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## IN THE NEWS

### DHEA Alleviates Symptoms of Midlife Depression



DHEA (dehydroepiandroster-one) may be useful in treating major and minor midlife depression, according to a report from the National Institute of Mental Health (NIMH) in Bethesda, MD.\*

DHEA, an adrenal hormone, is a precursor of estrogen and testosterone. Diminished levels of DHEA have been associated with aging and depression.

The NIMH study enrolled 46 men and women, aged 45-65, who had either major or minor depression of moderate severity. In this double-blind, placebo-controlled, crossover study, participants were randomly assigned to receive either six weeks of DHEA therapy, three weeks each of two dosages of DHEA, or six weeks of placebo. After a one- to two-week period of no therapy, the groups were then switched. The subjects were evaluated at three and six weeks during the treatment phases using standard tests for depression and sexual function.

Six weeks of DHEA treatment was associated with significant improvements in measures of depression and sexual functioning compared to both baseline status and placebo treatment. Half of the participants experienced a 50% or greater reduction in baseline scores on a depression rating scale.

DHEA is available as a dietary supplement in the US. Optimizing DHEA levels in adults has been associated with numerous benefits, including improved immune function, balanced hormones, and healthy weight. The NIMH findings suggest an additional role for DHEA in the management of midlife depression.

—Elizabeth Wagner, ND

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#### Reference

Schmidt PJ, Daly RC, Bloch M, et al. Dehydroepiandrosterone monotherapy in midlife-onset major and minor depression. *Arch Gen Psychiatry*. 2005 Feb;62(2):154-62.

### Vitamin E Lowers Risk of Cataracts

In an animal study, vitamin E significantly inhibited the formation of cataracts associated with exposure to ultraviolet light, report researchers at Orebro University Hospital in Sweden.\*

Cataracts are the leading cause of blindness worldwide and of visual impairment in the US. Exposure to sunlight, particularly ultraviolet B (UVB) radiation, is a significant risk factor for cataracts.

In the Swedish study, rats were divided into two groups and exposed to UVB light. One group served as controls and received no supplements, while the other was fed vitamin E. At the study's end, eye lenses were evaluated for opacities and levels of vitamin E and glutathione.

As anticipated, the control group of rats developed cataracts. In contrast, the vitamin E-fed rats exhibited only slight opacities in their eye lenses. Vitamin E and glutathione levels were significantly higher in the lenses of the supplemented rats than in those of the control group.



The researchers concluded that the antioxidant vitamin E helped prevent cataract formation either directly through its own action

or indirectly through the modulation of glutathione synthesis. Gluta-thione is an endogenous (internally produced) antioxidant that, like vitamin E, scavenges free radicals and peroxides that would otherwise oxidize protein, lipids, and nucleic acids.

The risk of cataracts in adults is related to the cumulative dose of UVB light. Because even low levels of UVB light can damage the eye lens, simple measures such as wearing sunglasses and wide-brimmed hats, as well as supplementing with vitamin E, are strongly recommended to help protect against cataract formation and related vision loss.

—Linda M. Smith, RN

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#### Reference

Ayala MN, Soderberg PG. Vitamin E can protect against ultraviolet radiation-induced cataract in albino rats. *Ophthalmic Res.* 2004 Sep-Oct;36(5):264-9.

### **Garlic Slows Growth of Atherosclerotic Plaque**

California researchers report that garlic slows the progression of coronary artery calcification, an important marker for determining the severity of atherosclerosis.\*

Nearly half of all heart attacks occur in those with no history of heart disease, and laboratory tests for markers such as C-reactive protein, fibrinogen, and homocysteine can help to predict risk. Coronary artery disease can also be determined by CT scans, which enable doctors to quantify the coronary artery calcium burden and use it to estimate the severity of atherosclerosis. Serial determinations of the coronary artery calcium burden can be used to follow disease progression over time.

Garlic has numerous well-established cardioprotective properties. Specifically, garlic inhibits cholesterol biosynthesis, decreases platelet aggregation, reduces lipid peroxidation, and lowers blood pressure.

In their study, researchers at the Harbor-UCLA Medical Center Research and Education Institute enrolled 19 patients receiving statin therapy, who underwent an electron beam CT scan at enrollment and again one year later. During the study period, nine subjects received 4 ml of aged garlic extract daily, with compliance confirmed by active ingredient testing. The garlic group registered a 7.5% increase in calcium scores, while the placebo group's scores increased by 22.2%, consistent with previous reports. Left untreated, coronary artery calcification has increased by as much as 52% annually in those not treated with statins and by 25% in those ineffectively treated with statins.

The authors concluded that people with known risk factors for heart disease might benefit from garlic supplementation, even if they are currently receiving statin therapy.

—Linda M. Smith, RN

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#### Reference

Budoff MJ, Takasu J, Flores FR, et al. Inhibiting progression of coronary calcification using Aged Garlic Extract in patients receiving statin therapy: a preliminary study. *Prev Med.* 2004 Nov;39(5):985-91.

### **Childhood Smoke Exposure Elevates Lung Cancer Risk**



Frequent exposure to secondhand smoke during childhood increases the future risk of developing lung cancer by up to 363%, report researchers from Imperial College in London.\*

Exposure to secondhand smoke has been associated with increased risk for lung cancer, but the magnitude of risk has been less certain. This recent study illustrates that individuals who were exposed to frequent smoking during their childhood experience a greatly elevated risk of lung cancer as adults.

This case-control study examined over 100,000 adults who had never smoked or had stopped smoking for at least 10 years. The study participants provided information on their exposure to environmental tobacco smoke. Over seven years of follow-up, the researchers examined the occurrence of newly diagnosed cases of cancer of the lung, pharynx, and larynx, as well as deaths from emphysema or chronic obstructive pulmonary disease

(COPD).

Exposure to environmental tobacco smoke was associated with increased risk for all respiratory diseases. Former smokers showed consistently higher risk than did individuals who had never smoked. The frequency and amount of childhood exposure was related to lung cancer risk, with daily exposure to many hours of tobacco smoke associated with a 363% greater risk of developing lung cancer as an adult.

Researchers speculate that exposure to secondhand smoke may be particularly damaging to children, due to the risk of damaging genetic material that is related to the development of cancer later in life.

—Elizabeth Wagner, ND

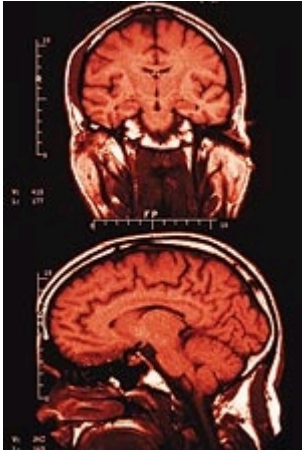
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Vineis P, Airoldi L, Veglia P, et al. Environmental tobacco smoke and risk of respiratory cancer and chronic obstructive pulmonary disease in former smokers and never smokers in the EPIC prospective study. *BMJ*. 2005 Feb 5;330(7486):277.

## IN THE NEWS

### Acetyl-L-Carnitine Reduces Oxidative Damage in Brains



Acetyl-L-carnitine decreases oxidative stress in aging brains, according to researchers at the University of California, Berkeley.\*

L-carnitine plays an essential role in energy production by transporting fatty acids into the mitochondrial matrix for oxidation. Both L-carnitine and its metabolite, acetyl-L-carnitine, have been reported to improve mitochondrial function. The California researchers compared the effects of equal doses of L-carnitine and acetyl-L-carnitine on brain and plasma levels of carnitine, movement activity, and markers of oxidative stress in rats.

Aged rats were supplemented with either L-carnitine or its activated form, acetyl-L-carnitine, for four weeks. Plasma and brain levels of L-carnitine and acetyl-L-carnitine were then measured. Ambulatory activity of the rats was assessed, as were markers of oxidative damage in the brain tissue.

Both L-carnitine and acetyl-L-carnitine supplementation raised circulating and brain levels of carnitine. Both forms were also effective in improving ambulatory activity in the aged rats. When measures of oxidative stress in the brain were examined, however, acetyl-L-carnitine was found to decrease oxidative damage, while L-carnitine was not effective.

Since tissue levels of L-carnitine decline with age, supplementing with either L-carnitine or acetyl-L-carnitine may be beneficial for adults. Both forms boost plasma and brain levels of carnitine, while increasing ambulatory activity. For protecting brain health, however, only acetyl-L-carnitine appears to offer neuroprotection from oxidative stress. This finding may have important applications for the prevention and management of neurodegenerative disorders.

—Linda M. Smith, RN

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Liu J, Head E, Kuratsune H, Cotman CW, Ames BN. Comparison of the effects of L-carnitine and acetyl-L-carnitine on carnitine levels, ambulatory activity, and oxidative stress biomarkers in the brain of old rats. *Ann NY Acad Sci.* 2004 Nov;1033:117-31.

### Fish Oil Improves Cognition in Older Adults

Omega-3 fatty acids from fish oil supplements are associated with improved cognitive function in later life, report scientists at the University of Aberdeen in the United Kingdom.\*

Cognitive decline commonly occurs with advancing age. Although no single cause of this decline has been determined, risk factors include age, genetics, elevated cholesterol levels, and high blood pressure. Severe cognitive impairment and Alzheimer's disease-related dementia currently affect 4.5 million elderly adults in the US, and it is conservatively estimated that 15 million US adults will be affected by the year 2050.

The well-designed United Kingdom study examined 350 men and women. The subjects had been IQ-tested at the age of 11, and now, at the age of 64, they were given a battery of tests to assess diverse cognitive functions. In addition, the subjects completed a food questionnaire designed to quantify their use of fish oil and other supplements. Omega-3 fatty acid content of red blood cell membranes was also assessed.

The fish oil supplement users performed significantly better than non-users on measures of cognitive function, and demonstrated higher omega-3 fatty acid levels in red blood cell membranes. The subjects who used fish oil supplements also consumed more vitamin C and more vegetable and cereal fiber than did the participants who did not use supplements.

The authors concluded that fish oil supplement use and red blood cell membrane omega-3 content are associated with improved cognitive aging. Optimizing omega-3 fatty acid intake may thus help to maintain cognitive function with increasing age.

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Reference

Whalley LJ, Fox HC, Wahle KW, Starr JM, Deary IJ. Cognitive aging, childhood intelligence, and the use of food supplements: possible involvement of n-3 fatty acids. *Am J Clin Nutr.* 2004 Dec;80(6):1650-7.

## CoQ10 Counters Harmful Side Effect of Statins

An adverse effect on cardiac function caused by a cholesterol-lowering medication can be reversed with coenzyme Q10 (CoQ10) supplementation, conclude researchers in Illinois and Texas.\* Individuals using the statin drug atorava-statin (Lipitor®) experienced dysfunctional left ventricular diastolic function that was improved using supplemental CoQ10.

Statin drugs are widely prescribed to lower cholesterol and decrease the risk of fatal and nonfatal cardiovascular events. While statins are well tolerated by many users, among their potentially lethal complications is muscle injury, including injury to cardiac muscle. Statin drugs decrease the production of both cholesterol and CoQ10, an essential cofactor required for energy production throughout the body and indispensable for normal cardiac function. Some researchers have suggested that a drop in CoQ10 level alone could provoke cardiac dysfunction.

The study enrolled 14 patients, all of whom had abnormal cholesterol profiles and were not taking statin drugs. Cholesterol and CoQ10 levels were measured, and a two-dimensional echocardiogram was performed on each participant, at the study's onset. After beginning statin therapy with atorvastatin, laboratory tests and echocardiogram were repeated at three to six months later. At follow-up, 10 of the 14 patients exhibited impairment of left-sided heart activity. All participants were then offered CoQ10 supplementation with continued statin therapy. As early as three months later, all but one patient demonstrated a reversal of the cardiac abnormality.

While statin therapy may be indicated for some individuals with abnormal cholesterol profiles, this and other studies indicate that supplemental CoQ10 may help preserve cardiac function during prescription drug therapy.

—Linda M. Smith, RN

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Reference

Silver MA, Langsjoen PH, Szabo S, Patil H, Zelinger A. Effect of atorvastatin on left ventricular diastolic function and ability of coenzyme Q10 to reverse that dysfunction. *Am J Cardiol.* 2004 Nov 15;94(10):1306-10.

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