Two Studies Test Quercetin And COVID Outcomes

Analysis by Dr. Joseph Mercola Fact Checked | April 01, 2023

STORY AT-A-GLANCE

- Two recently published studies confirm quercetin is useful as an adjunct therapy in the early outpatient treatment of mild SARS-CoV-2 infection
- In one study, COVID patients who received quercetin in addition to analgesics and an antibiotic cleared the virus faster than those who only received analgesics and antibiotics, and a greater number of patients reported reduced symptoms
- In the second study, daily quercetin supplementation for one month reduced the frequency and length of hospitalization, the need for noninvasive oxygen therapy, intensive care and deaths
- Quercetin has antiviral, anti-blood clotting, anti-inflammatory and antioxidant properties, all of which are important in the treatment of SARS-CoV-2 infection
- Quercetin also inhibits binding of specific spike proteins to your ACE2 receptors, thereby blocking the virus' ability to infect your cells. It's also been shown to directly neutralize viral proteins that are critical in the replication of SARS-CoV-2

From Dr. Joseph Mercola

Since COVID-19 first entered the scene, exchange of ideas has basically been outlawed. By sharing my views and those from various experts throughout the pandemic on COVID treatments and the experimental COVID jabs, I became a main target of the White House, the political establishment and the global cabal.

Propaganda and pervasive censorship have been deployed to seize control over every part of your life, including your health, finances and food supply. The major media are key players and have been instrumental in creating and fueling fear.

I am republishing this article in its original form so that you can see how the progression unfolded.

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In an August 21, 2021, newsletter,[1] Dr. Michael Murray discussed the use of quercetin for respiratory infection symptoms. In November 2020, he'd suffered a "very mild and brief bout of COVID-19."

He also recounts an anecdotal story of a friend who developed suspicious respiratory symptoms. His friend had been taking a number of supplements said to offer protection, but was still feeling awful.

As it turns out, the one thing he'd not taken was quercetin, and as soon as he did, that same day, his symptoms started to dissipate. This experience, Murray says, "is consistent with the results from two clinical trials" that were recently published.

Quercetin seems to be a safe, far less expensive, and easier-to-obtain and it works by a similar mechanism, driving zinc into the cells to stop viral replication.

Statistical Improvement in Clinical Outcomes

In the first study,[2] 42 COVID-19 outpatients were divided into two groups. One group of 21 patients received standard medical therapy consisting of analgesics and an antibiotic (acetaminophen 500-milligram (mg) to 1,000-mg dose if body temperature was higher than 37.5 degrees C — 99.5 F — with a maximum daily dosage of 3 grams, and 500 mg azithromycin for three consecutive days).

The other group of 21 patients received standard therapy plus the equivalent of 600

mg of quercetin per day (divided into three doses) for seven days, followed by another seven-day course of 400 mg of quercetin per day (divided into two doses).

The quercetin was used with sunflower lecithin, which has been demonstrated to increase absorption in the gut by as much as 20 times, compared to pure quercetin formulations.

The main outcomes being evaluated were virus clearance and symptoms. After one week of treatment, 16 of the 21 patients in the quercetin group tested negative for SARS-CoV-2 and 12 reported that all symptoms had diminished.

In the standard care group, only two tested negative and four had partially improved symptoms. By the end of Week 2, the five remaining patients in the quercetin group tested negative. In the standard care group, 17 of the 19 remaining patients tested negative and one had died.

"These results are impressive and hopefully additional studies will be conducted on hospitalized patients to see how quercetin might be helpful in more severe cases," Murray wrote in his newsletter.

Can Quercetin Reduce Hospitalizations and Deaths?

The second study[3] — a prospective, randomized, controlled and open-label trial — gave 152 COVID-19 outpatients a daily dose of 1,000 mg of quercetin for 30 days to evaluate its adjuvant effects in the treatment of early symptoms and the prevention of severe infection. According to the authors:

> *"The results revealed a reduction in frequency and length of hospitalization, in need of non-invasive oxygen therapy, in progression to intensive care units and in number of deaths. The results also confirmed the very high safety profile of quercetin and suggested possible anti-fatigue and pro-appetite properties.*

QP (Quercetin Phytosome®) is a safe agent and in combination with standard care, when used in early stage of viral infection, could aid in improving the early symptoms and help in preventing the severity of COVID-19 disease. It is suggested that a double-blind, placebo-controlled study should be urgently carried out to confirm the results of our study."

Mechanisms of Action

As noted in the first study[4] above, quercetin was chosen based on the fact that it has antiviral, anti-blood clotting, anti-inflammatory and antioxidant properties, all of which are important in the treatment of SARS-CoV-2 infection. In the second study, more detailed mechanisms of action are reviewed. According to the authors:[5]

"SARS-CoV-2 proteases, like 3-chymotrypsin-like protease (3CLpro), papain-like pro-tease (PLpro), RNA-dependent RNA polymerase, spike (S)protein and human angiotensin-converting enzyme 2 (hACE2) are considered possible targets for developing effective anti-COVID-19 drugs.

Recently, molecular docking studies have suggested the possible binding interaction of quercetin with the 3CLpro, PLpro, and S-hACE2 complex. Some recent results, obtained by biophysical techniques, appear to support the results of the molecular docking studies.

Quercetin, a flavonol not naturally present in the human body, is the most abundant polyphenol in fruits and vegetable and is widely used as a dietary supplement to boost the immune system and promote a healthy lifestyle.

Quercetin is characterized by three crucial properties: antioxidant, anti-inflammatory and immunomodulatory. The combination of these actions allows quercetin to be a potential candidate to support all unhealthy conditions where oxidative stress, inflammation and immunity are involved."

Initially, quercetin gained attention because it's a zinc ionophore, meaning it shuttles zinc — which has well-known antiviral effects — into your cells just like the drug hydroxychloroquine.

> **"In particular, quercetin exerts significant inhibition on the binding of specific spike proteins to ACE-2 receptors, thereby blocking the ability of the virus to infect human cells. Quercetin has also been shown to directly neutralize viral proteins the are critical in the replication of SARS-CoV-2. ~ Dr. Michael Murray"**

Some proposed the primary reason hydroxychloroquine and quercetin worked was because of this feature. Of course, you also had to take zinc along with either of them. To effectively act as a zinc ionophore, the quercetin also needs vitamin C.

Since then, other studies, including the two reviewed here, have shown quercetin has other actions that makes it useful against SARS-CoV-2 as well. As reported by Murray in his newsletter:

> *"In particular, quercetin exerts significant inhibition on the binding of specific spike proteins to ACE-2 receptors, thereby blocking the ability of the virus to infect human cells. Quercetin has also been shown to directly neutralize viral proteins the are critical in the replication of SARS-CoV-2."*

In some studies, quercetin has also been shown to inhibit the release of inflammatory cytokines, which could help alleviate infection-related symptoms and suppress excessive inflammatory responses from occurring. Its antioxidant effects may also help prevent tissue damage caused by scavenging free radicals, thereby aiding in the recovery process of viral infections.[6]

Quercetin's Antiviral Properties

Quercetin's antiviral properties have been attributed to three main mechanisms of action:

1. Inhibiting the virus' ability to infect cells
2. Inhibiting replication of already infected cells
3. Reducing infected cells' resistance to treatment with antiviral medication

For example, research[7] funded by the U.S. Defense Advanced Research Projects Agency (DARPA), published in 2008, found it lowers your risk of viral illness such as influenza and boosts mental performance following extreme physical stress, which might otherwise undermine your immune function and render you more susceptible to infections.

Here, cyclists who received a daily dose of 1,000 mg of quercetin in combination with vitamin C (which enhances plasma quercetin levels[8,9]) and niacin (to improve absorption) for five weeks were significantly less likely to contract a viral illness after bicycling three hours a day for three consecutive days, compared to untreated controls. While 45% of the placebo group got sick, only 5% of the treatment group did.

Quercetin Works Against Many Common Viruses

Before the COVID-19 pandemic struck, several studies had highlighted quercetin's ability to prevent and treat the common cold and seasonal influenza.[10,11,12,13,14,15,16,17,18] By attenuating oxidative damage, it also lowers your risk of secondary bacterial infections,[19] which is actually the primary cause of influenza-related deaths.

Importantly, quercetin increases mitochondrial biogenesis in skeletal muscle, which suggests part of its antiviral effects are due to enhanced mitochondrial antiviral signaling.[20] Quercetin also works against other viruses, as demonstrated in the

following studies:

- A 1985 study found quercetin inhibits infectivity and replication of herpes simplex virus type 1, polio-virus type 1, parainfluenza virus type 3 and respiratory syncytial virus (RSV).[21]
- A 2016 animal study[22] found quercetin inhibited mouse dengue virus and hepatitis virus.
- Other studies have confirmed quercetin's power to inhibit both hepatitis B[23] and C[24] infection.
- A March 2020 study[25] found quercetin provides "comprehensive protection" against Streptococcus pneumoniae infection, both in vitro and in vivo, primarily by neutralizing pneumolysin (PLY),[26] one of the toxins released from pneumococci that encourages S. pneumoniae infection to blossom in the first place.

  Streptococcus pneumoniae is responsible not only for pneumonia, but can also be involved in some ear and sinus infections, meningitis and certain blood infections.[27] As reported by the authors of this study:[28]

  > *"The results indicated that quercetin significantly reduced PLY-induced hemolytic activity and cytotoxicity via repressing the formation of oligomers.*
  >
  > *In addition, treatment with quercetin can reduce PLY-mediated cell injury, improve the survival rate of mice infected with a lethal dose of S. pneumoniae, alleviate the pathological damage of lung tissue and inhibit the release of cytokines (IL-1β and TNF-α) in bronchoalveolar lavage fluid.*
  >
  > *Considering the importance of these events in antimicrobial resistant S.*

pneumoniae pathogenesis, our results indicated that quercetin may be a novel potential drug candidate for the treatment of clinical pneumococcal infections."

How Quercetin Combats Inflammation and Boosts Immunity

Aside from its antiviral activity, quercetin is also known for boosting immunity and combating inflammation. As noted in a 2016 study[29] in the journal Nutrients, mechanisms of action include (but is not limited to) the inhibition of:[30]

- Lipopolysaccharide (LPS)-induced tumor necrosis factor α (TNF-α) production in macrophages. TNF-α is a cytokine involved in systemic inflammation, secreted by activated macrophages, a type of immune cell that digests foreign substances, microbes and other harmful or damaged components
- LPS-induced mRNA levels of TNF-α and interleukin (IL)-1α in glial cells, which results in "diminished apoptotic neuronal cell death"
- The production of inflammation-producing enzymes
- Calcium influx into the cell, which in turn inhibits pro-inflammatory cytokine release, as well as histamine and serotonin release from intestinal mast cells[31]

According to this paper, quercetin also stabilizes mast cells, has cytoprotective activity in the gastrointestinal tract, and "a direct regulatory effect on basic functional properties of immune cells," which allows it to inhibit "a huge panoply of molecular targets in the micromolar concentration range, either by down-regulating or suppressing many inflammatory pathways and functions."[32]

Bioavailability

While quercetin does have potent antiviral effects, in order for it to work effectively you need sufficiently high dosages to raise the level of quercetin in your body's

tissues. The relatively low absorption rate of quercetin is why a sunflower lecithin formulation was used.

Research[33] published in the July-December 2021 issue of the Journal of Natural Health Products Research, found a quercertin matrix has the same total absorption rate as quercetin phytosome — and higher peak blood levels.

> *"Since both of these forms of quercetin produce similar blood levels, they should produce the same effects at equal dosages based upon quercetin content,"* Murray wrote in his newsletter, adding:
>
> *"My dosage recommendation as part of a nutritional supplement program to support immune function is 250 mg twice daily.*
>
> *And in patients with active Infection, my recommendation is … six capsules twice a day providing a total of 3,000 mg of quercetin. This high dosage should be taken for at least 10 days and then reduced to a maintenance dosage of 250 mg twice daily …*
>
> *[This] high dosage may not be necessary. But my dosage calculations are based upon likely tissue concentrations needed to exert the strongest antiviral effects. And given the safety of quercetin, there is no harm at this level."*

Protocol Using Quercetin

One doctor who early brought quercetin into the limelight was Dr. Vladimir Zelenko. As hydroxychloroquine became difficult to obtain, Zelenko switched to recommending quercetin instead, as it's readily available as an over-the-counter supplement. For a downloadable "cheat sheet" of Zelenko's protocol for COVID-19, visit VladimirZelenkoMD.com.

Other Health Benefits of Quercetin

There are also other lesser known benefits and uses for quercetin, including the prevention and/or treatment of:[34]

High blood pressure[35,36]
Cardiovascular disease[37]
Obesity[38] and metabolic syndrome[39] (a cluster of conditions including high blood pressure, high blood sugar, high triglyceride levels and fat accumulation around the waist that raise your risk for Type 2 diabetes, heart disease and stroke)
Certain kinds of cancer, in particular leukemia, and to a lesser degree breast cancer[40]
Nonalcoholic fatty liver disease (NAFLD)[41]
Gout[42]
Arthritis[43]
Mood disorders[44]
Aluminum-induced neurodegenerative changes, such as those seen in Alzheimer's, Parkinson's and amyotrophic lateral sclerosis (ALS)[45]
Longevity, thanks to its senolytic benefits (clearing out damaged and worn-out cells)[46,47]

Research has also highlighted quercetin's epigenetic influence and ability to:[48]

- Interact with cell-signaling pathways
- Modulate gene expression
- Influence the activity of transcription factors
- Modulate microRNAs

MicroRNAs used to be considered "junk" DNA. But far from being useless, research has revealed so-called "junk" DNA is actually microRNA and plays a crucial role in regulating genes that make the proteins that build your body.

The microRNA function as "on/off" switches for the genes. Depending on the microRNA input, a single gene can code for any of more than 200 protein products. Quercetin's ability to module microRNA may also help explain its cytotoxic effects, and why it appears to improve cancer survival (at least in mice).

Guillermou

The storm of inflammatory mediators and oxidizing agents caused by SARS-CoV-2 infection has been strongly associated with the failure of vital organs seen in critically ill patients with COVID-19 disease and the deaths of thousands of infected people worldwide. world. world. Acute kidney injury (AKI) is a common kidney disorder characterized by a sudden and sustained decline in kidney function with a critical influence on poor prognosis and lethal clinical outcomes of various etiologies, including some viral infection diseases. Oxidative stress and inflammation are known to play a key role in the pathogenesis and development of AKI.

Quercetin is a natural substance that has multiple pharmacological properties, such as anti-inflammatory action, and is used as a dietary supplement. There is evidence for the anti-coronavirus activities of this compound, including against the SARS-CoV-2 target 3CLpro. The ability to inhibit the coronavirus and its inflammatory processes is highly desired in a new drug for the treatment of COVID-19. Quercetin showed nephroprotective effects against kidney damage directly associated with oxidative stress and inflammatory response, leading, respectively, to increased renal ROS/RNS levels and massive release of inflammatory mediators, in a wide variety of animal models of AKI.

Quercetin was effective in blocking or attenuating renal damage and dysfunction caused by sepsis, diabetic nephropathy, ischemia/reperfusion, as well as renal damage induced by various nephrotoxic substances. In general, the renoprotective effect of quercetin is associated with antioxidant effects mainly through free radical scavenging and metal chelation, and anti-inflammatory properties by modulating macrophage polarization, through downregulated activities of NF. -B p65 and IRF5. www.mdpi.com/.../5772 (2020)

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COVID-19 often causes acute tubular necrosis; however, in some cases, collapsing focal segmental glomerulosclerosis and direct viral tropism of the kidneys have also been documented. Acute kidney injury secondary to COVID-19 has a multifactorial origin. Even mild impairment of renal function is an independent risk factor for infection, hospitalization, and mortality from COVID-19. ACE2 has been found in the kidney and in the pancreas, with dislocation similar to that of ACE2 found on the apical surface. of the kidney from the proximal tubules and acini and pancreatic islets. The role of ACE2 has been extensively investigated for the onset of diabetes as well, since ACE2 deficiency has been associated with impaired early-phase insulin secretion and glucose tolerance.

The wide expression of ACE2 in the kidney is not so surprising, considering the fundamental role of the RAS system in this organ, in which it regulates the electrolyte balance through the reabsorption of sodium and water in the blood, while causing the excretion of potassium . ACE2 acts by balancing the activity of the RAS, regulating renal homeostasis, and it is postulated that its activity is more related to local control than to systemic regulation of blood pressure.

Recent studies reported an incidence of kidney injury as high as 56.9%. A higher incidence of acute kidney injury has been reported in the US and the UK than in China. In a recent study, a high incidence of renal dysfunction (46%) and acute kidney injury (29%) was demonstrated also in children hospitalized with COVID-19. Prolonged activated partial thromboplastin time and higher D-dimer, both coagulation parameters, were also more common in these patients.
www.sciencedirect.com/.../S0085253820302556 (2020)
link.springer.com/.../s00011-021-01520-8 (2022) link.springer.com/.../s11255-021-02976-7 (2022)

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Guillermou

A considerable amount of data has accumulated describing the potential antiviral (among other) roles of quercetin (Table 1). In fact, several studies, using computational models and in vitro and in vivo tests, seem to confirm this. At present, however, the critical lack of high-quality clinical data should be highlighted, although some empirical and/or case-control clinical evaluations appear encouraging. A randomized study conducted a decade ago enrolled 1002 adult subjects affected by viral upper respiratory tract infections; this demonstrated that quercetin administered at very high doses (1000 mg/dose) for 12 weeks reduced sick days in middle-aged and elderly subjects.

More recently, an empirical study conducted at a Wuhan hospital showed that an approach in which patients were treated with TCM remedies, including herbs high in quercetin, in addition to conventional therapies, was safe from the start. from a medical point of view and had no additional particular side effects. to those obtained with the conventional approach alone, and was able to improve the symptoms of patients with COVID-19. onlinelibrary.wiley.com/.../ptr.6887 (2021) Clinical studies expose the potential of quercetin monotherapy and also its combination therapy with other compounds, including zinc, vitamin C, curcumin, vitamin D3, masitinib, hydroxychloroquine, and ivermectin.

The patent literature also examines claims that nutraceuticals, pharmaceuticals, and dietary supplements containing quercetin, alone or in combination with compounds, and various herbal extracts (aloe, poria, rosemary, and sphagnum) have potential for use against COVID. -19. The literature reveals that quercetin exhibits anti-COVID-19 activity due to its inhibitory effect on the expression of human ACE2 receptors and SARS-CoV-2 enzymes (MPro, PLPro and RdRp). Quercetin is an acidic compound and shows metabolic interaction with some antivirals, antibiotics, and anti-inflammatory agents.

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Molecular docking studies showed the anti-SARS-CoV-2 activities of quercetin. In silico studies using the SARS-CoV-2 protease protein (PDB ID: 6LU7) demonstrate that quercetin inhibits the SARS-CoV-2 protease by hydrogen bonding with some residues (His164, Glu166, Asp187, Gln192 and Thr190) of 6LU7. Quercetin also reduces the expression of many human genes encoding SARS-CoV-2 proteins and reduces the severity of SARS-CoV-2 infection. The first phase of COVID-19 is known to be related to immunodeficiency and the second phase is related to a cytokine storm due to overexpression of pro-inflammatory substances, including inflammasomes, cytokines, interleukin 1, and interleukin 18.

Immune boosters and anti-inflammatory therapies are recommended during the first and second phase of COVID-19, respectively . Quercetin is a recognized antioxidant that possesses immunomodulatory activity, anti-inflammatory activity, and anti-SARS-CoV-2 activity (www.mdpi.com/.../876 (2022) Quercetin (QR) is an active agent against SARS and MERS due to its antimicrobial, antiviral, anti-inflammatory, antioxidant, and some other beneficial effects. QR may have therapeutic potential against SARS-CoV-2 due to its inhibitory effects at various stages of the viral life cycle.

Indeed, QR inhibits viral entry, uptake, and penetration into the SARS-CoV virus, which could be explained, at least in part, by the ability of QR and its derivatives to inhibit the 3-chymotrypsin-like protease (3CLpro) and papain-like protease. (PLpro). QR is a potent immunomodulatory molecule due to its direct modulatory effects on various immune cells, cytokines, and other immune molecules. QR-based nanopreparations possess improved bioavailability and water solubility.

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Oxidative stress and inflammation are interrelated in the way that the presence of one of these events induces the onset of the other, and both are commonly seen in several chronic disorders, including obesity, type 2 diabetes mellitus (DM2), and diabetes mellitus. cardiovascular disorders (CVD) This indicates that the reduction of oxidative stress/inflammation profoundly alleviates the symptoms of chronic diseases and, consequently, QR can be used as a powerful therapeutic strategy to treat these chronic disorders. QR inhibits inflammation by reducing the expression of the enzymes cyclooxygenase (COX) and lipoxygenase (LOX).

Inhibition of these enzymes by QR reduces the synthesis of leukotrienes and prostaglandins, critical mediators of inflammation in the body. Another key marker of inflammation in the body is C-reactive protein (CRP), and elevated CRP levels have been implicated in various disorders, including obesity, T2DM, and cardiovascular disease. QR inhibits the levels of several pro-inflammatory molecules, such as nitric oxide, COX, and CRP in hepatocyte cell lines. QR is a potent immunomodulatory molecule due to its direct modulatory effects on various immune cells, cytokines, and other immune molecules.

For example, QR treatment reduces the expression of class II major histocompatibility complex (MHC) and other molecules that stimulate dendritic cells (DC). DC isolated from mouse bone marrow show reduced activation when administered with LPS. QR also decreases LPS-induced DC migration. Reducing DC activation reduces antigen-specific activation of T cells in the body. The action of QR on immunity and inflammation is carried out by acting mainly on leukocytes and targeting different intracellular signaling kinases and phosphatases, enzymes and membrane proteins.

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Various polyphenols, flavonoids, vitamins, and minerals/trace elements are beneficial in combating viral disorders due to their multiple physiological and biological effects. For example, vitamins are known to increase immunity, enhance the immune response against viruses, and enhance the biological activity of phytoconstituents (including flavonoids). Similarly, flavonoids reduce oxidative stress, inflammation, and the system's ability to fight disease. Therefore, a combination of QR, a flavonoid and other polyphenols and vitamins is expected to show a synergistic effect and help in the rapid elimination of the virus.

The combination of QR and other polyphenols is a strategy to control viral infection by attacking several targets simultaneously. This combination also helps to reduce the doses of flavonoids and polyphenols, thus decreasing the development of viruses resistant to drugs/natural compounds. After screening thousands of potential antiviral phytoconstituents in a medicinal plant database, the following polyphenols were found to hold the most promise for inhibiting SARS-CoV-2 3CL virus replication: myricitrin, myricetin 3-O-beta -D- glucopyranoside, methyl rosmarinate, flavanone-3-O-beta-D-glucopyranoside, 5,7,3,4-tetrahydroxy-2-(3,3-dimethylallyl) isoflavone, (2S)-eriodictyol 7-O-(6-O-galloyl)-beta-d-glucopyranoside and calceolarioside B.

An aloe-emodin phenolic compound, isolated from the root of Isatis indigotica, dose-dependently inhibited the cleavage activity of 3CLpro. The flavonoids myricetin and scutellarein were found in vitro to be able to inhibit the helicase protein of SARS-CoV. The flavonol kaempferol glycosides may be good antiviral agents for channel 3a proteins of coronaviruses. www.mdpi.com/.../1049 (2022)

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Guillermou

Quercetin, inhibits harmful estrogens and helps prevent cancer cells from using glucose and acting as proxidants on cancer cells to make them commit suicide. Like garlic and cruciferous vegetables, onions contain enzymes that are activated by cutting the vegetables. In a cascade of actions, those enzymes produce sulfur-based compounds that fight cancer and protect your DNA. This chemical reaction is the plant's protection against predators, explains Dr. Irwin Goldman, an onion expert and professor at the University of Wisconsin. How long should you cook the onions? Goldman says 4 to 5 minutes max, if you plan on eating the onions.

If you are making a soup you can cook them much longer, just discard the plants. As reported by Dr. Mercola, people who consume a greater amount of onion have a lower risk of several types of cancer, including ovarian, endometrial, liver, colon, kidney, esophagus, larynx, prostate, colorectal and breast. Onions contain several anticancer compounds, including quercetin, anthocyanins, organosulfur compounds such as diallyl disulfide, S-allyl-cysteine, and S-methylcysteine, as well as onionin A. The outer layers of the onion are extremely rich in antioxidant flavonoids.

Many people discard the first layers, and lose much of these essential nutrients. By removing the 2 outer layers, you lose 20% of the quercetin, and more than 75% of its anthocyanins from the red onions. The differences in the levels of flavonols, between small and large onions, is favorable to the latter. White onions showed the lowest flavonol content, with mean values of 60 (90 to 30) mg/kg. Red onions showed 4 times more flavonoids. The ratio of quercetin is in the same proportion. Red onions are not only rich in flavonoids, but also contain anthocyanins, about 30 mg cyanidin/kg fresh weight.

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Red onions get their beneficial effects from their flavonoids, especially quercetin, and the many sulfuric groups. These sulfur clusters help produce cysteine within the body, which aids in weight loss and detoxification. Epidemiological evidence indicates that a high dietary intake of plants from the Allium family, such as garlic and onion, is associated with a decreased risk of cancer in humans. It has been suggested that this chemopreventive effect involves the ability of aliphatic sulfides, derived from these vegetables, to increase the activity of Phase II detoxification enzymes.

Diprop-1-enyl sulfide was a potent inducer of phase II enzymes. Foods that contain quercetin are: onions, apples, blueberries, currants, broccoli, cherries, grapes, red cabbage, and peas. Ginkgo biloba, St. John's wort, and American sabugo are also rich in this nutrient. Onion quercetin is more bioavailable than apple. http://www.onions-usa.org/ www.ncbi.nlm.nih.gov/.../18494496 home.ueb.cas.cz/.../JAFC08.pdf In this report the protective function and mechanism of quercetin (QT) in chronic obstructive pulmonary disease (COPD) QT abolished in vivo pulmonary alveolar cell injury by decreasing inflammatory factors and biochemical markers by reducing the expression of TGF-1, -SMA and TNF- ($P<0.05$), associated with a decrease in Caspase-3 and Caspase-9 ($P<0.05$).

Furthermore, the protective effect of QT downregulated IL-6 and upregulated IL-10. The protective effect of QT inhibits apoptosis, inflammation, and fibrosis of cells in the alveoli of the lungs. www.cabdirect.org/.../20203233488 (2019)

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Guillermou

In this review, the critical properties of quercetin have been revealed, such as anti-inflammatory, antioxidant and even its effect on proliferation, angiogenesis or apoptosis, which are considered antitumor properties to improve the treatment of breast cancer.
www.sciencedirect.com/science/article/abs/pii/S0024320520302113 (2020) This systematic review was conducted focusing on the effects of quercetin (QT) on the human breast cancer cell lines MCF-7 and MDA-MB-231, demonstrating its beneficial action.
www.tandfonline.com/.../01635581.2021.1897631 (2022) Among all breast cancers, triple negative breast cancer (TNBC) is the most aggressive subtype with a higher rate of metastasis and relapse. Investigations on natural compounds have demonstrated their chemopreventive and therapeutic effects in various types of cancer.

Compounds such as quercetin, curcumin, and berberine have been shown to induce proapoptotic, antiproliferative, antimigratory, and antimetastatic effects in various types of cancer.
www.sciencedirect.com/.../S2667031322000513 (2022) Linking to Dr. Mercola's excellent recommendations regarding quercetin. The "vaccines" against Covid have multiplied the incidence of cancer and its prevention is essential. Prostate cancer is the most frequent cancer in men and its incidence increases with age, to the point that it is estimated that by the age of 80, 80% of men will have had this type of cancer. Prostate cancer is followed by colorectal, lung and stomach cancer.

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Quercetin is a flavonoid agent detected in fruits and vegetables with anti-inflammatory, antioxidant, and anticancer effects. This flavonoid can suppress cell cycle transition and induce apoptosis in neoplastic cells. The therapeutic effects of quercetin have been evaluated in various cancers, including prostate cancer, by setting up experiments. Furthermore, this agent could prevent the onset of this type of cancer since it indirectly blocks the activity of the promoters of two important genes in the pathogenesis of prostate cancer, that is, the androgen receptor (AR) and the prostate-specific antigen (PSA). Several investigations have identified the differential influence of quercetin on prostate cells in vitro and in vivo in vitro versus neoplastic cells, emphasizing its specific cytotoxic effects on cancer cells.

Quercetin inhibits angiogenesis mediated by human prostate cancer cells through negative modulating angiogenic factors (TGF-, VEGF, PDGF/EGF/ bFGF/ Ang-1/ Ang-2/ MMP-2/ MMP-9/ EGFR/PI3K/Akt/ERK1/2, NFB, Wnt and AKT/mTOR/P70S6K and JAK-STAT to suppress the process of endothelial cell proliferation, migration and invasion, as well as vascular tissue regeneration. The effects of chronic ingestion of quercetin with green tea extract on enhancing the bioavailability of GT polyphenols and reducing methylation levels in patients with prostate cancer.

They reported a substantial increase in quercetin concentrations in plasma, urine, and prostate tissue following co-administration of green tea extract and quercetin. The anti-angiogenic effects of quercetin and its impact on cancer stem cells suggest its suitability for the prevention of tumor metastasis. Quercetin also regulates the expression of hypoxia-inducible factor (HIF) and ncRNA modulation as a key mechanism responsible for the anticancer effects of quercetin.

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It is safe, effective, inexpensive and easy to use, what could be possibly wrong with it? It is safe, effective, inexpensive and easy to use!!!

Posted On 04/01/2023

Guillermou

Yes, Just, very alert with the regulation of supplements. All to discredit Natural Medicine at the same time that chronic patients are created with Allopathic Medicine and mRNA biological weapons are injected. The deep state is not satisfied with attacking and dismissing the doctors and scientists who fight for a true health medicine, they are not satisfied with discrediting preventive and early treatments, they are not satisfied with turning humanity into a factory of biological weapons He now wants people to turn more strongly to Rockefeller's Allopathic medicine, setting limitations on supplements after taking over the supplement companies, and establishing governance of the WHO and FDA. It is the Great Reset of the New Medicine based on chronic diseases. VIDEO: ON DESTROYING OUR HEALTH SYSTEM AND BIG PHARMA CAPTURE www.globalresearch.ca/video-on-destroying-our-health-system-big-pharma.. (12/12/2022)

Posted On 04/01/2023

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bfr27915

Thank you, Dr. Mercola and the greater Mercola community. The insights and understandings consistently provided by this forum are greatly appreciated. We are a community, growing stronger together.

Posted On 04/01/2023

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catylorain

I began taking quercetin a couple of years ago because I was looking to get off of my decongestants and to help with my sinuses and allergies, and had searched online for a natural decongestant. Quercetin is the main search result that came up and interested me the most, based on what I read about it at the time. Then to find out later that it has even more health benefits than I originally knew, especially against covid-19, I was even more impressed. I'm still taking it to this day, and will continue taking it for as long as I'm able to.

Posted On 04/01/2023

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memyselfampi

How well did it work for your sinuses and allergies? I have those issues too.

Posted On 04/01/2023

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lovingMom2013

Great article! Thanks Dr. Mercola.

Posted On 04/01/2023

Ronald_H

I understand the EGCG in green tea is a very powerful zinc ionophore and with the advantage of easiest of all to obtain. That and common zinc supplements will get zinc into your cells.

Posted On 04/01/2023

DebbyW

I used to take Quercetin and Bromolaine for seasonal allergies. It worked beautifully for a few years, then it stopped working for me. Maybe my allergy worsened beyond Q&B's ability to help.

Posted On 04/01/2023

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kyra18

When I'm sick, especially with the flu, I don't have an appetite. How does one take Quercetin and zinc to help fight a virus, on an empty stomach?! Taking it without food makes me nauseous!

Posted On 04/01/2023

Greebo

My favorite way is to take both quercetin & zinc daily so that I do not become infected with colds & flu. They both do so much more for one's health, that it seems to be the wisest thing to do now that we discover how many contributions that they make to hundreds of vital processes in our bodies. If I did not do that, I would certainly take them both with a big dose of vitamin C when I began suspecting that I might be coming down with an infection. "A stitch in time saves nine" applies well to treating infections, so the sooner you give your body what it needs to heal & stop infections in their tracks, the better off you will be.

If I had no appetite, I would eat a small amount of something like an egg or peanut butter & then take my zinc. Quercetin does not seem to need a food cushion, but taking it with food & the zinc would work well. If you are nauseous, you might be able to start with some vitamin C in water & sip it in tiny amounts at first. That is likely to help & enable you to increase your intake of it, & then the quercetin & zinc. There are zinc lozenges that you dissolve in your mouth before swallowing that could begin adding the zinc you need to work with the quercetin.

Posted On 04/01/2023
