

OPTIMAL HEALTH UNIVERSITY™

Presented by Katie Gravesen, DC

Amazing Apples

Did you know that there are more than 7,000 varieties of apples cultivated worldwide? None are exactly alike in taste and appearance, but all share the same miraculous health benefits, such as protection against lung disease, cancer, stroke, diabetes and asthma.

This fall, Dr. Gravesen encourages you to go apple picking — either at your local orchard or grocery store. Not only will you pluck a delicious snack, but you'll also harvest your health along the way.



Powerful Phytochemicals

Why are apples so nutritious? For decades, scientists tried to isolate apples' health benefit. Is it their vitamin C content? Their fiber? Another yet-to-be-discovered disease-busting antioxidant?

The truth, according to scientists from Cornell University, is that a combination of phytochemicals in apples — not a single vitamin or nutrient — keeps disease away (*Nature* 2000;405:903-4).

Phytochemicals are plant chemicals that have disease-preventive properties. Apples contain a variety of phytochemicals, all of which are strong antioxidants. Antioxidants reduce the number of damaging free-radical chemicals throughout the body.

Curb Cancer

Dr. Gravesen wants you to know that, pound per pound, apples pack a powerful punch when it comes to cancer prevention. But be sure to choose organically grown apples and eat them

with the skins on. It's not just the interior white flesh that's helpful; the smooth red, yellow or green skin may be even more robust in its anti-cancer benefits. Also, the skin houses two-thirds of apple's fiber content.

In one report, 50 milligrams of extract derived from apples with the skin on inhibited liver cancer cells by 57 percent. The apple extract from the fruit's fleshy part hampered the cancer cells by 40 percent.

In the same study, 50 milligrams of apple extract (from the skins plus pulp) repressed colon cancer cells by 43 percent. The apple flesh extract inhibited the colon cancer cells by 29 percent (*Nature* 2000;405:903-4).

Stop Stroke

An apple a day may keep stroke away, report researchers in Helsinki. The study tracked 9,208 men and women, who were initially free of heart disease, for 28 years. Of these subjects, 824 developed stroke. Based on a dietary history interview, researchers found that apple consumption significantly shrunk risks for stroke.

The study's researchers were uncertain about the exact mechanism for the apple's success in reducing risks.

Curiously, quercetin, a widely celebrated phytochemical abundant in



apples, probably doesn't account for apples' protective effect, because total quercetin consumption from all sources failed to prevent stroke (*Eur J Clin Nutr* 2000;54:415-7).

Cut Cholesterol

Heart disease continues to be the No. 1 killer among adults. And, diets rich in fat and cholesterol only compound the problem. The good news is that, as a superhero food, apples once again charge to the rescue.

Research shows that compounds in apples inhibit the oxidation (deterioration) of low density lipoprotein or LDL ("bad") cholesterol — in turn preventing plaque accumulation on arterial walls and reducing the risk of cardiovascular disease.



**Katie Gravesen, DC, Sol Chiropractic (808) 270-2530
30 E Lipoa #4-102, Kihei, HI 96753 www.solchiro.com**

Scientists assessed the ability of compounds in apple extracts and apple juices to protect LDL. The apple juices and extracts all inhibited LDL oxidation. Inhibition by the juices ranged from 9 percent to 34 percent. Inhibition by the apple's flesh reached 21 percent, whole apples reached 34 percent and apple peel reached 38 percent.

"Although the specific components in the apple juices and extracts that contributed to antioxidant activity have yet to be identified, this study found that both fresh apple and commercial apple juices inhibited copper-catalyzed LDL oxidation. The in vitro antioxidant activity of apples support the inclusion of this fruit and its juice in a healthy human diet." (*Life Sci* 1999;64:1913-20.)

Lessen Lung Disease Risk

Did you know that most apple trees take four to five years of growth before they produce their first fruit? But the wait is well worth it when it comes to health. Case in point: Eating a diet rich in apples may ward off lung disease.

Researchers pooled data on 2,512 men aged 45 to 59, who completed food frequency surveys at the study's onset and at a five-year follow-up.

After accounting for various risk factors of lung disease, the researchers determined that subjects who ate five or more apples per week had significantly stronger lung function, compared with those who ate few apples (*Thorax* 2000;55:102-8).

Decrease Diabetes Risk

Type 2 diabetes is rising worldwide at an alarming rate. And diabetes drugs are loaded with side effects and fail to address key underlying problems: lack of proper diet and exercise.

Fortunately, an apple a day will go a long way in helping to prevent the disease altogether.

One large-scale study followed 38,018 subjects, who were 45 or older and initially free from diabetes, cardiovas-

cular disease and cancer. In an 8.8-year follow-up assessment, researchers identified flavonoid-rich foods that helped to slash risks. Flavonoids are phytochemicals that reduce disease-causing free radical chemicals in the body.

In the analysis, only two flavonoid-rich foods, apples and tea, seemed to offer protection. Individuals who ate one or more apples per day significantly slashed type 2 diabetes risks by 28 percent compared to participants who consumed no apples. On the other hand, tea consumption only slightly reduced chances, with a "borderline significant" decline.

"These results do not support the hypothesis that high intake of flavonols and flavones reduces the development of type 2 diabetes, although we cannot rule out a modest inverse association with intake of apples and tea." (*J Am Coll Nutr* 2005;24:376-84.)

Avoid Asthma

Asthma sufferers can breathe a sigh of relief: A diet rich in apples lowers asthma risks. In one study, 607 individuals with asthma and 864 asthma-free subjects completed food frequency questionnaires. Participants ranged in age from 16 to 50.

After controlling for various risk factors of asthma, the investigators noted that apple consumption cut risks. Specifically, subjects who ate at least two apples per week enjoyed a 22 percent to 32 percent diminished risk, compared with those who ate few apples (*Am J Respir Crit Care Med* 2001;164:1823-8).

Opt for Organic

If available at your local market, opt for organic apples. Organic produce is grown without the use of pesticides. Non-organic fruits and vegetable often have pesticides and other chemical residues.

Organic produce is especially important for children. Even more than adults, youngsters are especially susceptible to pesticide exposure. They often consume more fruits and vegeta-

bles per pound of body weight, and their rapidly developing minds and bodies make them more vulnerable to pesticides' effects than a mature adult.

Organic fruits and vegetables are also better for our environment, soil and water.

The Juice on Juice

Of course, eating a piece of fresh fruit is superior to juice because of the whole fruit's components, such as fiber and other nutrients.

However, if whole fruit isn't available, one to two small glasses of apple juice each day can be a healthy way to obtain some of the nutrients. But remember: Not all juices are created equal.

Look for apple juices that are organic, pasteurized, free from added sugars or sweeteners and contain "100% juice." Examine the top of the "Nutrition Facts" panel on the back of the label to determine the percentage of juice.

Avoid apple juices with labels that contain the words "drink," "cocktail" or "beverage." For example, a product called "fruit juice drink" will often contain as little as 10 percent fruit juice and include added sugars or sweeteners.



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