

[IMAGE]

# **The Most Important Vitamin You've Never Heard Of (Until Now): K2**

By Tom Bayne, DC

More than 100 million Americans suffer from preventable diseases such as osteoporosis, diabetes and heart disease.<sup>1-3</sup> As a health care provider, my goal is to help patients regain their health, but that isn't always easy. Suboptimal diets, such as the Standard American Diet (SAD), lead to various micronutrient deficiencies, which we often seek to address through supplementation. For example, many doctors recommend vitamin D and calcium for bone and heart health. But what if there were more to the story? There is.

## **The Discovery of Vitamin K2**

If you look on the label of many multivitamins, you'll see vitamin K, but it will likely be in the form of K1, or phylloquinone – a form found most often in leafy greens and cruciferous vegetables. What you won't find in most multivitamin supplements is vitamin K2, or menaquinone. This form of vitamin K is found in organ meats from healthy animals; cheeses such as brie and gouda; and natto, a traditional Japanese food made from fermented soybeans.

A researcher named Henrik Dam first discovered vitamin K1 in 1929 while he was studying young chickens on a cholesterol-free diet. After three weeks, Dam noticed the chickens developed hemorrhages and their blood would not coagulate. By 1935, Dam had proposed the existence of vitamin K (from the Danish word *koagulation*), but it wasn't until the 1970s that researchers realized there was another form of vitamin K, subsequently called K2 or MK-2.<sup>4</sup>

vitamin k2 - Copyright © Stock Photo / Register Mark In the past 40 years, researchers have realized vitamin K2 is responsible for activating, or carboxylating, vitamin K-dependent proteins (VKDPs) such as osteocalcin and matrix Gla-protein. When fully carboxylated, osteocalcin attracts calcium into the bones and teeth. Matrix Gla-protein (MGP) helps to prevent vascular calcification by pulling calcium out of soft tissues, including arteries and veins.

Without a sufficient source of K2, both osteocalcin and MGP can remain partially uncarboxylated or completely uncarboxylated, allowing calcium to deposit in the blood vessels, rather than the bone, where we need it the most.

### **Vital Support for Bone and Heart Health**

A number of recent studies have linked poor vitamin K2 status with osteoporosis and heart disease. The Rotterdam Study, a population-based 10-year study following 4,807 subjects, showed a 50 percent reduced mortality rate in the high menaquinone intake group as opposed to the control group.<sup>5</sup> Other studies on postmenopausal women have shown an inverse correlation between menaquinone intake and risk of cardiovascular calcification.<sup>6</sup>

Additionally, a 2010 meta-analysis published in the *British Journal of Medicine* suggests calcium supplements can actually *increase* cardiovascular disease risk, causing a potentially "large burden of disease in the population."<sup>7</sup>

Roughly 50 percent of Americans take supplemental calcium and 37 percent use supplemental vitamin D; and yet 10 million Americans suffer from osteoporosis and another 44 million have low bone density, placing them at an increased risk of fracture.<sup>8-10</sup> Vitamin D supplementation, especially in large quantities, can amplify the absorption of calcium from the intestines and deliver it to the bloodstream, increasing the risk for calcification.

Many people are deficient in vitamin D, which makes it hard to avoid supplementation; especially given the wide influence that vitamin D has on human health. As a result, many experts recommend a combination of vitamin D and K2 supplementation to fully carboxylate osteocalcin and MGP.

Unfortunately, encouraging your patients to eat enough K2 can prove difficult, especially if they are unwilling to eat natto, which has been described as both "an acquired taste" and a "slimy superfood."<sup>11</sup> For this reason, many practitioners rely on vitamin K2 supplementation.

### **Just the Start of the Story**

Hopefully by now you've realized the importance that vitamin K2 can play in skeletal and cardiovascular health, but the power of K2 doesn't stop there. Could vitamin K2 be your missing link to help fight diabetes? Does K2 play a role in male testosterone production? Find out the answers to these questions in

subsequent issues, where we'll discuss the significance of vitamin K2 in metabolism, aging, diabetes, fertility, neurodegenerative diseases, cancer, and so much more. It's the one vitamin that should not be overlooked.

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