The Health-Boosting Properties of Super Foods

by Gary Null, PhD, and Martin Feldman, MD

In recent years, nutritional supplements have become increasingly high tech, providing physicians and their patients with advanced formulations for many health-care needs. But despite their many benefits, these products should not detract from the more fundamental route to combating chronic disorders and improving one's health: the consumption of highly nutritious, powerhouse foods.

Like all healthful foods, "super foods" enhance a variety of bodily processes – but simply do it better. These foods contain high levels of antioxidants, phytochemicals, phytosterols, and dietary fiber that give them both preventive and therapeutic health properties. Native traditions throughout the world have long held that certain vegetables, fruits, and grains are especially powerful purveyors of health benefits. But it was not until these natural products were studied through modern biochemistry, botanical science, molecular biology, and clinical research that their extraordinary properties became more widely known.

In this article, we present 18 super foods that should be featured in the diet of health-care providers and their patients. The benefits described have been culled from the medical literature, and a sampling of the research conducted on these foods and their nutritional components is included in the references. What follows is a look at the specific preventive and curative properties of these super foods.

Apples

For thousands of years, apples (*Malus sylvestrsis*) have been used to address numerous medical conditions, including diabetes, fevers, inflammatory disorders, and heart ailments. In addition to confirming many of the healthful properties of apples, modern research has identified invaluable phytochemicals contained in the fruits. One phytochemical found in apples is phloretin, a natural antibiotic. Apples also contain pectin and pectic acids that add essential bulk to a diet.

The apple's tannins, quercetin, alpha-farnesene, shikimic acid, and chlorogenic acid offer health benefits as well. By increasing the production of the neurotransmitter acetylcholine, for example, they help offset cognitive decline due to oxidative damage. Apples also have high levels of phenols and polyphenols, and possess other antioxidant, chemoprotective properties. Consequently, they help guard against a variety of cancers, including leukemia and cancer of the colon, lung, breast, liver, and skin. These chemicals also provide essential nutrients that improve cardiovascular health, reduce the risk of coronary heart disease and stroke, and prevent atherosclerosis.

Apricots

This fruit had a long and rich history in the medical practices of China and India. In Traditional Chinese Medicine, apricots and their kernels are prescribed for the treatment of asthma, cough, and constipation. The fruit is a stronghold of vitamin C, vitamin K, beta-carotene, thiamine, niacin, and iron. Japanese scientists have studied the ability of apricots to inhibit the pathogenic bacteria associated with ulcers and acute gastritis.

Bananas

Although low in calories, bananas provide essential nutrients such as vitamin B6, vitamin C, potassium, and manganese. They also stimulate probiotic activity, which sustains a healthy gut flora. Bacteria in the gastrointestinal system are critical for the proper digestion and absorption of nutrients. Bananas help keep this system on track. Recent findings have indicated that bananas may offer protection against kidney cancer, particularly in women, and aid renal function.

Blueberries

Many berries have health-boosting properties. The black, blue, and red varieties are especially known for the antioxidants that they contain. Blueberries in particular have flavonoids, phenolic and polyphenol compounds, all of which have shown some ability to reverse cellular aging of cognitive and motor functions. In one recent study of the antioxidant levels of 100 foods, blueberries scored highest.

Other studies have shown that blueberries protect brain health, improve memory, and sustain coordination by, for one, enhancing communication between nerve cells. This activity provided protection against serious neurodegenerative diseases, such as dementia and Alzheimer's. Blueberries also have anti-inflammatory properties that protect the skin, joints, and cardiovascular and neurological systems. The consumption of blueberries has proven

beneficial to people with diabetes. This fruit also prevents bone loss and inhibits cancer cell proliferation, particularly in prostate and colon cancer.

Broccoli

Broccoli is a super food because of its high concentration of two phytochemicals – diindolylmethane and isothiocyanate – that are powerful immunomodulators. Broccoli strengthens the immune system, which means that it helps in the fight against cancer (particularly breast and prostate cancer) and boosts the body's protection against bacterial and viral infections. Broccoli contains other anticancer agents as well, such as glucoraphanin. Due to these observed properties, a substantial amount of research is being conducted on broccoli's mutagenic qualities.

This vegetable is rich in vitamins A, B5, B6, B9 (folate), C, and K and in dietary fiber. It provides moderate amounts of calcium, iron, phosphorus, and potassium. As with other leafy green vegetables, broccoli contains lutein and zeaxanthin, which foster eye health. Because it has more calcium than even most dairy products, broccoli can protect bones and increase bone mass.

Carrots

Carrots are a chief provider of carotenoids, a family of antioxidants proven to block DNA and cellular membrane damage caused by free radicals. Carrots are rich in alpha-carotene and lycopene, phytochemicals that have anticarcinogenic properties, especially in relation to colon, lung, prostate, and stomach cancers. The lesser-known black and purple carrots have high levels of anthocyanin, a powerful anticancer biochemical that has been found to slow cancer cell proliferation by as much as 80%.

The long-held belief that carrots improve vision is supported by their high content of retinoids that benefit ocular health. Carrots also have been shown to boost brain function and provide cardiovascular benefits, such as decreasing cholesterol. Diabetics should keep carrots in their diet because they are a good source of vitamin A, which lowers blood sugar and aids in the development of insulin-producing cells in the pancreas. One cup of raw carrots can provide nearly 700% of the recommended daily intake of vitamin A and 220% of vitamin K, which is critical for bone health.

Garlic

While garlic contains phytonutrients similar to those found in onions, it also possesses selenium, a substance that, according to some studies, offers protection against various cancers and the deterioration of the body caused by free radicals. Researchers have studied the ability of garlic to guard against heart disease and arterial calcification (hardening of the arteries) and to reduce cholesterol and blood pressure. Because it is a source of the flavonoid quercetin, garlic contains antibiotic properties that empower it to fight colds, stomach viruses, and yeast infections.

Ginger

Ginger is used throughout the world to cure dyspepsia (stomach upsets), reduce gastrointestinal gases, and relieve nausea caused by pregnancy, seasickness, and even drugs used in chemotherapy. Ginger is composed largely of fragrant essential oils that give it a distinctive aromatic flavor. One of these oils, gingerol, makes it a natural sedative for calming the gastrointestinal tract. This oil also provides some protection against pathogenic bacteria that upset the stomach. Ginger is rich in antibiotic properties that combat the GI infections which cause diarrhea and dehydration.

Folk medicine has long honored ginger. While some scientists may dismiss folk medicine, it should be remembered that many modern pharmaceuticals were derived from folk remedies and then price-tagged. This folk science, now supported by modern science, has viewed ginger as a mild immune booster that wards off colds, flus, sinus congestion, and coughs. New evidence suggests that ginger helps to lower cholesterol. Preliminary findings in animal studies also suggest that ginger may help to treat diabetes.

Goji Berry

Also known as wolfberry in its native Europe, the goji plant is found in much of Asia, where it appears in exotic (to Westerners) Tibetan and Himalayan descriptions. The word *goji* is actually a Westernization of the Chinese word for the berry, which can be transliterated as "gouqi." The berry is a common ingredient in Traditional Chinese Medicine, dating back thousands of years in use.

The oblong red goji berry easily fulfills the requirements of a super food. It has a high concentration of phytochemicals, amino acids, vitamins B and C, and beta-carotene. Additionally, it contains 11 essential and 22 trace dietary minerals, is an outstanding source of the antioxidant lycopene, and is moderately high in alpha-linolenic acid. The goji berry also can supply extra protein, dietary fiber, calcium, zinc, and selenium.

This nutritional profile gives the goji berry many health-enhancing properties. This fruit protects against cardiovascular and inflammatory diseases and age-related vision disorders (such as glaucoma and macular degeneration). Studies have pointed to the berry's neuroprotective, immunomodulatory, and anticancer properties as well. This last benefit was underscored by a study published in the *Chinese Journal of Oncology*, which indicated that cancer patients responded better to treatment while on a diet that included goji. However, the study recommended that individuals on blood-thinning medications avoid eating goji berries, which may interfere with the drugs. Finally, the goji berry offers liver protection and can improve sexual function.

Green Tea

The ingredient in tea – and particularly green tea – that has stirred

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the most scientific interest is catechin. Approximately 25% of a dry tea leaf is catechin. Although traces of catechin are also found in chocolate, wine, and other fruits and vegetables, it is tea that offers the greatest amount of this super nutrient.

The multitasking catechin has been shown to reduce the plaque buildup of atherosclerosis, protect against infectious bacteria, and reduce oxidative stress. Tea catechins are especially important in a polluted world because they can improve DNA replication and protect against genetic damage from environmental toxins. Recent studies have noted the anti-inflammatory properties of catechin and suggested that it can play a role in battling cancer. Other research has noted that green tea can improve bone density and cognitive function, reduce the risk of developing kidney stones, and strengthen heart function. There is some evidence that the polyphenols of green tea protect against the brain cell death associated with Parkinson's and Alzheimer's diseases.

Legumes

Individuals who consume a Western diet, especially in America, ignore the nutritional value of most legumes to their own detriment. This category of super food includes not only beans, peas, and lentils – the foods most commonly identified as legumes – but also alfalfa, clover, peanuts, and cashews.

These vegetables and grains are excellent sources of dietary fiber, which reduces cholesterol and helps manage blood sugar levels. One cup of lentils can provide upwards of 65% of the minimum daily requirement for fiber. Given this high fiber content, the frequent consumption of legumes will enhance gastrointestinal and colon health.

Legumes contain energy-boosting protein and iron. Looking at specific entities in this group, black beans are rich in the potent antioxidant anthocyanidins, which promote heart and vascular health. Green beans are excellent sources of vitamins C and K. Garbanzo beans, commonly known as chickpeas, are a superb source of molybdenum, which strengthens teeth and preserves tooth enamel.

Another important legume that is not well known in the US is the adzuki bean. Originally from the Himalayas and standard in East Asian cooking, adzuki beans are a rich source of magnesium, potassium, iron, zinc, and B vitamins. Very high in soluble fiber, the adzuki helps eliminate bad cholesterol from the body. In Japan, it is treasured for its kidney and bladder health-promoting function and is used in weight-loss programs.

Combining legumes with whole grains will maximize their benefits. Legumes are high in lysine but very low in methionine, an essential amino acid that supports cellular life, while whole grains are replete with this amino acid but low in lysine. A wholesome, integrated vegetarian diet will contain a balance of legumes and grains.

Leafy Vegetables

This group of super foods includes spinach, kale, arugula, Swiss chard, cabbage, collard greens, and watercress. One feature common to the dark green leafy vegetables is that they are high in carotenoids and other antioxidants that guard against heart disease, cancer, and problems with blood sugar regulation. Beyond that, each leafy green offers its own health benefits, so a healthful diet should contain all members of this category.

For example, 1 cup of cooked kale provides over 1300% of the daily requirement of vitamin K needed for maximum bone health. It is also rich in calcium and manganese, other nurturers of bone density. Like broccoli, kale also contains the anticancer phytochemical sulforaphane.

Cabbage contains glutamine, an amino acid that contributes to anti-inflammatory activities. It also protects against infectious complications due to human papillomavirus (HPV). The juice from cabbage will speed up the healing of peptic ulcers.

Spinach is one good source of dietary iron. Per gram, it generally contains over 30% more iron than a hamburger does. (Any diet heavy in spinach should include sufficient vitamin C to help assimilate the iron.) Spinach also is an excellent source of folic acid, calcium, copper, zinc, and selenium.

Watercress is a superb source of phytochemicals. It serves as a diuretic and digestive aid, helps protect against lung cancer, and strengthens the thyroid. Collard greens supply ample quantities of the immune response modulator diindolylmethane.

Mushrooms

A wealth of peer-reviewed literature shows that many edible mushrooms are among the more important immune-builders in the plant kingdom. In particular, medicinal mushrooms inhibit tumor growth, strengthen immunity, and have antipathogenic and blood–sugar lowering properties.

Among approximately 200 varieties of mushrooms whose health-enhancing skills have been noted are the chaga, cordyceps, maitake, oyster, portobello, reishi, shiitake, and turkey tail. Although all of these types can be obtained in fresh or dried form, shiitake mushrooms currently are the easiest to obtain in the US.

A list of the health benefits of mushrooms would have to include their antiviral and antibacterial properties, which in different varieties have shown some effectiveness against pathogens including polio, hepatitis B, influenza, candida, Epstein-Barr virus, streptococcus, and tuberculosis. The scientific literature also discusses the mutagenic benefits of mushrooms, which can be enlisted in the fight against leukemia, sarcoma, and the bladder, breast, colon, liver, lung, prostate, stomach cancers, even in advanced stages.

Onions

This super food is rich in vitamin B6, vitamin C, manganese, molybdenum (essential in preserving tooth enamel), potassium, phosphorous, and copper. Onions are an excellent source of

quercetin, which works with vitamin C to help the body eliminate bacteria and strengthen immunity. A rule of thumb is that the more pungent the onion, the greater its health benefits.

Onions are particularly important in the diet of diabetics because they are rich in chromium, a trace mineral that helps cells respond to insulin. Moreover, refined sugar depletes the body's chromium levels, so onions are an excellent source of chromium replacement for anyone who consumes refined sugar.

Onions also help to reduce blood pressure and cholesterol and strengthen bone health. They have anti-inflammatory benefits, reducing symptoms related to inflammatory conditions such as asthma, arthritis, and respiratory congestion. Some studies have noted that onions lessen the adverse effects of colds and flus.

Oranges

The orange is a vitamin- and mineral-packed fruit, rich in vitamins A, B, and C and potassium and calcium. It is an excellent source of fiber as well. One phytonutrient in oranges that places it in the super food category is the flavonoid hesperetin. This biochemical helps support healthy blood vessels and reduces cholesterol.

The orange's defining health trait is its high content of vitamin C, an important antioxidant that limits free radicals while also building the immune system. Vitamin C's healing properties are well known and have been repeatedly scientifically validated. These include lessening arterial plaque and protecting against Alzheimer's, Parkinson's, and Crohn's diseases, arthritis, and diabetes.

Peppers (Capsicum)

Native American folk medicine, which has so many features that we can learn from, gave a prominent place in its pharmacology to peppers of the capsicum family (including bell and chili peppers). Recent work suggests that the nutrient capsaicin, contained in these peppers, is a natural analgesic and a neuroinflammatory blocker that relieves aches and pains in joints and muscles. This is one reason why Native American medicine prescribed a topical application of pepper to painful areas of the body.

Adding to the super food designation of peppers is promising research in Canada that has explored the uses of capsaicin in the treatment of type 1 diabetes. Other research has found benefits for individuals with prostate cancer and leukemia. Some scientists have noted that the much-studied capsaicin helps with weight loss, stimulation of insulin-producing cells, and prevention of LDL cholesterol oxidation. Another benefit recently uncovered is that capsaicin protects against stomach ulcerations and induces apoptosis (cancer cell death) in lung cancer.

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In addition to capsaicin, peppers are rich in the antioxidant vitamin A; vitamins B1, B6, E, and K; and potassium, magnesium, and iron. Yellow peppers are rich in lutein and zeaxanthin, which protect against eye disease and blindness.

Tomatoes

All of the super foods contain highly potent organic compounds, such as phytochemicals, that boost their health-giving properties. Tomatoes are no exception. They are the best source of lycopene, a carotenoid biochemical that gives tomatoes their red color and is packed with healthful properties. An estimated 80% of the lycopene consumed in the US is derived from tomatoes and tomato-based foods.

There is a vast body of scientific literature confirming lycopene's antioxidant and antimutagenic properties. This chemical is noteworthy for its protection against and treatment of various cancers, including those of the bladder, breast, cervix, lungs, mouth, ovary, prostate, and stomach. Because diabetics often have low levels of lycopene in their blood, tomatoes should be a regular part of their diets.

Tomatoes have been shown to prevent cholesterol oxidation, lower blood pressure, and decrease the risk of atherosclerosis. Another benefit that may accrue to the eater of these plants is improved renal function. Tomatoes have antiviral and antibacterial qualities. In particular, lycopene can protect against human papillomavirus, a pathogen that has been associated with cancer.

Tomatoes are rich in most of the B complex vitamins, potassium, manganese, chromium, folate, and iron. They also are an excellent source of the amino acid tryptophan, which is important for neurological health and can improve sleep.

Whole Grains

By now most Americans are aware that whole grain breads and pastas are more healthful than those made from white flour, and brown rice is higher in nutrients and health benefits than is white rice. However, once a person has changed over to brown rice and whole grain breads, he or she still has a rich world of whole grains to explore, each of which offers unique health benefits and phytonutrients.

Like legumes, whole grains are rich in fiber. One grain, spelt, is used in breads and pastas and provides 75% of the recommended daily requirement for vitamin B2. Spelt is highly water soluble, which means that its nutrients are easily absorbed. There is evidence that spelt is a good choice for diabetics. Another grain, barley, is distinguished by being an excellent source of selenium, a substance that reduces the risk of colon disorders and colorectal cancer. Because barley is high in tryptophan, it will aid in sleep regulation. A third important grain, millet, is high in manganese, magnesium, and phosphorous, all of which support cardiovascular health.

Two less familiar grains are kamut and quinoa. The Glycemic Research Institute in Washington, DC, has trumpeted kamut for its low-glycemic properties, which makes it an ideal super food for diabetics, athletes, and people suffering from obesity. It also is an excellent substitute for those with wheat allergies because it has 65% more amino acids than wheat.

Quinoa has been identified as a super food among grains because of its ability to balance blood sugar and provide high-quality fiber and protein in the diet. It is higher in calcium, phosphorus, iron, and zinc than are wheat, barley, and corn. Quinoa is one of the most complete foods in nature, earning its super-food status not only for the properties described above but also its role in protecting against atherosclerosis and breast cancer and, as a probiotic, fostering beneficial microflora in the gut.

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