

ROLE ADRENAL ADROGENS IN HUMAN

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Introduction. Dehydroepiandrosterone (DHEA) and its sulfated analog (DHEAS) are steroid hormones (adrenal androgens) made in the adrenal cortex in zona fasciculata. DHEA is the major secretory product of the fetal adrenal, leading to high circulating DHEAS levels at birth. In parallel with the postpartal involution of the fetal zone of the adrenals, DHEAS serum concentrations decrease to almost undetectable levels during the first year of life. Levels remain low until they gradually increase again between the sixth and tenth years of age, owing to increasing DHEA production in the adrenal zona reticularis (innermost steroidogenic zone), a phenomenon termed «adrenarche».

Aim. To establish the basic biological effects and applications of DHEA.

Peak DHEAS concentrations are reached in early adulthood, followed by a steady decline throughout adult life, so that at 70–80 years of age, peak concentrations are only 10–20% of those in young adults. The age-related decline in DHEAS concentrations shows high interindividual variability, and is accompanied by a reduction in the size of the zona reticularis. DHEA exerts its action either indirectly in peripheral target tissues of sex steroid action (following its conversion to androgens, estrogens or both) or directly, as a neurosteroid (via interaction with neurotransmitter receptors in the brain). Numerous animal experiments suggesting that DHEA is a multifunctional hormone with anti-cancer, immune-enhancing, neurotropic and general anti-aging effects.

Low levels of DHEA are associated with aging and cardiovascular disease in men, and an increased risk of premenopausal breast and ovarian cancer in women, impaired cognitive function, and compromised immune function. With this decline

may also come a concurrent reduction in protein formation, a decrease in muscle mass, and an increase in body fat.

Result. Potential benefits from DHEA supplementation: supporting immune function, maintaining cognitive function, elevating mood and sense of well-being, reducing fat mass and maintaining lean body mass, maintaining healthy lipid levels and overall cardiovascular health, normalizing glucose metabolism, sexual interest and satisfaction with both mental and physical aspects of sexuality.

Conclusions. DHEA is a steroid hormone that plays an important role as an indirect intermediate to androgens and estrogens in the body. DHEA supplementation may be beneficial for older individuals or those with endocrine deficiencies.