

# Anti-Aging Arsenal— DHEA AND ACETYL-L-CARNITINE

by L. Stephen Coles, M.D., Ph.D.

If we were going to pick two of the most important scientifically solid anti-aging supplements today, DHEA—whose full name is dehydroepiandrosterone—and acetyl-L-carnitine would be at the top of our list. These two are some of the most powerful anti-aging tools—and when it comes to anti-aging nutrients, no company compares to Metabolic Response Modifiers, also known as MRM, for value and quality.

DHEA is a natural pro-hormone, secreted by the adrenal cortex. Discovered in 1934, DHEA's many benefits—including weight loss and improving lean-muscle mass—weren't realized until the 1980s. Today, DHEA is recognized as a powerful anti-aging nutrient. While our bodies produce DHEA naturally, as we age, the levels decline until we are in our seventies when the body produces less than a tenth of the hormone that it did in youth.

Although scientists still have a very incomplete understanding of how DHEA functions in the human body, clinicians think of it as a buffering master hormone that supports optimal circulating levels of various steroid hormones; because of its ability to convert to androgens, it is also a buffer against the jarring effects of other adrenal hormones such as adrenaline and cortisol.

## LEAN MUSCLE CONNECTION

Most impressive has been a 28-day study in which men using the nutritional supplement lost 31 percent of their mean body fat without changing body weight. DHEA suppresses the appetite, and particularly suppresses hunger for calorie-laden fats. The anti-obesity effect of DHEA may be based on the hormone's inhibitory effect on the fat-producing enzyme glucose-6-dehydrogenase (G6DPH), which is known to produce fat tissue and promote cancer cell growth. Another effect of DHEA seems to be its stimulation of cholecystikinin (CCK), which signals the body to feel satiated as if having completed a full meal, according to an online site.

## HELPS WITH ADRENAL DYSFUNCTION

Studies suggest that DHEA may improve well-being, quality of life, exercise capacity, sex drive, and hormone levels in patients with insufficient adrenal function, either Addison's disease or with what alternative medicine calls "adrenal burnout."

According to the Mayo Clinic, "Restoring DHEA levels to young adult values in those with partial androgen deficiency seems to benefit the age-related decline in physiological functions, but however promising, placebo-controlled trials are required to confirm these preliminary results."

## BENEFITS FOR EMOTIONAL WELL-BEING

The majority of clinical trials investigating the effect of DHEA on depression support its use for this purpose under the guidance of a specialist. As for mood and well-being, in a 1994 double-blind controlled study conducted by Dr. Arlene Morales, Dr.



Samuel Yen, and their associates at the University of California School of Medicine in San Diego, 17 women and 13 men between the ages of 40 and 70 were divided into two groups: one received 50 milligrams of DHEA orally for three months and the other group received placebos. The group receiving the DHEA had significant results in that 82 percent of the women and 67 percent of the men reported an improved sense of well-being, including better quality of sleep, increased energy, more relaxation, and increased capacity for handling stress. In another study, a group of middle-aged and elderly men taking DHEA for one year reportedly experienced a greater sense of well-being, improved ability to cope with stress, increased mobility, reduced pain, and improved sleep. Research by Owen M. Wolkowitz, M.D., and colleagues in the Department of Psychiatry at the University of California, San Francisco, determined that DHEA was effective in treating depression and that the improvement was dose-related, with greater improvement noted for participants taking larger doses of DHEA.

Approximately 30 to 50 percent of total androgens in adult men are derived from DHEA. In women, an estimated 70 percent of estrogens before menopause and nearly 100 percent after menopause are derived from DHEA.

In addition, high levels of DHEA in men correlate with low incidence of impotence.

For women, DHEA appears to offer many of the benefits of estrogen replacement therapy (ERT), but without the unwanted side effects. Relevant research in this area was conducted by Dr. Pierre Diamond in a study at Le Centre Hospitalier de l'Université Laval in Quebec City involving 20 postmenopausal women aged 60 to 70 years who were not receiving estrogen and who instead received DHEA in topical creams daily, with reported positive effects on insulin resistance, improved body mass indices, increased bone density, and reduced cholesterol. In Europe, DHEA has a long history of use as a postmenopausal antidepressant.

There is preliminary evidence that DHEA helps lupus patients and might prevent some forms of heart disease and cancer as well.

In addition, DHEA is reported to rejuvenate virtually every organ system, restore energy, improve mood, increase sex drive, relieve stress, reduce body fat, and make the skin softer and the hair shinier. No wonder so many users report a sense of improved emotional well-being.

## ALC FOR YOUR MIND

Acetyl-L-carnitine (ALC) is formed by acetylation of the amino acid carnitine via an enzyme called carnitine acetyltransferase. ALC can be freely exchanged across membranes and can provide acetyl groups from which to regenerate acetyl-CoA, a vital memory nutrient.

ALC was first considered a vital memory agent because of its structural similarity to acetylcholine, reports the *Annals of the New York Academy of Sciences*. The abstract for this report further observed that experimental studies demonstrate that ALC promotes acetylcholine synthesis and release. Moreover, ALC is also able to reverse hippocampal and prefrontal neuronal loss and lipofuscin (cellular debris) accumulation in aged animals, even improving learning and memory.

The studies on this vital nutrient are extremely impressive. Researchers studied the efficacy of long-term (one-year) oral treatment with acetyl-L-carnitine in 130 patients with a clinical diagnosis of Alzheimer's disease. They employed 14 outcome measures to assess functional and cognitive impairment. After one year, both the treated and placebo groups worsened, but the treated group showed a slower rate of deterioration in 13 of 14 outcome measures. The analysis for patients with good treatment compliance showed a greater benefit than for the overall sample. Reported adverse events were relatively mild, and there was no significant difference between the treated and the placebo groups either in incidence or severity. ■

## About MRM

MRM sources their raw materials from around the world so that they can deliver consistently high-quality products while staying competitively priced. Skilled researchers coupled with intelligent manufacturing processes help to preserve the product quality and offer the best bioavailability for maximum efficacy. The MRM team of professionals have authored and collaborated on several university funded trials which have been published in international research journals. Hence, you can trust a high level of quality and value in any MRM product.



## Resources

Acetyl L-Carnitine and DHEA from MRM are available nationwide at health food stores and natural product supermarkets. For more information or to find a store near you, call 800-948-6296, or visit at [www.mrm-usa.com](http://www.mrm-usa.com).

## MRM for Quality DHEA & ALC

MRM's DHEA and ALC products are among the best you'll find on the market. Their ALC product comes in a liquid delivery system that is the most easily absorbed by aging digestive tracts. Two years went into its devel-

opment and it's the only liquid form of ALC available. Prior to MRM's ALC liquid delivery system consumers would have to digest several capsules for it to be effective. MRM has pioneered alternative delivery methods for a

number of supplements. Although DHEA is currently offered by a number of companies, MRM is one of the few manufacturers that has produced a high quality form of DHEA dating back to 1996.