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Multivitamin update

Doctors now acknowledge that most people do not get enough nutrients from diet alone, and recommend that all adults take multivitamins. A new research-review conducted by Johns Hopkins Schools of Public Health and Medicine, Baltimore, Maryland, found that multivitamins in typical dosages—in addition to assuring adequate nutrition—also reduced risk for certain cancers and chronic diseases. Researchers examined studies from China, France, the United Kingdom, and the United States, representing 47,289 persons.

In a Chinese study, groups that took the antioxidant supplements alpha tocopherol vitamin E, beta carotene, and selenium—with or without other nutrients—had reduced stomach (gastric) cancer, and reduced death (mortality) rates from all cancers compared to groups that did not take these nutrients. Those who took both vitamin A (retinol) and zinc had lower mortality rates for non-esophageal stomach cancer.

In a French study, men who combined beta carotene, selenium, vitamins C and E, and zinc, had lower risk for all cancers. Prostate cancer risk was lower in men who took these nutrients and who had normal levels of a protein produced by the prostate gland (prostate-specific antigen) at the start of the study.

In a Chinese study, a combination of alpha tocopherol vitamin E, beta carotene, selenium, vitamin A, and zinc lowered the risk of stroke, and vitamins B2 (riboflavin), B3 (niacin), C, and the mineral molybdenum together reduced a certain type of high blood pressure known as isolated diastolic hypertension.

In a U.S. study, an eye disease known as age-related macular degeneration progressed more slowly in groups that took beta carotene, vitamins C and E, and zinc, and—in U.S. and U.K. studies—impaired vision (cataract) was lower in those who had taken alpha tocopherol vitamin E, beta carotene, and vitamin C for one to two years.

In a French study, men who took a combination of beta carotene, selenium, vitamins C and E, and zinc had lower mortality risk from all causes compared to placebo.


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News & Research This Issue

- Multivitamins fight cancer and chronic diseases.
- Vitamins K1 and K2 reduced bone fractures.
- Calcium carbonate strengthened bones in the elderly.
- DHA omega-3 preserved vision in retinitis pigmentosa.
- Cinnamon helped diabetics balance sugar.
- Melatonin relieved SAD—winter depression.
- Pycnogenol® reduced inflammation.
**Vitamin K for healthy bones**

Vitamins K1 and K2 (phytonadione and menaquinone 4, respectively) reduced risk for bone fractures, and increased bone mineral density (BMD) in Japanese patients, according to a new review of seven randomized controlled studies. In the studies, the typical dosage range for vitamin K1 was 1 mg to 10 mg per day, while the dose for vitamin K2 was usually 45 mg per day. Each of the studies lasted at least six months, and five of the seven studies included elderly women, while the other two studies included middle-aged men and women.

In combined results for all seven studies, compared to placebo, those who took vitamin K2 had 77% fewer hip fractures, 60% fewer vertebral fractures, and 81% fewer non-vertebral fractures. Several of the studies measured BMD and found that both vitamins K1 and K2 increased BMD significantly. Several proteins—including osteocalcin, the most abundant protein found in bone—depend on vitamin K to successfully form bone. According to the researchers, most people do not get enough vitamin K from the diet to maintain healthy bones, but noted that the body easily absorbs vitamin K from supplements to correct this problem.

There were no serious reported side effects in any of the studies, but some authors did report minor stomach upset. Researchers noted that the populations in the studies may tend to have low levels of calcium and vitamin D, nutrients important for healthy bones. Low levels of vitamin K increase risk for fragile-bone disease (osteoporosis), and doctors also believe that vitamin K slows—and may help prevent—hardening of the arteries, which occurs when calcium accumulates on blood vessel walls.


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**Calcium: good for bones—if you take it**

Calcium carbonate supplements significantly reduced bone fractures and increased bone density and strength in elderly women, according to findings from a new five-year study conducted by the University of Western Australia, School of Medicine, Perth. The double-blind, placebo controlled study recruited 1,460 women at least 70 years old, average age 75. Researchers asked subjects to take 600 mg of calcium carbonate twice per day at mealtimes for a total of 1,200 mg per day, or a placebo.

Because elderly women in particular are at risk for fragile-bone disease (osteoporosis), researchers wanted to determine if the public health system should intervene by offering a calcium-supplement program. The answer, based on the study, appears to be no, but not because calcium doesn't work. Researchers concluded that the government should not offer a calcium-supplement program because the public will not comply by taking the supplements consistently.

Researchers found that nearly half (43.2%) of all participants did not comply with the recommended daily doses, and as a result, the calcium group overall had about the same percentage of fractures as the placebo group. However, when researchers looked at the 56.8% of women who did comply—by taking 80% or more of the calcium supplements—the scientists found this group had 33.8% fewer fractures than the placebo group. The compliant calcium group also had greater bone mass and bone strength than did the placebo group. Researchers observed that the women who did not comply were generally older, weaker, and slower than women who did comply.

The U.S. National Institutes of Health, Bethesda, Maryland, Women's Health Initiative (WHI) trial also recently reported similar findings. Women who took a combination of 400 IU of vitamin D3 and 1,000 mg of calcium carbonate per day over a period of about seven years—and who were compliant—had 29% fewer fractures than non-compliant women. The current U.S. recommended daily intake of calcium is 800 mg, with an upper safe limit of 2,500 mg.

Docosahexaenoic acid (DHA), one of the omega-3 fatty acids, and vitamin A (retinyl palmitate) preserved vision in an eye disease known as retinitis pigmentosa (RP). RP damages the light-sensitive part of the eye (retina), and progressively reduces night vision and side (peripheral) vision. Harvard Medical School, Boston, researchers recruited 208 patients with RP, aged 18 to 55, who took 1,200 mg of DHA plus 15,000 IU of vitamin A per day or a placebo consisting of a non-omega-3 fatty acid plus vitamin A, for four years.

Seventy percent of the patients in each group were taking 15,000 IU of vitamin A per day prior to entering the study. Among those who did not take vitamin A prior to the study, those in the DHA group had greater peripheral vision and sensitivity to light than did those in the placebo group after two years.

After four years, researchers measured the entire DHA and placebo groups and found that those with the highest blood levels of DHA had better peripheral vision than did those with the lowest blood levels of DHA. Researchers noted that in the placebo group after four years, those who had more DHA from the diet had better peripheral vision than did those with less dietary DHA. The scientists also found that those who had used vitamin A the longest prior to the study—at least two years—had greater light sensitivity than did those who had used vitamin A for a shorter time before the study.

In a related RP study reported in the American Journal of Ophthalmology, DHA helped preserve night vision in those younger than 12 years old, and helped preserve peripheral vision in those 12 years old or older. RP commonly runs in families, and signs of the disease usually appear in childhood, but do not become severe until young adulthood. DHA is present in the rods and cones of the eye, which control night and peripheral vision, respectively.


Cinnamon helps balance sugar

A liquid extract of cinnamon reduced blood sugar (glucose) levels in type 2 diabetics, according to new research conducted by the University of Hannover Medical School, Germany. A group of 79 patients with diabetes mellitus type 2, average age 63, took 112 mg of cinnamon extract in capsules per day—the equivalent of 3 gm of cinnamon powder—or a placebo, for four months.

The volunteers were not taking insulin, but were controlling the disease by other oral anti-diabetic medications or by diet. Researchers measured fasting blood serum (plasma) glucose levels before and after treatment, and found that those in the cinnamon group had 10.3% lower plasma glucose levels, compared to 3.4% lower levels in the placebo group. The scientists observed that those with the highest plasma glucose levels before the study had the largest decline after treatment, suggesting that those with the highest glucose levels may benefit the most from taking cinnamon extract. There were no reported or observed side effects.

Doctors noted that serum fat (lipid) levels—which the study also measured—did not improve as in prior studies, and suggested further studies to find out why this was so. In one prior study, a 2003 trial reported in Diabetes Care, 1 gm of cinnamon—one-quarter teaspoon, twice per day—reduced blood glucose levels, fats (triglycerides), low-density lipoprotein—LDL, the “bad” cholesterol—and total cholesterol, in participants with type 2 diabetes. Scientists believe that cinnamon is similar to insulin—which regulates glucose—and, in type 2 diabetes where insulin is no longer effective, helps cells absorb glucose.

Melatonin, a naturally occurring hormone in the body that regulates sleep, relieved winter depression, also known as seasonal affective disorder (SAD). Circadian rhythm—the natural biological 24-hour sleep-wake cycle—goes out of phase during the short days and long nights of winter, contributing to SAD. Participants took a placebo or 0.225 mg to 0.3 mg of melatonin per day in divided doses in the morning or in the evening for three weeks during the winter. The melatonin dose was too small to cause daytime drowsiness. Researchers determined the circadian rhythm is in phase when there is a six-hour interval between the time the pineal gland begins to secrete melatonin and the middle of the sleep cycle. Participants with short—delayed—intervals took melatonin in the afternoon, while those with long—advanced—intervals took melatonin in the morning. As the intervals realigned to six hours, participants reported being in better moods.


Pycnogenol®, an extract of French maritime pine bark rich in a type of antioxidant known as a polyphenol, reduced inflammation in a new study. Seven healthy subjects, five women and two men, aged 18 to 30, took 200 mg per day of Pycnogenol for five days. Researchers took blood samples before and after the study, 24 hours after subjects fasted from antioxidants in the diet including beer, cocoa, coffee, fruits and fruit juices, marmalade, tea, and wine. Researchers found that an inflammatory molecule (nuclear factor-kappa beta, or NF-kB) was 15% less active after Pycnogenol, and an inflammatory enzyme (matrix metalloproteinase 9, or MMP-9) that NF-kB controls was 25% less active. Doctors now believe that chronic inflammation accelerates aging by promoting unstable molecules known as free radicals, and by disrupting normal cell activities.


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