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The Apple

By Glenn King, PhD, C.D.N., C.N.

An apple is truly a superfood to stay!

There are truly many great benefits of apples and I am simply presenting some to encourage you to take this superfood seriously. For instance, in a recent study French researchers found a flavanoid called “phloridzin” that is only found in apples. Researchers claim phloridzin helps protect post-menopausal women from osteoporosis and may also increase bone density. Another bone benefit from apples is boron, which strengthens bones.

Apples are a superfood that helps stop lung disease... even in coal miners!

Lung disease is a very serious illness that is increasingly occurring among Americans. This also applies to people who have never smoked, but are becoming more susceptible to this disorder than ever before, says Dr. Robert Rowen. A recent Cornell University study revealed a superfood that is very inexpensive, and readily available year-round, that amazingly has the ability to help and could prevent lung disease. Yes, apples!

Apples are one of the most widely cultivated tree fruits. It is the pomaceous fruit of the apple tree (species: *Malus domestica*), which is in the rose family (*Rosaceae*). The apple tree originated in Western Asia.

Over 55 million tons of apples are grown worldwide in 2005, valuing about \$10 billion. China produced about 35% of the gross, and the United States is the second leading producer with about 7.5% of global production. Iran is third, followed by Turkey, Russia, Italy and India.

In recent years a wealth of information has been pub-

lished on the preventive and healthy effects of apples. Studies reported on the ability of apples to help common disorders like:

Heart disease

Diabetes

Cancer (especially colon cancer, prostate cancer and lung cancer)

Dementia

Inflammation

Arthritis

High cholesterol

Heartburn

And much more...

How many people do you know suffering from, or concerned about one or more of these health challenges?

I'm sure that most people have heard the well-known saying that “an apple a day will keep the doctor away.” The saying comes from an old Pembrokeshire proverb of 1866, which reads, “Eat an apple on going to bed, and you'll keep the doctor from earning his bread.” Aside from the fact that apples are better digested earlier in the day, this proverb has proven fruitful. Well, a London study presented the medicinal power of apples to relieve chronic lung disease in Welsh coal miners, by eating at least one-a-day 5 days per week.

Even though an apple is not an excellent source of **dietary fiber**, it is a “good” source. This is because the fiber found in apples combined with other apple nutrients provide us with the kind of health benefits normally associated with much higher amounts of dietary fiber.



The types of dietary fiber of apples, helps protect the mucous membrane of the colon from exposure to toxic substances, such as binding to cancer-causing chemicals in the colon. This fruit also contains good qualities of beta carotene and antioxidants which build resistance against infectious agents and pro-inflammatory free radicals.

These health benefits are particularly important in prevention of heart disease (one of the top killers) through healthy regulation of blood fat levels. Research from the Pri-tikin Longevity Center in California showed that intake of apples in their whole food form can significantly lower many of our bad blood fats. The bad fat lowering effects of apples were previously associated with its soluble fiber content called pectin.

What we know now, is that whole apples only contain approximately 2-3 grams of fiber per 3.5 ounces, and pectin accounts for less than 50% of this total fiber. Although, this modest amount of pectin found in whole apples interacts with other apple phytonutrients to give us the kind of bad blood fat lowering effects that are typically associated with much higher amounts of soluble fiber intake.

In recent comparisons with laboratory animals, the bad blood fat lowering effects of whole apples were shown to be greatly reduced when whole apples were eliminated from the diet and replaced by pectin alone.

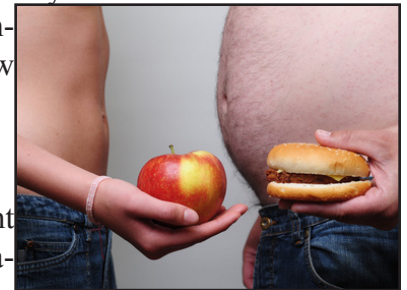
The study was verified by a Finnish study involving 10,000 men and women and a 24-year follow-up. A strong inverse association was seen between flavonoid intake and lung cancer development. In the sampled population, the flavonoid intake was an average of 4.0 mg per day, and 95% of the total flavonoid intake was quercetin. Apples provided 64% of all flavonoid intake. The 50 percent reduced risk of lung cancer associated with increased flavonoid consumption was especially strong in younger people and in nonsmokers. Apples were the only specific foods that were inversely related to lung cancer risk. Since apples are the main source of flavonoids in the Finnish population, it was concluded that the flavonoids quercetin and naringin from apples were most likely responsible for the decreased risk in lung cancer.

The University of Arizona Respiratory Center Sleep Laboratory revealed that the only food found to im-

prove a primary airway test called “Forced Expiratory Volume” (FEV1) was apples. Now if a single drug was developed to accomplish all this, we would see the commercials on every Pharma-controlled TV airwaves, and on billboards from coast-to-coast, probably even if it had a high death rate from “side effects.”

A Stanford University study showed that children with asthma who drank apple juice on a daily basis experienced less wheezing than those who only drank apple juice once monthly.

A King’s College, Cambridge large scale study revealed that children born with mothers who regularly ate apples during pregnancy have lower rates of asthma compared to mothers who only ate a few apples.



Eat and Lose Weight

Apples assist in weight loss by regulating caloric intake while also regulating cholesterol.

Especially interesting was an additional finding about calorie intake following apple consumption. When healthy adults consumed one medium-sized apple approximately 15 minutes before a meal, their caloric intake of that meal decreased by an average of 15%. Since meals in this study averaged 1,240 calories, a reduction of 15% meant a reduction of 186 calories, or about 60 more calories than that contained in a medium apple. This is a great discovery in helping to manage hunger and to feel more satisfied with food. The Brazilian study found that women who ate three apples or pears per day lost more weight while dieting than women who did not eat fruit while dieting.

Another Juicy Bite

Not an insignificant finding among current research is apples’ effect on brain cells. A study on mice at Cornell University found that the quercetin in apples may protect brain cells from the kind of free radical damage that may lead to Alzheimer’s disease. It’s clear apples are great because they help not just bones and lungs, but even brain cells, thus addressing many of the most prominent modern-day health concerns. Apples are probably on of the best tasting anti-carcinogenic sources available.

Let's look at some nutritional facts.

One medium apple with the skin contains 0.47 grams of protein, 95 calories, and 4.4 grams of dietary fiber.

Minerals:

Potassium - 195 mg

Calcium - 11 mg

Phosphorus - 20 mg

Magnesium - 9 mg

Manganese - 0.064 mg

Iron - 0.22 mg

Sodium - 2 mg

Copper - 0.049 mg

Zinc - 0.07 mg

Also contains trace amounts of other minerals.

Vitamins:

Vitamin A - 98 IU

Vitamin B1 (thiamine) - 0.031 mg

Vitamin B2 (riboflavin) - 0.047 mg

Niacin - 0.166 mg

Folate - 5 mcg

Pantothenic Acid - 0.111 mg

Vitamin B6 - 0.075 mg

Vitamin C - 8.4 mg

Vitamin E - 0.33 mg

Vitamin K - 4 mcg

Also other vitamins in small amounts.

Nutritional information provided by USDA Food and Nutrition Center.

Apples are a good source of B vitamins such as riboflavin, thiamine and pyridoxine (vitamin B6), and the synergistic effect with other vitamins help as cofactors for enzymes in metabolism. The minerals like potassium, phosphorus and calcium are important components of cell and body fluids, helping control heart rate and blood pressure; thus counters the bad influences of excess sodium.

Although apples contain relatively low amounts of vitamin C, they are a **rich source of other antioxidant compounds**. This along with the fiber helps **regulate bowel movements** and reduce the risk of colon cancer.

A Cornell University study found that rats who ate the equivalent of one apple per day reduced their risk of breast cancer by 17 percent. Rats fed the equivalent of three apples per day reduced their risk by 39 percent and those fed the equivalent of six apples per day reduced their risk by 44 percent.

God's wisdom in how He made this planet and what He made it produce is wondrous. Especially for such foods that keep through the winter and that sustain us during those leaner times. Apples are one such wondrous food. They are a rich source of the powerful bioflavonoid quercetin, among many other phytochemicals.

The phytonutrients in apples help regulate **blood sugar**. Apple polyphenols can help prevent spikes in blood sugar through a variety of mechanisms.

Flavonoids like quercetin found in apples can inhibit enzymes like alpha-amylase and alpha-glucosidase. Since these enzymes are involved in the **breakdown of complex carbohydrates** into simple sugars, your blood sugar has fewer simple sugars to deal with when these enzymes are inhibited. Other healthy flavonoids like epicatechin and procyanidin B2 make it a wise combination. The tartaric acid give the fruit its tart taste, which also fights free radicals.

The polyphenols in apples lessen the absorption of glucose from the digestive tract, which stimulate the beta cells of the pancreas to secrete insulin. Plus, stimulates insulin receptors to increase uptake of glucose from the blood.

The summary, it's not fiber alone that explains the cardiovascular benefits of apples, but **the interaction of fiber with other phytonutrients** in this wondrous God created fruit. If you want the full cardiovascular benefits of apples, it's the whole food form that provides it. Only this whole food form can provide the unique fiber-plus-phytonutrient combinations as well as other benefits!

The whole food form of apples is important to supply the full satisfaction from eating them. An example: researchers recently compared the intake of whole apples to the intake of applesauce and apple juice. They discovered that people report less hunger and better food satisfaction after eating whole apples rather than after eating applesauce or drinking apple juice.

Apple allergies: "Oral allergy syndrome" is the reaction from some people, often due to the birch pollen left on the apples. Because the pollen is the main irritant, only the raw apples and their skin, cause the allergic reaction. Cooked apples will not cause this reaction, as heat denatures the proteins in the pollen. Peeling the apples may avoid allergic reactions. If allergic to apples, the person may also be allergic to other fruits in the same family, such as peaches and hazelnuts. The most common symptoms are itching and swelling around the mouth and lips. Other symptoms may include watery eyes, runny nose and sneezing. Higher sensitivity may result in hives, abdominal pain and diarrhea.

Scientists also found important health benefits of apples stem from their **impact on bacteria** in the digestive tract. In laboratory animal studies, intake of apples is known to significantly alter amounts of two bacteria (Clostridiales and Bacteriodes) in the large intestine. As a result of these bacterial changes, metabolism in the large intestine is also changed, and many of these changes appear to provide good health benefits. For example, due to these bacterial changes in the large intestine, there appears to be more fuel available to the **large intestine cells** in the form of butyric acid after apple is consumed. Studies confirming these results in humans are expected soon.

There are many other benefits to mention, such as apple seeds are a **condensed source of B-vitamins** and are great for the **nervous system**. Although apple seeds are a condensed source of vital nutrients, animal studies have shown they can be mildly poisonous due to containing a small amount of amygdalin, a cyanogenic glycoside. Unless eating large amounts of apple seeds they have not been known to be dangerous to humans, although they may deter birds.

Numerous studies claim that fresh apple juice has been found to increase the production of the neurotransmitter acetylcholine, providing a potential mechanism for the “prevention of the decline in cognitive performance that accompanies dietary and genetic deficiencies involved in aging”. Not uncommon, there are some studies that conflict with this finding.

For others, just say - eat an apple a day to keep the “drug pushers” away.