

# The Wide-Ranging Health Benefits of Quercetin

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Quercetin is a natural antihistamine with anti-inflammatory, antioxidant and antiviral properties
- › This natural flavonoid is useful for boosting heart health, relieving allergy symptoms, supporting liver health and more
- › Quercetin acts as a zinc ionophore, helping to shuttle zinc through the cellular membrane and into the cell, which is crucial for stopping virus replication
- › Rich sources of quercetin include apples – especially the skins – onions, broccoli, cherries, berries and green tea
- › I recommend keeping quercetin in your medicine chest for times when you feel you're coming down with something, such as a cold or influenza

Quercetin is one of more than 4,000 known flavonoids,<sup>1</sup> compounds that contribute to the bitterness, astringency, flavor, aroma and oxidative stability of many fruits, berries and vegetables.

Quercetin, in particular, is a plant pigment and natural antiviral agent<sup>2</sup> found in foods such as onions, apples, plums and green tea, which also combats inflammation and works as a natural antihistamine.

I recommend keeping quercetin in your medicine chest for times when you feel you're coming down with something, such as a cold or influenza. However, there's also good

reason to include plenty of quercetin-rich foods in your diet on a regular basis, as it offers multiple benefits to your health.

## Quercetin Supports Heart Health

Quercetin exerts a range of biological activities that have a positive role in heart disease, including:<sup>3</sup>

Anti-inflammatory	Antihypertensive	Vasodilator effects
Antiobesity	Antihypercholesterolemic	Antiatherosclerotic

In one study of 30 men with coronary heart disease, consuming quercetin-rich red grape polyphenol extract led to an increase in flow-mediated dilation of arteries, which can signal improved endothelial health.<sup>4</sup> It also inhibits platelet aggregation and has vasorelaxant properties that help lower blood pressure and prevent cardiac hypertrophy, in which the heart muscles thicken.

Another benefit to quercetin is its potential to lower uric acid levels,<sup>5</sup> elevated levels of which are linked to an increased risk of heart disease and stroke,<sup>6</sup> not to mention gout insulin resistance and Type 2 diabetes. Dr. David Perlmutter told Yahoo:<sup>7</sup>

*"While we've known for decades about how uric acid increases the risk of gout, this new understanding about the role it plays in stroke is really encouraging, since there's so much we can do to bring our uric acid levels under control. In fact, there's great research showing how the nutrient quercetin can substantially lower uric acid levels."*

Perlmutter suggests supplementing with 500 milligrams (mg) of quercetin along with 100 mg of luteolin for a gout-lowering effect similar to that induced by the gout drug Allopurinol.<sup>8</sup>

This natural compound is also useful for optimizing cholesterol levels, as it may help inhibit oxidation of low-density lipoprotein (LDL). It also has blood pressure-lowering

effects. A study on rats found daily supplementation reduced systolic blood pressure by 18% and diastolic by 23%.<sup>9</sup>

In addition, a six-week trial on overweight humans at high risk of heart disease also found that quercetin – at a dose of 150 mg per day – reduced systolic blood pressure and oxidized LDL levels.<sup>10</sup> It may even support a healthy weight via multiple antiobesity effects. According to Pharmacognosy Review:

*"Quercetin has a specific feature which inhibits fat accumulation in maturing human fat cells and simultaneously triggers apoptosis (programmed destruction) in existing fat cells. In addition, quercetin also blocks the uptake of glucose from the blood, blocks the fat cell production, and enhances fat cell necrosis."*

## Quercetin Offers Allergy Relief

In the video above, chiropractor Dr. Jin Sung highlights quercetin's role in seasonal allergies, noting that it demonstrates the greatest anti-allergy activity among flavonoids and works by modulating the release of histamine from basophils and mast cells.<sup>11</sup>

In a study comparing quercetin with herbal water on histamine release from mast cells, quercetin inhibited cells' release of histamine by 95% to 97%.<sup>12</sup> Other research shows quercetin supplementation may reduce allergy symptoms such as sneezing, runny nose and itchy eyes.<sup>13</sup> The half-life of quercetin is 3.5 to 7.5 hours, so for best results you may want to take it in divided doses.

Sung recommends a dose of 500 mg to 1,000 mg two to four times a day during allergy season to help manage the symptoms, starting with the lowest dose – 500 mg, twice a day – and gradually increasing if necessary.<sup>14</sup>

Synergistic supplements for allergy relief, which you can take along with quercetin, include stinging nettle, butterbur extract, mangosteen extract, ginger, vitamin C and vitamin D.<sup>15</sup>

## Powerful Antiviral Effects

In addition to offering antioxidant, anti-inflammatory, anticancer, antimicrobial and immune-modulating properties, quercetin acts as a zinc ionophore.<sup>16</sup> These work by shuttling zinc through the cellular membrane and into the cell, which is crucial for stopping virus replication. This is part of what makes it so useful during cold and flu season due to its antiviral effects.

Quercetin was initially found to provide broad-spectrum protection against SARS coronavirus in the aftermath of the 2003 SARS epidemic.<sup>17,18,19</sup> A number of studies have also shown quercetin, when used early, also lowers your risk of hospitalization and death from COVID-19<sup>20</sup> and improves clinical outcomes.

In one study, patients with COVID-19 who received quercetin along with standard care recovered faster and had less severe symptoms.<sup>21</sup>

Other viruses known to respond to quercetin include adenovirus, herpes simplex virus, Japanese encephalitis virus, and respiratory syncytial virus (RSV).<sup>22</sup> If you're prone to colds and flu, you could consider taking quercetin for a couple of months before cold and flu season hits to boost your immune system.

Quercetin likely drives zinc into the cell to inhibit viral replication and also works synergistically with vitamin C, which enhances plasma quercetin levels,<sup>23</sup> so consider using both together for best results. According to a *Frontiers in Immunology* review article:<sup>24</sup>

*"There is evidence that vitamin C and quercetin co-administration exerts a synergistic antiviral action due to overlapping antiviral and immunomodulatory properties and the capacity of ascorbate to recycle quercetin, increasing its efficacy."*

## Help to Keep Gray Hair Away

Research suggests the use of onion juice as a natural, topical treatment to support hair regrowth,<sup>25</sup> and one reason could be due to quercetin. In addition to helping reduce inflammation,<sup>26</sup> quercetin enhances the expression of the antioxidant enzyme catalase<sup>27</sup> in your scalp, which helps break down hydrogen peroxide that contributes to cell damage and thinning hair.<sup>28</sup>

By breaking down hydrogen peroxide, catalase – and by extension, quercetin – may also be beneficial for slowing down hair graying. Hydrogen peroxide is a well-known tool for bleaching your hair, but many people aren't aware that your hair cells make hydrogen peroxide, too.

As you age, the amount produced increases, which researchers believe ultimately bleaches out your hair pigment, turning your hair gray and then white.<sup>29</sup>

Quercetin is well known for maintaining oxidative balance in the body, both by inhibiting and alleviating oxidative stress.<sup>30</sup> This is another way that it may help keep gray hair away. Oxidative stress is the state in which your body's free radicals (from pollution, poor diet, stress) outnumber your antioxidant defenses (from healthy diet).

Graying hair may be an indicator of oxidative stress-induced damage.<sup>31</sup> Research has also shown that people with premature graying had a higher level of pro-oxidants and lower levels of antioxidants than those with normal hair.<sup>32</sup> As researchers noted in the FASEB Journal, compounds that slow oxidative stress, such as quercetin, may be useful for slowing down or stopping hair graying.<sup>33</sup>

## **Support for Vision, Liver Health and Tumor Regression**

Other reasons to embrace quercetin-rich foods include its promise for helping to protect vision, with researchers describing its potential effects on degenerative retinal diseases, noting, "Some polyphenols, especially flavonoids (e.g., quercetin and tannic acid), could attenuate light-induced receptor damage and promote visual health benefits."<sup>34</sup>

Additional research published in the August 2019 issue of *Phytotherapy Research* concluded quercetin has a beneficial impact on nonalcoholic fatty liver disease (NAFLD)

"by ameliorating inflammation, oxidative stress and lipid metabolism."<sup>35</sup>

It may also be useful for fighting cancer. According to research published in 2016, quercetin may trigger tumor regression by interacting with your DNA and activating the mitochondrial pathway of apoptosis (the programmed cell death of damaged cells).<sup>36</sup> Quercetin was found to induce cytotoxicity in leukemic cells, and the effect was dose-dependent.

Limited cytotoxic effects were also found in breast cancer cells. Overall, quercetin increased the lifespan of at least 40% of mice with cancer fivefold compared to untreated controls. The authors attributed these effects to quercetin's direct interaction with DNA and its activation of the mitochondrial pathway of apoptosis, and suggested quercetin's potential use as a cancer therapy adjunct deserves further exploration.

Quercetin may also act as a senolytic agent against senescence-mediated cancer growth.<sup>37</sup> Cellular senescence is a dynamic and multistep process associated with alterations in metabolic activity and gene expression.<sup>38</sup> This can compromise tissue regeneration and contribute to aging.

On the other hand, by removing senescent cells, which are similar to nonreplicating cancer cells that secrete powerful proinflammatory cytokines that destroy your health, age-related dysfunction can be attenuated and potentially extend lifespan.

## **What Are the Best Sources of Quercetin?**

Quercetin is found in many foods, including citrus fruits, green leafy vegetables, broccoli, apples, onions, green tea, red grapes, dark cherries and berries, such as blueberries and cranberries. Among these, the highest levels are found in apples — especially the skins — onions, broccoli, cherries, berries and green tea.<sup>39</sup>

For an especially concentrated source, consider onion skins. They may have 77 times more quercetin than the flesh.<sup>40,41</sup> While consuming onion skins may be unpalatable, consider sipping on a broth made from onion peels for more potent therapeutic effects.

Quercetin is also found in medicinal products such as Ginkgo biloba, St. John's Wort (*Hypericum perforatum*) and elderberry (*Sambucus canadensis*).

If you're using quercetin in supplement form, consider taking it at night (with zinc) before you go to bed and you haven't eaten for at least three to four hours. If you are metabolically flexible, you will dive into nutritional ketosis while you sleep.

The other benefit of taking quercetin at night is to take advantage of its senolytic action to remove senescent cells. You can further optimize quercetin's senolytic properties if you take it while you are fasting.

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