

Vitamin K2 Study Shows Improved Cardiovascular Health

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STORY AT-A-GLANCE

- › Data from Edith Cowan University showed people who ate foods high in vitamin K1 and K2 had a 34% overall reduced risk of any atherosclerosis-related heart disease; this supports past studies that show vitamin K2 is heart protective
- › In an interview with Dr. John Campbell, Dr. Michael Cohen talked about his experience with recommending to his patients that they take vitamins D, K2 and zinc
- › Scientific evidence shows that vitamin D deficiency is a primary risk factor for severe COVID-19 and death; Cohen finds that even in Israel where it's routinely sunny, many of his patients were deficient in vitamin D
- › Cohen recommends supplementing with vitamins D, K2 and zinc, as well as getting plenty of exercise and sleep to protect your immune system; I would add eating fermented foods to seed your gut microbiome and eating plenty of fiber to feed your healthy gut bacteria and protect your heart health

Vitamin K is a fat-soluble vitamin that has a significant influence on your health. Unfortunately, many people don't get enough vitamin K in their diet. Since your body stores very little, it is rapidly depleted without regular dietary intake. Data from Edith Cowan University showed people whose diet was high in vitamin K2 had a 34% lower risk of any atherosclerosis-related heart disease.¹

Common drugs may deplete your store of vitamin K, making it even more important to watch what you eat. Naturally occurring vitamins are vitamin K1 (also called

phylloquinone) and vitamin K2 (also called menaquinones).

Vitamin K1 is found in green leafy plants and is best known for the role that it plays in blood clotting. Vitamin K2 is primarily derived from fermented foods and animal products, such as eggs, liver and meat. Vitamin K2 is important to the production and utilization of hormones, as well as bone and heart health.

The Different Forms of Vitamin K2

There are also different forms of vitamin K2, which can be confusing. Let's break down the basics, their known primary functions and sources:

- **Vitamin K2 (menaquinones)** – The menaquinones play a primary role in bone and heart health. Inside your body, vitamin K2 is synthesized by certain bacteria in your gut. There are several subtypes of K2, which are named by the length of the chain. They are designated as MK-4 through MK-13.² Two of the most common ones you'll find are:
 - **Menaquinone-4 (MK-4)** – A short-chain form of vitamin K2 found in animal products such as meat, eggs, liver and dairy.^{3,4} The source matters, however. For example, animal products from factory-farmed animals are not high in MK-4 and should be avoided. Only grass-fed animals (not grain-fed) will develop naturally high levels.

MK-4 has a short biological half-life making it a poor candidate as a dietary supplement. However, MK-4 from food is important for good health as it plays a role in gene expression. For example, research⁵ has found it may lower your risk of liver cancer.
 - **Menaquinone-7 (MK-7)** – Longer-chained vitamin K2 is found in fermented foods such as sauerkraut, certain cheeses and natto.⁶ This is the one you'll want to look for in supplements, as this form is extracted from real food, specifically natto,⁷ a fermented soy product. If you do choose this as a food or supplement, be sure that the soy it's derived from is 100% organic.

MK-7 is produced by specific bacteria during the fermentation process. However, not all strains of bacteria make it,⁸ so not all fermented foods will provide it. Most commercial yogurts, for example, are virtually devoid of vitamin K2. While certain types of cheeses, such as Gouda, Brie and Edam, are high in K2, others are not.

One of the best ways to ensure a good source of vitamin K2 is all organic is to ferment your own vegetables using a special starter culture with bacterial strains that produce vitamin K2. The MK-7 formed in the fermentation process has two major advantages: It stays in your body longer and has a longer half-life than MK-4.⁹

Research¹⁰ has shown MK-7 helps prevent inflammation by inhibiting proinflammatory markers that can cause autoimmune diseases like rheumatoid arthritis. And, while vitamin K1 has been found to moderately reduce the risk of bone fractures,¹¹ MK-7 is more effective than vitamin K1 at reaching and protecting your bones.^{12,13}

Vitamin K2 Lowers Risk of Atherosclerotic Heart Diseases

Researchers from Edith Cowan University¹⁴ published a prospective cohort study in the Journal of the American Heart Association in August 2021.¹⁵ They engaged participants enrolled in the Danish Diet, Cancer and Health Study and followed them for a maximum of 23 years.¹⁶

The researchers chose people with no previous history of atherosclerosis cardiovascular disease (ASCVD). The participants completed a food frequency questionnaire and were followed up for any hospital admissions related to ASCVD, such as ischemic heart disease, ischemic stroke or peripheral artery disease.

After estimating the participants' dietary intake of vitamin K1 and vitamin K2 from the questionnaires, they found those with a diet rich in vitamin K had an overall reduced risk of 34% of any atherosclerosis-related cardiovascular disease. Data was collected from 53,372 individuals and the data separated to measure the risk factors in those with higher intakes of vitamin K1 and vitamin K2.¹⁷

Participants with the highest levels of vitamin K1 intake as compared to those who had the lowest intake, had a 21% lower risk of ASCVD-related hospitalization.

When the data were separated for vitamin K2, they found those with the highest dietary intake had a 14% lower risk of hospitalization for ASCVD-related illnesses than those eating a diet with the lowest amount of vitamin K2. Dr. Jamie Bellinge, one of the scientists on the study, commented on the results:¹⁸

“These findings shed light on the potentially important effect that vitamin K has on the killer disease and reinforces the importance of a healthy diet in preventing it.”

The research also supports past studies that revealed a higher intake of vitamin K could lower cardiovascular disease. Writing in *Open Heart*,¹⁹ researchers called Vitamin K2 “a neglected player in cardiovascular health.”

Vitamin K2 serves the role of regulating calcium through activation of the anticalcific protein, matrix GLA protein. Supplementing with vitamin K2 has been strongly linked to improving heart disease outcomes by modulating “systemic calcification and arterial stiffness.”²⁰

One study²¹ published in 2015 looked at the effect vitamin K2 could have on the progression of atherosclerosis in patients with chronic kidney disease who were not on dialysis. The researchers found those taking vitamin K2 demonstrated a reduction in the progression of atherosclerosis but not necessarily the progression of calcification.

Vitamin D Supplementation Helped One Population

In this video interview above, Dr. Michael Cohen, who was trained as a general practitioner in the U.K. and Israel, talks about the necessity of several vitamins in the treatment of COVID-19. Interview host Dr. John Campbell characterizes Cohen as “having a pretty good body of medical knowledge and very interested in preventive health care”²² in reference to his additional training in surgery and emergency medicine.

During the interview, Cohen talks about when he was infected with COVID-19 in 2020 before the infection was identified in Israel where he lives. He shared the subsequent symptoms he experienced, including tingling in his left hand, difficulty sleeping, choking at night and poor athletic performance.

During his recovery, he treated himself with several vitamins. At one point he used hydroxychloroquine, which he says, "did help a lot." Looking at the reported case rate, he could see the countries close to the equator had lower rates of infection and he hypothesizes it was due to vitamin D levels. He began taking what he called "high doses of vitamin D,"²³ and recommended his patient population of 2,000 do the same.

He also tells his patients to include vitamin K2 and zinc as well. As could be expected from the case rate in Israel, Cohen had "quite a few patients with COVID." However, while he notes that the information he's sharing was not from a study, he tells Campbell that only a handful of his patients were seen in the emergency room, but none was admitted to the hospital:²⁴

"If you read a lot of the research, even though it's said that there's no treatment for COVID other than monoclonal antibodies, it seems like we are missing a very important point.

I think the whole point of COVID from a medical standpoint was we were told that all our efforts are supposed to be there to prevent the hospitals from being swamped ... we want to protect the NHS and every health care system we can.

And yet, what was actually happening was people were being sent home and just told if your lips go blue call us again ... In my humble opinion this pandemic doesn't need to be anything like what it is."

Vast Majority of COVID-19 Patients Are Vitamin D Deficient

Throughout 2020 and 2021, the evidence mounted to support the hypothesis that vitamin D deficiency is a primary risk factor for severe COVID-19 and death. One

Spanish²⁵ study²⁶ showed 82.2% of tested COVID patients were deficient in vitamin D, the medical term for which is 25-hydroxycholecalciferol (25OHD).

This study did not find a correlation between vitamin D levels and disease severity. However, others have shown patients with higher levels of vitamin D have milder disease. One study^{27,28} found the risk of developing a severe case of COVID-19 and dying from the disease virtually disappeared once the vitamin D level is above 30 ng/mL (75 nmol/L).

October 31, 2020, my review paper²⁹ "Evidence Regarding Vitamin D and Risk of COVID-19 and Its Severity," co-written with William Grant, Ph.D., and Dr. Carol Wagner, both of whom are part of the GrassrootsHealth expert vitamin D panel, was published in the peer-reviewed journal *Nutrients*.

Table 1³⁰ summarizes data from 14 observational studies that suggest vitamin D serum levels are inversely correlated with the incidence and/or severity of COVID-19.

In a large observational study³¹ published in September 2020, researchers looked at data from 191,779 American patients with a mean age of 50 who had results for a SARS-CoV-2 test between March and June 2020 and a vitamin D level measured at some point in the preceding 12 months. In this group, 9.3% tested positive for SARS-CoV-2 and of those:

- 12.5% of patients who had a vitamin D level below 20 ng/ml (deficiency) tested positive for SARS-CoV-2
- 8.1% of those who had a vitamin D level between 30 and 34 ng/ml (adequacy) tested positive for SARS-CoV-2
- Only 5.9% of those who had an optimal vitamin D level of 55 ng/ml or higher tested positive for SARS-CoV-2

The lead researcher in this study was Dr. Michael Holick,³² widely recognized as one of the leading vitamin D experts in the world. The team of scientists noted that the

positivity rate of COVID-19 was higher in the group with 25OHD levels lower than 20 ng/mL, and went on to write:³³

“The risk of SARS-CoV-2 positivity continued to decline until the serum levels reached 55 ng/mL. This finding is not surprising, given the established inverse relationship between risk of respiratory viral pathogens, including influenza, and 25(OH)D levels.”

Cohen initially advises most of his patients to take 4,000 international units of vitamin D daily, and he tests many of their levels.³⁴ Even in Israel where it’s routinely sunny and people get adequate exposure to the sun, he finds “quite a lot of people with low levels of vitamin D”³⁵ – below 20 ng/mL and some below 10 ng/mL.

Taking Care of Your First Line of Defense

Cohen laments the health challenges faced by the world as health experts disregard and neglect the use of vitamin D to lower the risk of infection. He tells Campbell:³⁶

“I literally have not had one person admitted into the hospital ... again you know the fact that people were not even being admitted into hospital in my population of patients, it says something. It's not the whole picture, and I'm not trying to tell anybody that this is the cure-all for COVID, but if everyone was doing this, would we have anything like the current so-called justification for turning this into a global crisis?”

Cohen advises his patients to take vitamin D, K2 and zinc supplements to help support and care for their immune systems. He recommends 200 mcg per day of vitamin K2³⁷ to help serum calcium get deposited in the bones and teeth where it belongs and not along the arterial wall as a precursor to atherosclerosis.

While he doesn’t mention the difference in the interview, if you are going to use a vitamin K2 supplement, it is best to use MK-7, since MK-4 has a short biological half-life. Instead, seek to eat grass fed, pasture-raised animal products that are high in MK-4 and MK-7, as Campbell notes in the video.

I would also add taking quercetin with zinc as it is an ionophore³⁸ that helps the zinc enter the cell where it has antiviral activity. Cohen also stresses getting plenty of sleep and going outside for exercise. He adds, “As a first line of defense we should be dealing with people’s immune system in the safest way possible.”³⁹

I would also stress caring for your gut microbiome to protect your immune system and overall health. One important way to support your gut is by eating fermented foods. Starter cultures can manipulate the outcome, so fermenting your own vegetables at home with a high-quality vitamin K2-rich starter can improve the vitamin content and affect the bacterial colonies.

Giving beneficial bacteria the nutrients they need to survive and thrive is just as important as eating probiotic-rich foods. Seek to eat fiber-rich foods, which feed your gut microbiome.^{40,41,42} Additionally, there is significant evidence that fiber also helps protect your heart health,^{43,44,45} using a different pathway than vitamin K2.

The take-home message is that you need to pay attention to your vitamin D level, the foods you eat and how much sleep you get, and ensure you get plenty of exercise. These are the foundational strategies that affect your gut microbiome, immune system and heart health – and will help protect you against any viral infection.

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