



Quercetin

Overview

Quercetin belongs to a group of plant pigments called flavonoids that give many fruits, flowers, and vegetables their color.

Flavonoids, such as quercetin, are antioxidants -- they scavenge damaging particles in the body known as free radicals, which damage cell membranes, tamper with DNA, and even cause cell death. Antioxidants can neutralize free radicals and may reduce or even help prevent some of the damage they cause. They also help keep LDL ("bad") cholesterol from being damaged, which scientists think may contribute to heart disease. In test tubes, quercetin has strong antioxidant properties, but researchers aren't sure whether taking quercetin (and many other antioxidants) has the same effects inside the body.

Quercetin acts like an antihistamine and an anti-inflammatory, and may help protect against heart disease and cancer. Quercetin can also help stabilize the cells that release histamine in the body and thereby have an anti-inflammatory effect.

Allergies, Asthma, Hay Fever and Hives

In test tubes, quercetin prevents immune cells from releasing histamines, chemicals that cause allergic reactions. On that basis, researchers think that quercetin may help reduce symptoms of allergies, including runny nose, watery eyes, hives, and swelling of the face and lips. However, there is no evidence yet that it works in humans.

Heart Disease

Test tube, animal, and some population based studies suggest that the flavonoids quercetin, resveratrol, and catechins (all found in high concentration in red wine) may help reduce the risk of atherosclerosis (plaque build up in arteries that can lead to heart attack or stroke). These nutrients appear to protect against the damage caused by LDL ("bad") cholesterol and may help prevent death from heart disease. However, most human studies have looked at flavonoids in the diet, not as supplements. Animal studies have used extremely large amounts of flavonoids (more than you could get through a supplement). More studies in people are needed to see if flavonoid supplements can be effective.

High Cholesterol

Test tubes studies show that quercetin prevents damage to LDL cholesterol, and population studies show that people who eat diets high in flavonoids have lower cholesterol. One study found that people who took quercetin and an alcohol free red wine extract (which contains quercetin) had less damage to LDL cholesterol. Another study found that quercetin reduced LDL concentrations in overweight subjects who were at high risk of heart disease. More studies are needed, however, to show whether taking a quercetin supplement will have the same effect.

Hypertension

Studies show that quercetin supplementation reduces blood pressure in people who have hypertension.

Interstitial Cystitis

Two small studies suggested that people with interstitial cystitis might benefit from flavonoids. People with this condition have bladder pain, similar to a bladder infection, and often experience an urgent need to urinate. In both studies, those who took a supplement containing quercetin appeared to have fewer symptoms. However, the studies included other flavonoids, so it isn't known which one might have the most beneficial effect. More and better designed studies are needed.

Prostatitis

Some preliminary evidence indicates that quercetin might reduce symptoms of prostatitis (inflammation of the prostate). One small study found that men who took quercetin had a reduction in symptoms compared to men who took placebo. The study was small, however, and the results need to be confirmed.

Rheumatoid Arthritis (RA)

There are reports of people with RA who had fewer symptoms when they switched from a typical Western diet to a vegan diet with lots of uncooked berries, fruits, vegetables, nuts, roots, seeds, and sprouts containing antioxidants, including quercetin. But there is no evidence that the positive effects were due directly to antioxidants, and no evidence that quercetin supplements would help treat RA.

Cancer

Scientists have long considered quercetin, and other flavonoids contained in fruits and vegetables important in cancer prevention. People who eat more fruits and vegetables tend to have lower risk of some types of cancer. And animal and test tube studies suggest that flavonoids do indeed have anti cancer properties. Quercetin and other flavonoids have been shown in these studies to inhibit the growth of cancer cells from breast, colon, prostate, ovarian, endometrial, and lung tumors. One study even suggests that quercetin is more effective than resveratrol in terms of inhibiting tumor growth. Another found that frequent intake of quercetin rich foods was associated with lower lung cancer risk. The association was even stronger among subjects who smoked more than 20 cigarettes daily. However, more research is needed.

Dietary Sources

Fruits and vegetables -- particularly citrus fruits, apples, onions, parsley, sage, tea, and red wine -- are the primary dietary sources of quercetin. Olive oil, grapes, dark cherries, and dark berries -- such as blueberries, blackberries, and bilberries -- are also high in flavonoids, including quercetin.

Available Forms

Quercetin supplements are available as pills or capsules. They are often packaged with bromelain (an enzyme found in pineapple) because both are anti-inflammatories. Other flavonoid rich extracts include those from grape seed, bilberry, *Ginkgo biloba*, and green tea.

There are also water soluble forms of quercetin available, such as hesperidin-methyl-chalcone (HMC) or

quercetin-chalcone.

How to Take It

Pediatric

There isn't enough evidence to recommend quercetin for children.

Adult

Recommended adult dosages of quercetin vary depending on the condition being treated.

Precautions

Quercetin is generally considered safe. Side effects may include headache and upset stomach. Preliminary evidence suggests that a byproduct of quercetin can lead to a loss of protein function. Very high doses of quercetin may damage the kidneys. You should take periodic breaks from taking quercetin.

Pregnant and breastfeeding women and people with kidney disease should avoid quercetin.

At high doses (greater than 1 g per day), there are some reports of damage to the kidneys.

Possible Interactions

If you are being treated with any of the following medications, you should not use quercetin supplements without first talking to your health care provider.

Anticoagulants (blood thinners) -- Quercetin may enhance the effect of these drugs, increasing your risk for bleeding:

- Warfarin (Coumadin)
- Clopidogrel (Plavix)
- Aspirin

Chemotherapy -- Test tube and animal studies suggest that quercetin may enhance the effects of doxorubicin and cisplatin, 2 chemotherapy medications used to treat cancer. In addition, some doctors believe taking antioxidants at the same time as chemotherapy can be harmful, while others believe it can be helpful. Talk to your oncologist before taking any supplements if you are undergoing chemotherapy.

Corticosteroids -- Quercetin may cause these drugs to stay in the body longer.

Cyclosporine -- Quercetin may interfere with the body's absorption of this drug, which is used to suppress the immune system.

Digoxin -- Concomitant use may increase the risk of digoxin.

Fluoroquinolones -- Concomitant use may reduce the effectiveness of fluoroquinolones.

Medications changed by the liver -- Since quercetin affects the liver, concomitant use with medications that are changed by the liver (of which there are many) may alter the metabolism of these medications. Speak with your physician.

Supporting Research

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- Last Reviewed on 06/17/2011
- Steven D. Ehrlich, NMD, Solutions Acupuncture, a private practice specializing in complementary and alternative medicine, Phoenix, AZ. Review provided by VeriMed Healthcare Network.

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