DHEA: Longevity Hormone

Declining hormone levels, aging, and disease, and how restoring more youthful levels can make all the difference

DHEA – dehydroepiandrosterone

- What is DHEA?
- Why do we need it to enjoy optimal health?
- When do DHEA levels begin to decline?
- What areas of health are affected by DHEA levels?
- How can we safely increase DHEA levels?

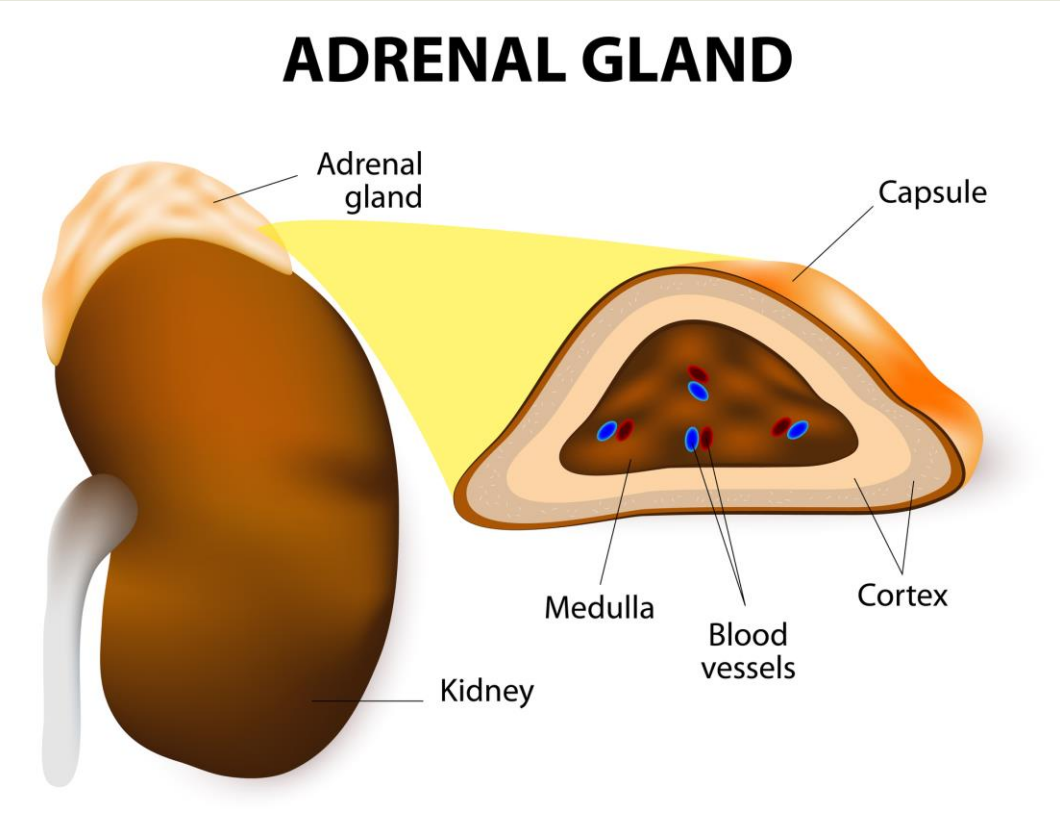
What is DHEA?

Dehydroepiandrosterone: DHEA is an endogenous steroid hormone, produced by the adrenal glands, gonads, and brain.

How DHEA functions in the body

Dehydroepiandrosterone (DHEA) is a hormone that your body naturally produces in the adrenal glands. DHEA helps produce other hormones, including testosterone and estrogen. Natural DHEA levels peak in early adulthood and then slowly fall as you age.

DHEA is made in the adrenal cortex



Cholesterol is the raw material needed for DHEA production

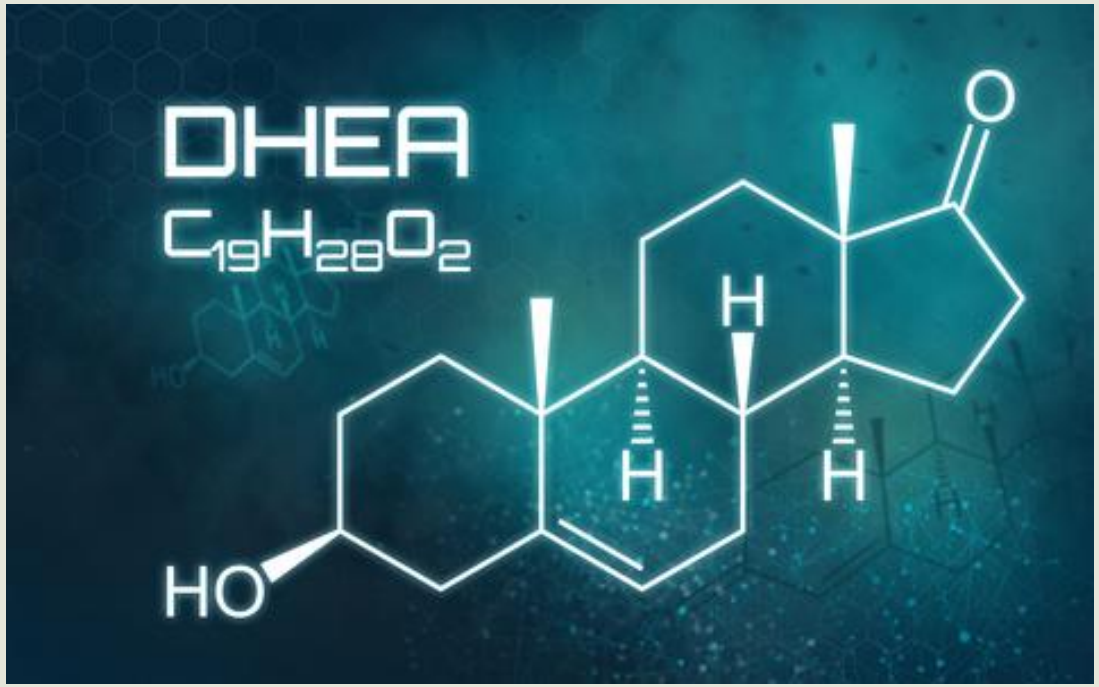
Dehydroepiandrosterone is produced from **cholesterol** mainly by the outer layer of the adrenal glands, known as the **adrenal cortex**, although it is also made by the testes and ovaries in small amounts. It circulates in the blood, mainly attached to sulphur as dehydroepiandrosterone sulphate, which prevents the hormone being broken down. In women, dehydroepiandrosterone is an important source of oestrogens in the body – it provides about 75% of oestrogens before the menopause, and 100% of oestrogens in the body after menopause.

Sulfur in the diet is important for DHEA production

- The adrenals make DHEA-S, which is DHEA with a sulfur molecule called sulfate attached. DHEA and DHEA-S convert back and forth. (Hint: the sulfur comes from the food you eat, like broccoli, garlic, artichokes, animal protein, and MSM).
- What does DHEA do? DHEA turns into testosterone and then into estrogen. So, having enough DHEA is critical to producing both sex hormones.
- **Low DHEA impacts estrogen and testosterone production, bone health, heart health, immunity, fertility, and virtually all body systems.** Source

“Your Basic Feel-Good Hormone”

“The folks at the University of California have been among the most vigorous investigators of DHEA. In 1994, Samuel Yen, MD, the head of one team on the La Jolla campus, published a double-blind study on healthy people that was charming in its simplicity. Thirteen men and seventeen women ranging in age from 40 to 70 were given a “replacement dose” of DHEA – enough to bring the body’s levels to the level of a vigorous young adult – for three months and another fake pill (placebo) for another three. No one knew who was receiving which until the code was broken at the study’s end…”



Results of that study…

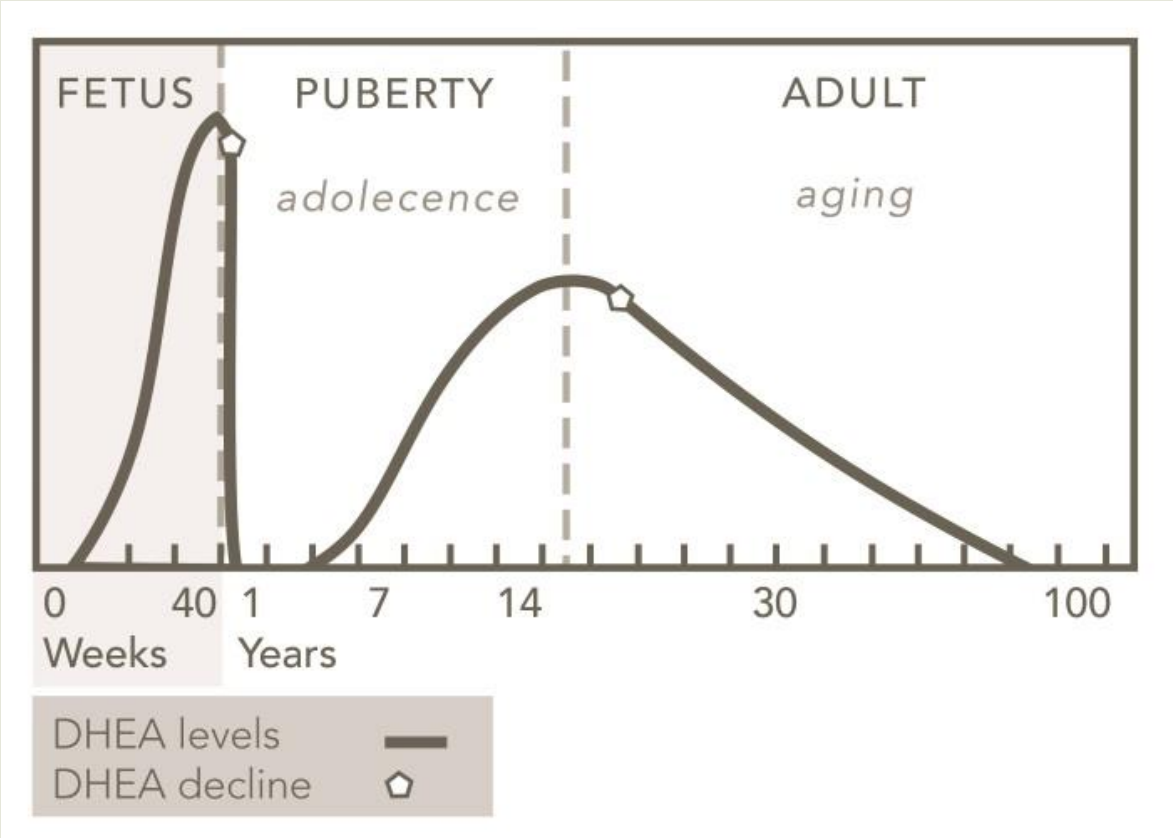
"Since the thirty subjects were all healthy, there was never any question of curing illness. What happened, however – measured by answers to lengthy questionnaires – was startling enough. An overwhelming majority (67 percent of men and 84 percent of women) reported '*a remarkable increase in perceived physical and psychological well-being*' during the period in which they were on DHEA."

Resetting the Clock: Five Anti-Aging Hormones That Improve and Extend Life

When do DHEA levels begin to decline?

DHEA levels decline as we age, however, it is not uncommon to see too low of levels of DHEA during perimenopause and menopause. DHEA levels peak in our **mid-twenties** and decline as we age.

DHEA production timeline



Effects of DHEA Decline

And the health benefits of supplementing with DHEA

Rebecca Roentsch Montrone, BS - Wondrous Roots

DHEA Overview

A growing body of research suggests that DHEA can prevent or reverse the diseases that anti-aging experts have identified as the most prominent markers of accelerated aging: atherosclerosis (hardening and clogging of the arteries), cancer, diabetes, and reduced immunity.

Moreover, mounting evidence indicates that the level of DHEA in a person's blood is an excellent predictor not only of these age-related health problems but also of aging itself. "DHEA is undeniably one of the most crucial predictive factors in diagnosing aging-related diseases," according to Ronald Klatz, D.O., president of the American Academy of Anti-Aging Medicine.

The collective indirect evidence from more than 5,000 published studies overwhelmingly supports DHEA's anti-aging role. Scientists now have proof that DHEA:

- Enhances immunity
- Decreases the risk of heart disease
- Defends against some cancers
- Improves blood sugar control, decreasing the risk of diabetes
- Reverses the age-accelerating effects of the stress hormone cortisol
- Prevents and reverses osteoporosis source

*"We now know that low levels of DHEA are strongly associated with **heart attack** risk. We have abundant evidence that high levels of DHEA protect against **cancer**. We've found that it helps in treating and preventing **diabetes**. We've seen in animal studies and in double blind studies on humans that it aids **memory**, eases **depression**, and causes a striking improvement in an individual's sense of **psychological and physical well-being**.*

*Finally, we know that it so strongly supports **the immune system** that many scientists have become convinced that a shortage of this very hormone contributes significantly to the immune system's collapse in old age. If this were not sufficient, there is also evidence that DHEA can help in the treatment of **osteoporosis**, **rheumatoid arthritis**, **obesity**, and **chronic fatigue**. It mediates **stress**, **improves sleep**, and appears to ginger up the **sex drive** in some folks."* source

DHEA & Weight Loss

"In a 28-day study, DHEA therapy resulted in a group of men losing 31 percent of their mean body fat without changing their body weight. The role of DHEA in weight loss may be related to the hormone's blocking of an enzyme known to produce fat tissue and promote cancer cell growth. The same 31 percent loss of body fat without changing total body weight was observed in mice experiments conducted by DHEA research pioneer Arthur Schwartz, Ph.D., professor at Fels Institute for Cancer Research and Molecular Biology at Temple University School of Medicine." source

DHEA & Immune System Enhancement

"DHEA appears to restore immune balance and stimulate monocyte production (the cells that attack tumors), B-cell activity (the cells that fight disease-causing organisms), T-cell mobilization (infection fighting T-cells have DHEA binding sites), and protection of the thymus gland (which produces T-cells).

Research on mice conducted by Dr. Raymond Daynes, head of the division of cell biology and immunology at the University of Utah in Salt Lake City showed that DHEA rejuvenated immune function (proliferation of T-cells and IL cytokine 2)." source

DHEA Modulates Immune Function

DHEA Modulates Immune Function: A Review of Evidence

DHEA & Cancer

Cancer Medical Studies on DHEA – Cancer

DHEA & Cancer

“In laboratory animal studies, DHEA seems to protect against several cancers, including breast, liver, lung, colon, skin, prostate, testicular, and ovarian. According to one study, 50 milligrams daily of DHEA for three weeks produced an increase in the natural killer cells, which are the body's primary defenders against cancer. In small-scale studies, low levels of DHEA has been associated with gastric cancer, prostate cancer, and bladder cancer.” source

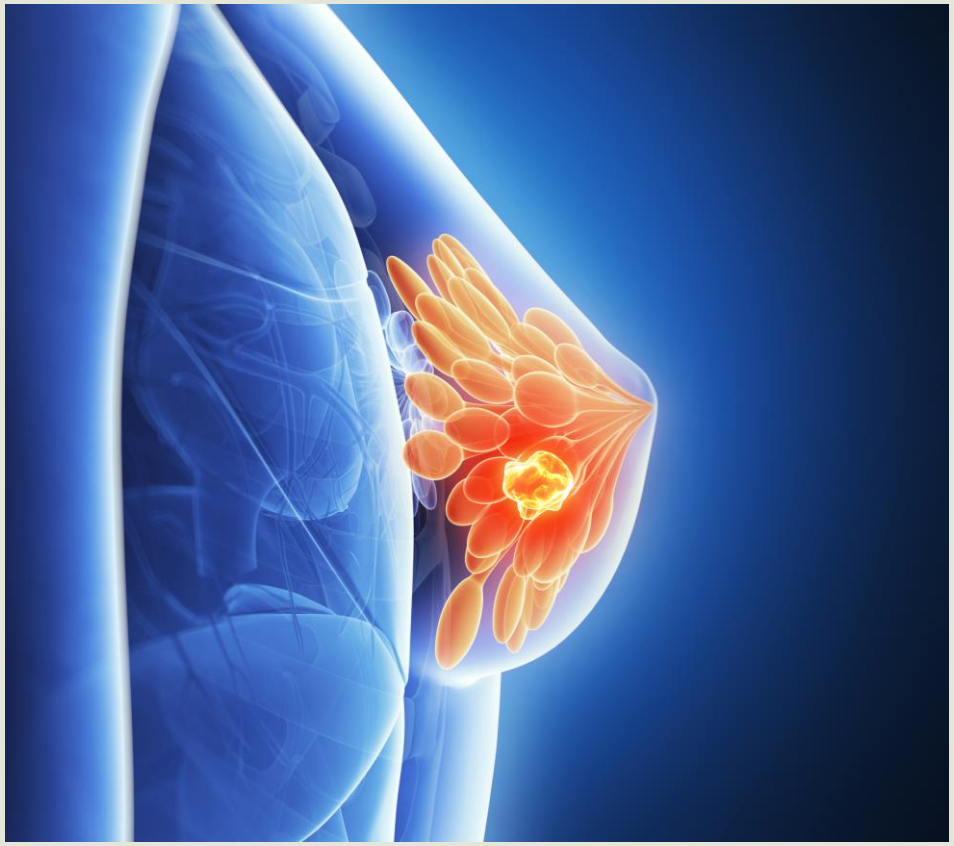
Cancer Medical Studies on DHEA – Cancer

"Several studies indicate that unhealthy cell growth seems to be directly linked to low DHEA levels. Of course, DHEA cannot cure any type of tumor and should in no way be used as a substitute for established cell therapy. However, in laboratory experiments, some types of unhealthy cell growth have been successfully hindered by DHEA." Cancer Medical Studies on DHEA – Cancer

DHEA & Breast Cancer

"Breast cancer is one of the most common types of cancers in women. Studies have shown that DHEA inhibits the proliferation and migration of breast cancer cells by modulating the cells' protein expression. Although the exact mechanisms behind this effect are not yet fully understood, it is suspected that DHEA may act on various signaling pathways, such as the PI3K/AKT pathway, which plays a significant role in the proliferation of unhealthy cell growth." Cancer Medical Studies on DHEA – Cancer

DHEA & Breast Cancer

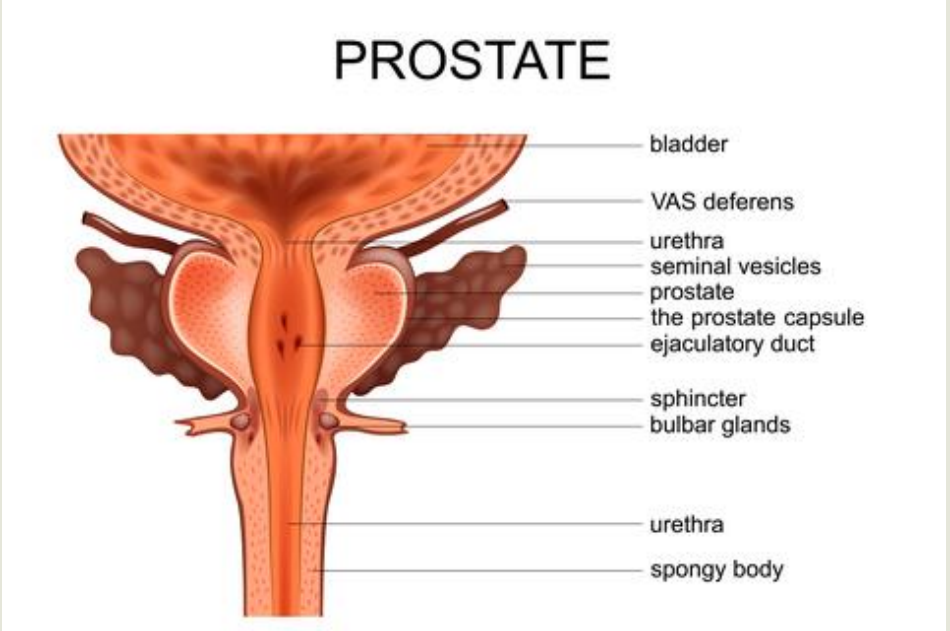


- DHEA-S completely prevents breast cancer metastasis due to estrogen
- An Explanation of Cancer and the Increase in Cancer: High Testosterone, Low DHEA and Breast Cancer

DHEA in Cervical Cancer and Prostate Cancer

"Studies have shown that DHEA has a strong inhibitory effect on the proliferation of cervical carcinoma cells. DHEA also appears to have a positive influence on prostate cancer, again via the aforementioned PI3K/AKT pathway."

Cancer Medical Studies on DHEA – Cancer



DHEA & Depression

"While there are clearly many factors that influence our mood and the onset of depression, there is a biological core-a physiological component-that cannot be ignored. For some, low levels of DHEA may be part of that process." – James Greenblatt, MD

DHEA & Depression

"In my experience, low levels of DHEA are one of many important factors that may contribute to a depressed mood. Yet, routine testing for DHEA levels and DHEA supplementation is not considered a component of traditional medical or psychiatric practice."

Source

"The National Institute of Mental Health studied 46 patients age 40-65 with major and minor depression. After six weeks of administering DHEA, 23 patients showed a 50% decrease in depressive symptoms. Ten patients chose to continue taking DHEA for one year at a low dose and remained free of depression."

DHEA & Depression

2. Ten elderly men (58-69 years old) with a range of age-related symptoms such as feeling weak and having low-energy showed significant improvement in symptoms after taking 25 mg of DHEA every morning for one-year.

3. In a 1999 study published in Biological Psychiatry, researchers tested the effects of DHEA in 15 people who had developed mid-life depression. Sixty percent of those receiving DHEA responded well to treatment compared to only twenty percent of those who received the placebo.

4. In a large-scale study conducted in 2007, of 2,855 elderly men and women, it was concluded that low DHEAS levels were linked with depressive symptoms.

5. A 2007 study of sixty-one patients with Dysthymic disorder (DD), a chronic state of mild depressive symptoms, found that individuals with DD have low levels of DHEAS. A 2009 comprehensive review of DHEA in the treatment of depression concluded: "Thus to date, every controlled trial of DHEA in depression has reported significant antidepressant effects."

DHEA & Depression

- Researchers are not yet certain how DHEA alleviates depression, but both DHEA and DHEAS can cross the blood-brain barrier and interact with the brain directly
- DHEA - A Better Antidepressant?
- Double-Blind Treatment of Major Depression With Dehydroepiandrosterone

DHEA & Depression – Wondrous Roots Case History

Some 14 years ago I had a male client with profound seasonal affective disorder. He had tried every medication prescribed, many natural supplements, and had ripped through multiple therapists. He was a professor on sabbatical when I saw him, because he could not function at work. After his first dose of transdermal DHEA 50 mg, he emailed saying he couldn't believe it; he wasn't euphoric, but he was functional!

DHEA & The Heart

The cardiovascular research community is abuzz about DHEA's potential to conquer America's number one killer, heart disease. Several studies examining the role of DHEA in heart disease have produced intriguing findings. Source

Mending a Broken Heart

"Research has shown that depleted DHEA is a more accurate predictor of heart attack than elevated cholesterol. DHEA levels were significantly lower in men who died of heart attacks than in men who were healthy.

DHEA level was shown to correlate with the degree of atherosclerosis in 200 men and women undergoing coronary angiography, in a study by David Herrington, M.D., of Bowman Gray School of Medicine of Wake Forest University in Winston-Salem, North Carolina, which was published in the Journal of the American College of Cardiology. He found that as DHEA levels went up, coronary artery disease (as measured by the frequency and severity of arterial lesions) went down."

And there’s more…

“A follow-up study showed that the degree of development of atherosclerosis in 63 heart transplant patients was inversely correlated with DHEA levels. In other words, the higher the heart recipient's DHEA level, the lower his likelihood of developing posttransplant atherosclerosis. What's more, the heart recipients with high DHEA had a much better five-year survival rate (87 percent) than the heart recipients with low DHEA (65 percent).

That's not all. In people undergoing angioplasty (a procedure in which a balloon is used to open a clogged blood vessel), DHEA reduced the rate of restenosis--a treated vessel closes off again--from 68 percent to 28 percent. In healthy males given a clot-promoting substance (arachidonic acid, found in abundance in meat), DHEA blocked an increase in clotting. (An increased tendency to clot is a risk factor for heart attack and stroke.) In men, DHEA lowered total cholesterol and "bad" low-density lipoprotein cholesterol better than and more safely than the "statin" drugs such as clofibrate and gemfibrozil. DHEA is also nontoxic.”

DHEA & Stress

DHEA protects your body from the hormone cortisol and the stress that triggers its production.

Adrenal Hormone Balance

Stopping Stress in its Tracks

“Like DHEA, cortisol is secreted by the adrenal glands. If over-secreted, cortisol injures your body's tissues. When you're under stress, your adrenal glands release large amounts of cortisol. People under chronic stress have high cortisol levels (unless their adrenal glands have already burned out, in which case their cortisol levels are low). The presence of too much cortisol leads to age-accelerating damage. As stress accumulates over decades, cortisol levels tend to rise as well.

Many people over age 40 have elevated cortisol. DHEA and cortisol have an inverse, or adversarial, relationship. When you're faced with prolonged stress, your cortisol/DHEA ratio--a measure of health status and aging--can rise by a factor of 5. This means that the excess cortisol is battering DHEA's protective shield. DHEA supplementation increases your stress tolerance, lowers your cortisol/DHEA ratio, and protects you against cortisol-induced cellular damage.” Source

DHEA & Other Conditions

Some we will highlight in this presentation, but there are few others to mention…

“Other conditions reported to improve when DHEA is administered…”

“A few of the conditions I haven’t mentioned yet that have been reported to improve when DHEA is administered include ***allergies****, Alzheimer’s,* ***arthritis****,* ***chemical sensitivities****,* ***chronic fatigue****, elevated cholesterol,* ***Epstein-Barr syndrome****,* ***herpes****,* ***liver disorders****,* ***lupus****, menopause, recurrent infections, and senility.”*

[*Resetting the Clock: Five Anti-Aging Hormones That Improve and Extend Life*]

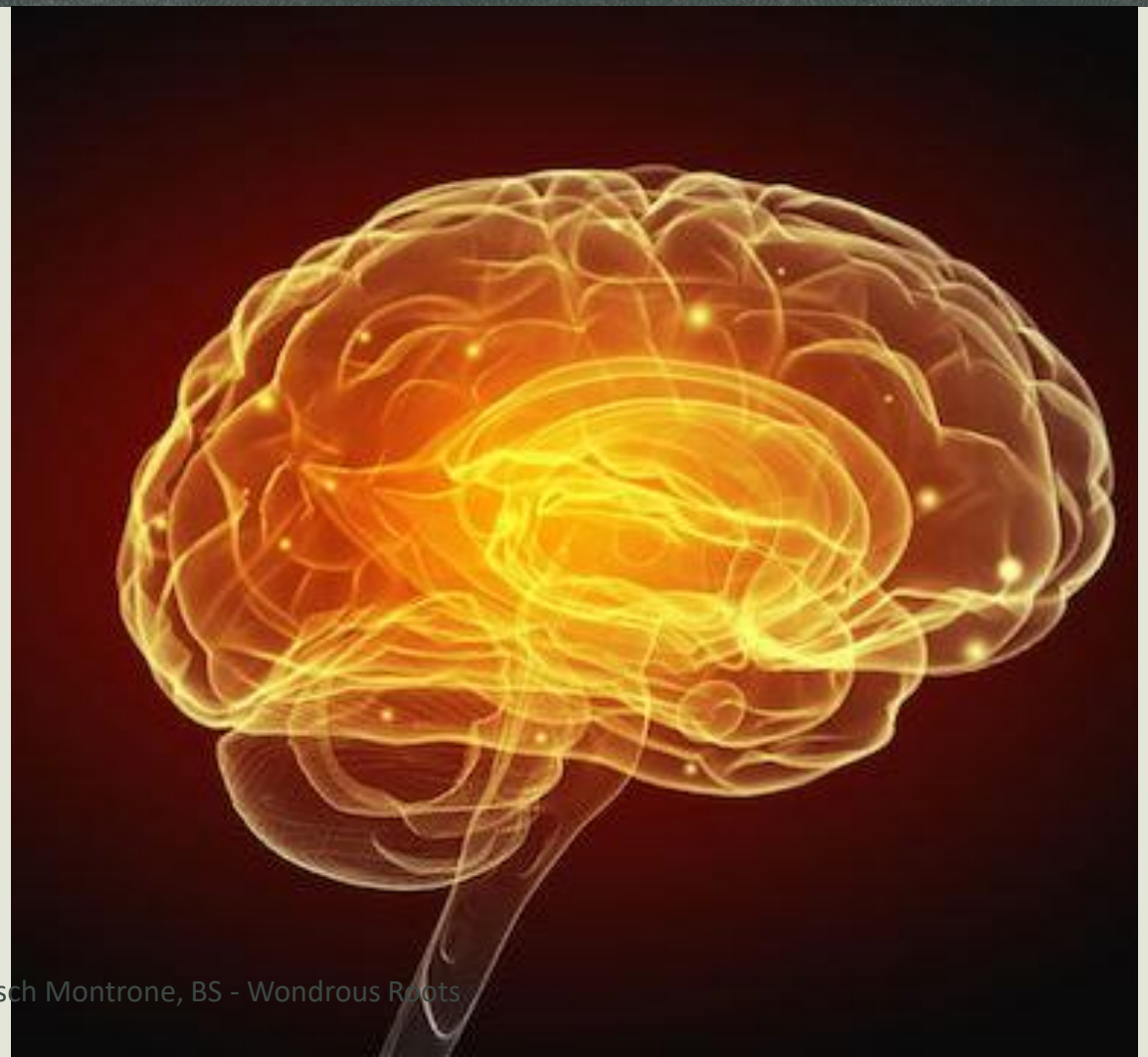
DHEA & Alzheimer’s Disease

Neuroprotective effects of dehydroepiandrosterone (DHEA) in rat model of Alzheimer's disease

DHEA & Alzheimer’s Disease

“The current study was undertaken to elucidate a possible neuroprotective role of dehydroepiandrosterone (DHEA) against the development of Alzheimer's disease in experimental rat model… These results clearly indicate a neuroprotective effect of DHEA against Alzheimer's disease.”

source



DHEA-S plasma levels and incidence of Alzheimer's disease

- **Abstract**

- **Background**: Cross-sectional studies controlling for age and gender reported a relationship between Alzheimer's disease and low dehydroepiandrosterone sulphate (DHEA-S) plasma levels. Prospective data with sufficient control for confounding factors are lacking.

- **Methods**: A nested case-control study examined baseline DHEA-S in participants of the Berlin Aging Study. Cases (n = 14) developed dementia of the Alzheimer type within 3 years. Control group A (n = 14) was matched for gender, age, multimorbidity, and immobility. Control group B (n = 13) was matched for gender and age and comprised participants free from multimorbidity, immobility, multimedication, need of help, incontinence, visual impairment, hearing impairment, and depression.

- **Results**: The mean plasma DHEA-S concentration of case subjects was 1.02 +/- 0.61 mumol/L. Both control groups had higher mean DEHA-S levels, in control group A, it was 1.89 +/- 1.24 mumol/L (p = .012) and in control group B 1.70 +/- 1.38 mumol/L (p = .093).

- **Conclusions**: This population-based prospective study supports the role of DHEA-S as a risk factor for Alzheimer's disease.

Low DHEA & Senility

“Memory difficulty is an aspect of aging that has been extremely hard to change positively.

Another indication that poor intellectual function among some older folks may be related to falling DHEA levels comes from a study by Daniel Rudman, MD, showing that men in nursing homes had far lower blood levels of DHEAS than men of the same age who were living independently. Forty percent of the nursing home residents versus only 6 percent of the men who lived in their own homes had subnormal levels for their age. Men who were senile or who were totally unable to care for themselves were even more likely to have low DHEAS. Levels were subnormal in 80% of the latter.”

Resetting the Clock: Five Anti-Aging Hormones That Improve and Extend Life

DHEA & Parkinson's Disease

Therapeutic potential of dehydroepiandrosterone for Parkinson's disease: scoping review protocol

DHEA & Parkinson’s Disease

- Combined Therapy for the Treatment of Parkinson's Disease (Cardidopa-Levodopa/DHEA).
- Effect of DHEA on recovery of muscle atrophy induced by Parkinson's disease.

DHEA & Type 2 Diabetes

Serum dehydroepiandrosterone levels are associated with lower risk of type 2 diabetes: the Rotterdam Study

DHEA & Type 2 Diabetes

“We conclude that higher serum levels of DHEA are independently associated with a decreased risk of developing type 2 diabetes in healthy populations of both men and postmenopausal women. These prospective data suggest that DHEA may play a role in the pathogenesis of type 2 diabetes, which may have important implications for preventive interventions.”

DHEA & Menopause

DHEA for postmenopausal women: A review of the evidence

Rebecca Roentsch Montrone, BS - Wondrous Roots

DHEA & Menopause

“Dehydroepiandrosterone (DHEA) and its sulphate DHEAS are the most abundant sex steroids in women and provide a large reservoir of precursors for the intracellular production of androgens and estrogens in nonreproductive tissues. Levels of DHEA and DHEAS decline with age. It has been proposed that restoring the circulating levels of these steroids to those found in young women may have anti-aging effects and improve sexual function and wellbeing in postmenopausal women.”

DHEA & Hot Flashes

Abstract

Background: Published data regarding the negative risk-benefit ratio of traditional estrogen/progesterone hormone replacement therapy for menopausal symptoms have indicated the need for alternative treatments. Dietary supplements and herbal products are popularly used for menopausal control without a large evidence base. Therefore, a prospective pilot trial using 50 mg of dehydroepiandrosterone (DHEA) once daily for 4 weeks following a baseline week was developed to explore whether DHEA has any efficacy in reducing hot flashes. Safety issues were also evaluated.

Patients and methods: Twenty-eight women were enrolled in this study, 22 of whom are evaluable. The primary outcome was the reduction in hot flash score (frequency multiplied by average severity) from baseline as measured by validated self-report daily hot flash diaries.

Results: The mean hot flash score decreased 50% from baseline, and there were no side effects that were significantly worse compared with baseline. Quality of life related to hot flashes showed statistically significant improvement after 4 weeks of DHEA therapy.

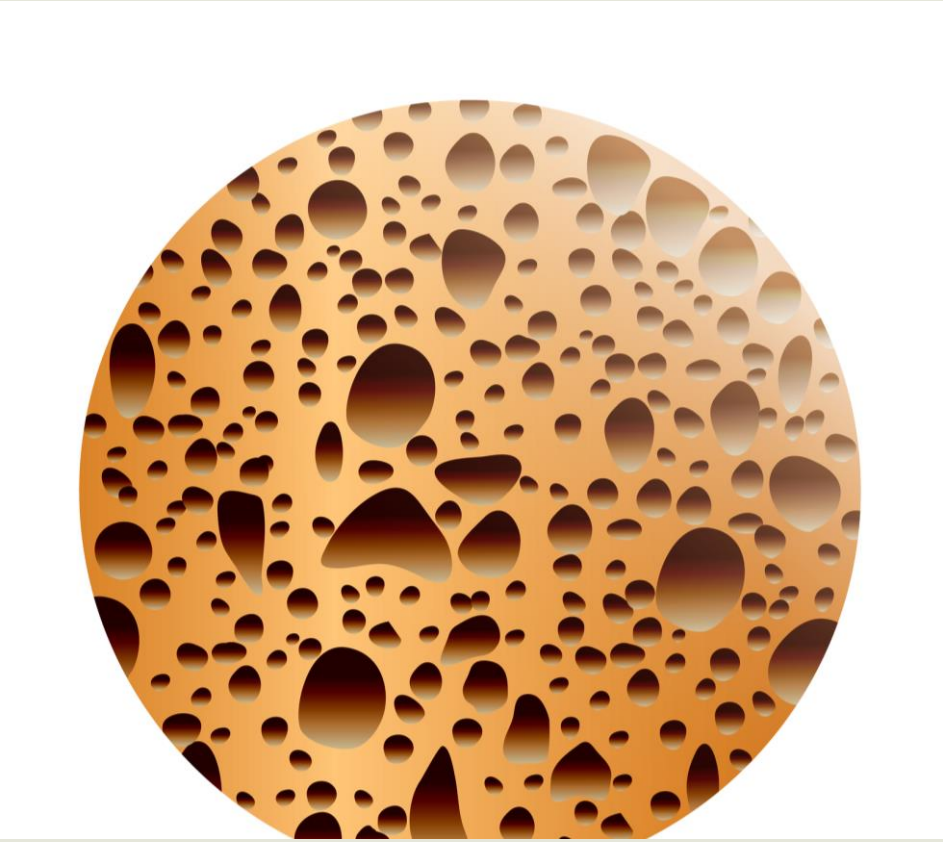
Conclusion: This pilot study provides data supporting the hypothesis that DHEA is well tolerated and can reduce hot flashes. Dehydroepiandrosterone should be studied further in a larger, placebo-controlled trial.

DHEA supplementation associated with improved sexual function in women

“A report published October 11, 2018, in the journal Endocrine revealed improvements in sexual function among older premenopausal women who supplemented with the hormone dehydroepiandrosterone (DHEA).

Serum androgen hormone levels, including DHEA and testosterone, were shown to increase following DHEA supplementation. In comparison with pretreatment scores, FSFI index scores improved by 7%, including a 17% increase in desire, a 12% increase in arousal, and an 8% increase 1/14/2021 DHEA May Improve Female Sexual Function - Newsletter https://www.lifeextension.com/newsletter/2018/11/dhea-associated-with-improved-female-sexual-function 2/11 p y , g , , in lubrication. However, among women whose scores were among the lowest 25% of the group, total FSFI scores increased by 34%, which included a 40% increase in desire, a 46% increase in arousal, and a 33% increase in lubrication. Women in this group also experienced a 54% increase in orgasm, greater satisfaction, and less pain in comparison with pretreatment values. “

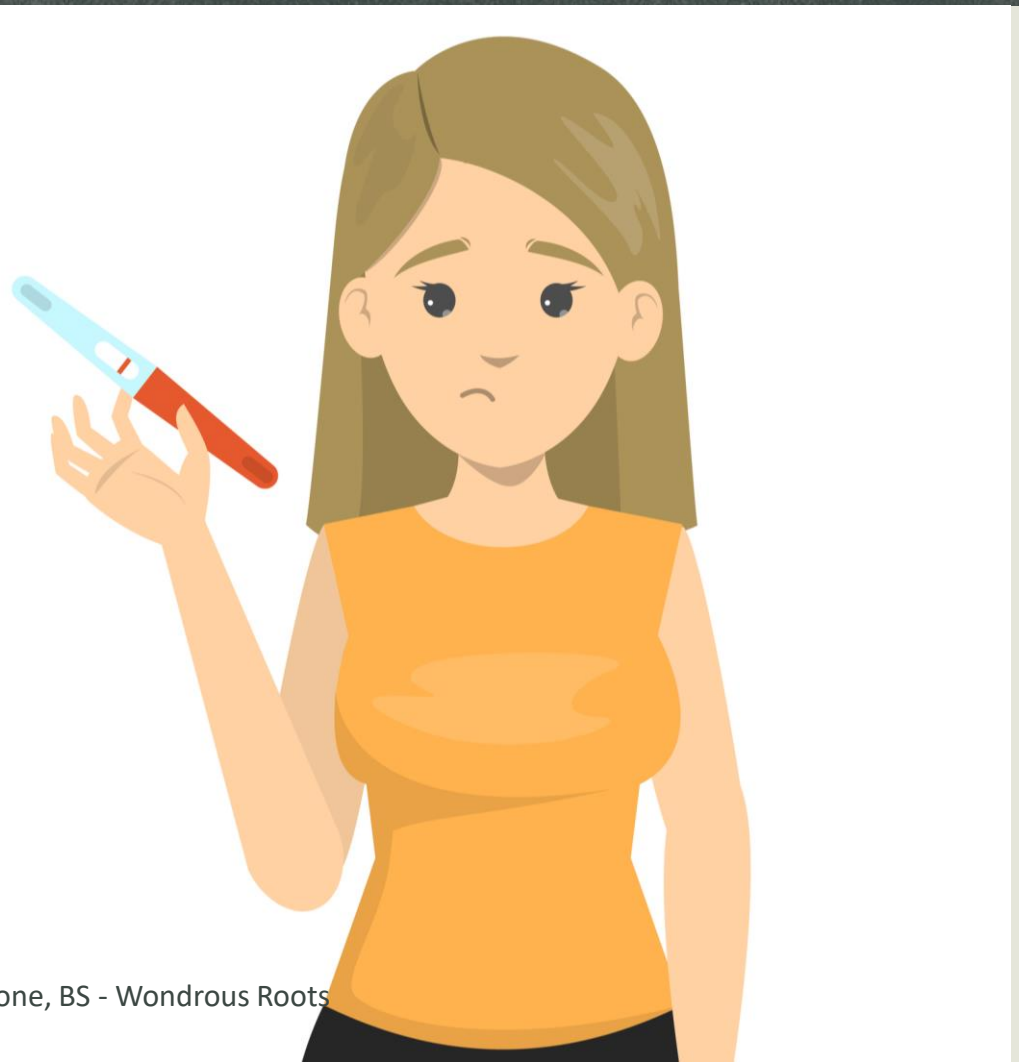
DHEA & Bone Density in Women



"At the one-year mark, women who received DHEA had an average 1.7 percent increase in spinal bone density, while those in the placebo group experienced no increase. When women in the placebo group were switched to DHEA during the second year of the study, bone density improved by 2.6 percent compared to the beginning of the study, while increasing to 3.6 percent above baseline in the original DHEA group. Estradiol, IGF-1, and testosterone increased with DHEA supplementation, and bone turnover markers decreased in both groups during the first year and remained decreased during year two."

DHEA for Fertility Explained? Understanding How It Helps and The Science Behind It

Dehydroepiandrosterone and fertility are closely linked. Over the years studies have shown that DHEA can help improve chances of having a child in multiple ways. Hormone supplementation has been shown to increase ovarian response to fertility drugs, increased pregnancy rates, and increased the production of oocytes. DHEA can also potentially reduce the risk of fetal abnormalities. But the issue is that this hormone cannot be obtained through any common food source in enough quantity to impact fertility outcomes. DHEA is commonly available without prescription in the form of a supplement and can be consumed in the form of micro tablets.



Supplementing with DHEA

I have been using DHEA since my early 30's and am now in my mid-sixties. As you can imagine, given the information in this presentation, I also recommend it to my clients. Here are some options.

Micronized DHEA to be taken Orally

Vaginal Suppositories – especially valuable for restoration of vaginal integrity & libido support

What about form and dose?

I recommend micronized versions of DHEA only when it comes to oral forms. This is because hormones do not survive the first and second liver passes well. However, the micronized molecular size is so small that it enters the bloodstream through the lymphatic system and bypasses the liver. I recommend:

- For women: 10-50 mg daily, usually centering around 25 mg – I have never recommended 50 mg, but I have a client who recently found that dose eradicated her extreme/severe afternoon fatigue.
- For men: 50-100 mg, usually recommending 50 mg
- Transdermal/Intravaginally – 10-25 mg – the suppository I use is 13.9 mg, and that seems to be fine for me (transdermally, more for men – say 50-100 mg)

What about safety?

Is DHEA supplementation safe for everyone?
What about side effects?

Rebecca speaks:

Often when reading about DHEA use in different sites on the Internet, especially those that pop up on the first page - i.e., Mayo Clinic, Cleveland Clinic, Healthline, Verywell Health, etc. – you will read a stern caution something to this effect (from Mayo Clinic):

- DHEA is a hormone. Use of this supplement might increase levels of androgen and have a steroid effect. DHEA also might increase the risk of hormone-sensitive cancers, including prostate, breast and ovarian cancers. If you have any form of cancer or are at risk of cancer, don't use DHEA.
- Don't use DHEA if you're pregnant or breastfeeding.
- Consider avoiding use of DHEA if you have high cholesterol or a condition that affects the supply of blood to the heart (ischemic heart disease). DHEA might reduce high-density lipoprotein (HDL), or "good," cholesterol levels.
- Use of DHEA also might worsen psychiatric disorders and increase the risk of mania in people who have mood disorders.
- DHEA also might cause oily skin, acne and unwanted, male-pattern hair growth in women (hirsutism).

Rebecca continues to speak…

So, of course, if the average person reads that, they are going to be worried and not take advantage of all the health benefits associated with restoring youthful levels of this vital hormone.

There is the seeming logical thought process that if a substance increases hormones, it must present a cancer risk, especially to those who have already had a hormonal cancer such as breast cancer, ovarian cancer, or prostate cancer.

As we have already seen, there is ample evidence stating just the opposite, with *low* DHEA levels associated with these cancers. Here is a good paper refuting the notion that DHEA is contraindicated in men with regard to prostate health and prostate cancer: LEARN MORE

Summary from the Dean Ward, MD, article on DHEA and prostate cancer:

Summary

From the above review, the following conclusions appear to be clear:
1. The incidence of prostate disease increases with age.
2. Testosterone levels decrease with age.
3. Physiologic replacement doses of DHEA do not raise testosterone levels in men.
4. The link between high levels of testosterone and prostate disease is not without question.
5. In vitro growth of human and rat prostate cancer cells is inhibited by DHEA — and the higher the concentration of DHEA, the greater is the inhibition of growth!
6. Patients with prostate cancer have lower levels of DHEA and DHEA-S than age-matched controls, as confirmed by three independent studies.
7. DHEA (and perhaps testosterone) are not contraindicated, and, in fact, should be considered for the therapy of prostate disease. Source

Making Choices in a Real World

"The final word on DHEA's safety, whether for men or women, remains very similar to that which we shall be saying for nearly all the hormones discussed in this book. There is no good evidence so far to suggest that hormones given in the amounts that the human body naturally secretes between the ages of twenty and thirty will prove harmful to the vast majority of individuals who take them. Nothing is perfectly safe. It is always conceivable that in a particular individual the metabolic balance is so delicately poised that even the addition of a substance entirely natural to the body in quantities that are also natural will, nonetheless do him or her harm.

But just living is an act of balancing risks and advantages. As the hormone revolution that is now upon us unfolds, most of us as we get older will have to make a choice between accepting the small risk involved in hormonal supplementation for the sake of its substantial advantages and disadvantages. As far as dehydroepiandrosterone is concerned, all the evidence we now possess points toward a body of remarkable health improvements made possible by reversing nature's inclination to deprive you of it as you age." – Elmer Cranton, MD

Resetting the Clock: Five Anti-Aging Hormones That Improve and Extend Life

“There’s nothing more natural than death…”

Years ago a colleague in the realm of natural health - not unusually, mind you - argued with me about the use of bio-identical hormones, stating that since it’s natural to lose your hormones as you age, letting them go missing must be the most natural approach to health and aging.

My reply? *“There’s nothing more natural than death. I use the natural to THWART the natural!”*

And I beg to differ: Crones are NOT beautiful!

Over the years attending various herbal conferences, I found you really have to keep the baby and throw out the bathwater, between the astrology, paganism, earth worship, and other associated evils. I've listened to ugly women with armpit hair down to their thighs literally scream:

"I'm BEAUTIFUL!!!!!!!!!!!!!!!!!!!!"

Wow. *You can keep it, honey!*

Definition of a crone. I do NOT want to be a crone. "An old EWE?" *EW!*

crone /krōn/

- noun

1. An old woman considered to be ugly; a hag.
2. A woman who is venerated for experience, judgment, and wisdom.
3. An old ewe.

The American Heritage® Dictionary of the English Language, 5th Edition

How I – and Wondrous Roots – differ from what often passes for herbalism out there:

Again, in the world of herbal medicine you must pick and choose science and truth from some traditional belief systems that use herbs in their rituals and practices. These include paganism, Wicca/witchcraft, metaphysics, etc.

Once someone asked me if I "practiced." I assumed she meant as a healthcare practitioner, but then she clarified she meant as a pagan.

No. I don't. I always like to make a clear distinction. This is also why I do not participate in any "holistic health fairs," that kind of thing.

I will not lump myself in with *that* lot!

The "crone," by the way, in that pagan system is one of the "three goddesses" – so you see why I REALLY don't want to be a crone!

In Summary of this Presentation

- DHEA is a prohormone made in the adrenal glands
- DHEA levels begin to decline in our late 20's
- Low DHEA levels are associated with increased cancer, heart disease, a weakened immune system, osteoporosis, menopausal symptoms, infertility, type 2 diabetes, Alzheimer's disease, and Parkinson's disease, and other conditions of suboptimal health
- DHEA is easy and inexpensive to supplement and of significant value as part of an anti-aging, disease preventive protocol
- Crones are *not* beautiful. Becky does not want to be a crone. EW!

Thank you; I hope this information has been helpful!

[Wondrous Roots | Holistic Nutrition | Keene, NH, USA]

[Welcome to the Wondrous Roots Online Store! (shopwondrousroots.com)]

Please feel free to reach out for further information.