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Hormone Fact Sheet

There is a lot of talk today about hormones, on the news, amongst friends, multiple books and TV specials. What is all the hype about? We all have hormones and but don't really think much about them until they are out of balance and start causing symptoms. When hormones are mentioned, generally PMS or menopause come to mind. However, the endocrine (hormone) system is in charge of much more than the menstrual cycle. Your hormones are all interconnected through an intricate feedback system. The thyroid gland, adrenal glands, ovaries, testes, pancreas and pituitary all work together to keep your body functioning at its optimal level.

Men and women can both experience symptoms of hormonal imbalance, but women definitely seem to get the larger share of the pie when it comes to hormonally driven symptoms. Your hormones are responsible for maintaining mood, reproductive function, sleep, sex drive, and the ability to handle stress, just to name a few functions. So it stands to reason that when they are out of balance, the range of symptoms is wide and variable depending on the person and what life is dishing out at that moment. This is where natural medicine fits nicely into the equation. Here at Health and Wellness, we treat all types of hormonally driven issues. As each person will present with individual symptoms and lifestyle factors, part of your diagnosis and treatment revolves around determining what protocol will work best for you, whether that is natural hormone replacement, nutritional supplements, nutrition and lifestyle counseling or all of the above.

Symptoms Associated with Hormone Imbalance:

- Hot flashes
- Insomnia
- Irritability
- Mood Swings
- Depression
- Vaginal Dryness
- Decreased Libido
- PMS
- Urinary incontinence

Symptoms Associated with Hormone Imbalance Con't:

- Weight gain
- Recurrent Urinary Tract Infections
- Weight gain
- Fatigue
- Infertility

Estrogen:

Estrogen and progesterone are two of the principal female sex hormones and work together to drive a normal menstrual cycle. With each cycle, both hormones rise and fall and with each ovulation progesterone is released. Estrogen is not innately dangerous; in fact your body needs estrogen very much. Estrogen is necessary for our fertility, protects our health in multiple ways, and acts as a powerful anti-inflammatory. Rather than being afraid of estrogen, which is easy to do after all the recent studies, a newer philosophy in treatment of hormonal issues is to address an imbalance between estrogen and progesterone. Estrogen may seem elevated compared to low progesterone levels, leading to the term “estrogen dominance”. Estrogen dominance often leads to many of the symptoms we relate to hormone disorders in women.

Progesterone:

Bioidentical natural progesterone is made in a lab from wild yams, but is formulated so that it is identical to the progesterone made in the body. Progesterone has been shown to be protective against osteoporosis, heart disease and breast cancer.

Progesterone is a very important hormone because it is a building block for many other hormones, including estrogens, testosterone and cortisol. When the body is given bioidentical progesterone, it can be used to make whatever hormones the body needs at any given time. This is especially important in treating estrogen dominance, which causes the majority of symptoms related to PMS and menopause. Natural progesterone will correct this disparity between estrogen and progesterone, thereby alleviating symptoms. In addition to this, given at the right individual dose, natural progesterone can often increase the efficacy with which your body uses the estrogen it has, thereby bringing your hormones into balance without added estrogens. Progesterone also helps balance the adrenal glands and thyroid glands when they are not functioning up to par.

Testosterone:

Testosterone is primarily secreted in the testes of males and the ovaries of females although small amounts are secreted by the adrenal glands. Testosterone is formed, both directly and indirectly via the production of progesterone, which serves as a building block for many hormones, testosterone among them. DHEA, a hormone from the adrenal glands, also partly converts into testosterone, and stress diverts DHEA into cortisol instead of testosterone. This further illustrates the connection between the adrenal glands and sexual health. Stress is a major factor in low sex drive for both sexes.

Testosterone Con't:

In both males and females, testosterone plays key roles in health and well-being. Testosterone plays a significant role in sexual drive and desire: it affects interest, arousal, sexual response, lubrication and orgasm. In addition to this, it also enhances immune function and protects against osteoporosis. And many women in perimenopause have insufficient levels of testosterone, which can lead to sexual dysfunction in millions of women. Men also see declining levels of testosterone with age, which can directly correlate to decreased sex drive, erectile dysfunction, lowered immune function and fatigue.

As much as decreasing levels of testosterone can cause problems, not every one is a candidate for testosterone supplementation. As previously mentioned, addressing stress and adrenal fatigue is very important. Balancing the whole body through diet, lifestyle changes, nutritional supplements and when necessary, hormone replacement is the best way to go. Testosterone can be easily measured with a simple blood test. It is important to use testosterone replacement only with a licensed physician who does a thorough history and examination.

Thyroid:

The thyroid gland is a small butterfly shaped gland in the neck that controls the metabolic rate of every cell and gland in the body, including growth, repair and metabolism. Healthy thyroid function is essential to optimal wellness. While the thyroid is crucial to both genders, women are more likely than men to suffer thyroid problems, especially *hypo-* (low) thyroid function. No one knows the exact reason for this, but it is thought to have something to do with the interplay between our reproductive hormones — i.e., estrogen and progesterone — and our thyroid hormones.

Adrenal Gland:

The adrenals are small glands that sit on top of each kidney and control some very important hormones. The adrenal cortex produces adrenaline, cortisol, DHEA and testosterone, in addition to others. The primary duty of your adrenal glands is to prepare the body for “fight or flight” by supplying adrenaline, which increases your heart rate and blood pressure, slows the digestive system and makes you more alert. This is a normal, healthy response to stress, intended as a short, immediate reaction to acute situations.

Blood Sugar Regulation:

As we eat, carbohydrates are converted into glucose in our blood. Then insulin facilitates glucose entering our cells where it is burned for energy. When the body has insufficient insulin or the cells don't respond correctly to insulin, glucose stays in the blood. Excess blood glucose causes damage to small and large blood vessels, causing heart disease, kidney disease, blindness, and decreased circulation and nerve supply to

the tissues. Over time, elevated blood sugar can cause some very serious health issues, which is why it is very important to keep blood sugar under control.

Common Hormone Disorders:

- Menopause
- PMS
- PCOS
- Infertility
- Diabetes
- Insulin Resistance
- Adrenal Fatigue
- Thyroid dysfunction

Menopause:

Menopause is a natural function of a women's body. With age, ovulation slows then stops entirely and once a woman has gone one year without a menstrual cycle, she is officially in menopause. Perimenopause is the term given to those years leading up to menopause, when ovulation is irregular and slowing down, this can happen up to ten years prior to actual menopause. Some women have no symptoms with menopause and some have severely debilitating symptoms starting in perimenopause and continuing for years. Each woman's body will take this shift in hormones differently and that is why a shotgun approach to menopause leaves many women feeling lost and confused. Menopause treatment needs to be specifically tailored for each woman and her particular situation and set of symptoms.

Premenstrual Syndrome (PMS):

PMS refers to a group of physical and emotional symptoms that many women experience in the week or two before their menstrual period. Symptoms subside when the menstrual period starts and within a couple of days of menstrual flow. This is another condition that is related to an imbalance of hormones. Again, most symptoms of PMS are related to elevated levels of estrogens. These can be addressed by balancing the hormones.

PMS symptoms can range from mild to severe. Symptoms may include:

- Breast Swelling and Tenderness
- Dizziness
- Headache
- Cramps
- Nausea and vomiting
- Food cravings
- Abdominal bloating
- Weight gain from water retention
- Stomach upset
- Swelling of the face, hands, ankles
- Depressed mood

- Crying spells
- Anxiety, irritability, anger
- Trouble falling asleep (insomnia)
- Appetite changes or food cravings
- Fatigue

Polycystic Ovarian Syndrome (PCOS):

Polycystic Ovary Syndrome is possibly the most common endocrine disorder in women today. Diagnosis can be difficult due to the fact that very few patients present with the same symptom picture. PCOS is characterized by the presence of ovarian cysts that produce excess hormones. These excess hormones can cause one or more of the following conditions: obesity, infertility, anovulation or other menstrual irregularities, hyperinsulinemia, insulin resistance, hormonal imbalances and hirsutism (male pattern hair growth). It is easy to see how a woman could present with any variety of these symptoms and look very different from another woman who also has PCOS. In addition to these disturbing symptoms of PCOS, these women are also at an increased risk for hyperlipidemia, hypertension, cardiovascular disease, non-insulin dependent diabetes mellitus, endometrial cancer, ovarian cancer and breast cancer. In light of this increased risk, treatment is aimed not only at relieving symptoms, but also at improving a woman's overall health and defense against disease.

Infertility:

The cause of infertility varies greatly from person to person. Hormones are definitely involved in conceiving and carrying a healthy pregnancy, and getting them in balance is important. However there are many other factors to take into consideration as well such as age, stress, overall health, lifestyle factors, weight, diet, etc. Infertility treatment will be specifically tailored to address all these areas for each individual situation.

Diabetes:

Diabetes is a very common disease in which the body either produces insufficient insulin or does not use insulin efficiently. Classic symptoms of diabetes include frequent urination, excessive appetite and excessive thirst. Diabetes is easy to diagnose with a simple blood test. If you are having any of these symptoms, it is important to see a physician for evaluation. The first, and most important, part of your visit should include a thorough health and family medical history. Diabetes does tend to run in families and it is important for your doctor to know this, in order to effectively monitor you for any possible warning signs. There are two major classes of diabetes: Type I or Insulin Dependent Diabetes Mellitus (IDDM) mostly occurring in childhood or adolescence and Type II or Non Insulin Dependent Diabetes Mellitus (NIDDM) occurring usually at age 40 or older. Patients with IDDM will have to be on insulin for their entire life as the tissue that produces insulin is often damaged. Patients with NIDDM, however generally develop insensitivity to insulin, in most cases related to obesity or a "Western diet". There is very little diabetes seen in cultures that eat a diet high in vegetables and complex carbohydrates.

As we eat, carbohydrates are converted into glucose in our blood. Then insulin facilitates glucose entering our cells where it is burned for energy. When the body has insufficient insulin or the cells don't respond correctly to insulin, glucose stays in the blood. Excess blood glucose causes damage to small and large blood vessels, causing heart disease, kidney disease, blindness, and decreased circulation and nerve supply to the tissues. Over time, elevated blood sugar can cause some very serious health issues, which is why it is very important to keep blood sugar under control.

Insulin Resistance:

Insulin resistance is so common today that testing for this is an important part of any thorough health program. At Health and Wellness assessing blood sugar regulation is a key step in evaluating all patients. Anyone with a family history of diabetes is at risk. If you have high blood pressure, high triglycerides, high cholesterol, or are significantly overweight you are likely to have insulin resistance. Apple shaped women, who gain weight around their waistline, are more likely to be insulin resistant.

What is insulin resistance? As we eat, fats, proteins and carbohydrates are converted into protein, micronutrients and glucose in our blood. Then insulin facilitates glucose entering our cells where it is burned for energy. Over time, our diets have started to include more simple carbohydrates rather than complex carbohydrates. These simple carbohydrates are rapidly turned into sugar that quickly enters the blood stream. Insulin is pumped out to meet this sugar load. The problem is, eventually the cells quit responding to this high sugar signal and stop responding to the insulin. This is insulin resistance; it is usually a precursor to diabetes and can cause problems losing weight, decreased energy, problems sleeping and lower immune function. Insulin is one of the major hormones and healthy insulin metabolism is crucial in maintaining balance of all other hormones. Without healing insulin resistance it is going to be very difficult to address any other hormonal issues.

People who are insulin resistant are at an increased risk of obesity, diabetes, high blood pressure, cardiovascular disease, high cholesterol, breast cancer and polycystic ovarian syndrome. The most common symptoms that patients present with are fatigue and weight gain. With age, women especially, become increasingly intolerant of carbohydrates, leading to weight gain, carbohydrate cravings, and fatigue.

Next we see how insulin resistance disturbs fat metabolism. When the cells won't absorb the extra glucose, the liver has to convert it into fat. Fat cells are loaded with glucose receptors, so this is a vicious cycle. Ironically, while the insulin-resistant woman is gaining weight, her cells are actually "starved" for glucose, so she feels exhausted and tends to eat carbohydrate-heavy foods in search of energy. To make matters worse, these fat cells also produce estrogen, so this is why we often see estrogen dominance and insulin resistance together.

Fortunately insulin and glucose levels are very easily influenced by changes in lifestyle, exercise, and diet. If you are diagnosed with insulin resistance, there is a lot you can do to reverse its course.

Adrenal Fatigue:

Some of the most common health concerns that we see are fatigue, insomnia, weight gain, and depression. If any of these symptoms sound familiar, you may be experiencing adrenal fatigue. Most of us live very stressful, overscheduled lives. For women especially, the stress just never ends sometimes. We are face with stress at work, home, and socially; everywhere you turn there are demands on our time. Your body can handle a lot, but unrelenting, chronic stress can cause significant detrimental effects on your health.

Problems can arise when a person is constantly under stress with little rest or recuperation time, if the body is on high alert all the time, symptoms will ensue. Our world today is so fast paced that most people are over-worked, eating sub-standard nutrition and not sleeping enough. Lack of sleep leads to dependence on stimulants such as caffeine, nicotine and refined carbohydrates and the adrenal glands get burned out.

Cortisol is designed to help your body deal with all these stressful situations by utilizing proteins for energy and counterbalancing inflammation. Again, this is meant to be a short-lived process. With persistent elevated cortisol, the body starts breaking down, muscle and bone is destroyed, the immune system is undermined, metabolism and mental function are slowed and digestion is compromised. This is why we see a long list of symptoms and disease processes that are related to adrenal fatigue, including fibromyalgia, hypothyroidism, chronic fatigue syndrome, arthritis, autoimmune diseases, and aggravated menopausal symptoms.

When the body is struggling to maintain this elevated cortisol that comes with chronic stress, eventually the adrenal glands get fatigued and lose their ability to produce adequate DHEA. DHEA is a very important hormone, a precursor to estrogen, progesterone and testosterone and is vital in maintaining hormonal balance in the body. Inadequate levels of DHEA can lead to fatigue, bone loss, loss of muscle mass, depression, aching joints, decreased sex drive, and impaired immune function.

The consequence of adrenal dysfunction can be profound: fatigue and weakness, suppression of the immune system, muscle and bone loss, moodiness or depression, hormonal imbalance, skin problems, autoimmune disorders, and dozens of other symptoms.

The good news is that adrenal fatigue can almost always be successfully treated. A combination of nutritional, herbal and homeopathic treatment can get your adrenal function back to normal, alleviate symptoms and help your body better cope with stress.

Thyroid Dysfunction:

Thyroid function is intricately tied into all your other hormones. It is susceptible to excess stress and other imbalances in your body. As mentioned before, imbalances in other hormones, progesterone and estrogen, in particular, often lead to thyroid dysfunction. More than 1 out of every 5 menopausal women will be diagnosed with thyroid dysfunction. Many more may be suffering from subclinical symptoms that go undiagnosed. Most women are hypothyroid, or have a thyroid that is functioning at a lower than normal rate. Symptoms of hypothyroid include: weight gain, fatigue, dry skin and hair, constipation and depression. A smaller fraction have an overactive thyroid, or hyperthyroid. These symptoms include: anxiety, heart palpitations, and insomnia.

As mentioned before, hormonal imbalances are often triggers of thyroid dysfunction, estrogen dominance is a very common cause of hypothyroidism. Stress is another common trigger, because of its negative effects on cortisol, another hormone imbalance. Thyroid hormone levels are very easy to test through the blood.

Treatment for Hormonal Disorders:

- Bioidentical Hormone Replacement Therapy
- Nutritional Supplements
- Nutritional injections and IV therapy
- Botanical Therapy
- Diet and Lifestyle Counseling

Hormone Replacement Therapy (HRT)

There has been a lot of suspicion and speculation about hormone replacement in the last few years with the recent studies that have come out and a lot of fear and confusion about the safety of any type of HRT. While some of these results have been scary, they have proven invaluable in forcing all types of practitioners to take another look at how we've been treating hormonal issues. While we used to think that all women with menopausal symptoms could be treated in the same way and that the increased risk for cancer and heart disease was negligible, we now know different. Now we know that it does matter where these hormones come from, estrogen from horses is no longer ideal, and big surprise, hormones that are bioidentical to the human hormones give the best symptom relief with the least increased cancer and heart disease risk. Another belief that is now being challenged is that as a woman stops ovulating she stops producing estrogen. Studies have shown that two-thirds of women between age 65 and 80 are still producing adequate levels of estrogen. This is because every skin, fat and muscle cell produces estrogen, so unless you are very skinny and inactive, you are unlikely to have too little estrogen, but more likely to be less efficiently using the estrogen that you are producing. Bioidentical natural progesterone, given at the right individual dose, can increase the efficacy with which your body uses the estrogen it has, thereby bringing your hormones into balance and alleviating symptoms. Progesterone has been shown not only to show no increase in risk for heart disease or breast cancer, but to be protective against these diseases. Often women can find relief with natural progesterone without ever needing to be put on estrogen at all, which is comforting to many after the results of the recent Million Women Study.

Just to clarify, in case some of you go do your own research, natural progesterone is different from **progestins or medroxyprogesterone**, which are made synthetically. Progestins are the synthetic hormones cited as dangerous in the studies and these do cause increased cancer risk.

Sample PCOS Treatment Protocol:

Balancing Hormones:

- Indole 3 Carbinol- 200-400mg/day, this is a nutrient isolated from the cruciferous vegetable family (broccoli, cauliflower, brussel sprouts and cabbage) that aids the body in metabolizing and eliminating hormones, in particular dangerous forms of estrogen that contribute to hormone dependant cancers and heart disease.
- Vitex agnus-castus (chasteberry): Appears to have an overall balancing effect on hormone levels. May be contraindicated in patients with elevated LH levels
- Cimicifuga racemosa (black cohosh) May limit the production of ovarian androgens.
- Glycyrrhiza glabra is thought to reduce testosterone produced by the ovaries and possibly be a treatment for hirsutism.
- Paeonia lactiflora seems to reduce the production of androgens by the ovaries.
- Panax ginseng may reduce adrenal androgen levels and has been observed to normalize lipid profiles.
- Natural progesterone cream

Blood Sugar Control:

- Gymnema sylvestre 400 mg/day has been shown to improve blood sugar control and decrease lipid levels.
- Trigonella foenum-graecum (fenugreek seed)seed powder 25-100 mg/day. Lowers both serum glucose and lipids.
- Momordica charantia (bitter melon) has been traditionally used to lower glucose levels in diabetics.
- Chromium 200 mcg/day has been shown to regulate serum glucose in diabetic patients.

Diet and Lifestyle Counseling

Exercise: 30-45 minutes 4-5 days/week

Do what is fun for you! You don't have to run miles on end to get a cardiovascular workout. Aim for 60-75% of your maximum heart rate (220-age). Walking is good exercise, some women find it easier to break the time up and do 3-4 ten-minute periods of exercise. Studies have shown this to be just as effective as doing it all at once. Most people can find time to do some form of exercise for 10 minutes, maybe before work, at lunch and after you get home. The important this with exercise is to choose something you like doing and make it a habit, a lifelong commitment. This is very important for your health and longevity.

Diet: Insulin Resistance Improves with Diet!

- Eat 5-6 small meals throughout the day (~ 300 calories each)

- **Always, always** eat protein with every meal. Protein is key in maintaining blood sugar levels at an even level. The goal is to keep your blood sugar as stable as possible, so don't go more than 4 hours without food and eat protein with every meal.

Protein examples:

Lean meats, eggs, low fat cheeses, low fat cottage cheese, low fat yogurt, low fat milk or soy milk, nuts (1/4 cup/serving and preferably raw, unsalted, get dry roasted if you need to), nut butters, protein shakes (get a good whey protein powder without sweeteners)

- Avoid processed, simple carbohydrates: white breads, white rice, pasta, bagels, crackers, cookies, any deserts, candies, ice cream, fruit juice, dried fruit
- Limit all carbohydrates, aiming for a protein to carbohydrate ratio of 1:2. When you do eat carbohydrates, try to eat foods that are also high in fiber, whole grains, whole grain bread, brown rice, etc.
- Avoid stimulants: Studies have shown that women with PCOS should avoid caffeine as caffeine significantly increases blood sugar levels. Cigarette smoking should also be avoided, as smoking has been shown to worsen insulin resistance in patients with diabetes and possible in women with PCOS.
- Aim for 5-8 servings of vegetables and 2 (and no more than 2) servings of fruit every day.

Other Important Recommendations and Testing:

When the hormones are evaluated either through blood, urine, and / or saliva all of the hormones need to be evaluated for proper assessment. It is essential that your physician consider this as an initial baseline which would also include Vitamin D and bone mineral content through a Bone Mass Density Study to rule out excess loss of bone especially important in the total hormone assessment.

Some recommended testing for the hormones recommended above include the following:

Thyroid: TSH, FT4 and Total T3 and if indicated thyroid antibodies

Adrenals: Cortisol, DHEASO4

Hormones: Fractionated Estrogens, Progesterone and Testosterone

Vitamin D: 1, 25-Dihydroxycholecalciferol and 25-Hydroxycholecalciferol

Blood Sugar: Glucose, HGA1C, Fasting Insulin, C-Peptide and IGF1

Bone Assessment: BMD (Osteoporosis Scan) and Osteomark Urine test

Inflammation Markers: Sed Rate, HSCR

Concluding Thoughts:

One other important note is that blood cholesterol levels can also be influenced by poor hormonal activity. For example, low thyroid activity can lead to increased cholesterol in the blood. Keep in mind that the body works as a whole not in part. Your health needs to be evaluated taking into consideration all of your systems as a whole.