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CROHN'S DISEASE AND THE PANCREAS

Patients with Crohn's disease may have decreased pancreatic activity. A study appearing in the journal, *Gut* (1990;31:1076-1079) compared the activity of amylase and lipase (pancreatic enzymes that digest carbohydrate and fat respectively) in patients with Crohn's disease and healthy controls. The 59 men and 84 women with the disease had less pancreatic enzyme activity than the 50 men and 65 women who did not have the disease. The lowest enzyme activity was found in those with the most extensive bowel involvement.

A number of studies have shown that patients with Crohn's disease tend to have consumed a lot of refined sugar prior to developing the disease. Research appearing in the *Scandinavian Journal of Gastroenterology* (1983;18:999-1002), *Epidemiology* (, January, 1992;3(1):47-52)and the *British Medical Journal* (September 29, 1979;2:762-764) support this. A study appearing in Z Gastroenterol (January 1981;19(1):1-12) compared patients on a low carbohydrate, sugar-free diet to those eating a high carbohydrate diet. It was a small study, but 80% of the Crohn's disease patients on the low carbohydrate, sugar-free diet experienced improvement of symptoms. Four of the five patients on the high carbohydrate diet had to be removed from the study because their symptoms flared up.

Elaine Gottschall's model for Crohn's disease is one where the capacity to digest complex carbohydrates is overwhelmed. Carbohydrate is then broken down in the small intestine by bacteria, irritating the lining and further degrading the body's capability to digest carbohydrate. Her book, *Ending the Vicious Cycle*, goes into this mechanism in great detail and proposes a diet that is free of disaccharides and complex carbohydrates.

RESVERATROL

Resveratrol is a phytoalexin that is found in certain plants. A phytoalexin is a compound that is produced by a plant to protect itself from invading microorganisms. Just as bioflavonoids, which are produced by plants as a protection from the oxidative stress of photosynthesis, can protect human cells when ingested, resveratrol may also be beneficial. There are a number of animal and *in vitro* studies that show resveratrol may have value to those with insulin insensitivity or heart disease, and may actually help to extend life. One study, appearing in *Current Biology* (2006; 16(3): 296-300) showed that resveratrol increased lifespan in fish in a dose dependent manner. Furthermore, resveratrol delayed the age-dependent deterioration of motor ability and cognitive skills.

Another study that appeared in *Nature* (2006; 444(7117): 337-42) found that resveratrol improved the health and survival of mice who were fed a high calorie diet. In that study, one group of mice were fed a normal diet, a second group was fed a high-calorie diet containing 60% fat, and a third group was fed the high calorie diet but was supplemented with resveratrol (22.4 mg/kg/day). The mice who were fed the high-fat, high-calorie diet developed high levels of insulin and other diabetic markers. The mice who were given resveratrol along with the high-fat diet had better insulin sensitivity--comparable to the mice fed the normal diet.

There have been some human studies. A double-blind, placebo-controlled study was published in *Nutrition, Metabolism and Cardiovascular Diseases* (Epublished ahead of print July 31, 2010) looked at 19 overweight subjects. In this double-blind, placebo-controlled crossover study, the subjects were given either 30 mg, 90 mg or 270 mg of resveratrol daily for a week, or they were given a placebo. One hour after supplementation. Supplementing with resveratrol produced improvement of flow mediated dilation of the brachial artery was experienced in a dose-dependent manner. This may help to explain the cardiovascular benefits of red wine. Resveratrol was found to reduce oxidative stress and improve insulin sensitivity in type 2 diabetic patients. according to research that appeared in the *British Journal of Nutrition* (Epublished ahead of print March 9, 2011).

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METFORMIN AND VITAMIN B_{12} STATUS

Metformin is a drug for people with type 2 diabetes; it was originally sold as Glucophage. Research appearing in *Revista da Associação Médica Brasileira* (*2011 Jan-Feb; 57(1): 46-9*) looked at 144 diabetic patients who were being treated with Metformin. Serum B_{12} levels were below 125 pmol/L in nearly 7% of the patients. Levels in nearly 37% of the patients were between 125 and 250 pmol/L. Furthermore, B_{12} levels were negatively associated with the age of the patient and the length of time the patient had been taking Metformin. The authors felt that these results suggest that B_{12} supplementation may be needed by diabetic patients who are taking Metformin. This may be especially true considering that the serum B_{12} test is inadequate and misses many patients with poor B_{12} status. Methylmalonic acid is a much more accurate way to assess B_{12} status.

RADIATION SICKNESS

The signs and symptoms of radiation sickness depend on the severity of the exposure. The measurement for radiation exposure is done in a unit called the gray (Gy). Symptoms will appear when the entire body receives a dose of 1 Gy or greater (a typical x-ray focuses 1/10 Gy to a small area of the body). A dose greater than 6 Gy is untreatable and usually fatal.

A dose between 1-2 Gy will produce nausea and vomiting within six hours. Within four weeks these patients will begin to experience weakness and fatigue. If the exposure is more severe (between 2-4 Gy), the patient will also experience hair loss, bloody vomit and stools, poor wound healing, infections and low blood pressure usually within one to four weeks. A more severe dose (between 2-6 Gy) will produce nausea and vomiting within two hours; the patient may also experience diarrhea, fever and headache. Severe exposure (8 Gy or higher) will produce nausea and vomiting within 10 minutes. Severe exposure will also immediately produce dizziness and disorientation, weakness, fatigue, hair loss, and bloody vomit.

Treatment starts with decontamination--removing all exposed clothing and washing the skin to remove any radioactive particles. This prevents further distribution of radioactive particles into the body.

Bone marrow damage is one of the long-term problems in radiation exposure. In moderate to severe exposure the patient has trouble with wound healing and infections. Using a protein based medication, called granulocyte-colony-stimulating factor, promotes the growth of white blood cells and helps to offset the damage to the bone marrow.

Some substances are used to reduce the organ damage caused by radioactive particles. These treatments are for *specific* types of exposure. Potassium iodide (KI) is taken to prevent damage to the thyroid from radioactive iodine. Some people have been taking KI prior to exposure to prevent damage should they become exposed; some have the mistaken idea that KI is some kind of panacea. KI cannot prevent radioactive iodine from entering the body; it can protect only the thyroid from radioactive iodine, not other parts of the body. KI cannot reverse the health effects caused by radioactive iodine once damage to the thyroid has occurred. It also cannot protect the body from radioactive elements other than radioactive iodine—if radioactive iodine is not present, taking potassium iodide is not protective. Some people are allergic to iodine and may react poorly to taking it. People with thyroid disease should not take iodine without first discussing it with their doctor.

A wise man should consider that health is the greatest of human blessings, and learn how by his own thought to derive benefit from his illnesses.

Hippocrates

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DIETARY IMPROVEMENT OF ATHEROSCLEROSIS

Atherosclerosis is a disease process that entails the buildup of cholesterol, fatty substances, calcium and other substances in the lining of the artery. The term is derived from two Greek words, athero, which means “paste” and sclerosis, which means hardening. This buildup is called “plaque” and can seriously reduce blood flow through the artery. Plaques can also rupture and cause blood clots to form; the clots can break away and travel to another part of the body, or they can enlarge and completely block the artery.

Atherosclerosis is produced by a combination of inflammation and pro-atherogenic lipids. It stands to reason that a mixture of anti-inflammatory substances may reduce the risk for cardiovascular disease. That idea was tested by an animal study that was recently published in the *Journal of Nutrition* (Epublished ahead of print March 16, 2011). The researchers produced a mixture containing resveratrol, lycopene, catechin, vitamin E, vitamin C and fish oil (referred to as anti-inflammatory dietary mixture, or AIDM by researchers).

Male human C-reactive protein (CRP) transgenic mice and female ApoE* 3 Leiden transgenic mice were used in the experiment. The male and the female mice were each divided into two groups. One group was given a placebo and the other was given AIDM for a period of six weeks. The AIDM reduced the CRP and fibrinogen expression in the human CRP transgenic mice. It also reduced serum cholesterol and serum amyloid. The long-term treatment with the AIDM reduced atherosclerosis by 96% in the female ApoE* 3 Leiden transgenic mice, compared to the placebo group.