Cognitive Vitality Reports® are reports written by neuroscientists at the Alzheimer's Drug Discovery Foundation (ADDF). These scientific reports include analysis of drugs, drugs-in-development, drug targets, supplements, nutraceuticals, food/drink, non-pharmacologic interventions, and risk factors. Neuroscientists evaluate the potential benefit (or harm) for brain health, as well as for age-related health concerns that can affect brain health (e.g., cardiovascular diseases, cancers, diabetes/metabolic syndrome). In addition, these reports include evaluation of safety data, from clinical trials if available, and from preclinical models.

Quercetin

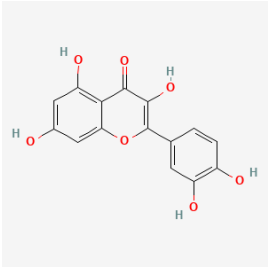
Evidence Summary

Quercetin may lower BP and has antioxidant and anti-inflammatory properties. Clinical findings are mixed on other indications. Intake of quercetin may be linked to lower incidence of some diseases.

Neuroprotective Benefit: Clinical trials have reported mixed findings on cognitive effects of quercetin. Some observational evidence suggests quercetin intake may be associated with less cognitive decline and/or dementia incidence.

Aging and related health concerns: Quercetin supplementation likely lowers blood pressure. Quercetin intake and supplementation have been associated with potential benefits for other diseases like heart attack, diabetes, infections, and cancer.

Safety: Quercetin in doses of 500 mg per serving in food is 'generally recognized as safe' by the FDA. Clinical trials of quercetin supplementation generally report no adverse events, but thorough adverse event reporting from longer studies is needed.

Availability: OTC or through diet	**Dose**: While the optimal dose is not yet known, many trials have tested 500 to 1000 mg of quercetin a day, taken by mouth.	**Chemical formula:** $C_{15}H_{10}O_7$ **MW**: 302.23 g/mol  Source: PubChem
Half-life: 11 to 28 hours	**BBB**: Penetrant	
Clinical trials: An umbrella review of meta-analyses of quercetin supplementation studies included ~3,700 participants.	**Observational studies**: The largest observational studies identified included dietary information from over 1.5 million participants.	

What is it?

Polyphenols are compounds that are found in fruits, vegetables, and grains; these compounds are classified according to their chemical structures. Polyphenols can be divided into flavonoids and nonflavonoids. There are over 6,000 flavonoid compounds. These can be further subdivided into twelve subclasses, including anthocyanins, flavan-3-ols, flavones, flavanones, isoflavones, and flavonols. Quercetin is one of the most prominent flavonols, along with kaempferol and myricetin (Jomova et al., 2025). Fruits, vegetables, and plant-based products like onions, apples, black tea, green tea, red grapes, cherries, and raspberries are all sources of quercetin, among others. It is also found in supplements such as ginkgo biloba and St. John's Wort (MSKCC).

Quercetin is an antioxidant and anti-inflammatory compound. Quercetin is also thought to have anti-cancer, antimicrobial, and antiviral properties. Quercetin has therefore been suggested for use in a variety of conditions, including allergies, inflammation, neurodegeneration, cancer, and cardiovascular disease (MSKCC; Aghababaei & Hadidi, 2023). While quercetin can be obtained through supplements, it may be more bioavailable in food (Terao, 2023); additionally, quercetin from food is 'generally recognized as safe' by the FDA (FDA).

Clinical trials have tested quercetin supplements in different patient populations. It should be noted that a combination therapy of dasatinib and quercetin is used in senolytic research. As this combination is

covered in the senolytics report, this report will focus only on quercetin as a monotherapy and/or in combination with other drugs or supplements besides for dasatinib.

Neuroprotective Benefit: Clinical trials have reported mixed findings on cognitive effects of quercetin. Some observational evidence suggests quercetin intake may be associated with less cognitive decline and/or dementia incidence.

Types of evidence:

- 3 meta-analyses or systematic reviews
- 7 clinical trials
- 3 observational studies
- 7 reviews
- 5 laboratory studies

Human research to suggest prevention of dementia, prevention of decline, or improved cognitive function:

It is not known if quercetin can improve cognitive function, prevent dementia, or prevent decline. A handful of clinical trials and observational studies have been conducted.

Broman-Fulks et al., 2012 describes an RCT in which 941 adult participants ages 18 to 85 were randomized to receive either placebo or 500 mg or 1000 mg of quercetin daily for 12 weeks. The researchers did not see any effects of quercetin on memory, psychomotor speed, reaction time, attention, or cognitive flexibility; while there were some significant changes from baseline to the end of the trial in some assessments, there were no group differences. They performed analyses just on the adults 60 years and older (n=217) and observed similar results of some significant differences from baseline to end of trial, but no differences between groups.

A 2021 study assessed the effects of ingestion of a quercetin-rich onion powder in healthy adults aged 60 to 79 years. The 70 participants were randomized to receive either a placebo or quercetin-rich powder containing approximately 50 to 72 mg of quercetin (aglycone equivalent) daily for 24 weeks. At the end of the trial, there was a significant improvement in cognitive function scores in the active group compared to placebo as measured by MMSE. There were also improvements in measures of depression and apathy in the active group compared to the treated group (Nishihira et al., 2021). However, this

same group ran a very similar study in 50 healthy adults aged 65 to 84 years with the same supplement and study design, including duration (Nishimura et al., 2017). In this first, smaller study, the researchers reported that there was no significant difference in MMSE scores between groups at the end of the trial, though they did find that younger participants in the active group had a significantly greater change in MMSE scores from beginning to end of the trial compared to the placebo group.

Nakamura et al., 2022 explored the effects of a quercetin-enriched beverage on cognitive function and cerebral blood flow in 80 healthy men and women aged 60 to 75 years who were 'aware of aging-related forgetfulness' but were not cognitively impaired. Participants were randomized to receive placebo drink or quercetin-enriched drink (110 mg quercetin glycoside as isoquercitrin) for 40 weeks. It should be noted that the active treatment group was significantly older than the placebo group (average age 67.1 ± 3.8 years compared to 65.3 ± 3.6 years). At the end of the trial, the researchers found that the participants in the active treatment group had significantly better reaction time than the placebo group. Participants who received the intervention had significant improvements over the course of the trial on the NCI, which measures cognitive function, flexibility, and executive function; there was no significant difference over the course of the trial in the placebo group, and there was no difference between the groups. The researchers found that cognitive function as measured by MMSE improved in both groups over the course of the trial, with no difference between groups. The researchers observed significant improvement in reported quality of life over the course of trial in the active group and no commensurate change in the placebo group, though there was no difference between groups at the end of the study. They also observed different changes in cerebral blood flow in the two groups, with the placebo group showing significant decrease in cerebral blood volume and blood oxygenation in one hemisphere and a significant increase in blood oxygenation in the other hemisphere from baseline to end of the trial, but no significant changes in cerebral blood flow in the active treatment group or significant differences between groups. The clinical meaningfulness of these cerebral blood flow changes are not clear.

Taken together, the clinical trial evidence suggests that if there is an effect of quercetin on cognition in cognitively intact populations, that it is likely an effect requiring long-term supplementation. Whether the formulation of the quercetin supplement has observable impacts on results is also unclear.

Observational studies have assessed levels of flavonol intake and incidence of cognitive decline and/or dementia.

Two studies looked at data from the Rush Memory and Aging Project, which is a community-based prospective cohort study. The study enrolls participants who do not have dementia and conduct annual

assessments, including diet and neurological status assessments. Holland et al., 2020 looked at 921 eligible participants and compared the incidence of dementia diagnosis over time based on reported diet. After statistical adjustments for health and lifestyle factors, they found that intake levels of total flavonols was statistically associated with lower incidence of dementia diagnosis; the highest intake quartile had a 48% lower rate of AD diagnosis (HR=0.52; 95% CI 0.33 to 0.84). However, when they looked at incidence of dementia diagnosis and quintiles of intake of specific compounds, they found no significant association between incidence of dementia diagnosis in the highest quintile of intake compared to the lowest quintile of intake (HR=0.70; 95% CI 0.44 to 1.10). In secondary analyses, further statistical adjustments for BMI and depression led to a significantly lower incidence of dementia diagnosis in the highest quintile of quercetin intake compared to the lowest (HR=0.60; 95% CI 0.38 to 0.97; p=0.02), and other analyses such as removing all MCI patients from the analysis also led to trends towards significance of higher intake of quercetin being associated with lower incidence of dementia diagnosis.

Another study from the Rush Memory and Aging Project found that higher dietary intakes of total flavonols were associated with a lower rate of decline in global cognition, episodic memory, semantic memory, perceptual speed, and working memory. When they looked at individual flavonols, they also found that intake of quercetin was associated with lower rate of global cognitive decline (β=0.004; 95% CI 0.0005 to 0.007) (Holland et al., 2023).

Other studies looked at flavonols as a broad category, which would include but not be limited to quercetin. Godos et al., 2024 performed a systematic review and meta-analysis of observational studies of intake of certain compounds and incidence of cognitive decline and / or dementia. Their review of 37 trials and meta-analysis of 13 trials focused on polyphenols, including flavonols. The studies that looked at flavonol intake, among other nutrients, included approximately 170,000 participants in total. In their meta-analysis of 6 studies, they found that higher intake of flavonols was associated with lower incidence of cognitive impairment / dementia (RR=0.88; 95% CI 0.80 to 0.96).

Godos et al., 2024 includes Holland et al., 2020 and Holland et al., 2023, detailed above. Godos and colleagues also included Kesse-Guyot et al., 2012, a study that examined data from a study known as SU.VI.MAX, which involved collecting dietary diaries from middle aged adults and then assessing cognitive function 13 years later, among other study activities. The researchers found that those who reported the highest intake of flavonols, including quercetin, had significantly better language and verbal memory performance at the 13-year follow up. In one statistical model, those with higher intakes of flavonols, among other nutrients like catechins, had an inverse association with executive functioning.

The authors noted that there were no known hypotheses for why increased intake of these compounds was associated with lower executive functioning scores and stated that further investigation was required.

Human research to suggest benefits to patients with dementia:

Few studies have assessed the effects, if any, of quercetin in patients with dementia.

A small study of 5 AD patients used a crossover study design to assess the effects of a quercetin-rich onion powder containing 80 mg of quercetin aglycone. Participants received the quercetin-rich onion powder daily for 4 weeks, had a wash-out period of 4 weeks, and then received the placebo onion powder for 4 weeks. Cognition was tested at baseline and end of study treatment for both quercetin-rich and quercetin-low onion powder. There was no significant difference in cognition as measured by MMSE; there was a significant improvement in memory recall score from baseline to end of quercetin-rich onion powder dosing and no commensurate difference in memory recall during the quercetin-low onion powder dosing phase. The small sample size and short timeframes make it difficult to assess what, if any, effects were due to repeated testing (Nakagawa et al., 2016).

Hayashi et al., 2023 describes a trial of the same quercetin-rich onion powder as in Nishihira et al., 2021 and Nishimura et al., 2017, but in six MCI and 13 AD patients. Participants were randomized and received the same dose of onion powder containing approximately 50 mg quercetin aglycone or placebo daily for 12 weeks. There were no differences between the groups at 12 weeks on measures of cognition or neuropsychiatric symptoms; the researchers reported that at the end of the trial, the patients who received the quercetin-rich onion powder used more adverbs and adjectives on the MMSE compared to the placebo, which the authors posit could reflect an effect on emotional condition of the patients. The clinical meaningfulness of this finding is not clear.

Mechanisms of action for neuroprotection identified from laboratory and clinical research:

Oxidative stress and inflammation are two of many known or potential contributors to neurological harm and/or dementia. Quercetin is a potent antioxidant; by both scavenging free radicals and by inducing antioxidant pathways such as Nrf-2, quercetin can reduce oxidative stress and the consequent damage (Khan et al., 2019; Wróbel-Biedrawa et al., 2022). Studies indicate that quercetin also has a variety of anti-inflammatory actions, including modulating activation of inflammatory pathways and thus reducing production of inflammatory cytokines such as TNF-α, IFN-γ, IL-1β, IL-6, and IL-12 and modulating nitric oxide production in microglia (Khan et al., 2019; Dos Santos et al., 2025). A systematic

review and meta-analysis of animal studies found that quercetin significantly reduces pro-inflammatory cytokines and microgliosis compared to control treatment (Dos Santos et al., 2025). It has also been suggested that quercetin could mediate inflammatory responses in part through its impact on the gut microbiome and the brain-gut axis, though this is an emerging field and more work is needed to assess whether these impacts are biologically meaningful in animals and humans (Kim et al., 2024)

Quercetin is also thought to have other mechanisms of action that are more AD specific. Preclinical work suggests that quercetin treatment reduces tau hyperphosphorylation (Khan et al., 2019; Lasure et al., 2024) and Aβ plaque accumulation (Khan et al., 2019; Cheng et al., 2024; Lasure et al., 2024). Quercetin may inhibit acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) and thus increase levels of acetylcholine. Other studies suggest potential antiapoptotic roles or other mechanisms that protect against neuronal loss (Khan et al., 2019).

A systematic review of quercetin in animal models of AD found that quercetin treatment improved spatial memory as measured by Morris water maze (Zhang et al., 2020). Preclinical work published since that systematic review have similarly reported protective effects of quercetin on cognition in AD animal models (Cheng et al., 2024; Lasure et al., 2024). Quercetin was also reported to improve cognitive performance in an aged mouse model, potentially through modulation of NK cell numbers (Su et al., 2024), and also to protect neurogenesis in a model of chronic unpredictable mild stress (Xie et al., 2025).

Quercetin has also been suggested to be of potential use in other neurological conditions such as traumatic brain injury (Cai & Zhang et al., 2024) and Parkinson's disease (de Oliveira Vian et al., 2024) through the antioxidant, antiapoptotic, and anti-inflammatory mechanisms of quercetin.

The limited bioavailability of quercetin may pose an obstacle to neuroprotective actions, though it is possible that quercetin has effects even at low doses, or that metabolites of quercetin may have biologically meaningful effects. Factors like the specific formulation of quercetin (e.g. aglycone or glycoside) and the food matrix present, if any, appear to influence bioavailability. More work is needed to better understand the bioavailability of quercetin from different sources and which, if any, have clinically meaningful impacts for people (Terao, 2023; Liu et al., 2025).

APOE4 interactions:

It is not known whether quercetin interacts with APOE status.

In Holland et al., 2023, which utilized data from the Rush Memory and Aging project, the researchers assessed the level of intake of foods rich in quercetin and whether there was an association between less cognitive decline. These studies also assessed APOE status. Both reported that higher intake of food rich in quercetin was associated with slower cognitive decline, and this was not affected by APOE status. Much more work is needed to confirm whether this reflects a true lack of interaction between APOE isoform and quercetin.

A 2010 study looked at the effects of quercetin supplementation (150 mg per day) and APOE status on lipid profiles and measures of cardiovascular health in 96 participants at high risk of cardiovascular disease. The researchers looked at APOE status given the connection of APOE allele and cardiovascular health. They did observe some differences based on APOE isoform; for instance, quercetin supplementation was associated with significant decreases in HDL cholesterol in APOE4 carriers but not APOE3 carriers; there was also significant decrease in blood pressure after quercetin supplementation in APOE3 carriers but not in APOE4 carriers. There were similar decreases in other measures such oxidized LDL and TNF-α in both APOE3 and APOE4 carriers after quercetin supplementation (Egert et al., 2010). As cardiovascular disease can increase risk of dementia, these results suggest that there could theoretically be a differential effect of quercetin supplementation based on APOE status. However, larger and more definitive studies are needed to assess whether this finding could ultimately translate to differences in cognition or dementia status.

Aging and related health concerns: Quercetin supplementation likely lower blood pressure. Quercetin intake and supplementation have been associated with potential benefits for other diseases like heart attack, diabetes, infections, and cancer.

Types of evidence:

- 7 meta-analyses or systematic reviews
- 5 clinical trials
- 3 observational studies
- 3 reviews

Cardiovascular and Cardiometabolic Disease: POTENTIAL FOR BENEFIT

Quercetin is hypothesized to have an effect on cardiovascular, cardiometabolic, and cerebrovascular disease through mechanisms such as improving endothelial function, decreasing inflammation, and improving antioxidant status. An umbrella review of meta-analyses of RCTs of quercetin by Arabi et al., 2023 reported that there is moderate certainty evidence that quercetin may reduce systolic blood pressure (WMD=-1.0 mmHg; 95% CI -3.2 to -0.6). Subgroup analyses suggest that the dosage (500 mg or more compared to less than 500 mg) and duration (6 weeks or more compared to less than 6 weeks) both substantively affected results, with higher doses and longer durations showing greater effects. These subgroup analyses suggested that 6 weeks or more of dosing could significantly reduce diastolic blood pressure (WMD=-1.8 mmHg; 95% CI -3.4 to -0.3). The researchers did not find significant effects of quercetin on other cardiometabolic factors such as diastolic blood pressure, lipid profile, or anthropometric indices, despite some individual smaller studies finding significant benefits of quercetin on some of these measures. Some of the discrepancies may be due to evaluating the effects in different patient populations, while Arabi et al., 2023 included all studies of adults over 18 in placebo-controlled trials of monotherapy of quercetin. There may also be differences based on duration of study. For instance, one meta-analysis of the effects of quercetin on lipid profiles included by Arabi and colleagues reported that there was no significant change in lipid profile in the overall group, but that subgroup analyses showed significant changes in HDL-c and triglyceride in trials of at least 8 weeks. As Arabi and colleagues compared trials of 6 weeks or less to 6 weeks or more and included no study longer than 12 weeks, it is possible that longer trials could yield different results.

Observational studies have found that compared to participants with the lowest intake of quercetin, participants with the highest intake of quercetin had a lower incidence of coronary heart disease (RR=0.72; 95% CI 0.66 to 0.78) (Micek et al., 2021). A small observational study of 115 women in Japan reported that intake of quercetin was inversely associated with plasma LDL-c (Arai et al., 2000).

Some initial studies in patients post-heart attack have suggested acute benefits of quercetin treatment. One open-label study of 143 patients with their first myocardial infarction randomized patients to receive either standard of care or multiple quercetin infusions (500 mg quercetin per infusion). Participants who received quercetin had significantly reduced infarct size compared to standard of care patients, with a reduction of approximately 18%. The authors discuss other pilot studies that also reported reduced infarct size with quercetin treatment (Kozhukhov et all., 2024). Other trials in patient populations with myocardial infarctions have reported that treatment with 500 mg daily of quercetin for 8 weeks improved total antioxidant capacity compared to placebo and decreased serum TNFα levels

compared to baseline (Dehghani et al., 2021), but did not improve biomarkers of endothelial dysfunction (Dehghani et al., 2023).

Metabolic Syndrome: POTENTIAL FOR BENEFIT

An umbrella review of meta-analyses of RCTs reported that there was low-certainty evidence that quercetin reduces insulin (WMD=-1.07 p/mol/L; 95% CI -1.9 to -0.1) but that there were no significant impacts on fasting blood glucose or homeostatic model assessment for insulin resistance (HOMA-IR) (Arabi et al., 2023). One of the meta-analyses included by Arabi and colleagues did report a significant decrease in fasting blood glucose levels in trials of ≥500 mg quercetin daily and lasted ≥8 weeks (Ostadmohammadi et al., 2019). It is therefore possible that longer studies of quercetin could lead to different results than that reported by Arabi et al., 2023.

An observational study of approximately 10,000 individuals in Finland found a trend towards lower incidence of type 2 diabetes with those in the highest quartile of intake of quercetin compared to the lowest intake quartile (RR=0.81; 95% CI 0.64 to 1.02; p=0.07) (Knekt et al., 2002). A study from China also reported an inverse relationship between intake of quercetin and incidence of type 2 diabetes (Yao et al., 2019).

Other studies, such as one observational study of 340,000 participants, did not find an association between quercetin intake and incidence of type 2 diabetes (Zamora-Ros et al., 2014). This may be due to a lack of true biologically meaningful connection between quercetin and diabetes, or different associations based on participant populations.

Initial studies have tested quercetin in MASH/MASLD. A crossover RCT by Li et al., 2024 tested quercetin (500 mg daily) compared to placebo in patients with MASLD. Participants received a study drug for 12 weeks, had a 4 week washout period, and then received the other study drug for 12 weeks. There was a moderate decrease in intrahepatic lipid content after the quercetin treatment (from 11.5% ± 6.4% to 9.6% ± 5.8%), compared to placebo treatment (decrease of 0.1% ± 2.6%, p=0.013). The effect was stronger in women than in men. They also reported a mild reduction in body weight after quercetin treatment (1.5 ± 2.6 kg) compared to placebo (0.2 ± 1.8 kg), though meta-analyses and systematic reviews like Arabi et al., 2023 have not found significant changes in body weight across studies.

COVID-19: POTENTIAL FOR BENEFIT

Two systematic reviews and meta-analyses of RCTs of quercetin compared to placebo in patients with COVID-19 have reported potential benefits of quercetin treatment in these populations (Cheema et al., 2023; Ziaei et al., 2023). Both studies reported that quercetin treatment was associated with a reduced incidence of hospitalization and ICU admission. Authors of both of the meta-analyses also caveat their findings as their findings were of low certainty, in part because of the small sample sizes of the included trials and small number of overall trials to assess. Ziaei et al., 2023 reported that quercetin treatment was associated with reduced mortality, whereas Cheema et al., 2023 reported no effect of quercetin treatment on mortality or rate of no recovery. Both groups call for larger RCTs to further explore the potential effects of quercetin in patients with COVID-19.

Cancer: THEORETICAL BENEFIT

A systematic review and meta-analysis of observational studies reported that higher intake of total flavonoids (OR=0.81; 95% CI 0.67 to 0.98; p=0.03) as well as quercetin specifically (OR=0.66; 95% CI 0.48 to 0.91, p=0.01) were associated with lower incidence of diagnosis of lung cancer (Rostampour et al., 2025), though some earlier studies found this was specific to smokers rather than non-smokers (Woo & Kim, 2013). An observational study of approximately 10,000 individuals in Finland reported that men in the highest quartile of intake of quercetin compared to the lowest intake quartile had a lower incidence of lung cancer (RR=0.42; 95% CI 0.25 to 0.72; p= 0.001) (Knekt et al., 2002).

Quercetin has been explored as an anti-cancer agent in a variety of preclinical models of cancer, including colorectal cancer, liver cancer, gastric cancer, breast cancer, and pancreatic cancer, among others. It is thought that at low doses, quercetin acts as an antioxidant and thus can act as a cancer preventative; at high doses, quercetin may be a pro-oxidant and have chemotherapeutic effects. Quercetin is hypothesized to have a variety of anti-cancer effects, including induction of apoptosis, reducing cell proliferation, and inhibiting metastasis and angiogenesis. Clinical studies are required to elucidate whether the observational and preclinical findings translate into any clinically meaningful prevention and/or treatment potential of quercetin for different cancers (Jakobušić Brala et al., 2023).

Aging & Inflammation: POTENTIAL FOR BENEFIT

Clinical work has found that total flavonoid intake, as well as quercetin intake, is inversely associated with C-reactive protein, a marker of chronic inflammation (Chun et al., 2008). Systematic reviews and meta-analyses of RCTs have found that there may be decreases in circulating CRP levels in at least some patient populations, like those with diagnosed disease (Ou et al., 2020), though others report an overall significant reduction in CRP (Mohammadi-Sartang et al., 2017). Both Mohammadi-Sartang et al., 2017 and Ou et al., 2020 found that higher doses of quercetin are more associated with potential benefit compared to lower doses. Still, there are conflicting results in the literature, with more recent RCTs observing no change in CRP levels between quercetin and placebo treatment (Dehghani et al., 2021).

An RCT of bread enriched with both quercetin and epicatechin reported that there could be a genoprotective effects of the combination (Leyva-Soto et al., 2021). Significant work is required to fully assess these possible effects of quercetin and their clinical meaningfulness.

Safety: Quercetin in doses of 500 mg per serving in food is 'generally recognized as safe' by the FDA. Clinical trials of quercetin supplementation generally report no adverse events, but thorough adverse event reporting from longer studies is needed.

Types of evidence:

- 1 meta-analysis or systematic review
- 2 clinical trials
- 1 professional resource
- 3 reviews
- 1 laboratory study

Quercetin is 'generally recognized as safe' (GRAS) as an ingredient in food or beverages in doses up to 500 mg per serving (FDA).

An umbrella review of meta-analyses of RCTs by Arabi et al., 2023 reported that in most studies, there were no adverse events associated with quercetin, or the studies did not report adverse events. Unspecified gastrointestinal complaints were observed, but some of these were in the placebo groups of the RCTs. Doses of up to 1,000 mg a day for 12 weeks have not been linked to any toxicity; there is a

paucity of data of doses higher than 1,000 mg a day. There has been nephrotoxicity reported with high doses of IV quercetin (Drugs.com) and animal studies have also reported nephrotoxicity (Andres et al., 2018), but clinical trials have not reported these adverse events in the 'generally regarded as safe' dosing limit. Studies of longer dosing duration with thorough adverse event reporting would be needed to confirm the safety profile of quercetin.

Several studies in older adults have reported no safety issues with quercetin supplementation. Nakamura et al., 2022 treated patients with 110 mg quercetin daily for 40 weeks and reported no adverse events or safety concerns . Nishihira et al., 2021 tested 50 to 72 mg of quercetin daily over the course of 24 weeks and reported that there were no serious adverse events with no comment on other types of adverse events; they further reported that there were minimal changes, if any, on laboratory testing including liver and renal function tests.

Drug interactions:

The drug interactions of quercetin are not yet fully defined.

Quercetin is thought to increase levels of cyclosporin; monitoring is suggested for anyone taking cyclosporin and quercetin supplements (Drugs.com). Quercetin may affect bioavailability of other drugs such as pravastatin and fexofenadine (Andres et al., 2018). Some preclinical work has suggested that flavonols such as quercetin may affect cytochrome P450 activity and/or drug transporters to some extent (Mohos et al., 2020) and some initial studies in humans suggest that quercetin may affect cytochrome P450 activity as well (Chen et al., 2009). More work is needed to fully understand these interactions and what, if any, clinical impact they have on drug-drug interactions.

Research underway:

There are 22 ongoing studies registered on clinicaltrials.gov that involve quercetin. Several of these trials are testing a combination of dasatinib and quercetin, which is a senolytic drug combination. This combination is covered in the senolytics report.

Of the other trials, several are testing combination supplement products for various conditions, including food allergies, microvascular function, COPD, endometriosis, cardiovascular disease, and

periodontitis. One trial is assessing effects of quercetin on Aβ accumulation and onset of mild cognitive impairment.

NCT06470061 is an ongoing RCT testing a combination supplement of resveratrol (334 mg/day), quercetin (60 mg/day), and curcumin (2000 mg/day) in 200 cognitively intact adults aged 50 to 90. Participants will be randomized to receive either the intervention supplement or placebo; they will take study drug twice a day by mouth for 24 months. Placebo group patients will receive curcumin alone for the 7 days preceding each study visit, as curcumin will act as a fluorescent label to identify retinal Aβ using optical coherence tomography (OCT) autofluorescence imaging. The primary outcome is change in retinal Aβ as measured by OCT. Other outcomes include measurements of cognitive function as assessed by CDR-SB and MMSE, progression to clinically relevant cognitive decline, and adverse events. The study is estimated to be completed in summer 2027.

Two RCTs are comparing quercetin supplementation to placebo and looking at cardiometabolic outcomes (NCT06230861) or outcomes after coronary artery bypass surgery (NCT04907253).

Search terms:

Pubmed, Google: quercetin

- Cognition, dementia, safety, cardiovascular, diabetes, blood pressure

Websites visited for quercetin:

- Clinicaltrials.gov
- Examine.com
- Drugs.com
- WebMD.com
- PubChem
- DrugBank.ca
- ConsumerLab.com

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