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Best Vegetables for Your Heart

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STORY AT-A-GLANCE

- The more vegetables you eat, the lower your risk of heart disease, with different types of vegetables protecting your heart through different mechanisms
- Leafy greens have high amounts of nitrates that naturally boost your nitric oxide level. L-citrulline in watermelon also boosts nitric oxide
- Cruciferous veggies lower your risk of stroke and heart attack by promoting more supple neck arteries and preventing the buildup of arterial plaque
- Probiotic-rich sauerkraut has been shown to reduce inflammation, improve high blood pressure, reduce triglyceride levels and maintain healthy cholesterol levels, all of which benefit your cardiovascular and heart health
- The best way to maximize your benefits is to eat a wide variety of vegetables on a daily basis, making sure to include nitrate-rich leafy greens, cruciferous vegetables, magnesium- and quercetin-rich varieties, plus onions and some homemade sauerkraut

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Research has shown that the more vegetables you eat, the lower your risk of heart disease, with different types of vegetables protecting your heart through different mechanisms. Leafy greens, for example, have high amounts of nitrates that naturally boost your nitric oxide (NO) level.[1] Cruciferous veggies, on the other hand, lower your

risk of stroke and heart attack by promoting more supple neck arteries and preventing the buildup of arterial plaque.

In fermented cabbage, it's the fiber content that helps lower blood pressure and improve blood sugar control, thereby lowering your risk of heart problems. Phytonutrients in sauerkraut also help promote easy blood flow and flexible blood vessels, and veggies rich in magnesium and quercetin also provide important heart benefits. Following is a summary of some of the top vegetable types for maintaining healthy heart function well into old age.

Nitrate-Rich Veggies Boost Heart Health

NO is an important biological signaling molecule that supports normal endothelial function and protects your mitochondria. A potent vasodilator, it also helps relax and widen your blood vessels, which improves blood flow.

A recent study published in The American Journal of Clinical Nutrition,[2] which followed nearly 1,230 seniors for 15 years, found that the higher an individual's vegetable nitrate intake, the lower their risk for atherosclerotic vascular disease (ASVD) and all-cause mortality.

According to the authors, "These results support the concept that nitrate-rich vegetables may reduce the risk of age-related ASVD mortality." Research[3] has also shown a diet high in vegetable nitrates helps prevent and treat prehypertension and hypertension (high blood pressure), and protects against heart attacks, courtesy of their NO-boosting power.

Vegetable nitrates should not be confused with the nitrates found in processed meats such as bacon, hot dogs, ham and other cured meats. Dietary nitrates can convert into either health-boosting NO or nitrosamines, which are carcinogenic and should be avoided as much as possible.[4]

Vegetable nitrates turn into beneficial NO while the nitrates in processed meats are primarily converted into harmful nitrosamines. The top 10 nitrate-rich foods that can

help boost your heart health include:[5]

1. Arugula 480 mg of nitrates per 100 grams
2. Rhubarb 281 mg
3. Cilantro 247 mg
4. Butter leaf lettuce 200 mg
5. Spring greens like mesclun mix 188 mg
6. Basil 183 mg
7. Beet greens 177 mg
8. Oak leaf lettuce 155 mg
9. Swiss chard 151 mg
10. Red beets 110 mg

Surprise! Watermelon Also Boosts NO Production

Watermelon is a popular summer delicacy, and it will also improve NO production thanks to L-citrulline. However, it is important to understand that watermelon is high in net carbs and consuming large amounts of it on a regular basis will likely worsen insulin resistance and increase your risk of heart disease.

Watermelon also has lycopene, a carotenoid antioxidant that gives fruits and vegetables like tomatoes and watermelon their pink or red color. Its antioxidant activity has long been suggested to be more powerful than that of other carotenoids, such as beta-carotene, and research suggests it may significantly reduce your risk of stroke.

A study[6] that followed men in their mid-40s to mid-50s for more than 12 years found those with the highest blood levels of lycopene were 55% less likely to have a stroke than those with the lowest levels. Other antioxidants, including alpha carotene, beta-carotene, vitamin E and vitamin A, showed no such benefit. L-citrulline, meanwhile, is a

precursor of L-arginine, the substrate for nitric oxide synthase in the production of NO. As explained in a 2006 study:[7]

> *"Supplemental administration [of] L-arginine has been shown to be effective in improving NO production and cardiovascular function in cardiovascular diseases associated with endothelial dysfunction, such as hypertension, heart failure, atherosclerosis, diabetic vascular disease and ischemia-reperfusion injury, but the beneficial actions do not endure with chronic therapy.*
>
> *Substantial intestinal and hepatic metabolism of L-arginine … makes oral delivery very ineffective … In contrast, L-citrulline is not metabolized in the intestine or liver … L-citrulline entering the kidney, vascular endothelium and other tissues can be readily converted to L-arginine, thus raising plasma and tissue levels of L-arginine and enhancing NO production."*

Cruciferous Veggies Improve Arterial Suppleness

Cruciferous vegetables such as broccoli, cauliflower, Brussels sprouts and cabbage — which are widely recognized for their anticancer benefits — also have a heart-healthy influence.

A study[8] that examined the effects of vegetable intake on carotid artery measures, which are indicative of arterial health (narrow, hard arteries restrict blood flow and can lead to heart attack and stroke), found those who consumed the most cruciferous vegetables had thinner and therefore healthier carotid arteries than those who consumed the fewest.

On average, those who ate at least three daily servings of cruciferous veggies had nearly 0.05 millimeters (mm) thinner carotid arterial walls (the artery in your neck) than those who ate two servings or less. Each 0.1-mm decrease in thickness is associated with a decreased stroke and heart attack risk ranging from 10 to 18 percent, so the results were considered rather significant.

Overall, each 10-gram daily serving of cruciferous vegetables was associated with a 0.8 percent reduction in carotid artery wall thickness. This link was not found with other types of vegetables. According to study author Lauren Blekkenhorst:

> *"After adjusting for lifestyle, cardiovascular disease risk factors (including medication use) as well as other vegetable types and dietary factors, our results continued to show a protective association between cruciferous vegetables and carotid artery wall thickness*[9] *…*
>
> *However, this does not discount the importance of other vegetable types, as we know increasing a variety of all vegetables is important to maintain good health. Our research suggests that recommendations to include a couple of servings of cruciferous vegetables amongst the recommended amount of vegetables may help to optimize the vascular health benefits.*[10]*"*

Eat Your Cruciferous Veggies With Mustard Seed

The sulforaphane in broccoli and other cruciferous veggies has potent anticancer benefits as well, and you can easily augment these perks by pairing your cruciferous vegetables with a myrosinase-containing food.[11]

Myrosinase is an enzyme that converts glucoraphanin to sulforaphane. Examples include mustard seed,[12] daikon radishes, wasabi, arugula or coleslaw, with mustard seed being the most potent. Adding a myrosinase-rich food is particularly important if you eat the broccoli raw, or use frozen broccoli.

Ideally, broccoli should be steamed for three to four minutes to increase the available sulforaphane content. This light steaming eliminates epithiospecifier protein — a heat-sensitive sulfur-grabbing protein that inactivates sulforaphane — while retaining the myrosinase in the broccoli.[13]

This is important because without myrosinase, your body cannot absorb sulforaphane. If you opt for boiling, blanch the broccoli in boiling water for no more than 20 to 30 seconds, then immerse it in cold water to stop the cooking process.

If you prefer raw food, you'd be better off eating raw broccoli sprouts instead of mature broccoli, as the sprouts contain up to 50 times the amount of anticancer compounds found in mature broccoli, including sulforaphane.[14,15,16] As a result, you can eat far less of them while still maximizing your benefits.

Sauerkraut Does Your Heart Good

The fiber[17] and healthy bacteria found in traditionally fermented and cultured foods also benefit your heart in a number of different ways. For example, probiotic-rich sauerkraut has been shown to reduce inflammation, promote gut health (which has system-wide implications), improve high blood pressure, reduce triglyceride levels and maintain healthy cholesterol levels,[18] all of which benefit your cardiovascular and heart health.

Lactobacillus plantarum bacteria in fermented cabbages have also been shown to boost the activities of superoxide dismutase and glutathione peroxidase — two powerful antioxidants created in your body — and elevate gene expression of Nrf2,[19] a transcription factor that regulates cellular oxidation and reduction and aids in detoxification. Sauerkraut is easy to make at home with just a few simple ingredients. Here's a recipe for raw sauerkraut with fresh ginger from my recipe site:

Raw Sauerkraut Recipe

Ingredients

- 1 whole green cabbage
- 1 tablespoon grated fresh ginger
- 2 carrots, grated
- Celery juice
- Starter culture

Procedure

1. Grate, shred or slice the cabbage thinly, except for the outer leaves (set them aside). Shred the carrots and ginger, and add to the cabbage.
2. Mix the starter culture in the celery juice, making sure it's completely dissolved. Add the juice to your vegetables, spreading it out evenly.
3. Put as much as sauerkraut in a ceramic pot or glass container as you can.
4. Get a masher, and mash the vegetables down. This will release more juices in your sauerkraut and eliminate any air pockets.
5. Place a cabbage leaf on top of your sauerkraut and tuck it down the sides. Cover the jar with the lid loosely (fermentation produces carbon dioxide, which will expand the jar).
6. Store the container in a place with a controlled temperature, like a cooler, for five to seven days. On the seventh day, transfer the sauerkraut to the refrigerator.

Magnesium-Rich Vegetables

Magnesium is profoundly important for heart health, and most people are deficient. More than 300 different enzymes rely on magnesium for proper function, and magnesium is required for a whole host of biochemical processes. This includes but is not limited to the creation of ATP (adenosine triphospate), the energy currency of your body,[20,21] relaxation of blood vessels and healthy muscle and nerve function, including the action of your heart muscle.

If you're lacking in cellular magnesium, it can lead to the deterioration of your cellular metabolic function, which in turn can snowball into more serious health problems, including cardiovascular disease, sudden cardiac death and even death from all causes. The best way to maintain healthy magnesium levels is to make sure you're eating plenty of dark-green leafy vegetables.

Juicing your greens is an excellent way to increase your magnesium, along with many other important plant-based nutrients. When it comes to leafy greens, those highest in magnesium include:

Spinach	Swiss chard
Turnip greens	Beet greens
Collard greens	Broccoli
Brussels sprouts	Kale
Bok Choy	Romaine lettuce

Aside from vegetables, other foods that are particularly rich in magnesium include:[22,23,24]

Raw cacao nibs and/or unsweetened cocoa powder — One ounce (28 grams) of raw cacao nibs contain about 64 mg of magnesium, plus many other valuable antioxidants, iron and prebiotic fiber that help feed healthy bacteria in your gut.

Avocados — One medium avocado contains about 58 mg of magnesium, plus healthy fats and fiber, and other vitamins. They're also a good source of potassium, which helps offset the hypertensive effects of sodium.

Seeds and nuts — Pumpkin seeds, sesame seeds and sunflower seeds score among the highest, with one-quarter cup providing an estimated 48%, 32% and 28% of the RDA of magnesium respectively. Cashews, almonds and Brazil nuts are also good sources. One ounce (28 grams) of cashews contains 82 mg of magnesium, which equates to about 20% of the RDA.

Fatty fish — Interestingly, fatty fish such as wild caught Alaskan salmon and mackerel are also high in magnesium. A half fillet (178 grams) of salmon can provide about 53 mg of magnesium, equal to about 13 percent of the RDA.

Squash — One cup of winter squash provides close to 16.80 grams of magnesium — about 4 percent of your RDA.

Herbs and spices — Herbs and spices pack lots of nutrients in small packages, and this includes magnesium. Some of the most magnesium-rich varieties are coriander, chives, cumin seed, parsley, mustard seeds, fennel, basil and cloves.

Fruits and berries — Ranking high for magnesium are: papaya, raspberries, tomato, cantaloupe, strawberries and watermelon. For example, one medium-sized papaya can provide nearly 58 grams of magnesium.

Heart-Healthy Benefits of Onions, Other Quercetin-Rich Foods

Last but not least there's onions. Packed with quercetin, onions help combat inflammation and boost immune function. As a supplement, quercetin has been used to ameliorate obesity, Type 2 diabetes[25] and circulatory dysfunction. A 2016 meta-analysis[26] of randomized controlled trials found quercetin effectively lowered blood pressure at a dosage of about 500 mg per day. Other studies have shown it helps reduce your risk of atherosclerosis.[27] Onions also contain:

- Sulphur-containing phytochemicals that help normalize your cholesterol and triglyceride levels, and have anticlotting properties that help lower your risk of stroke, coronary artery disease and peripheral vascular diseases
- Polyphenols, which play an important role in preventing and reducing the progression of cardiovascular diseases
- Inulin, indigestible prebiotic fiber that nourishes beneficial bacteria in your gut

As a general rule, the more pungent onions provide the greatest benefits. In summary, the best way to maximize your benefits is to eat a wide variety of vegetables on a daily basis, making sure to include nitrate-rich leafy greens, cruciferous vegetables, magnesium- and quercetin-rich varieties, plus onions and some homemade sauerkraut.

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