

## Special Interest Articles:

- Diet and inflammation
- Enzymes and cancer
- GERD
- Enzymes and pain
- Oxidative stress and Crohn's
- Name that food
- Selenium and cancer

Name that food:  
Snickers ice  
cream bar

## Vitamin K and Inflammation

A study appearing in the *American Journal of Epidemiology* (published online Dec 2007) looked at vitamin K and its role in inflammation. Vitamin K protects against cardiovascular disease and osteoporosis. This observational study suggests that the reason for this is that it fights chronic inflammation.

The study used data from 1,381 subjects from the Framingham Offspring Study. It looked at vitamin K status of the subjects, whose average age was 59, by looking at serum levels of the vitamin and by analyzing dietary intake.

The study then looked at the presence of 14 different inflammatory markers (substances in the blood that show inflammation). The researchers found that high vitamin K intake and blood levels were associated with lower inflammation. They found that increased vitamin D levels may lower oxidative stress—but the anti-inflammatory effect of vitamin D was less consistent.

There are two forms of vitamin K. Pylloquinone, also known as vitamin K1 is found in green produce, like spinach and broccoli. Vitamin K2, also known as menaquinones, is produced by normal bacteria in the intestine.

## Vitamin D Protects the Heart

Research appearing in the *Archives of Internal Medicine* (Vol. 168 No. 12, June 23, 2008) showed that low serum level of vitamin D is linked to an increase in mortality from cardiovascular problems. The subjects of the study were over 3200 German men and women averaging 62 years of age.

Blood levels of vitamin D were tested. During the following eight years, 737 of the subjects died, with 463 of the deaths due to heart issues. There were 307

deaths in subjects with the lowest vitamin D levels compared to 103 deaths in the group with the highest levels. Those with the lowest levels of vitamin D were twice as likely to die within the eight-year period as those with high levels of the vitamin.

The study has researchers wondering about the importance of vitamin D. Other studies have linked low vitamin D levels to high blood pressure, diabetes and even cancer.

## Diet and Inflammation

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Research appearing in the *Journal of the American Medical Association* (2004;292:1440-1446) indicates that the Mediterranean diet may protect the blood vessel lining and reduce inflammation.

Insulin resistance is responsible for something called the metabolic syndrome, also known as syndrome X. In the metabolic syndrome, the individual tends to have high cholesterol with low HDL (the “good” cholesterol) and high LDL (the “bad” cholesterol), and high triglycerides. One of the big problems caused by insulin resistance is obesity. People who are insulin resistant tend to be overweight (especially carrying weight around the abdomen) and may have high blood pressure.

One other aspect of the metabolic syndrome is inflammation and endothelial (lining of the blood vessels) function. In other words, high cholesterol (especially accompanied by high LDL) is a risk factor for heart disease. Inflammation enables plaquing (arteriosclerosis) to occur. The function of the lining of the blood vessels is to protect against

arteriosclerosis.

Research appearing in the *Journal of the American Medical Association* (2004;292:1440-1446) indicates that the Mediterranean diet may protect the blood vessel lining and reduce inflammation. It was a randomized, single-blind trial conducted for 2 ½ years with 180 subjects (99 men and 81 women) with the metabolic syndrome. The subjects were divided into two groups, with one group being instructed to follow the Mediterranean diet for two years.

The group following the diet had lower C-reactive protein and interleukins 6 (IL-6), 7 (IL-7), and 18 (IL-18)—these are chemicals that indicate inflammation. The blood vessel lining improved in the group following the diet. The group following the diet even had improvement in insulin resistance; 40 patients in that group still had features of the metabolic syndrome, compared with 78 patients in the control group.

## Enzymes and Cancer

A study appearing in *Cancer Chemotherapy and Pharmacology* (2001;47(Suppl.):S55-S63) looked at 1,242 patients with colorectal cancer. The subjects were divided into two groups; 616 were given oral enzymes. Of the 616, 182 received oral enzymes only another 405 used other complimentary treatments and 29 failed to follow their protocol. Of the 626 who did not receive enzymes, 229 used other complimentary treatments, 29 did not follow their protocols and 368 acted as controls.

Of the 1,242 subjects, 1,162 received surgery with 526 receiving chemotherapy and 218 receiving radiation therapy after the surgery. Subjects who received oral enzymes after radiation or chemotherapy suffered to fewer adverse reactions to the cancer treatment. This represents a significant improvement in the quality of life for these patients. A few of the subjects (about 3%) had mild side effects to the enzyme therapy, mostly mild gastrointestinal complaints.

## A Few Words About Gastric Reflux

GERD is an acronym for gastro esophageal reflux disease. About 40 million Americans suffer from frequent heartburn at a cost of about \$10 billion annually. Americans spend about \$0.5 billion annually on antacids. In GERD, the sphincter in the esophagus opens spontaneously, for varying periods of time, or does not close properly and stomach contents rise up into the esophagus. The main symptom is heartburn, but patients may also experience a dry cough, asthma symptoms, or trouble swallowing.

***Diet is perhaps the best way to get this symptom under control.***

- You need to eat slowly and chew food completely.
- Don't drink with meals
- Sometimes avoiding gluten and dairy works wonders

Some supplements, like deglyceized licorice can bring the symptom under control. Licorice (the herb, not the candy) can increase blood pressure. In deglyceized licorice, the substance that raises blood pressure has been removed. Some people, however, will experience increased blood pressure with deglyceized licorice; so the blood pressure should be checked regularly.

Cabbage juice has substances in it that can help to heal the esophagus. Also, there has been a lot of research showing that plant antioxidants, known as bioflavonoids, can help to heal the esophagus. There is research to support this. Cranberries, in particular have been shown to be effective. Supplementation and diet change can go a long way in providing permanent relief.

***Bacteria may be involved:***

There is sometimes a bacterial connection. Some doctors think that low stomach acid favors an environment that allows bacteria to grow—creating a bacterial gastritis. *Helicobacter pylori*, the

bacterium that is implicated in gastric ulcers, is frequently a cause of heartburn (even if there is no ulcer present). A study performed on mice done by researchers from the University of Michigan Medical School at the Howard Hughes Medical Institute showed that acid suppressing medications (proton pump inhibitors, like Prilosec and Prevacid) may actually aggravate the conditions that they are designed to treat. These drugs actually contribute to bacterial overgrowth.

***It may surprise you, but...***

Some practitioners believe that some people with GERD actually are not producing enough stomach acid. It may seem counterintuitive, but some of these patients actually need to produce more acid. For the most part, traditional medicine does not recognize underproduction of stomach acid as a health problem. When a patient tells the medical doctor about this approach, the doctor will often think that it is unscientific or even crazy. There is some sound reasoning behind giving hydrochloric acid to patients with frequent heartburn. If there is not enough acid during digestion, the pylorus (a strong valve in the bottom of the stomach) does not open, creating pressure in the stomach. The pylorus is much stronger than the esophageal sphincter, so the pressure forces the contents up into the esophagus. Giving HCl helps the pylorus to relax, facilitates stomach emptying and keeps the contents out of the esophagus. There needs to be some research on this issue.

People who need stomach HCl frequently bloat or have gas immediately after meals. Vitamin supplements may make them nauseous. Their fingernails often break easily. Often they dislike meat. People who need HCl often need B<sub>1</sub>, niacin and zinc (nutrients necessary for the production of stomach HCl).

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*Americans suffer from frequent heartburn at a cost of about \$10 billion annually. Americans spend about \$0.5 billion annually on antacids.*

## Enzymes, Pain and Healing

A study appearing in the *Journal of Dental Disease* (1964;19(2):73-77) evaluated the plant enzyme bromelain and its effect on pain and healing after dental surgery. One group of 22 patients took two 20 mg tablets of a bromelain concentrate four times each day for 2-3 days prior to surgery and continued for 3 days after surgery. In the second phase, 33 subjects took 2 tablets 4 times a day on the day of surgery with the first dose being administered prior to surgery. The use of the enzymes produced a marked reduction in inflammation and the amount of time the inflammation persisted after the operation. There was also a reduction in pain. In another study, appearing in the *Journal of the American Dental Association* (June 1966;72:1420-1425), subjects who underwent dental surgery received a proteolytic enzyme from *Carica papaya* (1 tablet per hour), or a placebo from the time of surgery until the following morning; for the next four days, they were given 1 tablet four times each day. The subjects taking the enzyme experienced less inflammation and pain, and had enhanced wound healing.

Bromelain, or a placebo, was given to 160 women following episiotomy in research appearing in the journal *Obstetrics and Gynecology* (February 1967;29(2):275-278). The women were given two tablets, four times each day for three days beginning within four hours after delivery. One person in the treatment group and four in the placebo group had an episiotomy infection. The amount of medication, especially narcotics, was reduced in patients taking the bromelain therapy. The incidence of episiotomy infections was also lower in the group treated with

the enzymes. Another study on episiotomy patients appearing in *Current Therapeutic Research* (May 1962;4(5):229-237), showed another vegetable enzyme (from papaya) to reduce inflammation and swelling after the surgery. In general, treatment with enzymes has little or no side-effects.

A study on mice performed by scientists at Emory University School of Medicine showed damaged peripheral nerves had improved regeneration when the mice were treated with enzymes. Peripheral nerves are the nerves that go from the spine to the muscle and skin. A nerve cell has a nucleus and a long process, called the axon. The nerve signal (which is responsible for feeling and muscle movement) travels along the axon. When the nerve is damaged, the axon is damaged and function is lost.

The axon can regenerate after injury, but such repair generally does not proceed well. There is no treatment to enhance nerve repair. Peripheral nerves do not regenerate well because of the presence of growth inhibitory substances, called proteoglycans, near of the damaged nerve.

In the study, the scientists treated the peripheral portion of severed nerves with enzymes that degrade specific types of proteoglycans. For two weeks after the injury, axons regenerated through enzyme-treated tissues much more effectively than through untreated tissues. Not only did the axons regenerate, those that did extended more than twice as far.

## Oxidative Stress and Crohn's Disease

Research appearing in the *American Journal of Gastroenterology* (2003; 98(2):348-53) shows that vitamin supplementation reduces oxidative stress in patients with Crohn's disease. Oxidative stress is created by free radicals. Free radicals are chemicals that can release an electron, a kind of chemical bullet that does damage to cells. Certain vitamins, like vitamins E and C are antioxidants. They act like "bullet-proof vests", protecting the cells.

The study involved 57 Crohn's patients who were determined to have oxidative stress. Oxidative stress was established by measuring pentane and ethane in the breath, plasma lipid peroxides, and F2-isoprostane was measured at the beginning of the study and after four weeks. The researchers found that supplementation increased blood levels of vitamin C and alpha tocopherol (a component of vitamin E) and all the indicators of oxidative stress

decreased significantly. They concluded that patients with Crohn's disease were under oxidative stress and would benefit from supplementation with antioxidant nutrients.

Other research appearing in the *American Journal of Clinical Nutrition* (2001; 74(2):259-64) also shows that oxidative stress is an issue for patients with Crohn's disease. Here the researchers compared 37 patients with Crohn's disease to 37 healthy subjects. Breath pentane (a measure of lipid peroxidation, or oxidative stress) was measured in both groups. The measurement was significantly higher in patients with Crohn's disease—even in those patients taking medication—than it was in the healthy subjects. Serum measurement of antioxidant nutrients was also lower in the patients with Crohn's disease than it was in the healthy subjects.

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## Name That "Food"

Diet and lifestyle play a large role in health and disease. Many of the things that pass for food in our society act to undermine our health.

Dietary indiscretion can cause health problems. Look at the information taken from the label of a commonly consumed "food" and see if you can guess what it is:

*COMPONENT 1: SKIM MILK, CREAM, SUGAR, CORN SYRUP, PEANUT BUTTER, WHEY, COCOA POWDER, MONOAND*

*DIGLYCERIDES, CAROB BEAN GUM, GUAR GUM, SALT, CARRAGEENAN. COMPONENT 2: SUGAR, COCONUT OIL, MILK, LACTOSE, PALM OIL, CHOCOLATE, COCOA POWDER, SOY LECITHIN, ARTIFICIAL FLAVOR, COMPONENT 3: CORN SYRUP, SKIM MILK, SUGAR, MILKFAT, LACTOSE, SALT, CARRAGEENAN, CHOCOLATE, ARTIFICIAL FLAVOR, PEANUTS*

**Answer on page 1**

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## Selenium and Cancer

The body is like a piano, and happiness is like music. It is needful to have the instrument in good order.—  
*Beecher*

Adequate selenium may be important for the health of the immune system and for the prevention of several diseases, including cancer. An article in the *British Medical Journal* (Feb. 8, 1997;314:387-388) cites some of the health problems noted in severe selenium deficiency. These health problems include Kashin Beck disease (a deforming arthritis) and Keshan disease (a cardiomyopathy). Even a sub-clinical deficiency can cause an increased risk of atherosclerosis, heart disease and cancer, according to the article. The article cites an American study where cancer mortality was reduced by 50% in subjects receiving 200 mcg of selenium per day.

A double-blind, placebo-controlled study that was published in the journal *Urologic Clinics of North America* (2002;29:67-70) found that selenium may help prevent prostate cancer. The subjects of the study were patients who had had a nonmelanoma skin

cancer; they were given either a placebo or 200 mcg of selenium per day. There was no benefit for the skin cancer, but the incidence of prostate cancer was reduced by 63%, colorectal cancer was reduced by 58% and lung cancer was reduced by 46%. Total cancer mortality was 50% lower in the group receiving the supplements.

Another study looked at over 1100 subjects selected from the 29,584 participants of the General Population Trial in Linxian, China. In 15 years, there were 75 deaths from esophageal cancer and 36 from gastric cancer. There was an inverse relationship between serum selenium at the start of the study and death from the two cancers. High selenium levels also seem to be associated with a lower death rate from heart disease.

High doses of selenium can be toxic. You should get professional advice before taking selenium.

