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IN THE NEWS

Lycopene, lutein and other carotenoids may help prevent breast cancer

A recent study done at the New York University School of Medicine compared the archived serum levels of various carotenoids, including lutein, among 270 current breast cancer patients matched with 270 controls [Am J Epidemiol 2001; 153:1142-47]. The study found that subjects in the lowest quartile for beta-carotene and lutein had approximately double (2.21 and 2.08) the risk of breast cancer compared with the subjects in the highest quartile. A less well known carotenoid, beta-cryptoxanthine, was also shown to significantly reduce breast cancer risk. Those in the lowest quartile for the levels of total carotenoids had 2.31 times the risk of breast cancer compared with those in the highest quartile. The authors comment on “public health relevance” of low intake of carotenoids due to poor diet and/or lack of supplementation.

A Swedish study examined the breast cancer risk in northern Sweden in relation to plasma levels of carotenoids, alpha-tocopherol and retinol (vitamin A) in 201 cases and 290 controls [Cancer Causes Control 2001; 12:529:37]. The nutrient levels were sampled before diagnosis. Stratified analysis showed that lycopene (the carotenoid known to help protect men against prostate cancer) was associated with decreased breast cancer risk in postmenopausal women. In premenopausal women, lutein was associated with lower breast cancer risk. In addition, all subanalyses revealed a trend for the protective effect of alpha-carotene, but statistical significance was not reached. No effects of alpha-tocopherol or retinol were found. On the basis of stratified analyses, the authors conclude that “carotenoids may reduce the risk of developing breast cancer and that menopausal status has an impact on the mechanisms involved.”

In-vitro studies have also shown that beta-carotene and lycopene inhibit the growth of cultured breast cancer cells.

—Ivy Greenwell



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Vitamin K may ward off Alzheimer's



Vitamin K, long known to ward off osteoporosis and atherosclerosis, is now being weighed by some researchers as a potential way to prevent or treat Alzheimer's disease [Medical Hypothesis 2001 57(2):151-155]. A biomarker of Alzheimer's risk is the apolipoprotein E (apoE) 4 genotype, which is specifically related to late onset Alzheimer's and other less common forms of the disease. Interestingly, research has shown that older people who have the apoE4 allele have a significantly higher risk of osteoporotic hip fractures. For example, a study of 899 older Americans found that those with one or two apoE4 alleles were twice as likely as subjects without an apoE4 allele to report hip fractures [J Am Geriatr Soc 1999 Nov;47(11):1342-5]. Coincidentally, people with apoE4 also have low vitamin K levels, with evidence of undercarboxylated osteocalcin in their bones and brain. Previous research suggests a potential biologic role of vitamin K in the brain and nervous system, which may affect development and aging in both of these areas [Nutr Rev 1999 Aug;57(8):231-40].

As we know, vitamin K is primarily responsible for keeping calcium in bones and out of arteries, and a deficiency in vitamin K has been linked to soft bones and hardened arteries. Now vitamin K deficiency may also be implicated in the development of Alzheimer's disease and possibly other neuronal damage. If true, say the researchers of the current study, supplementation among older men and women and those predisposed to Alzheimer's, could be a useful preventive measure against the disease. The authors also believe that vitamin K supplementation may also reduce the amount of neuronal damage caused by cerebrovascular disease. ApoE 4 is related to an increased prevalence of vascular disease and related brain abnormalities (i.e. brain atrophy). The study authors theorize that a protective blood-borne factor against neuronal damage, such as vitamin K, may be lower in the presence of apoE4. As it is, vitamin K isn't stored in the body, and deficiency is increasingly common as we age. Supplementation with vitamin K would serve a dual purpose by safeguarding both the physical and mental health of an aging population.

—Angela Pirisi

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New melatonin study examines effects on insomnia

To date, many studies have examined the role of melatonin in helping people to fall asleep and stay asleep through the night. A hormone produced by the pineal gland after dark, melatonin has been shown in research to increase sleepiness, decrease core body temperature and increase peripheral temperature (i.e. hands & feet) in humans [J Appl Physiol 2001 Sep;91(3):1214-22].

New research from the National Institute of Mental Health and Neurosciences, Bangalore, India adds weight to the argument regarding melatonin as a sleep aid by actually examining its use in those with sleep problems [J Clin Psychiatry 2001 Jan;62(1):41-5]. Investigators there examined 33 people diagnosed with initial insomnia, giving 18 of them melatonin and placebo to the remaining 15 subjects. Different sleep measurements were recorded over the next 8 to 16 days. Compared to the placebo group, melatonin users took significantly less time to fall asleep, had better-quality, deeper and longer sleep, without experiencing any residual morning or daytime drowsiness. They also reported feeling fresh and functioning better during the day. In this study, results showed that a mean stable dose of melatonin was found to be 5.4 mg.

That dose may seem high given what other researchers have deemed effective doses for sleep induction. For example, Richard Wurtman, M.D., an MIT researcher who's studied melatonin for decades showed in his lab that administering 0.3 to 1.0 mg melatonin even during the day proved enough to raise blood melatonin levels to their usual nighttime high and induce sleep in young, normal subjects [Proc Natl Acad Sci U S A 1994 Mar 1;91(5):1824-8]. But more research will be needed to establish optimal doses and administration times for melatonin to help those with sleep disorders.



—Angela Pirisi

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