

The Important Role of Hormones -Endocrinology-

PROGESTERONE

Progesterone Deficiency:

- Weight gain /Fluid retention
- Low body temperature
- Hypothyroidism
- Headaches – especially before periods
- Pain and inflammation
- Allergies/sinusitis
- Insomnia or sleep disturbances
- Hair loss
- Bone loss
- Decreased collagen and elastin
- PMS / Cramps
- Breast pain/benign cysts
- Heavy periods / Spotting
- Irregular cycles (short cycles)
- Fibroids / Endometriosis
- Infertility/ Miscarriage
- Depression / Anxiety
- Irritability / Mood swings
- Tendency to be stressed easily

Progesterone Excess:

- Sleepiness
- Bloating
- Candida
- Estrogen deficiency Symptoms
Note: Symptoms only occur with over dosing. The body never overproduces progesterone.

Protective Effects of Progesterone:

- Inhibits aging of skin
- Reduces hardening of the arteries
- Increases endurance during exercise
- Increases metabolic rate
- Enables development/repair of tissues
- Reduces risk of breast cancer, breast cysts, and breast tenderness
- Facilitates thyroid hormone utilization
- Opposes stress hormone cortisol
- Balances or opposes estrogen
- Reduces hot flashes.

ESTROGEN

Estrogen Deficiency:

- Hot flashes and or night sweats
- Headaches or migraines
- Inflammation
- Insomnia or sleep disturbances
- Poor memory/concentration
- Hair loss
- Dry skin/eyes/hair
- Thinning /aging skin and wrinkles
- Bone loss
- Poor carbohydrate metabolism/weight gain
- Heart palpitations
- Lighter/non-existent periods
- Vaginal dryness
- Urinary tract infections
- Incontinence / urinary frequency
- Depression/ low mood /weepiness
- Anxiety
- Carbohydrate cravings
- Low libido

Protective Effect of Estrogen:

- Prevents heart disease by lowering bad cholesterol, increasing good cholesterol
- Increases moisture content of skin
- Increases collagen, elastin, and hyaluronic acid formation
- Thickens skin
- Prevents gum disease
- Maintains eye health

Estrogen Excess:

The collection of symptoms related to excess estrogen is called Estrogen dominance. This condition occurs when there is a lack of progesterone. It is diagnosed by symptoms and lab values that show a low progesterone-to-estradiol ratio.

- Fluid retention
- PMS headache, irritability
- Breast pain, fibrocystic breast disease, breast cancer, breast adenomas
- Uterine fibroids
- Heavy bleeding
- Irregular bleeding
- Clots with cycle
- Endometriosis

TESTOSTERONE

Even though testosterone is thought of as a male hormone, women do make and need a normal amount of testosterone for good health. The ovaries make about 60% of the total testosterone. The rest is made by the adrenal glands.

Testosterone Deficiency:

- Hot flashes/night sweats
- Aches and pains
- Fatigue
- Insomnia
- Poor memory
- Thin skin / dry skin
- Loss of muscle tone
- Bone loss
- Heart palpitations
- Loss or thinning of pubic hair
- Vaginal dryness
- Incontinence
- Loss of libido
- Depression /anxiety
- Lack of motivation
- Low self-esteem

Testosterone Excess:

- Acne/oily skin
- Facial Hair
- Thinning scalp hair
- Mid-cycle pain
- Pain in nipples
- Ovarian cysts
- Hypoglycemia or insulin resistance
- Aggression, irritability

Protective Effects Of Testosterone

- Lowers cholesterol
- Prevents Heart Disease
- Improves insulin sensitivity

DHEA

Optimal function of the adrenal glands is required for adequate productions of DHEA and cortisol. DHEA is a precursor to the production of estrogen and testosterone. A deficiency in DHEA can trigger shortages of these hormones and prescribing DHEA may increase them as well. On average DHEA levels decline with age, dropping to about 50% by age 50 and 80% by 70-80. Stress and insulin resistance can lead to elevated DHEA. Long-term chronic stress can reduce the adrenals' production of DHEA.

CONDITIONS IMPROVED BY DHEA

- Slowing the ageing process
- Improved cognition
- Alzheimer's disease
- Erectile dysfunction (ED)
- Osteoporosis
- Multiple sclerosis (MS)
- Low mood, depression
- Decreased muscle mass, strength, and energy
- Low libido
- Chronic fatigue syndrome (CFS)
- Parkinson's disease
- Metabolic syndrome
- Weight loss
- Immune system dysfunction
- Chronic infections

MELATONIN

Melatonin is a natural hormone produced by the pineal gland. It is the hormone responsible for the regulation of our internal body clock which is also referred to as the "circadian rhythm". Darkness stimulates the production of melatonin while brightness produces the opposite effect.

Protective Effects Of Melatonin

- Powerful antioxidant for brain and nervous system.
 - Unlike other antioxidants, melatonin easily diffuses into all cells, and even crosses the blood-brain barrier.
- Protection against oxidative stress.
- Decreases chances of Alzheimer's, Dementia & Parkinson's.
- Cancer fighting ability of melatonin
 - Against a wide array of cancers, notably breast, lung, prostate and liver. Supplementation with melatonin increases the likelihood of cancer patient survival.

Facts about Melatonin:

- Regulates sleep wake cycle
- Improves insomnia/ quality of sleep
- Regulates menstrual cycle
- Regulates body hormones
- Regulation of our biological clock
- Declines with age, leaving the elderly population more at risk to the development of degenerative diseases like Alzheimer's disease.
 - Melatonin levels have been found to be particularly low in patients with Alzheimer's disease.

CORTISOL

Cortisol, an important hormone made in the adrenal glands, is involved in proper glucose metabolism, regulation of blood pressure, insulin release for blood sugar level maintenance, immune function, and inflammatory response. It has been termed “the stress hormone” because it’s also secreted in higher levels during the body’s “fight or flight” response to stress. Cortisol plays a role in the metabolism of fats, proteins, and carbohydrates. When you sleep at night, cortisol prevents glucose from dropping too low.

Just as with the other hormones, both excessive levels and deficiencies result in symptoms and health problems. Chronic stress initially raises your cortisol level. If stressors last long enough, cortisol levels may eventually become deficient all day. We think of stress as being caused by our life circumstances and events, and it often is, but physical stressors like illnesses, injuries, viruses, bacteria, and exposure to certain chemicals all stress our bodies too. Chronic pain and inflammation and even hormone imbalances can stress our bodies and affect cortisol levels. Eating high-glycemic foods like white flour and white sugar raises cortisol too.

Your cortisol level does not remain constant throughout the day. Instead, cortisol production follows a diurnal (daily) rhythm. Due to the change in cortisol through the day it is important to test cortisol with saliva testing 2-4 times during the day: upon awakening, noon, afternoon and before bed.

Cortisol Excess:

- Insomnia/sleep disturbances
- Headaches
- “Tired but wired” feeling
- Stressed feeling
- Irritability
- Low libido
- Food cravings (carbohydrates)
- Low serotonin (increases cravings)
- Hormone resistance (the body is unable to properly use thyroid, insulin, estrogen, testosterone, and progesterone)
- Thinning skin
- Loss of muscle mass
- Bone loss
- Heart palpitations
 - Cardiovascular disease
- Breast cancer

Cortisol Deficiency:

- Severe fatigue (morning and afternoon)
- Allergies
- Sugar /salt cravings
- Chemical sensitivities
- Low body temperature or any low-thyroid symptoms
- Hypoglycemic symptoms when missing a meal or eating sugar: irritability, shakiness, headache, and foggy thinking.
- Stressed feelings
- Irritability
- Aches/pains such as muscle and joint pain
- Heart palpitations

THYROID HORMONE

Normal thyroid function is essential to overall hormone balance because optimal thyroid hormones affect insulin level and sensitivity, normal sex hormone production and is required to clear cortisol from the body properly. Additionally, the symptoms of low thyroid function are similar to sex hormone and adrenal hormone imbalance.

Evaluation of all these hormones is vital to get a clear understanding of the patient's overall hormone status and to guide the appropriate treatment. Despite normal thyroid labs, elevated estrogen, low progesterone or low androgens (DHEA or testosterone) can interfere with thyroid hormone function as can either excess or deficient cortisol.

Many physicians are beginning to interpret thyroid hormones labs using new reference range values, in conjunction with patient symptoms. According to an article published in the August 2002 issue of the, "The Lancet", blood test reference ranges do not indicate the optimal level of thyroid hormone.

The authors of, "The Lancet", commented, "the emerging epidemiological data begin to suggest that TSH concentrations above 2.0mU/L may be associated with adverse effects." As well, people with TSH levels this high have a higher risk of developing hypothyroidism within twenty years. Beyond measuring TSH, ordering free T3, Free T4, and reverse T3 labs provide additional insight to overall thyroid hormone status.

Thyroid Deficiency:

- Fatigue/exhaustion
- Cold hands and feet
- Weight gain
- Memory lapse
- High Cholesterol
- Low blood pressure
- Decreased sweating
- Hair loss
- Aches/pains
- Heart palpitation
- Bone loss
- Infertility
- Constipation
- Depression
- Low body temperature
- Inability to lose weight
- Poor concentration
- Puffy eyes/face
- Slow pulse
- Dry hair/skin
- Brittle nails
- Low libido
- Sleep disturbance
- Thinning skin
- Slowed reflexes
- Hoarseness
- Lack of motivation

Optimal Thyroid Ranges

Clinical judgment and review of labs should be based on optimal levels versus normal values.

- TSH: 0.4-1.9
- Free T4: High middle to high normal
- Free T3: 3.5-4.0
- Reverse T3: <20
- TPO: within normal lab range

Application of BHRT Creams

(PROGESTERONE, ESTROGEN, TESTOSTERONE, DHEA)

- ❖ Premenopausal women:
 - In general, BHRT hormone creams are used once daily for 3 weeks according to the menstrual cycle, starting on day 5 and stopping on day 26. (To determine the day of your cycle always count day one as the first day of blood flow.)
- ❖ Postmenopausal Women:
 - Non-cycling women typically use progesterone once daily on days 1-26 of the calendar month. Depending on your symptoms or response to progesterone, your doctor may have you use progesterone twice daily or use it until day 28 of your cycle.

Application

- ❖ In general, all BHRT cream may be applied inside the forearms, behind the knees, tops of feet, around the neck on the breast, abdomen, face or vaginally.
- ❖ Alternate the place you apply the cream from day-to-day. Estrogen or DHEA cream may be prescribed for vaginal application. In this instance you do not need to alternate application site.

Exceptions

- ❖ Do not use BHRT estrogen to the breast tissue.
- ❖ Do not use BHRT creams containing testosterone or DHEA to the breast tissue or on the face.