

DHEA

What exactly is DHEA?

DHEA was discovered in 1938. It is a steroid hormone naturally produced, mainly by the adrenal glands. Little amounts are also produced by the brain for its own personal usage, as well as sexual glands (ovaries and testicles) as intermediary substance for sexual hormones and a very little quantity is secreted by the digestive tube.

It is a metabolic product of Pregnenolone, which in itself is produced from cholesterol. Some researchers call DHEA "the mother hormone", because it is a metabolic precursor (a source ingredient) of all other steroid hormones, including oestrogen, testosterone, and cortisone. DHEA is the most abundantly produced adrenal hormone in the body, 10 to 20 times more than any other - although with age, stress, or certain disease conditions, the levels drop dramatically.

Interestingly, if DHEA is very abundant in blood, its concentration in the brain is 2 to 4 times higher than in the blood.

DHEA is found in the human body at very high levels up to about 25 years of age. The daily production drops from about 1 to 3% per year generally after the 30's. (30 mg at age 20 to less than 6 mg at age 80). In some people, DHEA levels decline 95% during their lifetime (the largest decline of an important biochemical yet documented). Lower levels of DHEA have been linked to many diseases typically associated with ageing. DHEA and Ageing

In Southern California, a group of middle-aged to elderly men and women were given either the naturally occurring precursor hormone DHEA or a placebo and then followed closely for one year. The subjects receiving DHEA were found to have a 75% overall improvement in health, which included a marked increase in psychological well-being and ability to cope. The design of the study entailed building levels of the hormone in the body equal to that of healthy 30-year-olds. At its conclusion, those who received the DHEA reported discernable increases in mobility and ability to cope with stress.

Subjects also reported improved ease of sleeping, less joint pain, and, for the men, increases in lean muscle mass and decreases in fat. There were no reported side effects.

DHEA levels have been directly correlated with mortality (the probability of dying) in humans. In a 12-year study of over 240 men aged 50 to 79 years, researchers found that DHEA levels were inversely related to mortality from all causes. This finding suggests that measurements of DHEA levels could be a standard diagnostic predictor of disease, mortality and life span. DHEA and Immune Function

Remarkably, the DHEA group was found to have higher concentrations of insulin growth factor (IGF), an indication of increased growth hormone release, implying a general de-ageing process associated with enhanced immune function.

DHEA may also have the ability to maintain immune system synchronization.

DHEA and Obesity

Scientific studies in laboratory animals have shown definite fat loss. These studies provide a theoretical basis for thinking that DHEA may help to block synthesis of fat in the human body, leading to less overall body fat. Some evidence suggests, that DHEA simply reduces food intake. According to other studies, weight loss due to DHEA supplementation results largely from reduced fat consumption. Finally, according to recent evidence, DHEA-induced weight loss may result from the hormone's ability to increase thermogenesis (fat burning). DHEA and Heart & Cardiovascular Diseases.

There are many experiments suggesting that DHEA has a strong positive correlation with a healthier heart and lower risk of heart disease. In humans, there is more evidence for the correlation of low levels of DHEA and acute heart attacks. Probably the best-known study on DHEA and heart disease was published in the New England Journal of Medicine in 1986. Dr. Elizabeth Barrett Conner and colleagues studied 242 men aged 50 to 79 over a twelve-year period. They found that a 100-pg/dL increase in blood DHEA-S concentration corresponded with a 48% reduction in mortality due to cardiovascular disease and a 36% reduction in mortality for any reason. The natural level of DHEA-S was measured and those individuals with higher DHEA-S levels lived longer and had a much lower risk of heart disease. Furthermore, among men with healthy hearts, those who had low levels of DHEA were 3.3 times more likely to die of heart disease during the next 12 years than were those with normal DHEA levels. Another study analyzed the DHEA and DHEA-S levels of 206 middle-aged men receiving elective coronary angiograms. The lowest levels of DHEA-S corresponded to the greatest level of arterial blockage. DHEA may inhibit abnormal blood platelet aggregation.

DHEA and Diabetes

In humans, DHEA has been shown to increase the sensitivity of cells to insulin. This is very important as non insulin-dependent diabetes, which is the most common form, is usually characterized by the loss of sensitivity of cells to insulin. This results in abnormally high insulin levels, which, in turn, promotes atherosclerosis, hypertension, and other chronic illnesses.

DHEA and Depression

DHEA is associated with depression in women while low testosterone levels have been correlated with depression in men. It was studied as far back as 1950's as an anti-depressant. The Rancho Bernardo Study: a cross sectional population based study of 699 non-oestrogen using, post menopausal women was screened for depressed mood and had plasma obtained for steroid hormone assays in 1984-87. Results: Only DHEA-S levels were significantly and inversely associated with depressed mood, and the association was independent of age, physical activity, weight change, and alcohol intake, cigarette smoking, marital status, type of menopause and season of testing.

Young children with major depression may also have abnormally low levels of DHEA (and abnormally high levels of cortisol). Anti-depressant activity is part of DHEA overall anti-ageing benefits.

DHEA also has anti-stress effects that may be part of its antidepressant action. Cortisol (the stress hormone) is elevated in major depression, and DHEA counteracts cortisol. In fact calmness may be associated with higher levels of DHEA. Does DHEA influence the onset of Menopause? A recent article quoted:

The 44.5% fall in serum DHEA from 20-30 years to 40-50 years of age in women could well explain the bone loss and increased FSH/LH ratio that precede menopause, and occur before any detectable decrease in ovarian hormonal secretion in perimenopausal women. More simply: women lose almost half their DHEA before menopause even starts. DHEA's effects on postmenopausal symptoms

Some scientific findings from the CHUL Research Centre at Laval University, in Quebec, shows that DHEA may reverse serious postmenopausal symptoms in women, and may be a potent weapon against breast cancer. In a nine-month study on female rats, DHEA reversed bone loss and decreased triglycerides. Importantly, it had a non-proliferating androgenic effect [producing limited masculine characteristics] on mammary tissue, which inhibited chemically induced breast cancer.

Scientists found that DHEA reverses bone loss and increases osteocalcin (an indicator of bone-building) by 115 % over controls in women receiving it for nine months. Bone density in the hip showed the greatest increase, with good progress after six months. In addition to its beneficial effect on bone, DHEA had a beneficial effect on the reproductive tract without causing proliferation of cells in the uterus (unlike oestrogen, which could lead to cancer). A previous study by the same group found that DHEA also has better cholesterol-lowering effects than synthetic oestrogen, plus the ability to lower LDL cholesterol somewhat. It also has a stabilizing effect on blood sugar and insulin. Although DHEA can be converted to estrogens, these studies and others indicate that it is mostly converted into androgen-type [masculine] steroids, such as testosterone. Since androgens have been shown to reduce hot flashes, the scientists theorise that DHEA will help with this postmenopausal symptom as well. DHEA as Hormone Replacement Therapy?

Conventional hormone replacement therapy (HRT) for women, although very successful, is a mixed blessing, with side effects that tend to offset the benefits to some degree. The Royal College of Obstetricians and Gynaecologists has just reviewed all data on HRT. The findings, which match those of the Government's Committee on Safety of Medicines recommend that HRT should be used for no longer than 5 years.

With regard to DHEA, it is intriguing to hear what the Italian researchers say: In women, DHEA appears to offer some of the same benefits as those of hormone replacement therapy. "Our data support the hypothesis that DHEA treatment acts similarly to oestrogen-progestin replacement therapy ... This suggests that DHEA is more than a simple "diet integrator" or "anti-ageing" product, but rather should be considered an effective hormone replacement treatment.

DHEA has been reported to be safe in humans in daily doses up to 2,000 mg (that's 40 times more than you'll probably ever take in a day!) and even higher.