

Dr. Michael Janson's

HEALTHY LIVING™

Volume 8 No. 9

Free on the web at www.drjanson.com

September, 2006



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In This Issue

- Exercise as Animals Do 1
- Phytochemical Update 2
- Phytochemicals Against Cancer ... 2
- Fats and Prostate/Breast Cancer ... 3
- Ask Dr. J: Atrial Fibrillation 3
- References 3
- In The Health News 4
- Diet and Disease 4
- Garden Ragoût 4

Dear Friends,

Although it is hardly news that exercise is good for us, recent reports further document some of its benefits. Regular exercise in 30- to 60-year old people adds years of improved physical capacity in later life, including greater ability to walk and get out of chairs, and improved cognitive function.

Unfortunately, most of us lead sedentary lives no matter what our occupations, and in order to maintain health, we need to participate in a regular exercise program. I usually recommend significant physical activity every day, and my patients are frequently surprised at this, having heard that two to four times a week is sufficient. This may be helpful compared to being a couch potato, but it is far less activity than most of our ancestors did, and far less than prehistoric humans and other animals.

In the biographical novel about John and Abigail Adams (*Those Who Love*, by Irving Stone), it is noteworthy that in addition to helping write the constitution and his other political work, John was constantly mending fences, clearing his property, as well as horseback riding, and walking (the two major means of transportation), and Abigail was tending the house and growing food in the garden, so both of them were very physically active.

I often ask my patients and audiences “How often does a gorilla exercise?” Of course, they have to exercise every time they want

to eat! In the wild they spend hours a day foraging for food. They also play and are otherwise active. In captivity, zoos have started to scatter food around the gorilla habitat so they would be able to forage instead of just being given the food at mealtime. It would not be excessive for humans to aim at higher levels of activity to mimic our animal relatives. We need to keep in mind that we are animals and behave accordingly (within certain limits, of course!). In the course of human development, physical activity was an integral part of everyday life. Fitness training has greater benefits than moderate activity.

It is unfortunate that schools have dropped requirements for physical activity. Gym classes have been dropped from curricula, kids are driven everywhere, and they watch TV and play on computers, often to the exclusion of exercise, although a relatively few participate in school sports. If we are going to stem the tide of obesity, lack of fitness, the early onset of diabetes, and a variety of chronic degenerative diseases, we need to encourage being physical as a routine part of life at all ages. However, if it is not enjoyable, nobody will do it. I happen to love the near-exhaustion of running, weight workouts, and garden maintenance, but it may take some time before you begin to enjoy your chosen activity.

I by no means want to discourage the intellectual part of life or eliminate computers (or even television, although it contributes to poor eating habits and inactivity). However, awareness of our animal nature and physical needs will go a long way to prolonging healthy years and reducing suffering and disability.

Phytochemical Review

The word “phytochemical” literally refers to any “plant-derived” chemical, but in nutritional science they are simply non-essential substances derived from food products that have influences on human metabolism. Fortunately, a wide variety of these chemicals have healthful properties that are involved in disease prevention and treatment. By definition, phytochemicals are only found in vegetarian food sources. Many of them are antioxidants, many are flavonoids and polyphenols, but others have a variety of chemical effects.

Curcumin is a mixture of polyphenols found in turmeric. Quercetin is a flavonoid found in yellow onions and apples. A recent study shows that people with precancerous colon polyps who take supplements of these two phytochemicals have a highly significant reduction of the size and number of lesions. Researchers studied five patients with familial polyposis, administering 480 mg of curcumin and 20 mg of quercetin three times a day. This is a typical dose of curcumin and a low dose of quercetin compared to many supplements.

Within six months, these patients had a 60 percent drop in the average number of polyps, and a 50 percent reduction in average polyp size. While many polyps are benign, these patients had an inherited disorder called Familial Adenomatous Polyposis, with hundreds of polyps that are likely to become cancerous. The authors speculated that the benefits derived from the curcumin because the quercetin dose was so low. (This same combination of curcumin and quercetin protects the kidneys in graft recipients.)

In tissue studies, quercetin and other flavonoids and phytochemicals protected retinal pigment epithelial cells from oxidative damage. In addition, quercetin promoted the production of cellular detoxification enzymes. A review article on lung disease suggested protection from numerous antioxidant phytochemicals, including curcumin, quercetin, and the green tea polyphenol, EGCG (epigallocatechin gallate). Earlier studies have shown that EGCG inhibits inflammation in pulmonary lining cells.

EGCG and other green tea catechins also have other benefits. They appear to act as ACE inhibitors (blocking angiotensin converting enzyme to help lower blood pressure; this is typically done

with drugs called ACE inhibitors such as Captopril and Lisinopril). These are also prescribed to protect the kidneys in diabetics who are on insulin, and for congestive heart failure, but they may have side effects, such as a persistent cough, headaches, and dizziness. Extracts of Panax ginseng have similar ACE inhibition effects. Neither EGCG nor ginseng has the side effects of ACE inhibitors (an isolated case report in France of hepatitis after consuming green tea extract suggests a possible contaminant or massive dose).

Phytochemicals and Cancer

Phytochemicals have antioxidant, anti-inflammatory, and anti-cancer effects. Many are mild estrogens that block the effects of stronger estrogens in the body. Some detoxify carcinogens or promote cell rejection of such damaging chemicals. In these several ways phytochemicals prevent and possibly treat a variety of cancers, including breast and prostate cancer.

Genistein and other isoflavones, found in soybeans, soy products such as tofu, and other beans, are protective against breast and other cancers. In addition to their mild estrogenic effects, they are antioxidants and lower cholesterol levels. Isoflavones block tumors from producing new blood vessels that the tumors require for growth (a process called angiogenesis).

Sulforaphane is an antioxidant in broccoli (and other cabbage family vegetables) that increases the activity of cancer-protective enzymes. It also induces programmed cell death in cancer cells (apoptosis). Sulforaphane is another phytochemical that reduces tumor growth by blocking angiogenesis. In addition to its benefits in cancer, it appears to protect retinal cells from macular degeneration and lower blood pressure.

Coumaric acid is a phenolic antioxidant found in tomatoes, peanuts, garlic, carrots, and brown rice and other whole grains (it is in the cell wall fiber, thus not present in refined grains). Studies of cultured cells show that it can protect against growth of colon, breast, and stomach cancer cells.

The best way to be sure you are consuming beneficial phytochemicals is to choose a wide variety of plant-based foods, including fruits, vegetables, beans, whole grains, seeds, and nuts, and these foods happen to be the basis of a diet plan that provides many other benefits.

Fats and Prostate/Breast Cancers

The ratio of omega-3 to omega-6 fats in the diet may play a role in prostate cancer. While no one knows the exact ratio of fats that are required by humans, research suggests that Western diets are too rich in omega-6 fatty acids derived from corn oil and safflower oil. Omega-3 fatty acids are found in cold-water fish and flaxseeds, with smaller amounts in walnuts and soybeans.

An animal study showed that when the typical Western-diet ratio of omega-6 to omega-3 fats (15 to 1) was compared to a diet containing equal amounts of the two fats, prostate cancer cells grew more slowly, and the tumors were smaller in the intervention group (both groups received 20 percent fat in the diet, which is lower than common Western diets). The treatment group also had lower PSA levels (Kobayashi N, et al., Effect of altering dietary omega-6/omega-3 fatty acid ratios on prostate cancer... *Clin Cancer Res.* 2006 Aug 1;12(15):4662-70).

One difficulty in interpreting this for humans is that most omega-6 vegetable oils available in the market are so highly processed that they are unhealthy in and of themselves. Nonetheless, increasing omega-3 fats in the diet has other benefits in reducing inflammation, heart disease, and breast cancer. In animal models, an earlier study showed that omega-3 oils reduced the growth and metastases of implanted breast cancers (Rose DP, Connolly JM, Effects of dietary omega-3 fatty acids on human breast cancer growth and metastases in nude mice. *J Natl Cancer Inst.* 1993 Nov 3;85(21):1743-7).

While saturated fats and high total fats in the diet increase the risk of breast cancer, omega-3 fats appear to decrease the risk, although some studies show no link between fish consumption and breast cancer incidence. Omega-3 fats do help the health of patients who have undergone breast cancer surgery, increasing their strength, reducing severe weight loss, and improving liver and pancreatic function (Stehr SN, Heller AR. Omega-3 fatty acid effects on biochemical indices following cancer surgery. *Clin Chim Acta.* 2006 May 16; [Epub ahead of print].

Ask Dr. J

Q. I am concerned about my father's atrial fibrillation. Can niacin help him?

MS, Virginia, via internet

A. I have not seen documentation that niacin is specific for atrial fibrillation, but it is useful for so many conditions that I would not be surprised to

find that it helps this too. However, many other supplements and some dietary changes are helpful for atrial fibrillation, an irregular heartbeat often accompanied by a rapid pulse. Prolonged episodes (over 24 hours) increase the risk of strokes from blood clots due to blood pooling in the atrial chamber.

I suggest avoidance of all stimulants, such as caffeine and alcohol, as well as sugar and food additives. Refined foods are depleted of important minerals, such as magnesium, so I tell all my patients to eat only whole foods (for many other reasons as well).

Supplements of magnesium (500-1000 mg daily) and taurine (1500-3000 mg) both help to stabilize cell membranes and reduce excitability, and I have found in practice that they often help with atrial fibrillation. I give the magnesium intravenously for atrial fibrillation. Other supplements for the heart include hawthorn (standardized, 250-750 mg), omega-3 fish oil, coenzyme Q10 (200-600 mg), and L-carnitine (1000-3000 mg).

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In the Health News

- In patients with congestive heart failure (CHF), supplements of the amino acid L-arginine can improve exercise tolerance and functional capacity. Subjects with stable CHF were stress tested before and after six weeks of supplementation and compared to subjects who did not receive the supplements. Heart rates were lowered in the treatment group, and lactate buildup (from muscle activity with inadequate oxygen) was also reduced by L-arginine (Doutreleau S, et al., Chronic L-arginine supplementation enhances endurance exercise tolerance in heart failure patients. *Int J Sports Med.* 2006 Jul;27(7):567-72.) Typical doses of L-arginine are from 1000 to 6000 mg.

Diet and Disease

- High density lipoproteins (HDL, the good cholesterol) are anti-inflammatory and relax blood-vessels. A meal high in saturated fats reduces these beneficial actions, while a meal high in polyunsaturated fats enhances them. Researchers found these effects within six hours after eating. (Nicholls SJ, et al., Consumption of saturated fat impairs the anti-inflammatory properties of high-density lipoproteins and endothelial function. *J Am Coll Cardiol.* 2006 Aug 15;48(4):715-20.) The unsaturated fats also enhanced the beneficial effects compared to fasting levels. Heart attacks after meals high in saturated fats would be more likely based on these effects, in addition to the long-term damage from inflammation and blood vessel constriction.
- Treatment with 1000 mcg of chromium helps control diabetes, improves insulin sensitivity, and reduces weight gain seem with drug therapy. (Martin J, et al., Chromium picolinate supplementation attenuates body weight gain and increases insulin sensitivity in subjects with type 2 diabetes. *Diabetes Care.* 2006 Aug;29(8):1826-32.) In 37 patients, those treated with chromium and glipizide had better sugar control and less weight gain than those on the drug and placebo.

Dr. Janson's Healthy Living™

Published by
VITALITY NOW!®
PO Box 384
Greenville, NH 03048
Subscriptions: Free online

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Garden Ragoût

Garden vegetables this time of year beg to be picked and put directly into a recipe (if not eaten before making it to the kitchen). Sauté onions and garlic with some olive oil, minced fresh basil, oregano, thyme, and ground pepper. Add diced zucchini, summer squash, tomato, and a dash of soy sauce or sea salt. Add some previously roasted eggplant and mix well. I like to add some fresh cilantro (since it is abundant in my raised beds). This makes a delicious side dish or you can simmer it with cooked pinto beans to make a main course to serve with brown rice or whole grain bread. Another serving idea is to make savory polenta as in last month's recipe, pour it into an oiled, low, round dish with a decorative arrangement of fresh basil leaves on the bottom. When the polenta sets, you can turn it over on a serving dish to show the basil, cut into wedges and cover it with the garden ragoût.

From June to October, I see patients in Arlington, MA, and Amherst, NH. Call **603-878-2256**.

From November to May, and occasionally during the summer, I see patients in New Smyrna Beach, Florida. For appointments, call **386-409-7747**. I also do **phone consults** from both locations.

My newest book is *The User's Guide to Heart Healthy Supplements*. Dr. Janson's *New Vitamin Revolution* and my other books are also available at my website, from QCI Nutritionals, or health food stores. You can visit the QCI Nutritionals website at **www.qcinutritionals.com** for quality supplements at reasonable prices.

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