

DHEA

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Using DHEA responsibly ...

by **Karolyn A. Gazella,**
Health Counselor publisher

A new shining star has made its way into the natural health industry. Dehydroepiandrosterone, more simply known as DHEA, is gaining popularity among a whirl-wind of excitement and controversy.

Some people believe DHEA, a hormone produced in the adrenal gland, should only be available by prescription. Others feel that if the supplement is used responsibly, it can help a wide variety of individuals and should remain available over-the-counter. I agree with this group.

After my ovarian cancer, I was faced with surgically-induced menopause at age 33. I struggled with poor energy levels and emotional ups and downs. This was foreign to me as I had always been upbeat and full of energy. After researching DHEA, I started taking five mg each morning. I noticed a difference within a few days.

Just because DHEA was good for me, however, doesn't mean it will be good for you. There is a lot we don't know about DHEA. Taking this product responsibly means knowing the benefits as well as its limitations.

Dosages



Because over-the-counter supplementation of DHEA is relatively new, no specific dosage standards have been set. Just as with many supplements, dosage requirements vary with each individual. While there are questions regarding exact dosage, one thing

is certain: More is not necessarily better.

When you are dealing with a nutrient like vitamin C, it is very clear that large dosages may be necessary, and in certain cases, more is better. This is not the case with DHEA. As a matter of fact, most physicians prescribing DHEA regularly have found that the smaller dosages are just as effective and much safer.

Dr. Ray Sahelian is at the forefront regarding DHEA. He recommends that individuals try to work with a healthcare physician who is familiar with DHEA. Dr. Sahelian recommends starting out low, with a daily dosage of five or ten mg. You can increase the dose by five mg if you don't receive any benefit.

The best way to determine dosage is to get your DHEA levels checked. This can be done using either blood or saliva. While I have not yet had my levels tested, I have a 40-year-old friend who had her levels tested and found that she had the DHEA levels of a 60 to 40-year-old. She went on DHEA and has experienced improvement in her energy levels at a dosage of 15 mg daily. At 20 mg, she noticed too much of a "buzz," so she reduced her dosage. Experimentation may be necessary.

My friend had her test done through Aeron Life Cycles Laboratories. You can contact this company at 1-800-631-7900. This is a saliva test that costs \$50.

Warnings, etc.

There are certain individuals who shouldn't take DHEA. Women who are pregnant, nursing, or think they may become pregnant, should avoid DHEA. If you are under age 40, have your levels checked prior to taking DHEA because, chances are, you may not need additional DHEA.

Studies of drug interactions have not been done yet; however, according to Dr. Sahelian, you should not take DHEA if you are taking:

- ◆ aspirin or blood thinners

- ◆ stimulants (including herbs)
- ◆ thyroid medications

There is some debate as to the interaction DHEA has with antidepressants such as Prozac® and Zoloft®. DHEA has actually been shown to help with depression. Used in low doses, DHEA does not seem to interfere with antidepressants.



Because DHEA gets converted to estrogens in the body, if you are taking estrogen, you may have to alter your dosage.

In all of these cases, testing DHEA levels during medication use will be your best marker as to whether you need to use a supplement. Getting supervision from a qualified healthcare professional is always your best bet.

Side effects with high doses of DHEA include: acne, hair growth in unwanted places in women, irritability or mood changes, over stimulation or insomnia, and fatigue or low energy levels.

"I interviewed a large number of researchers and clinicians who are very familiar with DHEA," explained Dr. Sahelian. "Their combined experience with thousands of patients indicates that DHEA has few side effects when used appropriately and in low doses."

Use a product that clearly describes cautions on the label—that's a sign of a responsible manufacturer.



Cautiously optimistic

Highly-respected medical doctor and re-

Questions and answers about DHEA

searcher Alan Gaby has said DHEA "...may turn out to be the most important medical advance of the past decade."

Such power requires respect and responsibility on the part of the user. As long as we are cautiously optimistic and do our homework, this important supplement should remain available over-the-counter.

By Ray Sahelian, M.D.

Controversy is not new to the health food and supplement industry. 1995, melatonin, a hormone made by the pineal gland, generated a lot of discussion, became big news, and even got its own cover on the November 6th issue of Newsweek. Now DHEA seems to be gradually taking brighter spotlight, especially since it has become readily available without a prescription. We now have two hormones over-the-counter easily purchased and used (or misused) by the consumer, DHEA and melatonin. (For more information on melatonin, refer to page 60 of this issue.)

What does DHEA stand for?

DHEA is short for dehydro-epiandrosterone (D-hi-dro-epp-E-an-dro-stehr-own), a hormone made by the adrenal glands located just above the kidneys.

Is it a new hormone?

Scientists have known about this hormone since 1934 and there have been thousands of articles published about it since then. However, only a small percentage of these studies involved human subjects.

Why all the hype?

Back in 1994, researchers at the University of California, San Diego, School of Medicine, wanted to find out what would happen to older individuals they took supplements of DHEA.

The researchers gave middle-aged volunteers 50 mg of DHEA nightly for three months. There was an increase in physical and psychological well-being, energy, deeper sleep, improved mood, more relaxed feelings, and an improved ability to deal with stressful situations.

When the results of this study were published, there was a flurry of publicity. Stories about DHEA appeared in newspapers and magazines. Radio and tele-vision picked it up. Eventually, many national TV shows did a segment on it. However, since DHEA was not easily available to the consumer, it didn't become popular as quickly as melatonin did.

One of the reasons that this study caused so much publicity was that it was supported by

many dozens of previous studies, most conducted in rodents, that indicated DHEA had a benefit in heart disease, cancer, diabetes, weight loss, lupus, and a variety of other conditions. Some people started calling DHEA the "fountain of youth."

Before the Morales and Yen study was published, DHEA was already well-known in the holistic health community. Articles about this steroid had appeared in many alternative magazines and newsletters.

Here are some theoretical mechanisms on how supplemental DHEA can increase life span, remembering, though, that as of yet longevity studies have not been done in humans:

- ◆ Improving immunity
- ◆ Turning "youth" genes in our DNA that may be shut off by low levels of DHEA in old age
- ◆ Decreasing the rate of heart disease by lowering cholesterol and acting as a blood thinner
- ◆ Decreasing the rate of cancer
- ◆ Improving insulin's function, thus better regulating blood sugar levels
- ◆ Balancing DHEA/cortisol ratios. As we age, DHEA levels drop but cortisol levels stay relatively the same. This unbalanced ratio may have harmful consequences on blood sugar and immunity, among others.
- ◆ Inhibition of glucose-6-phosphate dehydrogenase enzyme. This enzyme is involved in cancer promotion, lipid formation, and production of oxygen free radicals.

Is DHEA safe?

Whenever doctors talk about the safety of a medicine, they separate it into short-term safety over a few days or weeks, and long-term safety over months and years of use. Dr. Nestler, a researcher at the Medical College of Virginia/Virginia Commonwealth University in Richmond, has given 1,600 mg of DHEA a day for four weeks to healthy young men without any serious side effects. At this dosage, there was a lowering of cholesterol and a decrease in body fat, with a greater response in obese individuals. Most DHEA supplements on the market are less than 50 mg.

As to the safety of using DHEA for five, ten, 20 years or longer, no formal human studies have been published; then again human studies have been done for many medicines, hormones, or nutrients.

Is DHEA the only adrenal hormone?

More than 150 hormones are known to be synthesized by the adrenal glands. However, DHEA is the most abundant hormone made by the adrenal glands.

After DHEA is made by these glands it goes into the bloodstream, and from then on it travels all over the body and enters our cells, where it is converted into male hormones, known as androgens, or female hormones, known as estrogens. Whether DHEA gets converted predominantly into androgens or estrogens depends on a person's medical condition, age, and sex. Every person has a unique biochemistry.

In males, the testicles also make androgens, while in females before menopause, the ovaries make estrogens. So the body has developed at least two organs where sex steroids are made. After menopause, the ovaries no longer make estrogens.

How is DHEAS different from DHEA?

When DHEA is metabolized, a chemical called sulfate is added. Sulfate consists of the mineral sulfur combined with oxygen (SO₄). Thus DHEAS stands for DHEA-sulfate.

DHEA is mostly made in the morning hours. Its levels decline fairly rapidly during the day because it is quickly cleared by the kidneys. However, DHEAS is cleared more slowly and

blood levels remain much more stable throughout the day. About 90 percent of this steroid in the blood is in the DHEAS form; the rest circulates as DHEA. That is why, when researchers want to assess blood levels for DHEA, they often measure DHEAS levels.

When you take DHEA supplements, some will circulate in your bloodstream as DHEA, but most of it will be sulfated by your liver to circulate as DHEAS.

Where does the DHEA that I buy come from?

The DHEA pills that you buy are made by vitamin and pharmaceutical companies. They extract sterols from wild yams, the most common sterol being diosgenin. After cleaving a few side chains from diosgenin in the laboratory, DHEA is produced.



Will natural yam extracts increase my DHEA levels?

Most of the DHEA sold now is produced in a lab from diosgenin. However, some vitamin companies do sell extracts of wild yams in pill form without first processing it into DHEA. Some even promote these yam-extract products as "DHEA precursor complexes" or "natural DHEA."



To get to the bottom of the yam-conversion issue, I

asked a leading expert in the field, Seymour Lieberman, Ph.D., from St. Luke's - Roosevelt Hospital Center, New York, NY, who has been studying DHEA (which he calls 'dehydro') and other steroids longer than most researchers in the field (55 years so far!). He is one of the top experts in the world on the biochemical aspects of DHEA. Here is his response:

"DHEA is made commercially from a plant of the Dioscorea family [wild yams] found in abundance in Mexico. Extracts of this plant contain a steroidal saponin which may be converted in a laboratory by a series of six to eight chemical reactions into DHEA. A comparable series of reactions is not known to exist in nature and certainly not in humans.



Consequently it is highly unlikely, perhaps impossible is a better word, that the ingestion of extracts of the Dioscorea plant will lead to the formation, by metabolic transformation of the relevant plant constituent, to either pregnenolone or DHEA..."



In a word, Dr. Lieberman means "No." Furthermore, wild yam extract pills cannot be converted by the body into progesterone.

Do DHEA supplements have a role in hormone replacement therapy and can they influence longevity?

I asked the world's top researchers for their opinions:

Michael Bennett, M.D., from the Department of Pathology at the University of Texas, Southwestern Medical Center in Dallas, has been researching DHEA's ef-



fects on the immune system:

"DHEA does not have the bad effects that androgenic steroids, such as those used by some body builders, have. It is a precursor to estrogen which can possibly lead to breast enlargement in men if used in high doses. In women, high doses could pose the risk of an over abundance in

andro-gens leading to such side effects as hirsutism (excess body hair). Many strains of mice have lived longer when supplemented with this steroid.

"I'm 60 years of age. If my blood test showed that my level was low, I would consider taking low doses such as 25 mg to bring my levels higher. However, I would prefer being part of an experiment to test the effects of low-dose DHEA."

Etienne-Emile Baulieu, M.D., Ph.D., Director of the Institut National de la Sante et de la Recherche Medicale, Department of Hormone Research, Paris, France:

"This is my favorite theory. We are studying the possible beneficial effects of re-establishing a 'young' level of DHEAS in people over 60 years of age. The comparison to estrogen replacement therapy after menopause is a good one.

"However, we need long-term studies to make sure that there are no negative effects on hormone-responsive tumors such as prostate and breast. We are currently doing studies on DHEA's role in cerebral function, cardiovascular system, bones, muscles, skin, metabolic (lipids, glucose), and hormonal (pituitary, insulin) parameters. We expect important influences by DHEA on most of these functions.

"I would consider taking 25 mg to 50 mg daily if my blood levels were found to be low."

Ward Dean, M.D., Medical Director of the Center for Bio-Gerontology in Pensacola, FL, and co-author of Smart Drugs and Nutrients and Smart Drugs II:

"I've treated about 30 patients with DHEA. This steroid is absolutely appropriate for hormone replacement therapy. I start my patients in their 40s, at a dose of 25 mg taken in the morning. DHEA is highest in the morning and giving it at that time would follow the normal circadian rhythm. The studies in mice showed improvement in a variety of biochemical and physiological factors with DHEA supplementation which encourages me to use this steroid.

"Generally I don't do blood tests since they are expensive and the results are inconsistent. Based on a number of human studies, we know that the levels decline with aging."



Alan Gaby, M.D., is the author of Preventing and Reversing Osteoporosis (Prima 1994), past President of the American Holistic Medical Association, and a leading expert on nutrition:

"DHEA, without a doubt, has a role to

play in hormone replacement therapy. I have treated at least 300 patients and find this steroid to be helpful for anti-aging purposes as far as increasing muscle strength, better density of bone, and improved skin color. It's hard to say whether wrinkles have improved."

The consequences of human supplementation with DHEA for anti-aging purposes is, at this time, not fully known. The early research promises many benefits; then again, there may be some totally unexpected negative long-term effects. No number of studies on rodents will give us any definite clues to what will happen in humans since, among many other differences



in metabolism, rodents have little DHEA circulating in their blood.

Therefore, I recommend you be skeptical of anyone who tries to convince you to take megadoses of this hormone because his pet mouse has been on it, does nonstop jumping jacks all day long, and has outlived (and outbred) all the other mice in the neighborhood.

Editor's note: This information was taken from Dr. Sahelian's book, DHEA: A Practical Guide. The book is 158 pages and sells for \$11.95, which includes shipping and handling. It is available by calling 1-800-477-2995 (U.S.) or 1-888-292-2229 (Canada).