levels were four and one-half times more likely to have a heart attack. Not only is elevated CRP more accurate than cholesterol in predicting heart attack risk, but high CRP levels have turned up in people with diabetes and pre-diabetes and in people who are overweight. [58, 59,61]

When blood sugar goes up rapidly, sugar can attach itself to collagen in a process called "glycosylation," or the Browning Reaction, increasing inflexible and inflammation. CRP is not found in foods. However, its levels in the body are strongly influenced by diet.

A recent study by Simin Liu, M.D., Ph.D., of the Harvard Medical School found that women who ate large amounts of high-glycemic (or diabetes promoting) carbohydrates, including potatoes, breakfast cereals, white bread, muffins, and white rice, had very high CRP levels. Women who ate a lot of these foods and were also overweight had the highest and most dangerous CRP levels. [62].

The body makes CRP from interleukin-6 (IL-6), a powerful inflammatory chemical. IL-6 is a key cell communication molecule, and it tells the body's immune system to go into asperity, releasing CRP and many other inflammation-causing substances. Being overweight increases inflammation because adipose cells, particularly those around the midsection, make large amounts of IL-6 and CRP. As blood sugar levels increase, so do IL-6 and CRP. Both overweight and high blood sugar levels increase the risk of heart disease, very likely because of the undercurrent of inflammation. [61].

The best way to deal with cravings is to very carefully control blood sugar and insulin by staying away from the simple carbohydrates and eating more protein. In a few days, blood sugar will stabilize and cravings will go away. Good (complexed) carbohydrates, which are low on the glycemic index include: apples, asparagus, beans, broccoli, blackberries, blueberries, cabbage, cantaloupe, citrus fruits, green beans, honeydew melon, kiwi, leafy greens, peaches, pears, plums, raspberries, spinach, strawberries.

Bad (simple) carbohydrates, which are high on the glycemic index include: bananas, breads, carrots, cereals processed with added sugar, corn, French fries, French toast, fruit juices, mangos, pancakes, papaya, pasta, peas, popcorn, white potatoes, white rice, sugar, waffles.

Dietary fats also influence inflammation. Most omega-6 fats, found in margarine and corn and safflower oils, are the basic building blocks of arachidonic acid and prostaglandin E2, two of several key inflammation-causing substances in the body. In contrast, omega-3 fats, found in fish, fish oils, and vegetables, have an inflammation-suppressing effect. [63]

Gamma-linolenic acid (GLA) is an omega-6 fat that enhances the anti-inflammatory effect of omega-3 fats. Both GLA and omega-3 fish oils have been found helpful in arthritis and other inflammatory disorders. [64,65] GLA is found in leafy green vegetables and dietary supplements. Similarly, oleic acid, an omega-9 fat found in olive oil, walnut oil, sunflower oil, soybean oil, canola oil, avocados, nut butters and macadamia nuts have anti-inflammatory properties.

Good sources of protein include: Fish such as sardines, salmon, cod, haddock, halibut, snapper and tuna. Meat and poultry include: turkey, chicken with no skin, occasional lean beef, lean pork and lean ham. Soy products are also a great source of protein. Also included are egg whites, low fat cottage cheese, milk and yogurt.

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