

Can These Foods Help Combat COVID?

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

STORY AT-A-GLANCE

- › COVID-19, which may cause blood clotting degradation of elastic fibers in your lungs, may be positively influenced by vitamin K, known for its role in blood clotting
- › Both thromboembolism, which occurs when a blood clot obstructs a blood vessel, and coagulopathy, which is a condition in which your blood's ability to form clots is impaired, are prevalent in severe COVID-19 cases and are linked to decreased survival rates from the disease
- › Vitamin K plays a role in coagulation, leading researchers to suggest that vitamin K levels may be low in people with severe COVID-19
- › The study found COVID-19 patients with unfavorable outcomes had significantly higher levels of dp-ucMGP, indicating low vitamin K, compared to those with less severe disease
- › COVID-19 patients were also significantly more likely to have low vitamin K levels compared to patients without the disease

This article was previously published June 20, 2020, and has been updated with new information.

Nutrient deficiencies can take a heavy toll on your health, and this includes increasing your risk of severe outcomes in the case of viral infections like COVID-19. Vitamin K, a fat-soluble vitamin most known for its role in blood clotting and found in foods like spinach, eggs and certain cheeses, is among the latest to be called out for its potential

protective role against COVID-19, which may cause blood clotting degradation of elastic fibers in your lungs.

Both thromboembolism, which occurs when a blood clot obstructs a blood vessel, and coagulopathy, which is a condition in which your blood's ability to form clots is impaired, are prevalent in severe COVID-19 cases and are linked to decreased survival rates from the disease,¹ which otherwise tends to cause mild or no symptoms in the majority of those affected.

"Coagulation is an intricate balance between clot promoting and dissolving processes in which vitamin K plays a well-known role," Dutch researchers wrote in a Preprints study,² leading them to suggest that vitamin K levels may be low in people with severe COVID-19.

Low Vitamin K Linked to Severe COVID-19 and Poor Outcomes

To test their hypothesis, researchers studied 123 patients admitted to the Canisius Wilhelmina hospital in Nijmegen, a city in The Netherlands, with COVID-19 along with 184 control patients. Both vitamin K levels and elastin degradation were measured, with vitamin K assessed by measuring desphospho-uncarboxylated matrix Gla protein (dp-ucMGP), which is inversely related to vitamin K status.

Elastin degradation was measured via desmosine, an amino acid found in tendons and a component of elastin. COVID-19 patients with unfavorable outcomes had significantly higher levels of dp-ucMGP, indicating low vitamin K, compared to those with less severe disease. Dp-ucMGP was also significantly elevated in COVID-19 patients compared to those without the disease, and dp-ucMGP and desmosine levels were significantly associated.³ According to the researchers:⁴

"Vitamin K status was reduced in patients with COVID-19 and related to poor prognosis. Also, low vitamin K status seems to be associated with accelerated elastin degradation. An intervention trial is now needed to assess whether vitamin K administration improves outcome in patients with COVID-19."

Study author Dr. Rob Janssen was in support of vitamin K levels to boost vitamin K levels, except for people taking anticlotting medications.

Speaking to The Guardian, he noted, "We do have an intervention which does not have any side effects, even less than a placebo. There is one major exception: people on anticlotting medication. It is completely safe in other people. My advice would be to take those vitamin K supplements. Even if it does not help against severe Covid-19, it is good for your blood vessels, bones and probably also for the lungs."⁵ You can also find vitamin K in a variety of foods.

Two Types of Vitamin K and Where to Find Them

There are two types of vitamin K: phylloquinone, or vitamin K1, and menaquinones, or vitamin K2. Vitamin K1 is derived from green, leafy vegetables such as spinach, kale, broccoli and cabbage, and is best known for the role it plays in blood clotting. Without enough vitamin K1, your blood can't clot properly and you're at risk of bleeding to death.

However, according to Leon Schurgers, a senior scientist at Maastricht University in The Netherlands who was involved in the featured study, and whom I interviewed in 2015, "... the absorption of vitamin K1 from food is extremely low. Only 10% of the vitamin K, which is found in green leafy vegetables, is absorbed in your body ... And there's no variable or modification of the consumption that will significantly increase the absorption."

Vitamin K2, on the other hand, is better known for its role in bone and heart health, and is found in grass fed animal products such as meat eggs, liver and dairy, as well as in fermented foods, including sauerkraut, certain cheeses and the fermented soy food natto.

Although the amount of vitamin K2 in certain foods, such as cheese, is lower than the amount of vitamin K1 found leafy, green vegetables, Schurgers noted, "all the vitamin K2 is absorbed by the body ... Vitamin K2 in the food item is nearly completely absorbed."

Natto is particularly well known for its high concentration of vitamin K2, specifically the longer-chained vitamin K2 known as menaquinone-7 (MK-7).

One study looking into vitamin K bioavailability even found that circulating concentrations of vitamin K2 were about 10 times higher after the consumption of natto than they were of vitamin K1 after eating spinach.⁶

"I have worked with a Japanese scientist in London," Janssen told The Guardian, "and she said it was remarkable that in the regions in Japan where they eat a lot of natto, there is not a single person to die of Covid-19; so that is something to dive into, I would say."⁷

Aside from natto, cheese is the food with the highest menaquinone concentrations, but levels vary depending on the type of cheese. Dutch hard cheeses such as gouda and edam have relatively high concentrations, as do French cheeses such as Munster cheese.⁸ Many factors affect the amount of vitamin K2 in your food however, including how long it's fermented and whether it's made with grass fed dairy or raised on pasture.

For example, pasteurized dairy and products from factory farmed animals are not high in MK-4, a short-chain form of vitamin K2. Only grass fed animals (not grain fed) will develop naturally high levels.

Vitamin K May Reduce COVID-19 Comorbidities

A report of the WHO-China Joint Mission on COVID-19, released in February 2020, found a higher crude fatality ratio (CFR) among people with COVID-19 and additional health conditions. While those who were otherwise healthy had a CFR of 1.4%, those with comorbid conditions had much higher rates, as follows:⁹

- Cardiovascular disease — 13.2%
- Diabetes — 9.2%
- High blood pressure — 8.4%

Another study looking into the impact of co-existing health conditions like high blood pressure, heart disease and diabetes on COVID-19 outcomes found they're linked to "poorer clinical outcomes," such as admission to an intensive care unit, a need for invasive ventilation or death.¹⁰ What this means is that lowering your risk of underlying conditions like diabetes, heart disease and high blood pressure could improve your outcomes if you have COVID-19.

Vitamin K could play a protective role here, as it's linked to both diabetes and heart health. Both vitamin K1 and K2 intakes may be associated with a reduced risk of Type 2 diabetes.¹¹

Vitamin K may influence insulin sensitivity by carboxylating osteocalcin, which may function as a hormone in regulating insulin sensitivity. It could also play a role in reducing insulin resistance and risk of Type 2 diabetes via effects on calcium metabolism.¹² What's more, a review published in the Journal of Nutrition and Metabolism noted:¹³

"Increased vitamin K1 intake in a cohort study ... was shown to decrease risk of developing diabetes by 51%. A recent review suggests that vitamin K supplementation may be used as a novel adjuvant therapy to improve glycemic control and quality of life."

Vitamin K Boosts Heart Health, Important for COVID-19

As mentioned, people with heart disease have poorer outcomes if they develop COVID-19, and vitamin K's role in heart health is also well-noted, particularly for vitamin K2. One of the reasons why vitamin K2 is so important for heart health has to do with a complex biochemistry involving the enzymes matrix gla-protein (MGP, found in your vascular system¹⁴), and osteocalcin, found in your bone.

"Gla" stands for glutamic acid, which binds to calcium in the cells of your arterial wall and removes it from the lining of your blood vessels. Once removed from your blood vessel lining, vitamin K2 then facilitates the integration of that calcium into your bone

matrix by handing it over to osteocalcin, which in turn helps "cement" the calcium in place inside your bone.

Vitamin K2 activates these two proteins, so without it, this transfer process of calcium from your arteries to your bone cannot occur, which raises your risk of arterial calcification. In fact, in one study, those who had the highest amount of vitamin K2 were 52% less likely to experience severe calcification in their arteries and 57% less likely to die from heart disease over a seven- to 10-year period.¹⁵

Low levels of vitamin D and vitamin K have also been linked to high blood pressure,¹⁶ another condition that increases your risk of poor outcomes from COVID-19. While many people – young and old alike – are facing Type 2 diabetes and high blood pressure, these conditions can be turned around, and in so doing you'll significantly reduce your risk of becoming seriously ill from COVID-19. Ensuring you're getting enough vitamin K is one part of this equation.

Vitamin K Works in Tandem With Vitamin D

Keep in mind that vitamin K2 also works in tandem with vitamin D and magnesium. So, it's important to remember that vitamin K2 needs to be considered in combination with calcium, vitamin D and magnesium, as these four all have a synergistic relationship that impacts your health.

Vitamin D is also noteworthy in terms of COVID-19, as an analysis of medical records revealed a direct correlation between levels of vitamin D and the severity of illness in people infected with SARS-CoV-2, the virus that causes COVID-19.¹⁷

To improve your immune function and lower your risk of viral infections, you'll want to raise your vitamin D to a level between 60 nanograms per milliliter (ng/mL) and 80 ng/mL. In Europe, the measurements you're looking for are 150 nanomoles per liter (nmol/L) and 200 nmol/L. This, in addition to addressing your vitamin K intake, is a natural strategy that may significantly lower your risk of severe illness from COVID-19.

Are You Getting Enough Vitamin K?

It can be difficult to tell if you're getting enough vitamin K, as there's no easy way to screen or test for vitamin K2 sufficiency. Vitamin K2 cannot at present be measured directly, so it's measured through an indirect assessment of undercarboxylated osteocalcin. This test is still not commercially available, however.

As a general rule, if you have osteoporosis, heart disease or diabetes, you're likely deficient in vitamin K2. Further, it's believed that the vast majority of people are in fact deficient and would benefit from more K2, which you can achieve by eating more of the following foods:

- Certain fermented foods such as natto, or vegetables fermented using a starter culture of vitamin K2-producing bacteria
- Certain cheeses such as Brie, Munster and Gouda, which are particularly high in K2
- Grass fed organic animal products such as egg yolks, liver, butter and dairy

If you're taking statin drugs, which are known to deplete vitamin K2,¹⁸ you could also be deficient. If you're interested in supplementation, as a general guideline, I recommend getting around 150 mcg of vitamin K2 per day.

Others recommend slightly higher amounts – upward of 180 to 200 mcg. Fortunately, you don't need to worry about overdosing on K2, as it appears to be completely nontoxic. If you opt for a vitamin K2 supplement, make sure it's MK-7. The exception is if you're on vitamin K antagonists, i.e., drugs that reduce blood clotting by reducing the action of vitamin K. If so, you should avoid MK-7 supplements.

Also be aware that excessive intake of dietary or supplemental vitamin K1 can overcome the anticoagulant effects of blood thinning medications. Further, when taking vitamin K, do so along with a fat. Since vitamin K is fat-soluble, it won't be properly absorbed otherwise, and be sure to also balance it with calcium, vitamin D and magnesium.

Sources and References

- ^{1, 2, 3, 4} Preprints April 25, 2020
- ^{5, 7} The Guardian June 5, 2020
- ⁶ Haemostasis. Nov-Dec 2000;30(6):298-307. doi: 10.1159/000054147
- ⁸ Nutrients. 2018 Apr; 10(4): 446
- ⁹ WHO-China Joint Mission on COVID-19 February 2020
- ¹⁰ medRxiv February 27, 2020
- ^{11, 12} Diabetes Care. 2010 Aug; 33(8): 1699–1705
- ¹³ J Nutr Metab. 2017; 2017: 6254836
- ¹⁴ Thrombosis and Haemostasis, 2008; 100(4):393
- ¹⁵ The Journal of Nutrition November 1, 2004: 134(11); 3100-3105 (The Rotterdam Study)
- ¹⁶ Hypertension. 2017 Jun;69(6):1165-1172. doi: 10.1161/HYPERTENSIONAHA.116.08869. Epub 2017 Apr 10
- ¹⁷ Grassroots, April 9, 2020
- ¹⁸ Expert Review of Clinical Pharmacology 2015 Mar;8(2):189-99