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IN THE NEWS

DHEA Benefits Postmenopausal Women



Dehydroepiandrosterone (DHEA) supplementation may be beneficial to women after menopause, according to research published in the medical journal *Fertility and Sterility*.*

A low level of estrogen, which in turn affects the function of many organs and tissues, characterizes menopause. While historically treated with potent estrogen drugs, recent studies have suggested that estrogen drugs may be more harmful than beneficial.

In their report, Italian researchers noted that DHEA has received a great deal of attention lately because many (though not all) studies have shown that the “administration of DHEA greatly improves several endocrine, metabolic, and physiologic parameters both in men and women.”

In an effort to study DHEA’s effect on women after menopause, the researchers gave 20 postmenopausal women 25 mg per day of oral DHEA and followed them closely for one year. They found that DHEA supplementation led to significantly increased levels of estrogen, testosterone, progesterone, and other hormones. The researchers also noted that subjective symptoms of menopause, such as hot flashes, improved significantly and progressively throughout the study period.

The virtue of using DHEA is that it is a natural way of boosting hormones lost to aging, as opposed to ingesting synthetic estrogen and progestin drugs that have been shown to cause lethal side effects.

—Marc Ellman, MD

Reference

* Genazzani AD, Stomati M, Bernardi F, Pieri M, Rovati L, Genazzani AR. Long- term low-dose dehydroepiandrosterone oral supplementation in early and late post-menopausal women modulates endocrine parameters and synthesis of neuroactive steroids. *Fertil Steril*. 2003 Dec;80(6):1495- 501.

More Folic Acid Advised for Pregnant Women



Neural tube defects such as spina bifida and anencephaly affect 1 in 1,000 newborns in the US. If you were planning a trip by automobile or airplane and were told there was a 1 in 1,000 chance you would not arrive safely, would you still take the trip?

Such risks are usually not a topic of discussion for most couples contemplating pregnancy. It has been known since the 1980s, however, that the use of supplemental folic acid before pregnancy can significantly reduce the likelihood of neural tube defects, even though women with an affected infant show no evidence of clinical folic acid deficiency. Neural tube defects appear to result from a folic acid receptor blockade by maternal autoantibodies.¹ Supplemental, but not dietary, folic acid is able to free up the receptors so that normal embryonic nerve tissue development ensues. Unfortunately, introduction of supplemental folic acid after conception has no apparent neuroprotective effect.

In the UK, where the incidence of neural tube defects is greater than in the US, physicians have advised that in addition to consuming flour and grain products fortified with folic acid, women should take 4000 micrograms of folic acid daily when attempting pregnancy or exposed to pregnancy without contraception.² The recommended 4000 mcg dose of folic acid has been shown to prevent 83% of neural tube defects, compared to only a 36% reduction with the standard 400 microgram dose of multivitamins.

Based on the current study and applying a dose-response model,³ it is now recommended that women take 5000 micrograms of folic acid during the preconception period and first trimester to maximally reduce the risk of neural tube defects. At least 1000 micrograms of vitamin B12 should also be consumed daily to guard against pernicious anemia.

References

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Higher-dose Folic Acid Improves Endothelial Function

Medical research has associated elevated homocysteine levels with an increased risk of cardiovascular and cerebrovascular disease. Higher levels of homocysteine are thought to increase oxidative stress and the likelihood of blood clot formation, eventually producing damage to the blood vessel lining or endothelium.

Supplementation with folic acid, vitamin B6, and vitamin B12 has been shown not only to normalize homocysteine levels, but also to reverse the damage done by elevated homocysteine and even to further reduce carotid atherosclerotic plaques in those with normal levels of homocysteine.

The established minimum effective dose of supplementary folic acid to reduce homocysteine levels is 400 mcg per day.¹ This dose, which is typically contained in multivitamins, maximally reduces homocysteine levels (by approximately 25%).²

With respect to cardiovascular disease, however, endothelial function (as measured by flow-mediated dilation of the brachial artery) was shown to improve with a higher dose of folic acid (5000 micrograms), even though no further decrease in homocysteine was achieved.³ This suggests that folic acid may directly mediate cardiovascular outcomes independent of its effect on homocysteine levels.

—Dean S. Cunningham, MD, PhD

Reference

1. van Oort FV, Melse-Boonstra A, Brouwer IA, et al. Folic acid and reduction of plasma homocysteine concentrations in older adults: a dose-response study. *Am J Clin Nutr*. 2003 May;77(5):1318-23.
2. Doshi S, McDowell I, Moat S, Lewis M, Goodfellow J. Folate improves endothelial function in patients with coronary heart disease. *Clin Chem Lab Med*. 2003 Nov;41(11):1505-12.
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IN THE NEWS

Indole-3-Carbinol Reduces Severity of Lupus



Lupus-prone mice fed a diet rich in indole-3-carbinol (I3C) lived longer and had fewer symptoms than mice fed a diet containing no I3C, according to research published in the *Journal of Nutrition*.*

Lupus is an autoimmune disease that affects approximately 1.5 million Americans. Estrogen is believed to play a role in the disease, which may explain why women are nine times more likely than men to be afflicted with lupus.

Researchers at the North Shore-Long Island Jewish Research Institute in New York altered mice genetically to make them prone to systemic lupus erythematosus, the most common form of the disease. Starting at five months of age, one group of mice was fed a diet rich in I3C, while the control mice were fed a diet containing no I3C.

At 12 months of age, 100% of the I3C-fed mice were still alive, as compared to only 30% of the control mice. In addition, kidney problems, a common complication of lupus, were less severe in the I3C-fed mice.

“The findings support the view that I3C may benefit people at risk for systemic lupus erythematosus as well as those in the early stages of the disease,” said lead researcher Dr. Karen Auborn. “Systemic lupus erythematosus is often treated with immunosuppressive drugs, which can have serious toxic side effects. By reducing the severity of the disease, I3C may allow a decrease in the dose of immunosuppressive drugs required, thereby reducing toxicity. It may even help prevent the recurrence of the disease.”

I3C is abundant in cruciferous vegetables such as broccoli, cauliflower, and cabbage, and also is available as a dietary supplement.

—Marc Ellman, MD

Reference

* Auborn KJ, Qi M, Yan XJ, et al. Lifespan is prolonged in autoimmune-prone (NZB/NZW) F1 mice fed a diet supplemented with indole-3-carbinol. *J Nutr.* 2003 Nov;133(11):3610-3.

Omega-3 Fatty Acids Tied to Improved Cognitive Function

Normal aging is associated with a diminished ability to learn and retain information. The good news, however, is that continuing education, intact social networks, and physical activity all protect age-related cognitive function. Even better, once memory loss occurs, its progression can be decelerated or even reversed.

Unfortunately, the prevalence of cognitive impairment is substantial and rising. It is estimated that 3-5% of adults have mild cognitive impairment and 11-17% have severe cognitive impairment (without dementia) that interferes with daily functioning.^{1,2} Cognitive impairment is the premonitory symptom of dementia, and approximately 10% of those so affected progress yearly.



Researchers at the University Medical Center Utrecht in the Netherlands recently reported that omega-3 fatty acid supplementation or fatty fish consumption is tied to enhanced cognitive performance and speed. Conversely, they determined that diets high in cholesterol and saturated fat impair memory and cognitive flexibility.³

The commonly accepted mechanisms of cognitive preservation include an anti-inflammatory effect, an antioxidant effect, and neural membrane fluidity support. Studies clearly show that omega-3 polyunsaturated fatty acids enhance neuronal transmission and reduce oxidative stress.^{4,5}

—Dean S. Cunningham, MD, PhD

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