Pregnenolone and DHEA are cholesterol-derived, steroid building blocks for stress and sex hormones, as well as having unique and individual hormone activity in and of themselves. The pregnenolone building block is essential for conversion into progesterone, aldosterone, DHEA, testosterone, and the estrogens (estrogens shown in later diagram). It is important to note that Pregnenolone is also converted to cortisol. DHEA is further down the sex-hormone pathway and provides more direct support for testosterone and estrogen balance.

The Pregnenolone Steal or cortisol shunt is an important concept, given that it comes into play during stress. Abnormal stress is an almost universal condition in this day and age. Stress causes changes in adrenal function which include elevated cortisol in early stages, and eventual depleted cortisol in later stages. Even though cortisol can have negative consequences when there is excess, it is also critical to have enough, with low levels being even more detrimental to overall health. There are two pathways of adrenal hormone production: the stress hormone pathway which includes cortisol, and the sex-hormone pathway which includes testosterone and estrogen. The adrenals operate such that in times of stress (acute or chronic), the hormone precursors such as pregnenolone are shunted to the cortisol pathway in order to deal with the increased cortisol demand. This shunting of pregnenolone may have many consequences if either the pregnenolone supply is low or the demand is too high to meet, thus depleting pregnenolone. When pregnenolone is depleted, the sex steroid production goes down and other hormones such as DHEA, estrogen, progesterone and testosterone may decline.

It is often recommended by functional medicine practitioners to take DHEA and Pregnenolone in times of stress in order to help support proper hormone levels in both the stress and sex hormone pathways. They are often taken together for more synergistic support, but can also be taken separately if individual effects are more desired.
Pregnenolone is “stolen” for production of cortisol when demand for cortisol is elevated as in times of chronic or acute stress. The X’s represent downregulated pathways thus creating a biochemical preference for pregnenolone to cortisol production.

When pregnenolone is used as a steroid building block, hormone support is boosted because pregnenolone can then be used for the production of hormones in the sex-steroid pathway such as DHEA (dehydroepiandrosterone), progesterone, testosterone and the estrogens. Note that the estrogen pathway is through testosterone and androstenedione, and that DHEA is further down the pathway from pregnenolone to the male/female hormones. Both pregnenolone and DHEA levels decline sharply with age, with a peak production at around age 30 and a steady decline of about 1-2% per year thereafter.

Both DHEA and pregnenolone are used in a wide variety of biochemical actions and have themselves unique and varied hormone and neurotransmitter activity as is seen below.
The Building Blocks and End Results:

To assure hormonal homeostasis, it is imperative that the body is supplied with enough of the building blocks Pregnenolone and DHEA.

SUPPORT CATEGORIES:

- Hormone Balance
- Healthy Bones
- Energy
- Brain/Synaptic
- General well-being
- Glucose Homeostasis
- Detoxification
- Kidney
- Muscles
- Neurotransmitter Production and Function

- Cell Health
- Stress Management
- Mood
- Healthy Aging
- Vasomotor
- Circulation
- Immune System
- Liver
- Sugar Handling
The Research:

Cell Health: Microtubules are tubular polymers that form the cytoskeleton of the cell, and they are very important in a number of cellular processes, like chromosome separation (mitosis and meiosis), the movement of secretory vesicles and organelles, and they provide platforms for intracellular transport. Pregnenolone supplementation was shown by Hsu et al. (2006) to preserve microtubule abundance and promote cell movement (Nature. 2006 Jan 26;439(7075):480-3... Hsu HJ. et al.)

Glucose and Metabolic Syndrome: Pregnenolone has been described in support categories for glucose homeostasis (Int J Clin Exp Med. 2014 Nov 15;7(11):3983-91. New steroid derivative... Lauro FV. et al.) DHEA has also been shown to improve glucose metabolism, reverse metabolic syndrome and support healthy weight through multiple biochemical processes. (Biochem Biophys Res Commun. 2015 Jul 17;463(1-2):42-7. Dehydroepiandrosterone activates AMP kinase and regulates GLUT4 and PGC-1α expression in C2C12 myotubes.)


Results from one study “are consistent with a novel biologic role for pregnenolone” that acts to support the intracellular response in synaptic receptors, which in turn supports brain function (Mol Pharmacol. 2014 Oct;86(4):390-8. A role for picomolar concentrations of pregnenolone sulfate in synaptic activity-dependent Ca2+ signaling and CREB activation. Smith CC. et al.)

In fact, pregnenolone is present in the human brain at physiologically relevant concentrations “and meets most of the criteria for an endogenous neurotransmitter” (Psychopharmacology (Berl). 2014 Sep;231(17):3537-56. Pregnenolone sulfate as a modulator of synaptic plasticity. Smith CC. et al.)

Aging: The adrenal production of DHEA declines linearly with aging. In a clinical trial conducted in postmenopausal women, supplementation with DHEA was associated with a progressive improvement of the Kupperman score (numerical index that scores 11 menopausal symptoms) in all groups. DHEA was also found to support the vasomotor system (Gynecol Endocrinol. 2000 Oct;14(5):342-63. Six-month oral DHEA supplementation in early and late postmenopause. Stomati M et al.). One article, “based on scientific research and clinical observations”, suggests that some perceived consequences of aging are not necessarily “inevitable”, rather that the body stays quite healthy into aging years when normal function is well-supported. The researcher’s suggestions included utilizing DHEA as part of that support protocol (Altern Ther Health Med. 1998 Nov;4(6):38-43. Integrated medicine...Khalsa DS. et al.)
Wide Variety of Health Benefits

Other researched benefits of Pregnenolone and DHEA supplementation include:

- Healthy Bones
- Stress Management
- Energy
- Mood
- General Well-being
- Vasomotor Activity
- Improved Circulation
- Detoxification
- Immune Enhancing
- Kidney Support
- Liver Support
- Muscle Support.

Contraindications: DHEA is banned by the NCAA and WADA for its possible performance enhancing effect. Due to its hormone activity and ability to increase other hormones, pregnenolone and DHEA should only be used under the guidance of a knowledgeable health care practitioner. It is recommended that hormone levels be checked at appropriate intervals to monitor for effectiveness and safety. Use both with caution in pregnancy, lactation or hormone sensitive cancers.
Additional References:


Expert Opin Investig Drugs. 2015 Apr;24(4):507-17. Investigational drugs for anxiety... Garay RP et al.


PLoS One. 2013 Apr 23;8(4):e61802. Xenobiotic-induced hepatocyte proliferation associated with constitutive active/androstane receptor (CAR) or peroxisome proliferator-activated receptor α (PPARα) is enhanced by pregnane X receptor (PXR) activation in mice. Shizu R. et al.

Pregnenolone-50
Functional Health Series

Pregnenolone is the primary steroid building block essential for conversion to other hormones, including progesterone, DHEA, testosterone, and the estrogens, and can contribute to hormone homeostasis.

Each Tablet Contains: Proprietary blend 200 mg* of: Pregnenolone, Lecithin (sunflower), Apple Pectin.

90-tablets per bottle    2836***-Product Number

Do not use if pregnant or lactating or are taking any prescription medication. Do not use if you have or suspect a medical condition without first consulting a health care professional. Take only as directed. Not intended for persons under 18 years of age.

DHEA-25
Functional Health Series

DHEA is a steroid building block that originally comes from pregnenolone. It contributes to the conversion of other hormones including progesterone, DHEA, testosterone, and the estrogens, and can contribute to the hormone homeostasis.

Each Tablet Contains: Proprietary blend 75mg* of: DHEA, Lecithin (sunflower).

90-tablets per bottle    2838***-Product Number

Do not use if pregnant or lactating or are taking any prescription medication. Do not use if you have or suspect a medical condition without first consulting a health care professional. Take only as directed. Not intended for persons under 18 years of age.
The above statements have not been evaluated by the FDA. The nutritional information, suggestions, and research provided are not intended to diagnose, treat, cure, or prevent disease and should not be used as a substitute for sound medical advice. Please see your health care professional in all matters pertaining to your physical health.