Years of Beta-Carotene Pills May Benefit Your Aging Brain

The Authors of a new study of beta-carotene supplements and its possible benefits against cognitive decline say it's the first to show "that there are ways, through fairly straightforward lifestyle modifications, that we can help memory as we get older."

The researchers cautioned, however, that their findings suggest beta-carotene may help keep the brain sharp only if taken as a supplement for many years.

Results of the placebo-controlled study of 5,956 men were published in the Archives of Internal Medicine. Francine Grodstein, ScD, of Brigham and Women's Hospital in Boston and colleagues reported that men who took 50-milligram supplements of beta-carotene every other day for an average 18 years scored significantly better in cognitive testing, especially on verbal memory, than those getting a placebo. Those in a shorter-term test—averaging only one year of supplementation—showed no similar benefit, however.

"Men who took beta-carotene for a mean of 18 years had about the same degree of cognitive function as men one year younger," Grodstein explained. "In other words, if you take beta-carotene for 18 years, you delay cognitive aging for about one year."

Grodstein added that women would likely see a similar long-term benefit. The researchers suggested that beta-carotene might help delay the effects of aging on cognitive abilities by countering oxidative damage in the brain.

"In this generally healthy population, the extent of protection conferred by long-term treatment appeared modest," they noted. "Nonetheless, studies have established that very modest differences in cognition, especially verbal memory, predict substantial differences in eventual risk of dementia."

The long-term group in the study included 4,052 participants in the Physicians Health Study who began taking supplements or placebo in 1982. Between 1998 and 2001, an additional 1,904 men were randomly assigned to one of the two groups. Both groups were followed through 2003, completing yearly questionnaires about their health and their compliance with taking the pills. The men were assessed by telephone for cognitive function at least once between 1998 and 2002, then evaluated at the study's conclusion using a battery of five cognitive tests.

In an editorial accompanying the findings, Kristine Yaffe, MD, of the University of California-San Francisco faulted the study for not also assessing participants' cognitive function when the research began. "It is impossible to say with certainty that the beta-carotene arm and placebo arm had similar cognitive scores at baseline," Dr. Yaffe cautioned.

She and the study authors also pointed out that betacarotene is not without risks. For example, it may increase the risk of lung cancer in smokers. But Grodstein and colleagues argued that beta-carotene's benefits against cognitive decline surpassed those of other medications tested in healthy older people, making it worthy of further study.

TO LEARN MORE: Archives of Internal Medicine, Nov. 12, 2007; abstract at <archinte.ama-assn.org/cgi/content/abstract/167/20/2184>.

Citrus Juice Preserves Green Tea’s Antioxidant Power

That lemon juice squeezed into your tea may be doing more than merely kicking the flavor up a notch. Purdue University researchers have found that adding citrus juice to green tea can boost the level of antioxidant compounds in the tea that make it through your digestive system by as much as 13-fold.

"Although these results are preliminary, I think it's encouraging that a big part of the puzzle may come down to simple chemistry," said the study's lead author, Mario G. Ferruzzi, PhD.

Antioxidant compounds called catechins that occur naturally in tea have been associated with a wide range of possible health benefits. Green tea is highest in the percentage of those antioxidants that can be extracted by water—as when you brew a cup of tea. Black tea, made by fermenting green-tea leaves, has substantially less catechin content. Semi-fermented oolong tea falls in-between. White tea, made from buds and young leaves and minimally processed, is also high in catechins.

In maximizing possible health benefits, according to Ferruzzi, the problem is that the catechins in tea aren't very stable in non-acidic environments—such as the human intestines. As much as 80% of the catechins in tea can be lost through digestion.

"Off the bat you are eliminating a large majority of the catechins from plain green tea," Ferruzzi explained.

To test various tea-cup additives, Ferruzzi and graduate student Rodney Green used a simulated gastric and small-intestine digestion system. They measured the stability of green-tea catechins when mixed with orange, lemon, grapefruit and lime juice. They also tested additives including vitamin C, ordinary milk, soy milk and rice milk.

The citrus juices scored the highest in measurements of four main catechins after a trip through the "digestive system." A 30-milligram dose of vitamin C added to 250 milliliters of tea scored next in improving catechin stability. Tea formulated with 50% milk also showed higher levels of catechins than plain tea; rice milk boosted antioxidant survival the most of the three milk options.

In 2007, German researchers made headlines with a study showing that milk negated the cardiovascular benefits of black tea, which improves arteries' ability to relax and expand. That study measured the actual effects on arteries in rats, rather than the amount of catechins, so the results aren't necessarily conflicting.

For now—and Ferruzzi says his National Institutes of Health-funded research is ongoing—your best bet to maximize the antioxidant power in your cup seems to be sipping green tea with a little citrus juice.

TO LEARN MORE: Molecular Nutrition & Food Research, November 2007; abstract at <dx.doi.org/10.1002/ mnfr.200700086>.