

### Progesterone Pregnenolone & DHEA - Three Youth-Associated Hormones

- **PROGESTERONE INFORMATION**

- Raymond Peat, MA, PhD (Univ. of Oregon)

- Endocrine Physiologist, specialising in hormonal changes in stress and aging

- Sixty years ago, progesterone was found to be the main hormone produced by the ovaries. Since it was necessary for fertility and for maintaining a healthy pregnancy, it was called the "pregnastational hormone," and its name sometimes leads people to think that it isn't needed when you don't want to get pregnant. In fact, it is the most protective hormone the body produces, and the large amounts that are produced during pregnancy result from the developing baby's need for protection from the stressful environment. Normally, the brain contains a very high concentration of progesterone, reflecting its protective function for that most important organ. The thymus gland, the key organ of our immune system, is also profoundly dependent on progesterone.

- In experiments, progesterone was found to be the basic hormone of adaptation and of resistance to stress. The adrenal glands use it to produce their anti-stress hormones, and when there is enough progesterone, they don't have to produce the potentially harmful cortisone. In a progesterone deficiency, we produce too much cortisone, and excessive cortisone causes osteoporosis, aging of the skin, damage to brain cells, and the accumulation of fat, especially on the back and abdomen.

- Experiments have shown that progesterone relieves anxiety, improves memory, protects brain cells, and even prevents epileptic seizures. It promotes respiration, and has been used to correct emphysema. In the circulatory system, it prevents bulging veins by increasing the tone of blood vessels, and improves the efficiency of the heart. It reverses many of the signs of aging in the skin, and promotes healthy bone growth. It can relieve many types of arthritis, and helps a variety of immunological problems.

- If progesterone is taken dissolved in vitamin E, it is absorbed very efficiently, and distributed quickly to all of the tissues. If a woman has ovaries, progesterone helps them to produce both progesterone and estrogen as needed, and also helps to restore normal functioning of the thyroid and other glands. If her ovaries have been removed, progesterone should be taken consistently to replace the lost supply. A progesterone deficiency has often been associated with increased susceptibility to cancer, and progesterone has been used to treat some types of cancer.

- It is important to emphasize that progesterone is not just the hormone of pregnancy. To use it only "to protect the uterus" would be like telling a man he doesn't need testosterone if he doesn't plan to father children, except that progesterone is of far greater and more basic significance than testosterone. While men do naturally produce progesterone, and can sometimes benefit from using it, it is not a male hormone. Some people get that impression, because some physicians recommend combining estrogen with either testosterone or progesterone, to protect against some of estrogen's side effects, but progesterone is the body's natural complement to estrogen. Used alone, progesterone often makes it unnecessary to use estrogen for hot flashes or insomnia, or other symptoms of menopause.

- When dissolved in vitamin E, progesterone begins entering the blood stream almost as soon as it contacts any membrane, such as the lips, tongue, gums, or palate, but when it is swallowed, it continues to be absorbed as part of the digestive process. When taken with food, its absorption occurs at the same rate as the digestion and absorption of the food.

### **PREGNENOLONE**

- Pregnenolone, which is the raw material for producing many of the hormones of stress and adaptation, was known as early as 1934, but for several years it was considered to be an "inert" substance. A reason for this belief is that it was first tested on healthy young animals. Since these animals were already producing large amounts of pregnenolone (in the brain, adrenal glands, and gonads), additional pregnenolone had no effect.

- In the 1940s, pregnenolone was tested in people who were sick or under stress, and it was found to have a wide range of beneficial actions, but the drug industry never had much interest in it. Its very generality made it seem unlike a drug, and its natural occurrence made it impossible to patent. Thus, many synthetic variants, each with a more specialized action and some serious side effects, came to

be patented and promoted for use in treating specific conditions. The drug companies created an atmosphere in which many people felt that each disease should have a drug, and each drug, a disease. The side effects of some of those synthetic hormones were so awful that many people came to fear them. For example, synthetic varieties of "cortisone" can destroy immunity, and can cause osteoporosis, diabetes, and rapid aging, with loss of pigment in the skin and hair, and extreme thinning of the skin.

- Natural pregnenolone is present in young people of both sexes at a very high concentration, and one reason for the large amount produced in youth is that it is one of our basic defenses against the harmful side effects that an imbalance of even our natural hormones can produce. In excess, natural cortisone or estrogen can be dangerous, but when there is an abundance of pregnenolone, their side effects are prevented or minimized.

- In a healthy young person or animal, taking even a large dose of pregnenolone has no hormone-like or drug-like action at all. It is unique in this way. But if the animal or person is under stress, and producing more cortisone than usual, taking pregnenolone causes the cortisone to come down to the normal level. After the age of 40 or 45, it seems that everyone lives in a state of continuous "stress," just as a normal part of aging. This coincides with the body's decreased ability to produce an abundance of pregnenolone.

- When aging rats are given a supplement of pregnenolone, it immediately improves their memory and general performance. Human studies, as early as the 1940s, have also demonstrated improved performance of ordinary tasks. It is now known that pregnenolone is one of the major hormones in the brain. It is produced by certain brain cells, as well as being absorbed into the brain from the blood. It protects brain cells from injury caused by fatigue, and an adequate amount has a calming effect on the emotions, which is part of the reason that it protects us from the stress response that leads to an excessive production of cortisone. People feel a mood of resilience and an ability to confront challenges.

- Many people have noticed that pregnenolone has a "face-lifting" action. This effect seems to be produced by improved circulation to the skin, and by an actual contraction of some muscle-like cells in the skin. A similar effect can improve joint mobility in arthritis, tissue elasticity in the lungs, and even eyesight. Many studies have shown it to be protective of "fibrous tissues" in general, and in this connection it was proven to prevent the tumors that can be caused by estrogen.

- Pregnenolone is largely converted into two other "youth-associated" protective hormones, progesterone and DHEA. At the age of 30, both men and women produce roughly 30 to 50 mg. of pregnenolone daily. When taken orally, even in the powdered form, it is absorbed fairly well. One dose of approximately 300 mg (the size of an aspirin tablet) keeps acting for about a week, as absorption continues along the intestine, and as it is "recycled" in the body. Part of this long lasting effect is because it improves the body's ability to produce its own pregnenolone. It tends to improve function of the thyroid and other glands, and this "normalizing" effect on the other glands helps to account for its wide range of beneficial effects.

- DHEA: ANOTHER YOUTH-ASSOCIATED HORMONE

- Raymond Peat, MA, PhD (Univ. of Oregon)

- Endocrine Physiologist

- DHEA (dehydroepiandrosterone) has a technical-sounding name because it has never been identified with a single dominant function, in spite of its abundance in the body. Many researchers still think of it as a substance produced by the adrenal glands, but experiments show that animals without adrenals are able to produce it in normal amounts. Much of it is formed in the brain (from pregnenolone), but it is probably produced in other organs, including the skin. The brain contains a much higher concentration of DHEA than the blood does.

- In old age, we produce only about 5% as much as we do in youth. This is about the same decrease that occurs with progesterone and pregnenolone. The other hormones (for example, cortisone) do not decrease so much; as a result, our balance shifts continually during aging toward dominance by hormones such as cortisone, which use up more and more body substance, without rebuilding it. Protection against the toxic actions of these specialized hormones is a major function of DHEA and the other youth-associated hormones.

- For example, starvation, aging, and stress cause the skin to become thin and fragile. An excess

of cortisone--whether it is from medical treatment, or from stress, aging, or malnutrition--does the same thing. Material from the skin is dissolved to provide nutrition for the more essential organs. Other organs, such as the muscles and bones, dissolve more slowly, but just as destructively, under the continued influence of cortisone. DHEA blocks these destructive effects of cortisone, and actively restores the normal growth and repair processes to those organs, strengthening the skin and bones and other organs. Stimulation of bone-growth by DHEA has been demonstrated in vitro (in laboratory tests), and it has been used to relieve many symptoms caused by osteoporosis and arthritis, even when applied topically in an oily solution.

- Estrogen is known to produce a great variety of immunological defects, and DHEA, apparently by its balancing and restorative actions, is able to correct some of those immunological defects, including some "autoimmune" diseases.

- It is established that DHEA protects against cancer, but it isn't yet understood how it does this. It appears to protect against the toxic cancer-producing effects of excess estrogen, but its anti-cancer properties probably involve many other functions.

- Diabetes can be produced experimentally by certain poisons which kill the insulin-producing cells in the pancreas. Rabbits were experimentally made diabetic, and when treated with DHEA their diabetes was cured. It was found that the insulin-producing cells had regenerated. Many people with diabetes have used brewer's yeast and DHEA to improve their sugar metabolism. In diabetes, very little sugar enters the cells, so fatigue is a problem. DHEA stimulates cells to absorb sugar and to burn it, so it increases our general energy level and helps to prevent obesity.

- Young people produce about 12 to 15 milligrams of DHEA per day, and that amount decreases by about 2 mg. per day for every decade after the age of 30. This is one of the reasons that young people eat more without getting fat, and tolerate cold weather better: DHEA, like the thyroid hormone, increases our heat production and ability to burn calories. At the age of 50, about 4 mg. of DHEA per day will usually restore the level of DHEA in the blood to a youthful level. It is important to avoid taking more than needed, since some people (especially if they are deficient in progesterone, pregnenolone, or thyroid) can turn the excess into estrogen or testosterone, and large amounts of those sex hormones can disturb the function of the thymus gland and the liver.

- People who have taken an excess of DHEA have been found to have abnormally high oestrogen levels, and this can cause the liver to enlarge, and the thymus to shrink.

- One study has found that the only hormone abnormality in a group of Alzheimers patients' brains was an excess of DHEA. In cell culture, DHEA can cause changes in glial cells resembling those seen in the aging brain. These observations suggest that DHEA should be used with caution. Supplements of pregnenolone and thyroid seem to be the safest way to optimize DHEA production.

### **Hormone replacement therapy HRT**

This can be needed because of a lack of oxygen. CHECK

Is Hormone replacement needed because of a lack of oxygen?

This is not a doctor's prescription.

Learning a bit about this topic, makes it easier to discuss it with your doctor.

Hormone replacement therapy (HRT) is any form of hormone therapy wherein the patient, in the course of medical treatment, receives hormones, either to supplement a lack of naturally occurring hormones, or to substitute other hormones for naturally occurring hormones. Common forms of hormone replacement therapy include:

- Hormone replacement therapy for menopause is based on the idea that the treatment may prevent discomfort caused by diminished circulating estrogen and progesterone hormones, or in the case of the surgically or prematurely menopausal, that it may prolong life and may reduce incidence of dementia.[1]

It involves the use of one or more of a group of medications designed to artificially boost hormone levels. The main types of hormones involved are estrogens, progesterone or progestins, and sometimes testosterone. It is often referred to as "treatment" rather than therapy.

- Hormone replacement therapy for transgender people introduces hormones associated with the gender that the patient identifies with (notably testosterone for trans men and estrogen for trans women). Some intersex people may also receive HRT. Cross-sex hormone treatment for transgender individuals is divided into two main types: hormone replacement therapy (female-to-male) and hormone replacement therapy (male-to-female).

Hormone therapy is no longer recommended for disease prevention, such as heart disease or memory loss. However, further review of clinical trials and new evidence show that hormone therapy may be a good choice for certain women, depending on their risk factors.

In the largest clinical trial to date, a combination estrogen-progestin pill (Prempro) **increased** the risk of certain serious conditions, including:

- Heart disease
- Stroke
- Blood clots
- Breast cancer

Despite the health risks, systemic estrogen is still the most effective treatment for menopausal symptoms. The benefits of hormone therapy may outweigh the risks if you're healthy and:

- Experience moderate to severe hot flashes or other menopausal symptoms
- Have lost bone mass and either can't tolerate or aren't benefitting from other treatments
- Stopped having periods before age 40 (premature menopause) or lost normal function of your ovaries before age 40 (premature ovarian insufficiency)

Women who experience an early menopause, particularly those who had their ovaries removed and don't take estrogen therapy until at least age 45, have a higher risk of:

- Osteoporosis
- Coronary heart disease
- Earlier death
- Parkinsonism (Parkinson's-like symptoms)
- Anxiety or depression

Early menopause typically lowers the risk of most types of breast cancer. For women who reach menopause prematurely, the protective benefits of hormone therapy usually outweigh the risks.

Your age, type of menopause and time since menopause play a significant role in the risks associated with hormone therapy. Talk with your doctor about your personal risks.