

# Natural Hormone Balancing

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Researchers have long known that one of the mechanisms involved in the aging process is the decline in naturally occurring hormones in the body. The first decline occurs after puberty and skeletal maturation is completed and then after about age 30 gradually declines until female menopause or male andropause when a second major decline begin and continue to decline as we age. Chronic illness is also frequently associated with the body's decline in hormone production. Recent research suggests that proper replacement of natural hormones, electrolyte (sodium, potassium, chloride, calcium, phosphorous, magnesium) and essential amino acid balancing and proper effective liver detoxification, holds great promise in slowing the aging process and as a treatment for age-related diseases. Hormones play many important roles in the health and maintenance of the body, including influencing the metabolism of carbohydrates, proteins, fats, minerals, and water. They also regulate DNA and RNA production and the subsequent synthesis of cell proteins; are involved in the production of enzymes, and influence the energy production of mitochondria (microscopic structures present in every cell responsible for converting proteins, carbohydrates, and fats into energy or ATP). In addition, hormones regulate the body's response to stress, immune function, kidney function, blood sugar balance, menstruation, and sexual function.

As we age, however, hormone production in the body declines. Since hormones affect virtually every bodily process, low levels of certain hormones and impaired communication within the endocrine system creates havoc with all other body systems, including the immune, cardiovascular, detoxification, gastrointestinal, and nervous systems. A loss of hormonal balance, which occurs with aging, plays a predominant role in both mental and emotional symptoms and in all illness.

Nutritional deficiencies, lack of exercise, and chronic exposure to toxins, can all result in changes in hormone production that can ultimately lead to diminished biological function and therefore metabolic stagnation and metabolic waste retention (systemic toxin buildup). Stress can also seriously impact hormone production. Chronic stress to individuals in their prime results in the reduction of hormone levels to those of a 70-year-old. Stress can be from *chemical*, *physical or emotional* sources, and the body responds to each in a similar neurological, hormonal and bio-chemical response.

### Estrogen

Estrogen refers to a group of female "sex" hormones, produced primarily in the ovaries (and to a lesser extent in the body's fat cells). It is important for adolescent sexual development and for regulating the menstrual cycle—estrogen prepares the uterus for receiving the fertilized egg by stimulating the uterine lining to grow. For the first 10-14 days in a woman's cycle, the uterus is mainly under the influence of estrogen, which begins to climb right before ovulation, which is usually between days seven to fourteen, peaking at ovulation in preparation for a fertilized egg. Estrogen also improves skin tone and reduces vaginal dryness. There are three main types of estrogen that a woman makes during her menstrual years: Estradiol (E1), which accounts for 80% of her estrogen, estriol (E2), and estrone (E3). E2 and E3 each account for approximately 10% of the remaining estrogen.

Signs of estrogen excess include salt and fluid retention. Estrogen synergizes with insulin to promote hypoglycemia and fat synthesis. Estrogen promotes histamine release, blood clotting, aging of collagen, development of fibroids, tumors, and endometriosis (due to shifts in prostaglandin balance). Signs of estrogen deficiency include: hot flashes, night sweats, dry eyes, vaginal dryness, sagging breasts and loss of breast fullness, mental fogginess, depression, changes in mood, decreased sense of sensuality and sexuality. Excess estrogens can suppress thyroid function.

#### Factors that can cause women's hormones to become imbalanced:

Estrogen dominance can occur as a result of an excess of estrogen and a deficiency of progesterone. Too much estrogen may be caused by:

- Foods that have hormones added to them, such as commercially produced meat, eggs, and dairy products, and/or a diet high in estrogenic foods
- Herbs that have an estrogenic effect in the body, such as licorice, black cohosh, and damiana
- Birth control pills and other hormone replacement therapy that have high levels of estrogen
- Xenoestrogens, environmental toxins that mimic the action of estrogen
- Exposure to radiation, which increases estrogen levels in the blood
- Chronic constipation, which interferes with the body's ability to eliminate estrogen properly; estrogen then builds up in the colon and can be reabsorbed by the body
- Liver toxicity preventing metabolism of estrogens

## **Progesterone**

Progesterone is another "sex" hormone, produced in the ovaries, that prepares the uterus for a fertilized egg; its sudden withdrawal causes the uterus to shed its lining if pregnancy does not occur. When estrogen is high (days 7-16 of the menstrual cycle), progesterone is at its lowest level. Its levels climb to a peak between days 17 and 27, and then dramatically drop off again just before the start of menstruation. In a sense, menstruation is a form of progesterone withdrawal. Ideally, women should have five to ten times more progesterone than estrogen in the blood and 40 to 150 times in saliva. The lower the ratio of progesterone to estrogen, the higher the risk of health problems, especially during menses when there is a surge of estrogen. Lower ratios of progesterone to estrogen results in estrogen dominance. Progesterone has the unique ability to change its structural form to become other hormones, allowing it to be converted and utilized by the body to the point of depletion.

#### Progesterone deficiency may be caused by one of the following:

- An under active thyroid gland (hypothyroidism)
- Ovarian dysfunction such as frequent menstruation without ovulation
- An under active pituitary gland

- chronic stress
- the aging process

#### **Testosterone**

Testosterone is responsible for much more than defining sexual characteristics in men or influencing sex drive. Known as an anabolic steroid, testosterone is essential for life, since it helps to regulate basic metabolism, stimulate red blood cell production, and hinder the excessive production of free radicals. Testosterone also facilitates protein synthesis and the building of body tissues. Testosterone exerts its effects by quickly passing through the membrane of a cell and binding to a specific activation site on the gene. In this way, the protein-manufacturing capability of the DNA shifts into overdrive, enabling the body to repair and rebuild itself. Testosterone is produced by small groups of specialized cells within the testicles and is also secreted, to a lesser extent, by the ovaries (small amounts are found in females) and by the adrenal glands. The production of testosterone is triggered by luteinizing hormone (LH), produced in the pituitary gland. As is the case with other hormones, blood levels of testosterone are monitored by the hypothalamus, which issues a command to the pituitary, causing it to stop secreting LH after levels of testosterone reach a certain level. In the absence of LH, testosterone production ceases. With age, blood levels of testosterone slowly decrease. Research conducted by the National Institute of Health has shown a 2% reduction per year from age 30 to age 70.

# High levels of stress maintained over an extended period of time can cause testosterone to be converted to the stress hormones, and in some cases be abnormally converted to estrogen.

Parenteral (injectable) testosterone replacement can heighten sex drive, increase bone density, and improve mood. The goal of testosterone therapy is to restore levels to those of a healthy man, 25 to 30 years old.

**For Men:** The Natural Approach is to stop the misappropriation of testosterone by your body, while also supplying the necessary building materials (precursors) for the production of testosterone by your endocrine system. This can be achieved by using transdermal crèmes and specialized nutraceuticals.

#### Adrenal Hormones

The primary adrenal hormones are: Aldosterone (essential to maintaining proper fluid levels in kidney cells by regulating amounts of cellular sodium and potassium), androgen (testosterone), estrogen, cortisol (promotes protein breakdown, regulates insulin and glycogen synthesis, and helps produce prostaglandins),

DHEA, pregnenolone, epinephrine (adrenaline) and norepinephrine (noradrenaline), and are also known as catecholamines (affect heart-rate, blood vessels, gastrointestinal tract, kidneys, lungs, bladder, skin, fat cells, liver, pancreas, and eyes). Additionally, the adrenal glands play a central role in maintaining the body's energy levels.

## **Testing Salivary Hormones**

A simple, noninvasive saliva test known as the 24-Hour Male or the 24-Hour Female Panel, can determine whether an imbalance in the sex hormones or adrenal glands exists. These panels evaluate how well the adrenal glands function by tracking their 24-hour circadian rhythm; the levels of three sex hormones: progesterone, estradiol and testosterone; the levels of three electrolytes: sodium, potassium and chloride. Six saliva samples, taken at 8am, noon, 4pm, 8pm, midnight, and 4am are used to reconstruct the adrenal rhythm in the laboratory and determine whether the main stress hormones (cortisol and DHEA) are being secreted in proper proportion to each other and at the right times, and whether there is a state of electrolyte imbalance. Based on the results, our lab can custom formulate the appropriate natural precursors (DHEA, pregnenolone, androstenedione), appropriate the proper levels of electrolytes, appropriate natural progesterone, and bio-identical phytoestrogen to restore the hormones to their earlier prime levels. It is very important to understand that adrenal balance, electrolyte balance, amino acid balance, and blood sugar balance must occur if one is to balance the endocrine system!

#### Cortisol

Cortisol is a steroid hormone made in the adrenal glands. Its important functions in the body include roles in the regulation of blood pressure and cardiovascular function as well as regulation of the body's use of proteins, carbohydrates, and fats. Cortisol secretion increases in response to any stress in the body, whether physical (such as illness, trauma, surgery, or temperature extremes) or psychological. When cortisol is secreted, it causes a breakdown of muscle protein, leading to release of amino acids (the "building blocks" of protein) into the bloodstream. These amino acids are then used by the liver to synthesize glucose for energy, in a process called *gluconeogenesis*. This process raises the blood sugar level so the brain will have more glucose for energy. At the same time, the other tissues of the body decrease their use of glucose as fuel. Cortisol also leads to the release of so-called fatty acids, an energy source from fat cells, for use by the muscles. Taken together, these energy-directing processes prepare the individual to deal with stressors and insure that the brain receives adequate energy sources.

The body possesses an elaborate feedback system for controlling cortisol secretion and regulating the amount of cortisol in the bloodstream. The pituitary gland, a small gland at the base of the brain, makes and secretes a hormone known as adrenocorticotropic hormone, or ACTH. Secretion of ACTH signals the adrenal glands to increase cortisol production and secretion. The pituitary, in turn, receives signals from the hypothalamus of the brain in the form of the hormone CRH, or corticotropin-releasing hormone, which signals the pituitary to release ACTH. Almost immediately after a stressful event, the levels of the regulatory hormones ACTH and CRH increase, causing an immediate rise in cortisol levels. When cortisol is present in adequate (or excess) amounts, a negative feedback system operates on the pituitary gland and hypothalamus. This alerts these areas to reduce the output of ACTH and CRH, respectively, in order to reduce cortisol secretion when adequate levels are present.

#### Measurement of Cortisol levels

The body's level of cortisol displays what is known as a *diurnal variation*- that is, normal concentrations of cortisol vary throughout a 24-hour period. Cortisol levels in normal individuals are highest in the early morning at around 6-8 am and are lowest around midnight. In addition to early morning, cortisol levels may be somewhat higher after meals. While the most common test is measurement of the cortisol level in the blood, our lab panels measure cortisol through a saliva sample. By utilizing saliva as the testing media, we can evaluate the cortisols through out the 24+ hour circadian cycle. The samples are collected in the convenience and privacy of your home, without the added stress (which affects cortisol levels) of a venapuncture.

All the Salivary Panels examine 6 samples for cortisol in a 24-hour period. The samples are examined at 8AM, Noon, 4PM, 8PM, Midnight and 4AM.

## **DHEA and DHEA-S**

**DHEA** (dehydroepiandrosterone) is the most abundant hormone found in the bloodstream and is sometimes referred to as the "mother of all hormones," because it is used as a building block for many other essential hormones. When the adrenal glands are chronically stressed, your production of DHEA can be greatly reduced. DHEA is an important regulator of the thyroid and pituitary glands and DHEA supplementation has

also been found to enhance thymus gland function. Many of the positive health benefits derived from DHEA can be traced to its ability to stimulate the production of human growth hormone.

Though the adrenal glands produce most of the body's supply of DHEA, the gonads (ovaries, testes) can also manufacture DHEA when the adrenals are overworked. DHEA exerts powerful effects throughout the body. Most cells possess DHEA receptors on their membranes. DHEA acts as an antioxidant, hormone regulator, and is the building block from which estrogen and testosterone are produced. DHEA is vital to health. DHEA also regulates many other hormones, **however it can be easily converted to estradiol and/or testosterone and therefore needs to be monitored (i.e. testing of testosterone and estradiol).** DHEA decreases cholesterol, boosts immunity by stimulating natural killer cell activity, increases the sensitivity of cells to insulin, and assists in returning to a balanced state after the stress reaction. DHEA is a good stress barometer, because when stress levels go up, DHEA levels go down. Generally, DHEA levels tend to decrease with age. DHEA peaks at age 25 then declines at a rate of about 2% per year. It is not until the forties that we begin to feel the effects of lower DHEA levels. By age 80, the level of our DHEA is about 15% of what it was when we were in our twenties. By age 90, we are down to 5%.

**DHEA S** (dehydroepiandrosterone sulfate) is the major  $C_{19}$  metabolite synthesized by the adrenal cortex. DHEA S, the sulfate ester of DHEA, is derived from sulfated precursors and by enzymatic conversion of DHEA S in adrenal and extra adrenal tissues. Due to the presence of a 17-oxo (rather than hydroxyl) group, DHEA S posses relatively weak androgenic activity, for which unsulfated DHEA has been estimated at  $\sim 10\%$  that of testosterone, which is a result of its weak affinity for sex hormone binding glogulin.

#### Measurement of DHEA S levels

The most accurate way to measure DHEA is to measure it in the stable form that the body keeps it in; DHEA-S (dehydroepiandrosterone sulfate). Measurement of serum DHEA S is a useful marker of adrenal androgen synthesis. Abnormally low levels have been reported in hypoadrenalism, while high or inverted diurnal levels have been reported in several conditions. Since very little DHEA S is produced by the gonads, measurement of DHEA S may aid in the localization of the androgenic source in virilizing conditions.

While the most common test is measurement of the DHEA level in the blood, Sabre Sciences panels measure **DHEA S** through a saliva sample. By utilizing saliva as the testing media, Sabre Sciences can evaluate the DHEA S levels throughout the 24hour circadian cycle. The samples are collected in the convenience and privacy of your home, without the added stress of a venapuncture.

All the Salivary Panels examine 3 samples for DHEA S in a 24-hour period. The samples are examined at 8AM, 8PM and Midnight.

\* DHEA S is the last and most difficult hormonal marker that is balanced.

We also offer a more bioavailable form of DHEA, a metabolite of DHEA called 7Ketogenic DHEA™. We are very excited about this product since it does not convert to estrogen or testosterone and has profound affect on cognitive ability, thyroid utilization, and general energy levels. This product is more expensive than the usual DHEA, but you get what you pay for!

#### Pregnenolone

While DHEA is the parent hormone to testosterone and estrogen, it is derived from the precursor pregnenolone. Pregnenolone is synthesized by both the adrenal glands and brain cells. Enzymes convert pregnenolone into either progesterone or DHEA, depending on the tissue and the demands of the body. Pregnenolone also acts as a "brain power" hormone in that it enhances memory, improves concentration, reduces mental fatigue, and generally keeps the brain functioning at peak capacity.

The need for supplemental pregnenolone increases as we age. In fact, the older you are, the more likely you are to feel an effect from taking pregnenolone. In a healthy person, the conversion of cholesterol to pregnenolone occurs inside the mitochondria (cellular energy factories). Unlike other hormones, pregnenolone stimulates its own synthesis, so if you take it as a supplement, the body's ability to synthesize it is not suppressed.

## Conditions Benefited by Natural Hormone Replacement Therapy

Research has shown that the use of natural hormones can provide benefit for numerous disease conditions. What follows is a sampling of many health benefits of Natural Hormonal Balancing using the salivary hormone balancing system.

Estrogen and progesterone: Estrogen dominance is a primary cause of almost all female health problems, including fibrocystic breast disease, PMS, mood swings, excessive bleeding, endometriosis, fibroids, infertility, and ovarian cysts. Peri-menopause is the time when hormone levels begin to shift in preparation for menopause. It is not so much the decrease in hormones that produces the uncomfortable symptoms associated with peri-menopause, but rather the changing ratio between estrogen and progesterone. Chronic or episodic depression, severe mood swings, and anxiety are frequent manifestations of these midlife fluctuations.

Stress hormones: Many hormonal imbalances are the direct result of adrenal insufficiency. When the adrenal glands are exhausted due to overwork, adequate levels of the stress hormones (DHEA and cortisol) cannot be produced, this in turn plays a major role in the usage (misappropriation) of all the other steroid hormones. The adrenal glands produce two primary hormones, DHEA and cortisol. Both are considered major shock absorber hormones for the body. They buffer us to stress and the negative impact it can have on both mental and physical function. Long-term stress can have a serious impact on the adrenal glands and cause them to shrink and reduce production. This causes cellular damage, which sets off a chain reaction affecting all parts of the body, as well as increasing the ageing process.

## The Cutting Edge of Natural Hormonal Therapy

Recent research has resulted in a new approach to hormonal balancing that is causing a change in the way doctors are approaching hormonal replacement therapy. Dr. Michael Borkin, a pioneer in naturopathic endocrine research, states, "The key to natural hormonal replacement or enhancement, is determining the proper priority of treatment. To accomplish this, the patient has to be approached as an individual. Once the dynamics of these hormones are analyzed (The Male or Female Circadian Panel), a specific treatment plan can be developed to re-establish the healthy balance of hormones. Proper determination is made by using saliva samples taken every 4 hours throughout a 24-hour period. The adrenal glands hold the key to the hierarchy of hormones. It is necessary to establish the proper foundation first which means you must determine the cause of the hormonal dysfunction and treat the cause first." Our research has shown that to cause a positive hormonal change you must normalize adrenal activity first. It's the mainspring in the hormonal mechanism. When the adrenals dysfunction, all other associated systems will as well. The symptoms associated with adrenal dysfunction are diverse and can involve the digestive, circulatory, respiratory, as well as the brain and nervous systems. In addition, the adrenals can impact the growth and repair of bones, muscles, hair and nails.

### **Symptoms of Adrenal Dysfunction**

Hypoglycemic Symptoms Constipation Poor Toleration For Exercise Irritability / Depression or Rapid Mood Swings

Dark Circles Under The Eyes Dizziness Upon Standing Lack Of Mental Alertness Poor Immune Modulation

Catch colds easily with weather changes Sensitive to exhaust fumes, smoke, smog

Edema / water retention Eyes sensitive to bright light

Feel weak and shaky Chronic fatique Rapid heart beat High or low blood pressure Nails weak, ridged / brittle hair Non-specific joint pain

Arthritic tendencies Perspiration increase Poor Circulation Renal symptoms (edema, electrolyte imbalance)

Exhaustion - Muscular and Nervous Allergies - Food or Airborne

It is always necessary to treat the digestive system and liver at the same time as treating the adrenals. These additional stressors can causes serious health problems, and have to be corrected in order to reduce the amount of physical stress on the system. We use a combination of natural hormones, electrolytes, amino acids and nutritional co-factors to balance the endocrine system, normalize the H/P/A Axis and enhance metabolic activity. The hormones are delivered by custom compounded transdermal crèmes. This allows for several hormones to be combined with the nutritional co-factors that allow first pass delivery that passes the liver. In addition, a regimen of human strain Probiotics (PharmX™), digestive enzymes, liver detoxification, and intestinal cleansing are vital for optimal results.

B-complex vitamins, especially Vitamin B-5 (pantothenic acid) and minerals are also very important. It normally takes 120 - 180 days to restore adrenal balance. Once this is accomplished, focus can then shift to restoring healthy ratios of the steroid sex hormones - estradiol, progesterone and testosterone. It is necessary to affect the hormones in this manner. When the body is in the stress mode (hyper-vigilance), for an extended period of time, steroid sex hormones are converted to the adrenal hormones, DHEA and cortisol. **This misappropriation due to stress is the primary cause of abnormal sex hormone levels and ratios**. If the adrenal dysfunction is not corrected <u>first</u>, any sex hormone, including progesterone or estrogen, that is supplemented will be converted to a stress hormone.

NOTE: The proper order of treatment is absolutely necessary. You can do all of the right things, but if you do them out of order you will not get the desired results.

## Natural Bio-Identical Hormone Balancing Program

Accumulated stress and hormonal dysfunction cause many physical and emotional problems. Measuring your hormones for baseline levels and bringing these levels into balance could be the answer to physical and emotional well being.

It is very important to understand that there must be adrenal balance, electrolyte balance, amino acid balance, and blood sugar balance to achieve sex hormone balance.

## **Baseline Testing**

A simple, non-invasive saliva test known as the Circadian Male or the Circadian Female Panel can determine whether an imbalance in adrenal glands and/or the sex hormones exists. All test panels include testing for Cortisol, DHEA, Testosterone, Estrogen, Progesterone, and Electrolytes; Na, K, Cl. These panels evaluate:

- How well the adrenal glands function by tracking the full 24 hr circadian rhythm.
- The bio-availability of the hormones since the free (unbound) fractions of the hormones are found in saliva.
- Hormones tested include Cortisol, DHEA-S, Progesterone, Estradiol and Testosterone.
- Electrolytes tested include: Sodium, Potassium, and Chloride. We can also test for calcium, magnesium and phosphorous.

Six saliva samples, taken at 8am, noon, 4pm, 8pm, midnight, and 4am, are used to reconstruct the adrenal rhythm in the laboratory and determine whether the main stress hormones (cortisol and DHEA-S) are being secreted in proper proportion to each other and at the right times; and whether there is a state of electrolyte imbalance.

#### **Protocols**

We use a combination of natural hormones, electrolytes, amino acids and nutritional co-factors to balance the sex hormones, normalize the Hypothalamus-Pituitary-Adrenal Axis and enhance metabolic activity. We can custom formulate transdermal crèmes and determine application times and dosages based on the 24hr circadian panel. These crèmes combine several bio-identical hormones with the nutritional co-factors allowing a first pass delivery (by passing the liver).

We will also recommend various other nutritional products based on you test results and other health concerns, including professional liver and lymphatic detoxification protocols to achieve hormonal balance and better health, naturally. Say no to drugs and synthetic hormones.

It normally takes a minimum of 120-180 days to restore adrenal balance. Once this is accomplished, focus can then shift to restoring healthy ratios of the steroid sex hormones. It is necessary to affect the hormones in this manner. When the body is on the stress mode (hyper-vigilance), for an extended period of time, steroid sex hormones are converted to the adrenal hormones, DHEA and cortisol. This misappropriation due to stress is the primary cause of abnormal sex hormone levels and ratios. If the adrenal dysfunction is not corrected first, any sex hormone, including progesterone, estrogen, or testosterone precursors that are supplemented will be converted to stress hormones.

#### **Expected Results**

By using our custom creme system and of hormonal balance you can, within a few months, achieve optimum hormonal function. The system has been developed taking into account the associated problems that usually help perpetuate the hormonal imbalance. This approach systematically re-establishes optimal function to all the contributing systems as well. This has a powerful impact on the entire body and allows for the stress handling system.

Once hormonal balance is achieved, maintenance crèmes and metabolic balancing protocols can be used to maintain a younger, healthier body.

## **At-Home Adrenal Salivary Test Options**

#### **Female Comprehensive Panel**

Price \$369.

**28 day panel Days** (Days 2,10,12,14,16,18,24) 27 Total Test Results

Both PMS sufferers and postmenopausal women usually experience significant health changes. Many of the conditions associated with PMS and menopause can be corrected with natural replacement and/or nutritional therapies. The key to successful supplementation is assessing the individual by performing baseline and follow-up evaluation of their hormonal status. Only by pre and post replacement evaluation can one accurately bring the body into "hormonal balance".

#### **Female Circadian Panel 24-Hour** *Price \$275*

The Female Circadian Panel is designed for the *menopausal* female. It may be utilized by physicians as a screening resource for cycling women when the physician needs to have immediate information for current hormonal status over a 24 hour period. Cycling women need to include the calendar menses day along with time of day the specimen is taken for proper laboratory reference range matching. 15 Total Test Results

#### Male Hormone Panel 24-Hour Price \$275

The key to natural hormonal balance is determining the proper priority of treatment. To accomplish this, the patient has to be approached as an individual. Once the dynamics of these hormones are analyzed (The Male Circadian Panel Test), a specific treatment plan can be developed to re-establish the healthy balance of hormones. Our research has shown that to cause a positive hormonal change you must normalize adrenal activity first. It's the mainspring in the hormonal mechanism. When the adrenals dysfunction, all other associated systems will as well.

## **Custom Formulated Bio-Identical Hormone Cremes** \$78 per month

A specially prepared custom formula made from safe, natural hormones and hormone precursors, herbals, vitamins, minerals and amino acids based on your specific laboratory test results and symptoms.

# To order your hormone test or products, call 951 / 679-4121

Testing is done in the convenience of your home and the salvia samples are then frozen and you ship directly to the lab. We get the lab results in approximately 30 days. At your nutritional consultation appointment, we will review your lab results and make the necessary nutritional recommendations. These recommendations must be followed for 6-8 months the get the best results in balancing your hormones. Please be prepared to follow the program and all the nutritional recommendation.