

Vitamin K Is Extremely Important.

I have summarized and organized the information gathered here. It is primarily from:

<https://walkabouthealthproducts.com/vitamin-k2-mk-4-research/>

<https://walkabouthealthproducts.com/emu-oil-research/>

<https://www.functionalmedicineuniversity.com/public/Coumadin.cfm>

from <https://drhoffman.com/article/is-your-coumadin-killing-you-the-remarkable-potential-of-vitamin-k-to-stop-arterial-calcification/>

<https://omegavia.com/how-to-choose-the-right-vitamin-k2-supplement/>

<https://www.drstevenlin.com/vitamin-k2-benefits/>

<https://richardwarrenmeiowitz.wordpress.com/2017/04/06/innovix-labs-full-spectrum-vitamin-k2-vs-eight-leading-vitamin-k-2-supplements/>

<https://theartofunity.com/how-to-decalcify-your-pineal-gland/>

<https://www.thehealthcloud.co.uk/activator-x/>

<http://www.lifeextension.com/magazine/2015/7/turning-to-stone/page-01> except as noted

DISCLAIMER

As always do your own research and consult with a medical professional as you wish. This is information I have gathered for myself and am sharing it for those who may find it helpful.

Most of these statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease. The information provided here is not intended as a substitute for the advice of a physician or medical professional. This information is not intended as a substitute for the reader's independent judgment and personal responsibility. Health issues are far too important to delegate to anyone else. It is highly recommended you research and seek information and counsel from as wide a variety of sources as possible so you can make well informed, educated decisions about your, your child's, or your pet's health, as in the end YOU make the decisions.

Vitamin K

Calcification, Clogged Arteries, Osteoporosis, Bones, and Heart Disease

Vitamin K2 is known as *Activator X* in Skate Oil articles I found. The vitamin-like compound that Weston Price dubbed "Activator X" in the 1945 edition of *Nutrition and Physical Degeneration* was the very same nutrient researchers now call "vitamin K2.

Calcium, Vitamin D, Vitamin K2 and Magnesium

Without adequate vitamin D calcium cannot be absorbed by the body.

Vitamin K2 is critical. It tells the body what to do with the calcium. Without enough vitamin K2 the calcium causes plaque in the arteries and is reported to calcify the soft tissues (glands, organs, joints) instead of going into bones and teeth.

Several sources say that adequate magnesium is needed (as well as vitamin K2) so the body knows what to do with calcium.

Vitamin K Is Extremely Important.

The three forms of vitamin K most applicable to human health are:

1) Vitamin K1 (phylloquinone)

Vitamin K1 is found in plants and some of it converts to vitamin K2 in the body. This form is considered the least effective because it depends on conversion into activated K2 to confer significant protection against calcification. There are nonetheless published studies showing disease risk reduction in response to ingestion of vitamin K1.

Most adults are not K1 deficient. Even consuming very small amounts of green leafy vegetables or vegetable oils can provide you with ample K1. It's even found in fast food and soybean oil.

Better yet, your body can recycle K1. You rarely, if ever, become deficient. So no need to supplement. If you supplement with K1, serum levels reach a plateau at 200 mcg. Doses of 1000 mcg per day may even contribute to periodontal disease.

2) Vitamin K2 (MK-4) (menatetrenone)

MK-4 is found in meat, eggs, and dairy products. It is the most studied form of vitamin K to preserve bone health. It is rapidly absorbed and rapidly metabolized by the body.

MK-4 is the most studied and consumed K2 in our diets. It is the main K2 form found in the brain. MK-4 is transported and stored in the body very differently than the other forms. It is the form of K2 found in breast milk. It is a fast-acting Vitamin K2. Babies need this form and are usually born deficient. In the US, newborns are given a shot of K1. In Japan, newborns get the more effective MK-4 instead. All healthy traditional cultures consume mostly MK-4.

3) Vitamin K2 (MK-7) (menaquinone)

MK-7 is found in fermented soybeans and fermented cheeses. It remains active in the body for more than 24 hours.

(Vitamin K 3 is Synthetic and is toxic to babies per mercola.com.)

CAUTION For those Taking Blood Thinners

Vitamin K1 is essential for proper blood coagulation. K1 has little or no role in proper calcium deposition.

If you are taking a blood thinner check with your prescribing doctor before taking any Vitamin K Supplement. Some prescription blood thinners work by blocking the uptake of vitamin K. Therefore taking vitamin K will interfere with the blood thinner. If you can you want to switch to a blood thinner that works in other ways; still check with your doctor first.

Below is from <https://www.functionalmedicineuniversity.com/public/Coumadin.cfm>

If you or a loved one has been prescribed the blood thinner Coumadin (Warfarin), and have not had your vitamin K level measured and adjusted for your prothrombin time, you are not receiving the best and most advanced cardiovascular treatment.

Coumadin pulls calcium out of bones and dumps it right into the coronary arteries and heart valves.

And to add insult to injury, it causes high blood pressure, leads to osteoporosis, easy hip fractures, joint replacements, and much more.

Vitamin K2 actually can reverse the damage of aging. It rips calcium off the coronaries and calcified heart valves. It causes regression or melting away of coronary plaque, something no other medicines like the statins (Lipitor, Vytorin, Crestor, etc.) can claim.

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Links To Videos On YouTube That Have Excellent Information

The first two videos are only 7 minutes each and well worth a watch. The other 3 are well worth watching too, but they are longer.

- 1) https://www.youtube.com/watch?v=-gei4_8ZAvo (7 minutes) [Clogged Arteries, Osteoporosis and Vitamin K2 - Dr. Eric Berg DC]
- 2) <https://www.youtube.com/watch?v=oE21JOpBdvw> (8 minutes) [Vitamin K2 (MK-4, MK-7) for Your Bones, Clogged Arteries, & Heart Disease - Dr Mandell]
- 3) <https://www.youtube.com/watch?v=jPkRdAfuwjg> (30 Minute interview with a cardiologist) [[Dr. Mercola Interviews Dr. Goodman on Vitamin K2 and Its Benefits] Dr. Dennis Goodman is board certified in Cardiology and Holistic Integrative Medicine. He is a clinical Associate Professor of Medicine and chairman of the Department of Integrative Medicine at the New York University (NYU), He is also Director of Integrative Medicine at New York Medical Associates in Manhattan as well as the
- 4) <https://www.youtube.com/watch?v=DTspHSbuxQU> (1 hour and 15 minutes) [Vitamin K Workshop - Part 1 (Goodman & Read)]
- 5) <https://www.youtube.com/watch?v=7R5S22DEuJg> (1 hour) [Vitamin K Workshop - Part 2 (Schurgers & Maresz)]

Vitamin K Is Extremely Important.

Food Sources of Vitamin K

It is almost impossible to get Vitamin K2-rich foods at the grocery store.

Vitamin K1 is found in plants and is essential for blood clotting and coagulation. Supplementing is usually not necessary since the body recycles K1. It also blocks the effect of heart medications like Coumadin or Warfarin. Vitamin K2 can also have some effect on these drugs, so talk to your doctor about this.

Some people say green leafy vegetables such as spinach and chard are a great source of vitamin K. (Glenn's' question: What form of Vitamin K and How much?)

Food sources of K2

Vitamin K2 is neither recycled nor stored by the body. Unless you eat Vitamin K2 rich foods regularly, you will become deficient in a matter of days.

Note that the food options below are mostly MK-4, as that's what's in most foods:

Food	mcg K2 per 100 g	Form of K2
Natto (Natto is a popular dish in Japan consisting of fermented soybeans. Its pungent smell and viscous texture make it unpalatable to many)	1103	MK-7
Fatty Goose liver (inhumane treatment and possible health risks)	369	MK-4
European hard cheeses	76	MK-4 and MK-9
Pastured egg yolk	32	MK-4
Regular egg yolk	15	MK-4
Grass-fed butter	15	MK-4
Chicken liver	14	MK-4

Much lower levels are found in sauerkraut, old world hard cheeses, caviar, organ meats, and grass-fed butter. Eggs from pastured chicken also have a little K2. Regular butter and cheese have very low levels of K2. Fatty goose liver contains a fair amount of Vitamin K2 MK4, but it is controversial both because of the inhumane way the goose is raised and eating liver is advised against by many for health reasons.

Vitamin K Is Extremely Important.

Decalcifying The Pineal And Other Glands

(Also Will Decalcify The Arteries, Joints And Other Soft Tissues)

There are two aspects of decalcifying your glands. The first is to stop any further calcification, which is caused by some food and environmental factors. The second step is to work on removing the existing calcification.

STEP 1 – What to Avoid: (Stop further calcifying)

Primary causes of calcification:

Halides:

Halides are chemicals such as **Fluoride, Chlorine, and Bromide.**

Fluoride

Fluoride is the most common in our diets. It is magnetically attracted to the pineal gland more so than any other part of the body. Here it forms calcium phosphate crystals, which accumulate. Fluoride is in toothpastes and tap water. Even outside of its effect on the Pineal Gland, it is a toxic poison and should be avoided at all costs.

It is recommended to switch to non-fluoride toothpaste which you can buy or make yourself.

Use a whole home or shower filter for showering. No filter, including reverse osmosis systems, removes all the fluoride out, so it's best to call your city council and request the fluoride to be taken out. There are some other options like putting wheat grass and sweet basil in the water but there is no telling how well those work.

Glenn's' NOTE: Fluoride does accumulate in other sensitive endocrine tissues including the thyroid gland. Fluoride causes calcification and disruption to the glands and other soft tissues. It is a neurotoxin and causes brain damage.

Calcium:

Calcium Supplements – This is one of the biggest causes of calcification, as well as clogging of arteries. These cause a buildup of calcium, unless you have adequate vitamin K2 and magnesium which direct the calcium into your bones and not your arteries, brain and other soft tissues..

Calcium in food – Pretty much all processed food contains some form of calcium. These are all bad for your health. These forms include calcium phosphate, calcium carbonate and dicalcium phosphate. Many supplements contain these as content fillers as well, and can be found in the “other ingredients” list.

Mercury:

Mercury is very bad for the pineal gland and our bodies, due to its poisonous nature.

Mercury tooth fillings are recommended to be removed. Also, all medical vaccines are tainted with mercury, so do your research on that. One to look out for is Thimersal (a vaccine preservative made of methyl mercury). This is very difficult to get out of the brain once it's in there.

Avoid eating almost all fish and bottom feeders such as shrimps and prawns. Tuna and dolphin meat is particularly bad as it contains higher doses of mercury. Generally speaking, the bigger the fish, the higher the concentration of mercury in its body tissue. The only fish I recommend is wild caught Alaskan salmon. I would strongly avoid farm raised fish.

Mercury light bulbs should also be used with care, as if one is smashed mercury vapor is released into the room and inhaled. The good news is that mercury can be removed from the body over time by the daily use of **chlorella, wheatgrass and spirulina.** Cilantro herb and apples (organic of course) eaten daily have been shown to help remove mercury from brain tissue too. This is especially recommended if you eat sushi.

Vitamin K Is Extremely Important.

Pesticides from conventionally grown fruits and vegetables

Pesticides from conventionally grown fruits and vegetables can have fluoride and other pineal toxins that cause calcification throughout the body as well. Organic and raw foods that don't contain pesticide are recommended.

Organic and free-range chicken or grass fed beef is recommended as well since they don't eat feed with these toxins in them, passing them along to you..

Other toxins:

Any processed foods, or “junk foods”

Any processed foods, or “junk foods” also contribute to the calcification as well. Start to read ingredient lists on the foods you buy. If it is not natural and you don't recognize the name on the ingredients, it's probably not healthy for you.

Lotions, soaps, shampoos, deodorants

Lotions, soaps, shampoos, deodorants, and anything else you put on your skin, since your skin absorbs these toxins directly into your blood stream. Always buy organic, all natural ingredient cosmetics.

All Artificial Sweeteners (Aspartame)

Refined Sugar

Phylenanine (In Fruit Squashes)

Cleaning Chemicals

Dental Mouthwashes With Fluoride.

(For mouthwash, using saltwater or oil-pulling is a better, healthier option.)

Air Fresheners That Are Not 100% Natural.

White Flour

Soda And Carbonated Beverages

Sugar, Caffeine, Alcohol and Tobacco (S.C.A.T.):

A diet free of these will not only flush the system, but it will also bring about your inner energy or “Chi” and allow you to have a more balanced mind/body. The longer you avoid these the better, but it must be for at least two months to help the pineal gland. This along with exercise and meditation will offer you more energy and help to lose extra weight allowing your brain clear from toxins.

Wine And Grape Juice That Is Not Organic

Only buy Organic wine (and grape juice). In the United States, many vineyards use a fluoride pesticide called cryolite. As a result, the levels of fluoride in U.S. grape juice and wine (particularly white grape juice and wine) are elevated. In 2005, the USDA reported that the average level of fluoride exceeded 2 ppm for both white wine and white grape. The levels of fluoride in red wine are also elevated (1 ppm), and so are raisins (2.3 ppm). If you don't want to spend the extra money on organic, European brands use far less cryolite than the U.S.

Tea That Is Not Organic

Tea is also heavily sprayed with pesticides, so only drink organic teas.

Vitamin K Is Extremely Important.

Avoid Cooking With Teflon And Most Other Non-Stick Pans

Avoid cooking with Teflon and most other non-stick pans. Some research has found that cooking with Teflon-coated pans can significantly increase the fluoride content of food.

Avoid Fluorinated Pharmaceuticals

Avoid Fluorinated Pharmaceuticals such as Cipro. Many pharmaceuticals are fluorinated, meaning they contain something called a “carbon-fluorine bond.” Although the carbon-fluorine bond is strong enough to resist breaking down within the body, this does not always occur. Some fluorinated drugs have been found to metabolize into fluoride within the body, greatly increasing exposure to fluoride. The most notable example is Cipro. Other fluorinated chemicals that are currently known to break down into fluoride include fluorinated anesthetics (Isoflurane & Sevoflurane), Niflumic acid, Flecainide, and Voriconazole. It may be best to find an alternative if taking any of these.

Avoid Any Chicken Fingers And Chicken Nuggets

Avoid any chicken fingers and chicken nuggets unless you are positive they have been deboned by hand.— Almost all of these are made using a mechanical pulverizing deboning processes that increases the quantity of bone particles in the meat. Since bone is the main site of fluoride accumulation in the body, the higher levels of bone particle in mechanically deboned meat results in significantly elevated fluoride levels. Of all the meats that are mechanically deboned, chicken meat has consistently been found to have the highest levels. **This also goes for any processed meats such as deli meat and hot dogs.**

Radiation From Cell Phones

Some studies have shown that radiation from cell phones can be harmful to the pineal gland and body. There are ways to protect yourself.

STEP 2 – Remove Existing Calcification of Your Pineal Gland, Other Glands and Organs and The Arteries, Joints and Other Soft Tissues

(It is not necessary to take all of these, but try a few and monitor your results. Don't let this overwhelm you, just take one step at a time gradually becoming open to these health concepts. The pineal gland is among the most responsive glands to thought. Just knowing of its existence, and a desire to use it as part of your infinite mind will produce more activity from it. Meditation alone or Qi-Gong will get the pineal gland aroused.

Vitamin K2:

Vitamin K2 has a long list of health benefits: removes plaque in blood allowing for calcium to be removed from the arteries and placed in the bones, etc. Vitamin K was discovered by Weston Price and originally called Activator X.

K1 (phylloquinone) can be found naturally in green leafy vegetables.

K2 (menaquinones) can be obtained from organ meats, liver, egg yolks, fermented dairy products like cheese or butter (from organic grass fed cows), Natto (the richest K2 food source), fermented vegetables and sauerkraut. Some K2 is created by intestinal microflora

It is almost impossible to get enough vitamin K2 from your diet and intestinal microflora.

Vitamin K Is Extremely Important.

MSM:

This is a very powerful general detoxifier. It is also good for your hair, skin, nails and building bones. You can work your way up to around 7,000-10,000mg per day. MSM starts to work effectively at higher doses, but is still beneficial at lower doses.

Raw Cacao

Raw and Organic Cacao is very helpful because of the high antioxidant content. It is also good as a pineal gland stimulant, which can help to activate your third eye.

Raw Unfiltered Apple Cider Vinegar:

This contains malic acid, which is good for detoxification of your pineal gland. Make sure it's raw, organic and unfiltered (has "the mother" in it). (Glenn's NOTE: According to several sources, excessive consumption is bad for the liver. It has been reported to decrease the potassium level in the body, lower blood sugar, cause loss of bone density, cause loss of minerals and cause problems in pregnancy. It also acts as a blood thinner according to some sources.

Lemon Juice/Water

Raw lemon Juice/Water consumed every day for three weeks is very good at detoxifying your pineal gland and the rest of the body.

(Glenn's NOTE: See my FREE PDF on Lemon and Lemon Water at http://twochoices.net/FREE_PDFs.html)

Garlic:

Garlic is great for decalcification because it is able to dissolve calcium and acts as an antibiotic. It is also beneficial for many other things like your immune system. Consume around half a bulb to three bulbs daily. To ensure your breath isn't too bad, you can crush the garlic and soak in fresh lemon juice.

Oregano Oil and Neem extract:

These act as a natural antibiotic against the calcium shells that nanobacteria create around themselves in the pineal gland.

Boron:

Present in beets. You could try adding 1/4 tsp of sodium borate (Borax) to your green teas. An inexpensive source of boron can be purchased in most supermarkets as common borax. Borax should be taken in very small quantities in pure water, with as little as 1/32 to 1/4 of a teaspoon of borax to one liter of water. This mixture consumed in small quantities throughout the day has been found to be safe and effective. Adding a pinch of sea or pink salt is helpful in the process as well. Another alternative to common borax is food grade sodium borate.

Iodine:

Iodine has been clinically proven to increase the removal of sodium fluoride from the body. This occurs naturally in seaweed.

Tamarind:

The pulp, bark, and leaves from the tamarind tree can be used to make teas, extracts and tinctures. Tamarind is often used in Ayurvedic Medicine and has many positive health properties.

Distilled Water:

There is research that has shown distilled water can help to decalcify the pineal gland.

Other Things To Benefit Your Glands, Organs, Arteries, Joints And Other Soft Tissues:

Doing A Liver Cleanse.

A Healthy Sauna Or A Properly Guided Sweat Lodge.

Vitamin K Is Extremely Important.

Sleeping In Complete Darkness

Sleeping in complete darkness without any lights for 6 to 8 hours per night (including avoiding the TV, night light, electronic clocks or devices showing the time in lights). If you get up to use the bathroom, try not to put the light on or at least use a dim light.

Practice Energy Work

Tai Chi or Chi Gong will give you serious help with your pineal gland activation.

Regarding Fluoride

After generations of misleading propaganda about the benefits of water fluoridation, the truth is finally emerging. Dr. William Hirzy, former EPA risk assessment scientist, explains water fluoridation remains a government policy because of “institutional inertia [and] embarrassment among government agencies that have been promoting this stuff as safe.” **Science clearly demonstrates that fluoride is a toxic chemical that accumulates in your tissues over time, wreaks havoc with enzymes, and produces a number of serious adverse health effects, including neurological and endocrine dysfunction. Children are particularly at risk.**

Although almost every other nation except Australia, has recognized Fluoride as a health disaster and eliminated use of it, the US continues to fluoridate almost all of its water and toothpaste. Fortunately, with more public awareness there have been some local victories against fluoridation.

In addition to drinking, we absorb it by showering in it. Its half-life is over 20 years and can cause massive brain damage to unborn fetuses, and it gradually impairs IQ and other problems such as depressing cell growth rate.

Most of the fluoride is accumulated in the pineal gland because it is the 2nd highest organ that receives blood-flow in the body.

Glenn’s’ NOTE: Fluoride does accumulate in other sensitive endocrine tissues including the thyroid gland. Fluoride causes calcification and disruption to the glands and other soft tissues. It is a neurotoxin and causes brain damage.

The first intentional addition of fluoride in drinking water occurred in the early 1930’s in Nazi Germany for the purpose of sterilizing humans and forcing the masses into a calm docile state of submission and declining health-state. Marketing it as a benefit to children’s teeth, the sodium fluoride allowed for more easy control of the population.

Research chemist Charles Perkins was sent by the U.S. government to ascertain the truth on water fluoridation and found: “The German chemists worked out a very ingenious and far-reaching plan of mass control that was submitted to and adopted by the German General Staff. This plan was to control the population of any given area through mass medication of drinking water supplies. In this scheme of mass control, ‘sodium fluoride’ occupied a prominent place... However, and I want to make this very definite, the real reason behind water fluoridation is not to benefit children’s teeth... The real purpose behind water fluoridation is to reduce the resistance of the masses to domination and control and loss of liberty... Repeated doses of infinitesimal amounts of fluorine will in time gradually reduce the individual’s power to resist domination by slowly poisoning and narcotizing this area of the brain tissue, and make people submissive to the will of those who wish to govern him. I was told of this entire scheme by a German chemist who was an official of the great Farben chemical industries and was prominent in the Nazi movement at the time. I say this with all the earnestness and sincerity of a scientist who has spend nearly 20 years researching in chemistry, biochemistry, physiology, and pathology of fluorine. Any person who drinks artificially fluoridated water for a period of one year or more will never again be the same person, mentally or physically.”

Vitamin K Is Extremely Important.

Arterial Calcification

Vitamin K1 has been repeatedly shown to offer no benefit to your heart.

Vitamin K2, on the other hand, has been repeatedly shown to improve heart health.

Many of the known risk factors that underlie atherosclerosis have been shown to promote **arterial calcification**. These include elevated LDL cholesterol, elevated homocysteine, diabetes, kidney failure, chronic inflammation, and oxidative stress.

Anticoagulant drugs take out some K2. There is evidence that people on anticoagulant drugs quickly develop arterial calcium deposits.

As if that isn't enough, cholesterol-lowering statin drugs also keep you in an artificially K2 deficient state. *

Additional calcification contributors include low magnesium (a natural calcium channel blocker), hormone imbalance, and excess blood calcium (caused by hyperparathyroidism).

An underappreciated, major reason our vascular system **turns to stone** (calcifies) as we age is inadequate intake of vitamin K2. Vitamin K1 has more to do with blood clotting.

A low blood level of vitamin K2 causes a protein in the vascular wall to bind calcium to arteries, heart valves, and other soft tissues.

K2 keeps calcium in your bones and teeth and out of your arteries. It also keeps calcium out of soft tissues like kidneys and cartilage, preventing kidney stones and heel spurs. Without enough K2, calcium may get deposited in your arteries, adding to arterial blockage. Calcium also attaches to plaque. This can cause hardening of the arteries, heart attacks and strokes.

K1 provides little or no cardiovascular benefits. Studies have repeatedly found associations between K2 and heart health, but no such connection exists for K1.

Below is from <https://drhoffman.com/article/is-your-coumadin-killing-you-the-remarkable-potential-of-vitamin-k-to-stop-arterial-calcification/>

I (Dr. Hoffman) recently had the pleasure of attending a phenomenal lecture at the Integrative Healthcare Symposium (IHS) co-presented by Drs. Jeffrey Bland and Leon Schurgers. Dr. Bland is widely acknowledged as the “Godfather of Functional Medicine”; Dr. Schurgers is a Dutch researcher who specializes in the relationship between vitamin K and coronary artery calcification (CAC).

Measurement of CAC is an accepted way of assessing risk for heart attack. Regardless of cholesterol, some people are highly prone—or resistant—to coronary artery disease. I use the “EBT heart scan” to more reliably predict which of my patients needs aggressive prevention versus those who can be reassured that they’re at low risk.

For example, because my cholesterol is a little high (around 210), and I’m a 65 year old male with a family history of heart disease, I’m told I’m an ideal candidate for a statin. But a recent heart scan revealed I had zero plaque—a virtual guarantee of an additional 15 years of trouble-free mileage. I have a patient with a cholesterol of 345 who paradoxically has no plaque; another, with a cholesterol of 190 has a high-risk plaque score of over 800.

So clearly there are factors beyond cholesterol, HDL, and LDL that determine risk.

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Bones and Joints

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Several sources say that adequate magnesium is needed (as well as vitamin K2) so the body knows what to do with calcium.

MK-4 is found in meat, eggs, and dairy products. It is the most studied form of vitamin K to preserve bone health. It is rapidly absorbed and rapidly metabolized by the body.

Coumadin pulls calcium out of bones and dumps it right into the coronary arteries and heart valves.

And to add insult to injury, Coumadin causes high blood pressure, leads to osteoporosis, easy hip fractures, joint replacements, and much more.

Calcium Supplements – These are one of the biggest causes of calcification, as well as clogging of arteries. These cause a buildup of calcium, unless you have adequate vitamin K2 and magnesium, which direct the calcium into your bones and not your arteries, brain and other soft tissues..

Vitamin K2 keeps calcium in your bones and teeth and out of your arteries.

Soft Tissues, Organs and Glands

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Calcium Supplements – This is one of the biggest causes of calcification, as well as clogging of arteries. These cause a buildup of calcium, unless you have adequate vitamin K2 and magnesium, which direct the calcium into your bones and not your arteries, brain and other soft tissues.

A low blood level of vitamin K2 causes a protein in the vascular wall to bind calcium to arteries, heart valves, and other soft tissues.

It keeps calcium in your bones and teeth and out of your arteries. It also keeps calcium out of soft tissues like kidneys and cartilage, preventing kidney stones and heel spurs.

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Importance of MK-4 during pregnancy and in prenatal vitamins

Below is from <https://omegavia.com/how-to-choose-the-right-vitamin-k2-supplement/>

Written by **Vin Kutty**, Nutritionist, chemist and company founder:

“Given what I stated about the need for MK-4 during pregnancy, you’d think that all prenatal vitamins would have MK-4.

They don’t.

Some prenats have MK-7, which only benefits the mother. Ideally, they all should have MK-4. In a perfect world, you should all be getting K2 from real food.

I don’t know a single prenatal vitamin that contains MK-4. I don’t know a single OB/GYN who suggests K2-rich foods (let alone MK-4) to their patients. I find this disturbing since weeks 5-12 of pregnancy are critical for the baby’s teeth development. Both sets of teeth, your ‘baby teeth’ and adult teeth are formed in utero during weeks 5 – 12. Proper bone, jaw, skull, dental development is impossible without adequate MK-4.

Pregnant women may be able to partially convert relatively abundant K1 to MK-4. This may be an evolutionary advantage in women of reproductive age, much like their ability to convert ALA Omega-3 to EPA Omega-3 better than the rest of us. But gut dysbiosis and statin use stop this from happening. And virtually everyone these days has gut dysbiosis.

As far as we know, there is little or no role for MK-7 in fetal development. The human body is ultra-efficient. There is very little duplication of function. It is naive to think that all we need is MK-7. The evidence that MK-4 and MK-7 do different things, and that BOTH are essential is very compelling.

Pregnant women need MK-4 because MK-7 does not cross the placenta. MK-4 does. Pregnant women given supplements of MK-7 did not pass on MK-7 to the fetus. This means that pregnant women and developing fetus must have MK-4. **MK-7 is also noticeably absent in the cord blood and fetus.** We don’t know why this is the case.”

Above is from <https://omegavia.com/how-to-choose-the-right-vitamin-k2-supplement/>

Vitamin K2 for preventing kidney stones

People with chronic kidney disease and those receiving dialysis are at risk of Vitamin K deficiency.

One risk factor for kidney stones is excess Vitamin D, as demonstrated in lifeguards. But the real problem is that Vitamin D creates a need for Vitamin K2.

Patients with kidney stones secrete matrix-GLA protein in its inactive form. Vitamin K2 deficiency is a major cause of kidney stones. People with polymorphisms for matrix-GLA protein also have higher risk of kidney stones.

Vitamin K2 to prevent cancer

Prostate calcification appears to be a significant factor in the development of prostate cancer.

One study on Vitamin K2 indicated that it can reduce the risk of prostate cancer by 63 percent.

In liver cancer, Vitamin K2 supplementation has been shown to help reduce recurrence and delay progression.

Vitamin K Is Extremely Important.

Vitamin K2 and the brain

MK-4 is the only K2 in the brain, where it seems to concentrate. MK-7 seems to be absent in the brain. MK-4 activates proteins involved in maintaining structure of brain cell membranes. These proteins are called Vitamin K Dependent Proteins (VKDP). Scientists have identified 15 VKDP proteins so far. MK-4 also supports healthy inflammation response and oxidative stress in the brain.

The most obvious role of Vitamin K2 on the brain may be prevention of cardiac embolism or stroke. Matrix-GLA protein has a role in preventing stroke due to its cardiovascular benefits.

However, recently, Vitamin K2-dependent proteins have been shown to play a key role in the brain and central and peripheral nervous systems. They may even have an antioxidant role in the brain itself.

Specifically, Vitamin K2 – alongside K1 – seems to act with glutathione to prevent death of nerve cells and brain damage.

Its role could be key in the neuro-degenerative process. Overall, it seems to prevent oxidative stress and inflammation in the brain.

Early studies are also showing that lower intake of Vitamin K relates to Alzheimer's disease.

Overall, it seems a good dietary intake of Vitamin K2 is vital for optimal brain function and preventing degenerative disease.

Muscle Cramps And Neuropathy In Diabetics

from Dr Ted Read , PhD. - professor of bio technology

Vitamin K2 supplementation can greatly reduce muscle cramps.

In diabetics, neuropathy can be reduced very close to 0 after 3 months

Vitamin K Is Extremely Important.

Vitamin K2 activates two key proteins in the body.

Maxtrix GLA Protein (MGP) and Osteocalcin

1. Osteocalcin: once activated, it carries calcium and minerals into bones and teeth. It's mostly responsible for the dental health and osteoporosis prevention-based benefits of vitamin
2. Matrix-GLA: The non-bone and teeth benefits of Vitamin K2 are mainly tied to the action of the matrix-GLA protein. This protein is activated only in the presence of Vitamin K2.

The process is called carboxylation. Non-carboxylated matrix GLA protein, which is known to form as a result of Vitamin K deficiency, is associated with cardiovascular disease. It's known to have actions in the kidney, and lungs too.

How To Choose The Right Vitamin K Supplement

from <https://omegavia.com/how-to-choose-the-right-vitamin-k2-supplement/> by Vin Kutty on April 23, 2015

1. You need BOTH MK-4 and MK-7 forms of Vitamin K2. MK-4 may be more important.*
2. Make sure the Vitamin K is in the TRANS form. The shape of the K2 molecule makes a difference (CIS form or TRANS form)*

Most MK-7 found in supplements are a blend of Cis and Trans.

Example: if a label says 100 mcg (microgram) of MK-7, you'd expect most of it to be absorbed or bioavailable. Not necessarily. In most cases, it is impossible to tell how much of the 100 mcg is in the biologically active and beneficial trans form. Most of it is *probably* in the trans form. But K2 supplements analyzed at the University of Oslo suggests that some products contain only about 15% of MK-7 in the trans form.

So this hypothetical product may be providing you just 15 mcg of trans MK-7 and 85 mcg cis MK-7, instead of the 100 mcg of usable K2 as claimed by the label.

This is a bit of a bummer. Because most of the manufacturers of K2 products don't even bother to check how much cis and trans is present in their product. It has simply not dawned on the industry's collective conscience. (But it may...if you ask them to test and share the results.)

(Glenn's' NOTE: I emailed Carson Labs And Solaray with questions about this and the dosage. See the emails and responses on the last two pages.)

It's not critical to have Vitamin K1 in K2 formulas*

These are very different molecules with different structures and different functions.

- **MK-4 is the only K2 in the brain**, where it seems to concentrate. MK-7 seems to be absent in the brain. MK-4 activates proteins involved in maintaining structure of brain cell membranes. These proteins are called Vitamin K Dependent Proteins (VKDP). Scientists have identified 15 VKDP proteins so far. MK-4 also supports healthy inflammation response and oxidative stress in the brain.
- The form of Vitamin K that exists at the highest concentrations in tissues of animals and humans is menaquinone-4 (MK-4.) MK-4 accounts for about 40% and the remainder comprise mainly MK-9, MK-8, and MK-7, in that order. So you could say MK-7 is the fourth most important Vitamin K2.

Vitamin K Is Extremely Important.

- **Pregnant women need MK-4 because MK-7 does not cross the placenta.** MK-4 does. Pregnant women given supplements of MK-7 did not pass on MK-7 to the fetus. This means that pregnant women and developing fetus must have MK-4. **MK-7 is also noticeably absent in the cord blood and fetus.** We don't know why this is the case.
- **MK-4 and MK-7 are transported in the body by different lipoproteins.** MK-4 is transported by HDL and LDL whereas MK-7 is transported around the body by VLDL.
- **Human breast milk contains MK-4.** It does not contain MK-7.
- Some cellular functions *must* have MK-4. And MK-7 does things MK-4 cannot.
- Consuming large quantities of MK-7 was extremely rare until the Japanese started fermenting soybeans (Natto) around 1000 AD. Until then, virtually all K2 came in the form of MK-4 with a smattering of other MK forms. Until recently, most healthy traditional cultures got their K2 in the MK-4 form.
- High dose MK-4 is used in Japan as a prescription drug for osteoporosis. Most of the studies showing lowered fracture risk used MK-4, not MK-7.

Based on all of the above, you could make a compelling argument that MK-4 is much more important than MK-7.

Our understanding of these various forms of K2 is still in its infancy. The longer K2 molecules like MK-8 thru MK-14 may also be essential in trace levels. Some of them have been associated with heart health, but once again, we simply don't know enough to say what each of these molecules do.

It may take another generation of research for us to accept that K2 is really K Complex. Like B Complex.

Watch out for self-serving anti-MK-4 marketing messages

Marketers and manufacturers of MK-7 say it's better than MK-4.

(Of course, they do!)

Plasma half-life. They keep repeating the fact that MK-7 has a much longer plasma half-life than MK-4. This is true – but it's a self-serving argument. MK-4 is rapidly soaked up by many organs and tissues, so it will be quickly removed from the blood.

Think about it this way: throw a fistful of \$100 bills into the air at a packed football game. You won't see any bills on the stadium floor after a few seconds. Does that mean no one has money?

A short plasma half-life does NOT make MK-4 useless, redundant or any less beneficial to your health. The plasma half life does not make a molecule more or less effective in the body. MK-4 is stored in the brain, pancreas, salivary glands, and arteries. This stored MK-4 cannot be measured and has specific biological activities in these tissues (beside Gla-protein formation.) This stored tissue pool of MK-4 may be present much longer.

There are no studies that compare the effects of MK-4 to MK-7. Once you begin thinking of MK-4 and MK-7 as having different roles in the body, rather than a weaker/stronger form of the same thing, the anti-MK-4 sales pitches start to sound hollow.

Vitamin K Is Extremely Important.

Questions Emailed to Carlson Labs and Solaray with Answers

Sent to Carlson Labs about May 1, 2018

I started taking Carlson Labs Vitamin K MK4 5 mg about a week ago. I do not take a blood thinner. The 5 mg dosage seems high. Any warnings? Why the high dosage? Any other comments or information?

Received from Carlson Labs about May 6, 2018

Hello Glenn,

Thank you for your inquiry regarding Carlson's Vitamin K MK-4. MK-4 is in the K2 form (vs. K1). The body converts small quantities of K1 into MK-4. Carlson offers high potency MK-4 because of its history in supporting bone and cardiovascular health when used in high doses. Some studies have shown the use of **5 - 45 mg** daily without significant side effects and have also shown that lower doses of 1.5 mg daily did not have the same, desired effects on bone health. We have made our MK-4 to be 5 mg (the lower end of supporting bone health) so that customers can adjust their dose upwards as needed.

I hope this information has been helpful, please feel free to contact me again if you have any additional questions.

Thank you and have a great day,

Frisline Saintoiry Technical Services Associate J.R. Carlson Laboratories, Inc.

Sent to Carlson Labs on Tuesday May 8, 2018

Follow up questions on vitamin K. I am currently taking d3 + 50 mcg of K2-MK7 and Carlson Labs K2-MK4 5 mg. Any reason to take K1? I have several friends on Warfarin. Is vitamin K2 ok when taking a blood thinner. The research I have done indicates it is and that K1 is the form that affects blood clotting. Any preference between MK4 and MK7 without K1? Thank you for any information.

Received from Carlson Labs on May 10, 2018

Thank you for your inquiry regarding Carlson's Vitamin K products.

Both MK-4 and MK-7 are forms of K2 (vs. K1). The body converts small quantities of K1 into MK-4, but the human body does not make MK-7. Some MK-7 is created by bacteria in the large intestine, but it is not really absorbed enough to be considered a source of vitamin K. Both MK-4 and MK-7 are tied to vascular health, but MK-7 is more closely tied to arterial health than MK-4.

Vitamin K- MK4 has been shown to prevent bone loss and fractures, plays an important role in calcification (buildup of calcium or calcium salts in tissues where it does not belong) of arteries and significant research done on MK4 tied to bone health.

Vitamin K- MK7 has been shown to be a good source for cardio and bone health, helps with bone formation, has antioxidant and anti-inflammatory properties, helps with the absorption of calcium into the bone.

Both MK-4 and MK-7 can provide the clotting-related benefits associated with vitamin K. Coumadin/Warfarin inhibits the activity of vitamin K dependent proteins, so it should not be combined with any vitamin K supplements unless under a physician's care.

I hope this information has been helpful, please feel free to contact me again if you have any additional questions. Thank you and have a great day, **Frisline Saintoiry**

Technical Services Associate

J.R. Carlson Laboratories, Inc.

Vitamin K Is Extremely Important.

Below sent to Solaray INFO@nutraceutical.com on 5/12/2018

The Solaray D3+K2 I am taking has 5,000 iu of vitamin D3 and 50 mcg of vitamin K (MK7) Is the vitamin K in the TRANS form or the CIS form. If it is a combination of both forms what are the percentages?

Answer received 5/15/18

Thank you for your question concerning one of our products. We value your business and hope to be able to assist you. Due to the detailed nature of your question, we would appreciate it if you call the Nutritional Products Helpline at the number on your bottle or 1-800-227-6063. The Nutritional Products Helpline is open Monday through Friday 7:00 a.m. to 5:00 p.m. (local MT), where Product Specialists are available to help you.

Thanks again for your inquiry! Nutritional Products Helpline

I called 5/15 and spoke to Matt. I gave him the barcode #. It is the Trans form of K2 MK7 from chickpea.

Sent to Carlson Labs on 5/12/2018

Another question about Vitamin K. Thanks for your previous responses.

Is the TRANS form of K2 MK7 more effective/better than the CIS form of K2 MK7 as I have read in several places?

I am considering taking Carlson Vitamin D3 + K2- 50 mcg of vitamin D3 and 90 mcg of vitamin K2 MK-7 instead of what I am currently taking. Is the vitamin K MK7 in the TRANS form or the CIS form? If it is a combination of both forms what are the percentages?

Answer received 5/15/18

Hello Glenn,

Thank you for your inquiry regarding Carlson's Vitamin D3 + K2. Naturally derived Vitamin K2 as MK-7 uses a fermentation medium with chickpea protein and *Bacillus licheniformis*. The result is a MK-7 variety free from all known allergens. A proprietary multi-step process of purification, condensation, and crystallization produces a product that is more than 96% pure, natural, all-trans MK-7. In addition, MK-7 natural is free of cis-isomers.

I hope this information has been helpful, please feel free to contact me again if you have any additional questions. Thank you and have a great day,

Frisline Saintoiry

Technical Services Associate

J.R. Carlson Laboratories, Inc.