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Protection against arterial calcification, bone loss, cancer, and aging!

Life Extension, Jan, 2009 by William Faloon

Predicting which nutrients will emerge as life-saving superstars can be challenging.

[ILLUSTRATION OMITTED]

For example, a vitamin introduced just a decade ago is demonstrating profound anti-aging effects that extend far beyond its original indications.

Based on an abundance of positive findings, scientists have developed a more cost-effective form of this nutrient that enables it to stay in the body much longer than before.

The incredible news is that maintaining constant levels of this nutrient not only protects against atherosclerosis, but may reverse arterial calcification as well!

A wealth of studies published in 2008 reveals this same nutrient possesses anticancer properties while suppressing factors involved in common age-related diseases. (1-15)

A hallmark of normal aging involves calcification in soft tissues throughout the body such as heart valves, glands, and blood vessels. (16-18)

One might erroneously think that dietary calcium is a culprit behind pathological calcification processes. The opposite is true. When rabbits are fed calcium-deficient diets, calcification rates rise by 2.7-fold. Calcium-supplemented diets, on the other hand, reduce calcification by 62%. (19)

The reason for this contradiction is that in response to a deficit of calcium in the blood, the

body excessively robs our bones (20) and saturates soft tissues with calcium.

As we age, we lose our ability to regulate calcium balance and then suffer the lethal consequences of systemic calcification. It is encouraging to know that a low-cost nutrient (vitamin K) can quickly restore calcium homeostasis.

AN EXTREME EXAMPLE

Warfarin (Coumadin[R]) is an anticoagulant drug that inhibits normal vitamin K function in the body. The alarming result of vitamin K impairment is rapid development of osteoporosis and arterial calcification. (21,22)

[ILLUSTRATION OMITTED]

Vitamin K is absolutely essential for regulating calcium balance in the body. A deficiency of vitamin K status causes brittle bones and a vascular system that hardens to a state of poor functionality. (23-26)

People who take Coumadin[R] suffer more osteoporotic fractures (21) and show substantially more abnormal calcium deposition in other areas, such as heart valves-twice as much as non-Coumadin[R] takers. (22)

The fact that these pathological changes are allowed to occur in humans prescribed warfarin is unconscionable given the knowledge about the value of low-dose vitamin K supplementation, even in patients at high risk for abnormal arterial blood clots.

HOW DANGEROUS IS ARTERIAL CALCIFICATION?

Atherosclerosis is the leading cause of disability and death in civilized societies. Many factors are involved in its initiation and progression. (27,28) Homocysteine or oxidized low-density lipoprotein (LDL) can initially damage the inner arterial lining (the endothelium). (29) To repair this damage, the endothelium produces collagen that forms a cap over the injury site.

[ILLUSTRATION OMITTED]

These endothelial collagen caps attract calcium that accumulates (calcifies) and forms a hard material resembling bone. This is why atherosclerosis is sometimes referred to as "hardening of the arteries."

Calcification of the coronary arteries markedly increases heart attack risk. (30)

A substantial volume of studies shows that insufficient vitamin K2 accelerates arterial calcification. (31) A new study shows that restoring vitamin K2 reverses arterial calcification. (49)

Vitamin K functions to keep calcium in the bone and prevent its buildup in the arteries.

(23-26,28,31) If that is all vitamin K did, it would be one of the most important nutrients for aging humans to take. Newly published research, however, indicates vitamin K2 possesses a host of additional benefits.

COMBATING RHEUMATOID ARTHRITIS

Rheumatoid arthritis is an autoimmune disease that causes chronic inflammation in the joints and other organs in the body. Those afflicted with rheumatoid arthritis have startlingly high rates of cardiovascular diseases. (33)

In a study published in June 2008, Japanese scientists found that vitamin K2 inhibited the proliferation of synovial cells and prevented the development of collagen-induced rheumatoid arthritis in the rat model. The scientists concluded that vitamin K2 may represent a new agent for the treatment of rheumatoid arthritis in combination with other anti-inflammatory drugs. (34)

A recent human study showed that the use of vitamin K2 alone or in combination with bisphosphonate drugs (like Fosamax[R]) for treatment of osteoporosis in patients with rheumatoid arthritis may inhibit osteoclast induction via decreases in levels of inflammatory mediators. (35) Excess osteoclast activity depletes bone mineral density.

ENHANCING THE BONE-BUILDING EFFECTS OF FOSAMAX[R]

Americans afflicted with osteoporosis or low bone mineral density scores are sometimes prescribed drugs like Fosamax[R] or Actonel[R]. Side effects from these drugs sometimes preclude their long-term use.

Japanese patients are often prescribed high doses of vitamin K2 instead of drugs. Published studies demonstrate the ability of vitamin K2 by itself to halt the loss of bone mineral density. (23,36,37)

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