The Complete Informational Guide To:

BIO-IDENTICAL HORMONE REPLACEMENT THERAPY

—Benefiting Men & Women—

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The Complete Informational Guide To:
Bio-Identical Hormone Replacement Therapy

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Introduction

Our holistic medicine approach involves uniting people’s individual goals and body chemistry with their physical, mental & emotional healthcare. It is not about clearing up symptoms with prescriptions alone, but rather it involves a partnership between the patient & the healthcare provider to treat the underlying causes of the symptoms. We realize that every person’s body is different thus we prepare treatment regimens that are specific to your body. Treatment encompasses everything from customized compounded prescriptions to fitness regimens & diet plans. Ultimately the patient is the one who is in control of their own healthcare so it is important that we work and communicate as a team in these treatment regimens in order to obtain your desired healthcare outcomes.

Our approach involves using a trained healthcare practitioner and a compounding pharmacy in order to achieve healthcare outcomes based on patient-specific needs & concerns. Our healthcare practitioner meets with each patient for an initial consultation to assess their current health status as well as to help find the best course of treatment for the patient. Based on the patient & healthcare practitioner’s consultation, baseline & follow up saliva, blood and/or urine tests may be required to help track the patient’s progress towards their healthcare goals. The healthcare practitioner is able to write prescriptions for the patient that day and have them filled by our compounding pharmacy. After this initial consultation follow up appointments are compulsory in order to ensure that the treatment regimen is working towards the healthcare goals that were set during the initial consultation. No one knows your body better than you so we encourage that you keep us up to date on your progress so that together we can help you feel better mentally, physically & emotionally.
Hormones

Hormones are chemical messengers released by cells in the body which facilitate cell signaling in order to elicit a variety of physiological & emotional responses. They are produced in a variety of organs & are transported in the blood throughout the body. Hormones bind to specific hormone receptor proteins in different targeted cells in the body in order to induce a cellular response. These induced cellular responses are also dependent on the amount of receptor proteins & the amount of the hormone that is present. Hormones also have the capability of either stimulating or inhibiting cellular signaling & growth in different organs in the body. Thus not all hormones affect all areas of the body in the same way. Many hormones & their bio-equivalent analogs can be introduced into the body using a variety of drug dosage forms & delivery systems in order to supplement the amount of that hormone naturally occurring within the body.

EFFECTS OF HORMONES IN THE BODY

» Stimulating or inhibiting cellular growth & death
» Changes in mood & emotions
» Activation or suppression of immune function
» Regulation of metabolism
» Control of the reproductive cycle
» Sex drive
» Menstrual cycle
» Onset of menopause, andropause
Estrogen

Estrogen is not just a single hormone, but rather a group of related hormones produced by your body. The three most important of this group are Estriol, Estradiol and Estrone. Estrogen is manufactured primary in the ovaries, but can also be made in fat cells, muscle cells and the skin. The main function of estrogen in women is to regulate menstrual cycles, promote the growth of female development during puberty and to ensure fetal survival. Let's look more closely at each of these.

ESTROGEN HAS 400 FUNCTIONS IN THE BODY
» Stimulates the production of choline acetyltransferase, an enzyme which is believed to help prevent Alzheimer's disease
» Increases metabolic rate
» Improves insulin sensitivity
» Regulates body temperature
» Helps prevent muscle damage
» Helps maintain muscle
» Improves sleep
» Reduces risk of cataracts
» Helps maintain the elasticity of arteries
» Dilates small arteries
» Increases blood flow
» Decreases the accumulation of plaque on arteries
» Enhances magnesium uptake and utilization
» Maintains the amount of collagen in the skin
» Decreases blood pressure
» Decreases LDL and prevents its oxidation
» Helps maintain memory
» Increases reasoning and new ideas
» Helps with fine motor skills
» Increases the water content of skin and is responsible for its thickness and softness
» Enhances the production of nerve-growth factor
» Increases HDL by 10 to 15%
» Acts as a natural calcium channel blocker to keep arteries open
» Enhances energy
» Improves mood
» Increases concentration
» Maintains bone density
» Increases sexual interest
» Decreases wrinkles
» Protects against macular degeneration
» Decreases risk of colon cancer
» Helps prevent tooth loss
» Aids in the formation of neurotransmitters in the brain such as serotonin which decreases depression, irritability, anxiety, and pain sensitivity
**Bio-Identical Estrogens**

*E1 called Estrone | E2 called Estradiol | E3 called Estriol*

**Estriol (E3)**
This is the most abundant of all the estrogens. It makes up approximately 80% of the estrogen present in the body and is produced by the ovaries. It is produced in large amounts during pregnancy and is necessary for carrying to full term. It also helps to protect the bones from losing density, protects the urogenital health of females and has many valuable antioxidant properties. It is generally considered to be the weakest, but safest of the estrogens in terms of stimulating tissue growth. It also helps to combat vaginal dryness and vaginal atrophy.

- Considerable evidence exists to show that it helps protect against breast cancer
- It is used in Europe to treat breast cancer instead of Tamoxifen
- It does not have the bone, heart, or brain protection of estradiol

**Estradiol (E2)**
This estrogen is considered to be the most active of all the estrogens. Estradiol makes up 10% of the body's estrogen supply. It is a powerful hormone and is most widely used to control hot flashes and general menopausal symptoms. It may also offer bone protection, improve lipid profile, enhance blood clotting, improve memory and clarity, increase serotonin and endorphin levels, enhance intestinal absorption of vital nutrients and is associated with the health of the eye lens. Some of estradiol's other functions in the body include:

- Increasing HDL
- Decreasing LDL and total cholesterol
- Decreasing triglycerides
- Helping maintain bone structure
- Increasing serotonin
- Decreasing fatigue
- Working as an antioxidant
- Helping to maintain memory
- Increasing the absorption of calcium, magnesium, zinc

**Estrone (E1)**
Is the main estrogen that the body makes post-menopausally. For this reason estrone is sometimes used to relieve some of the symptoms of menopause. Some researchers also believe however that the metabolites of estrone may have genotoxic effects and thus increase a women's risk of some types of cancer.

- Estrone has very similar properties as Estradiol.
- It composes the last 10% of estrogen present in the body.
- It is usually converted from body fat.
Symptoms of Estrogen Deficiency Menopause

Each woman may experience different symptoms that indicate that their hormone levels are changing. Many of these symptoms may eventually affect the patient's quality of life if left untreated. By restoring the natural levels of estrogen there is an obvious relief of symptoms. Common symptoms which may be alleviated through restoring estrogen levels:

» Hot flashes
» Night sweats
» Dryness of the eyes, skin and/or vagina
» Anxiety
» Mood swings
» Irritability
» Insomnia
» Depression
» Loss of sexual interest
» Hair growth on face
» Painful intercourse
» Decreased sense of sexuality
» Lower back pain
» Fluctuations in body temperature
» General fatigue

Estrogen Dominance

Estrogen dominance is a phrase used to describe what can happen when estrogen and progesterone levels get out of balance. It doesn’t mean there is too much estrogen, but that there is excess estrogen relative to the amount of progesterone in the body. As a woman reaches the age of menopause, her body continues to produce estrogen in her muscle and fat cells. She may typically produce 40-60% of the estrogen made before menopause, but only 1/120 of the progesterone produced pre-menopausally. This creates estrogen dominance because there is not enough progesterone in the system to counter the effects of the estrogen that is still being produced. Therefore when estrogen dominance does occur in women it is essential to supplement the amount of progesterone in the body.

CAUSES OF ESTROGEN DOMINANCE

» Obesity
» Changing in liver function
» Zinc deficiency
» Excessive alcohol consumption
» Ingestion of food or other environmental substances (xenoestrogens) that may induce estrogen-like effects in the body
CHARACTERISTICS OF ESTROGEN DOMINANCE
» Depression
» Impatient, snappy behavior
» Acne
» Water retention, edema
» Weight gain, fat deposition in the hips and thighs
» Heavy or irregular menses
» Swelling of the breasts

CAUSES OF EXCESS ESTROGEN IN THE BODY
» Taking too much estrogen
» Impaired elimination of estrogen
» Lack of exercise
» Diet low in grains and fiber
» Environmental estrogens
» Elevation of 16-OH Estrone

Estrogen Metabolism
After menopause the metabolism of estrogen can change. Consequently different women may respond differently to estrogen replacement.

Two major competing pathways
2-OH Estrogen, 16-OH Estrogen

2-OH Estrone
» Good estrogen
» Does not stimulate cell growth
» Blocks action of stronger estrogen products that may be carcinogenic

How Can You Raise 2-OH Estrone?
» Moderate exercise
» Cruciferous vegetables
» Flax
» Soy
» Kudzu
» Indole-3-carbinol taken as a supplement. Daily doses 200 to 300 mg.
» High protein diet
» Omega-3-fatty acids
» B6, B12, and folate
Estrogen Metabolism—Continued

16-OH estrone
- Has significant strong estrogenic activity
- Studies show it may be associated with an increased risk of breast cancer

One minor pathway

4-OH Estrone
- Equine estrogens such as Premarin increase metabolism into 4-OH estrones
- Studies show it may directly damage DNA and cause mutations
- Therefore it is thought that 4-OH estrone may enhance the development of certain types of cancer

Obesity
- Decreases 2-OH estrone and increases 16-OH estrone.
Progesterone

Progesterone is another hormone of the reproductive system. Progesterone is responsible for preparing the lining of the uterus for the implantation of the fertilized egg as well as helping to decrease the mother’s immune response to allow for the acceptance of the pregnancy. Progesterone is also a precursor hormone meaning that it can be altered in the body to form other hormones such as estrogen and testosterone especially. Another very important function of progesterone in the body is to “oppose” estrogen. Progesterone and estrogen work in conjunction with one another to balance each other out in order to maintain homeostasis within the body. When estrogen is present without natural progesterone, the estrogen levels are not kept in check and may lead to conditions associated with excess estrogen in the body. It is therefore critical to balance estrogen and progesterone levels in order to maximize the health benefits of each hormone.

Progesterone is often confused with its synthetic counterpart Progestin. Progestins are synthetically produced hormones such as birth control that are designed to mimic the effects of naturally produced progesterone. However, some scientific research has found that progestins have been associated with increased symptoms of hormonal imbalance and deficiency. This is why it is important to remember that only Bio-Identical progesterone has the chemical properties necessary to appropriately supplement progesterone and balance estrogen in the body. Therefore always make certain that if you are going to do estrogen replacement therapy that it be supplemented with enough bio-identical progesterone to balance it. By balancing the progesterone levels in the body it will act as a natural antidepressant, help to normalize the thyroid function, improve cholesterol, build bone mass, restore libido, decrease menstrual cramping and help the body to utilize fat stores for energy.

SYMPTOMS OF PROGESTERONE LOSS
» Anxiety
» Depression
» Irritability
» Mood swings
» Insomnia
» Night sweats
» Pain and inflammation
» Lack of libido
» Vaginal dryness
» Pain during intercourse
» Skin problems
» Generalized fatigue
» Water retention
» Infertility
» Weight gain
» Memory loss
» Tenderness of the breasts
» Excessive or irregular menstrual bleeding
» Increased risk of osteoporosis & uterine cancer
CAUSES OF LOW PROGESTERONE

» Impaired or decreased production in the ovaries, brain and/or placenta
» Low levels of lutenizing hormone
» Increased production of prolactin
» Stress
» Antidepressants
» Excessive arginine consumption
» Excessive sugar consumption
» Excessive saturated fat consumption
» Deficiency of vitamins A, B6, C, zinc
» Decreased levels of thyroid hormones

NATURAL PROGESTERONE EFFECTS NOT SEEN WITH PROGESTINS

» Helps balance estrogen
» Leaves the body quickly
» Improves sleep
» Natural calming effect
» Lowers high blood pressure
» Helps the body use and eliminate fats
» Lowers cholesterol
» May protect against breast cancer
» Increases scalp hair
» Helps balance fluids in the cells
» Increases the beneficial effects of estrogen
» Increases metabolic rate
» Natural diuretic
» Natural antidepressant

Treatment

Progesterone can be compounded by Essential Pharmacy Compounding as a cream, capsule or troche (lozenge).
Synthetic Progestins and Natural Progesterone

A Pharmacist Explores the Differences

We live in an era when more and more emphasis is being placed on the importance of natural substances. Natural food supplements and herbal formulations are in demand. Homeopathic physicians and caregivers are gaining popularity. Everyone seems to be asking, “What can we do to help the body repair itself in a more natural fashion?”

Many women who take hormone replacement supplements are also asking the “natural vs. synthetic” question. Is natural always better? What is the difference between natural micronized progesterone and the synthetic progestin, medroxyprogesterone, also commonly prescribed as Provera?

The most outstanding difference...

Between the two is that medroxyprogesterone is an analog, a “look alike”, of progesterone, not truly a progesterone at all, but rather a progestin. The chemical structure of medroxyprogesterone closely resembles the chemical structure of progesterone as it is produced naturally in the human body. But, even a slight difference in the molecular configuration of a compound can produce a totally different response from its natural counterpart.

Progesterone is the oldest steroid hormone—some 500 million years old on the evolutionary scale. All vertebrates produce progesterone, although it is only in higher vertebrates that this hormone is instrumental in the reproductive cycle. In lower vertebrates progesterone functions are related to glucose metabolism, the development of intelligence and bone formation.

The process of producing natural progesterone, which is made from yams and soybeans, was discovered by Russell Marker, a Pennsylvania State College chemistry professor. While experimenting with sapogenins, a group of plant steroids, in the jungles of Mexico in the 1930s, Marker realized that progesterone could be transformed by chemical process from the sapogenin, diosgenin, which is found naturally, in yams.

Unlike medroxyprogesterone, natural micronized progesterone is an exact chemical duplicate of the progesterone that is produced by the human body.

Another immediate difference...

Between medroxyprogesterone and natural progesterone is that the synthetic hormone can actually lower a patient’s blood level of progesterone. Some women who take medroxyprogesterone to combat PMS or oppose estrogen in menopause report headaches, mood swings and fluid retention.

On the other hand, women who take natural micronized progesterone often say their mood swings diminish. Women who suffer from migraines as their main complaint with PMS also find that this situation may be corrected by natural progesterone. In its natural micronized form, progesterone acts as a diuretic, which means the women who take these supplements may have to go to the bathroom more frequently, but they are spared the fluid retention and weight gain experienced by women on synthetic progestin.

Prescribed dosages also differ in regard to natural and synthetic progesterone. Synthetic progestin is 10 to 100 times as potent as the natural progesterone. This appears to be a tremendous range, but the doses fall well within those limits.
Medroxyprogesterone is sold in 2.5 milligram, 5 milligram and 10 milligram tablets. For example, a woman who is using five milligrams of synthetic progestin would find the corresponding dose of natural progesterone to be between 50 and 500 milligrams. A dosage of 100 milligrams twice a day or 200 milligrams per day of natural progesterone will usually produce endometrial conversion or prevent hyperplasia.

Synthetic progestins were developed with the advent of the birth control pill. The half life of natural progesterone was very short and researchers were looking for an agent that would give a longer half life and yet produce or mimic the effects of progesterone. Birth control pills contain, in most cases, a synthetic progestin and a synthetic estrogen. The very potent synthetic progestins prevent ovulation in a very low dose and, therefore, accomplish their function of birth control.

Conversely, natural progesterone has been use for many years in pregnancy, luteal phase defect and postpartum depression. When a woman is pregnant, her progesterone levels are 30 to 50 times higher than normal. A nursing mother should not be concerned that taking natural progesterone for postpartum depression will affect the baby. After all, the baby has been exposed to tremendous levels of progesterone during its development.

Significant differences exist between synthetic and natural progesterone. Natural progesterone duplicates the body’s progesterone exactly, causes fewer side effects and can be more consistently utilized by the body. In the case of natural progesterone versus synthetic progestins in hormone replacement, natural does appear to be better.
Testosterone

Testosterone is a steroid hormone which is part of a larger class of hormones known as androgens. It is the main sex hormone in males & plays a key role in maintaining physical & mental health in both males & females. Testosterone is primarily secreted from the testes in males & from the ovaries in females. Testosterone levels decline gradually with age because this happens slowly men and women often accommodate to the symptoms and do not realize how much they have lost. Decreased levels of free testosterone lead to an increased likelihood of developing coronary artery disease, osteoporosis, type II diabetes, depression & cardiovascular disease. Additionally Testosterone has been shown to enhance the cardiac benefits of exercise. Testosterone replacement therapy for the treatment of testosterone deficiency is safe and provides dramatic health benefits in both men and women.

**POSSIBLE BENEFITS OF TESTOSTERONE**

» Builds lean muscle mass & strength
» Enhances sex drive
» Protects against heart disease
» Increases libido
» Improves cognitive function
» Helps to maintain memory
» Helps to prevent against Alzheimer’s
» Improves mood & sense of emotional well-being
» Improves cardiac function
» Increases coronary blood flow
» Decreases inflammation
» Helps skin from sagging
» Decreases excess body fat
» Helps maintain bone strength
» Elevates norepinephrine in the brain (tricyclic affect)

**SYMPTOMS OF TESTOSTERONE LOSS**

» Increased aging of heart
» Decreased circulation
» Increased aging of brain
» Loss of drive and competitive edge
» Stiffness
» Joint and muscle pain
» Decreased physical fitness
» Decreased effectiveness of workouts
» Deteriorating body composition
» Sarcopenia – less muscle, more fat
» Osteoporosis
» Anemia
» Fatigue, tiredness
» Depression, mood changes
Symptoms of Testosterone Loss—Continued

» Irritability
» Muscle wasting
» Reduced libido and potency
» decreased desire and fantasies
» decreased morning erections
» decreased erectile tension
» longer recovery time between orgasms
» decreased intensity of orgasms
» Weight gain
» Low self-esteem
» Decreased HDL
» Dry, thin skin with poor elasticity
» Thinning and dry hair
» Droopy eyelids
» Sagging cheeks
» Thin lips
» Anxiety

SYMPTOMS OF TESTOSTERONE EXCESS

» Anxiety
» Depression
» Fatigue
» Hypoglycemia
» Salt and sugar cravings
» Agitation and anger
» Facial hair
» Acne
» Insulin resistance
» Weight gain
» Hair loss or unwanted hair growth
» Increased risk of heart disease
Testosterone and Women

Testosterone is the hormone that is most commonly associated with male sex characteristics. Many women are initially fearful at the mention of this word. However, once they understand that testosterone is responsible in part for sex drive and energy levels they change their minds. While women produce about 90% less testosterone than men, it nonetheless plays a critical role in female healthcare. Surges of testosterone which are a part of a female’s normal menstrual (and menopausal) cycle help to boost your sense of well being, power and sex drive. Additionally testosterone has been shown to help promote bone growth and thus reduce the incidence of osteoporosis in females.

During menopause levels of testosterone in females can drop by more than one-third of their premenopausal levels. Again even though females produce a smaller amount of testosterone it is nonetheless vitally important to the health of your bones, sex drive, brain, muscle, liver and blood vessels. There is not a one size fits all solution to testosterone deficiency which is why it is important these doses are tailored specifically for your body. Everyone’s body chemistry is different and will require differing amounts of testosterone, which is why we encourage testing of testosterone and other hormone levels as early as possible. By doing this we will be able to assess your progress with the hormone so that we can help you reach your healthcare goals.

CAUSES OF LOW TESTOSTERONE IN WOMEN

» Menopause
» Childbirth
» Chemotherapy
» Aging
» Adrenal stress or burnout
» Endometriosis
» Depression
» Psychological trauma
» Birth control pills
» HMG-CoA-reductase inhibitors
Testosterone Therapy for Men

What is Testosterone deficiency?
Testosterone levels begin to decline in men around ages 30 to 40. Low testosterone levels have a number of negative effects on mental, sexual and physical health. The most common type of treatment for testosterone deficiency is known as testosterone replacement therapy and it is prescribed to treat symptoms and problems associated with aging.

» Hypogonadism: The medical term for low levels of natural testosterone
» Andropause: The medical term for low to normal levels of natural testosterone which is a deficiency disease that affects nearly half of men between the ages of 50 and 70. During this time frame men can have testosterone levels far below even their lowest levels seen during their 20's, 30's & 40's

QUESTIONS TO ASK YOURSELF:
» Do you tire more easily?
» Is it more difficult to get and stay in shape?
» Are you not getting your desired results from your exercise routine?
» Do you have less of a desire to exercise?
» Does it take you longer to recover after exercise?
» Have you lost some of your zest for life?
» Is your body getting soft?
» Are you eating the same or less and putting on weight?
» Have you lost some of your mental quickness?
» Do you have a decreased reaction time?

METHODS OF TESTOSTERONE REPLACEMENT
» Testosterone injection
» Testosterone topical cream
» Testosterone sublingual lozenge
» Custom produced transdermal gel or cream

TESTOSTERONE AND PROSTATE CANCER
» There is no clinical evidence that the risk of either prostate cancer or BPH increases with testosterone replacement therapy.
» There is no compelling evidence at the present time to suggest that men with higher levels of testosterone are at a greater risk of developing prostate cancer or that treating men who have hypogonadism with exogenous androgens increases this risk. In fact, it should be recognized that prostate cancer becomes more prevalent exactly at the time of a man's life when testosterone levels begin to decline the most.
» Higher Testosterone = Less Prostate Cancer
» Higher Estrogen = More Prostate Cancer
DHEA

DHEA is a hormone mainly produced in the adrenal gland and is the most abundant steroid hormone in the body. It is called the “Mother Hormone” because it has unique properties that allow it to help to balance the entire endocrine system. Additionally DHEA helps to control the synthesis of testosterone, estrogen, progesterone, and corticosterone in the body. DHEA enhances the effectiveness of hormone functioning and replacement and is a perfect complement to basic hormone replacement therapy. Boosting DHEA levels may naturally raise testosterone levels and may be used alone or in conjunction with that hormone. It is commonly believed that DHEA levels may decrease up to 50% by age 40. By the time a person is 65 it is believed that the body only produces 10-20% of the DHEA that was produced when you were 20 years old. Additionally a study done in 1998 by the Journal of the American Geriatric Society found that men between the ages of 60 and 80 with higher levels of DHEA were more fit, had higher levels of testosterone and looked younger and leaner than men with lower levels of DHEA.

Falling levels of DHEA are closely associated with a number of age-related diseases and disabilities. DHEA has been shown to have a number of benefits with regards to anti-aging, weight loss and management, strengthening of immune function, balancing thyroid function, improving memory, improvement of moods, increasing muscle mass, boosting of energy and fighting allergic reactions. Again, as with the other hormones we have discussed, testing levels is critical. If a deficiency is found, supplementation can be invaluable for men and women.

Pregnenolone

Pregnenolone is a steroid hormone produced from cholesterol in the mitochondria of cells. Pregnenolone is involved in the synthesis of several major hormones in the body. Some of the hormones that pregnenolone may be converted into include progesterone, aldosterone, DHEA, estrogen, and testosterone. As you can imagine pregnenolone has many effects within the body, some of these include:

» Maintaining a healthy immune system
» Improving energy levels
» Reducing stress
» Improving the length and quality of sleep
» Improving mental functioning
» Improving short and long term memory
» Increasing alertness
» Helping improve joint pain and mobility
» Reducing depression
» Decreasing fatigue
» Improving physical performance

Pregnenolone levels also decline with age, which is why some scientists have linked its depletion with an increase susceptibility to some diseases. Thus pregnenolone supplementation is used to treat several conditions such as arthritis, menopause, premenstrual syndrome, osteoporosis, obesity, multiple sclerosis as well as several types of cancers. Being that pregnenolone can be used to treat a variety of conditions, dosing and treatment may vary from person to person. This is why it is important to always consult with a healthcare professional before beginning pregnenolone or any other type of hormone treatment. Our healthcare practitioner at Ageless Preventative Medical Clinic can work with you to find the right dose of pregnenolone for your body so you can start looking and feeling your best as soon as possible.
Cortisol

Cortisol is a corticosteroid hormone synthesized naturally in the body from cholesterol in the adrenal gland. The amount of cortisol in the body varies throughout the day, with levels being the highest in the early morning and lowest in the 3-5 hours after the onset of sleep. A number of other factors can also affect the amount of cortisol available in the body at any given time including sleep deprivation, stress, physical exercise, as well as a number of vitamins, minerals and prescription medications.

**CORTISOL HAS MANY FUNCTIONS IN THE BODY INCLUDING**

» Proper glucose metabolism
» Regulation of blood pressure
» Controlling the release of insulin
» Affecting immune function
» Control of inflammatory responses
» Mobilizing fatty acid reserves for metabolic use
» Affecting learning and memory capabilities

As cortisol is important in the regulation of many physiological processes, it is essential that cortisol levels in the blood be monitored and if necessary adjusted through supplementation. It is important to stabilize cortisol levels in order to keep our body’s physiological processes in equilibrium. This is why it is important to consult with our healthcare practitioner in order to find the right balance of cortisol for you. Both hypercortisolism and hypocortisolism can be treated with the right balance of the appropriate healthcare. So talk with our healthcare practitioner today for a consultation about how we can help you meet your healthcare goals.

Melatonin

Melatonin is a naturally occurring hormone produced primarily in the pineal gland of the brain. Melatonin is central to the regulation of the body’s circadian rhythm. The synthesis of melatonin as well as the blood’s concentration of melatonin peak in the middle of the night and gradually fall throughout the day. Furthermore, light inhibits the production and maintenance of melatonin levels in the body. In the modern world, artificial lighting reduces the amount of darkness that we are exposed to therefore decreasing the amount of melatonin in our body and throwing off our natural circadian rhythm. Melatonin is often used as a “natural sleeping aide” to help induce sleep without suppressing REM sleep and producing many of the side-effects associated with synthetic sleeping pills and sedatives. In addition to regulating circadian rhythm, melatonin has been shown to have a number of positive effects within the body.

Melatonin has been shown to be a powerful antioxidant that can easily cross the blood brain barrier and cell membranes. It is involved in the free radical scavenging cascade and has been shown in animal testing to help prevent damage to the DNA by some of the carcinogens known to cause cancer. Researchers at the Tulane University School of Medicine have conducted research which suggests that melatonin can help stop or reduce the growth of breast cancer cells in humans. Additionally oncologists in Milan have reported that melatonin when used in conjunction with chemotherapy and immunotherapy can help with tumor regression, lead to fewer side effects and a longer life than patients who only use chemotherapy and immunotherapy alone.
Melatonin—Continued

New research suggests that melatonin may also be effective in combating or preventing:
» AIDS
» Alzheimer's disease
» Asthma
» Cataracts
» Diabetes
» Down's syndrome
» Breast Cancer
» Heart Disease

In order to combat these diseases as well as to synchronize our circadian clock, Ageless Preventative Medical Clinic offers melatonin supplementation. Melatonin is available without a prescription in the US and comes in a variety of dosage forms (capsules, tablets, liquid or as transdermal patches). Melatonin has been shown to be a safe supplement with very few reported side effects as well.

Thyroid Hormones

The two principle hormones released by the thyroid gland are triiodothyronine (T3) and thyroxine (T4). These hormones are involved in many physiological processes within the body including regulating the rate of metabolism, growth and development. The synthesis and release of T3 and T4 are regulated by the pituitary gland which releases thyroid stimulating hormone (TSH) when the levels of T3 and T4 are too low. Increased thyroid hormone levels stimulate fat and carbohydrate mobilization and metabolism. Also thyroid hormones stimulate metabolic activity in most tissues within the body leading to an increase in metabolic rate and an increase in body heat production.

Thyroid hormones are also necessary for normal growth and development. The action of the thyroid hormones is intertwined with that of growth hormone thus affecting growth and development in both children and adults. The clearest evidence of this is that people whom become thyroid deficient show marked signs of decreased growth and are more susceptible to diseases. Furthermore there are several diseases associated with both the underproduction and overproduction of thyroid hormones.

Hypothyroidism is the result of any condition that results in a thyroid hormone deficiency. This can occur for many reasons, but two of the primary causes are iodine deficiency and primary thyroid disease. Iodine deficiency usually occurs in inland areas with iodine-deficient soil and can result in goiters, developmental delays and numerous other health problems. Primary thyroid disease is another important cause of hypothyroidism. Primary thyroid disease is an inflammatory disease that destroys parts of the thyroid gland thus inhibiting the release of T3 and T4.
**EARLY SYMPTOMS OF HYPOTHYROIDISM INCLUDE**

- Poor muscle tone
- Fatigue
- Depression
- Muscle cramps
- Carpal Tunnel syndrome
- Pale complexion
- Dry, itchy skin
- Weight gain
- Water retention
- Increased sensitivity to cold weather

**LATE SYMPTOMS OF HYPOTHYROIDISM INCLUDE**

- Abnormal or irregular menstrual cycles
- Slower speech
- Lower basal body temperature
- Impaired memory
- Hair loss
- Difficulty swallowing

Hyperthyroidism results when the thyroid gland overproduces the hormones T3 and T4. This results in an excessive stimulation of metabolism in the body resulting in increased excitation of physiological processes. Hyperthyroidism is often the result of Graves’ disease, but it may also be due to a toxic goiter or tumor.

**THERE ARE SEVERAL SIGNS AND SYMPTOMS OF HYPERTHYROIDISM INCLUDING:**

- Weight loss accompanied by increased appetite
- Anxiety
- Tremors
- Hyperactivity
- Irritability
- Intolerance to heat
- Excessive sweating
- Excessive thirst
- Excessive urination
- Depression
- General fatigue and apathy
- Shortness of breath

The goals of thyroid hormone replacement therapy are to normalize thyroid hormone levels and to provide symptomatic relief. Although there are several types of thyroid hormone replacement available, not any one type is an optimal therapy for everyone. As a result treatment options may vary from person to person. Both hyperthyroidism and hypothyroidism are conditions that are treatable. It is important to consult with our healthcare practitioner so that we can test your thyroid and other hormone levels in order to determine the best care for you.
Human Growth Hormone (HGH)

Human growth hormone (HGH) is the bio-identical equivalent of the naturally occurring growth hormone (GH) secreted by the anterior pituitary gland in the brain. Growth hormone is known for its ability to stimulate cell growth, renewal & repair. Physiologically, growth hormone (GH) has many effects in the body including increasing the absorption of calcium, increasing protein concentration, increasing metabolism & the utilization of the body’s fat stores to increase energy.

Adult Growth Hormone Deficiency (AGHD)

In August of 1996, the FDA approved recombinant Human Growth Hormone for the use in adult patients for the first time. In adults, HGH is essential to maintaining healthy body composition and metabolism. While before 1996, HGH was only authorized for use to promote growth in short children with growth deficiencies, now HGH can be prescribed for deficient adults to treat Adult Onset Growth Hormone Deficiency.

Diagnosing AGHD

You will need to have a blood test or blood spot test to measure your IGF-1 level to see if AGHD is the cause of your problems.

**QUESTIONS TO ASK YOURSELF**

» Do you tire more easily?
» Is it more difficult to get and stay in shape?
» Are you not getting your desired results from your exercise routine?
» Do you have less desire to exercise?
» Does it take you longer to recover after you have exercised?
» Have you lost some of the zest for life?
» Is your body getting soft?
» Are you eating the same or less and putting on weight?
» Have you lost some of your mental quickness?
» Has your reaction time slowed?

What is Adult Growth Hormone Deficiency (AGHD)?

HGH is produced by the pituitary gland in the center of the brain. Everyone naturally has HGH in their body from birth. During adolescence, when we are in optimal physical condition, production of HGH is high. However, HGH levels peak somewhere between the ages of 21 and 30 and then aggressively decline at the alarming rate of 14% per decade.

Research has shown that virtually every adult is HGH deficient. By the age of 40 you may already have “elderly” levels of HGH production, down as much as 50% from your baseline level. Adults need growth hormone to maintain the proper amounts of fat, muscle, and bone in their bodies. However some people don’t make enough of it and need growth hormone replacement. This condition is called AGHD.
Signs and Symptoms of AGHD

If you are diagnosed with AGHD, it may come as a surprise. That's because growth hormone-deficient adults may not “feel bad.” However, most tend to notice symptoms or changes in the way they feel or look. Possible signs and symptoms associated with AGHD include:

» Skin—Skin loses elasticity. Becomes thinner, sags, and wrinkled
» Energy—Loss of vigor and stamina
» Bone—Bones lose strength and there is an increased susceptibility to osteoporosis
» Sexual Power—Loss of sexual power and libido
» Muscle—Muscles lose strength and mass
» Fat—Fat tissue increases and accumulates
» Memory—Memory begins to fade
» Heart—Heart muscle loses strength
» Kidney—Decreased kidney function
» Immune System—Decreased immunity and increased healing time
» Hair—Hair becomes thinner and loses color
» Cholesterol—Increased cholesterol build-up

POSSIBLE BENEFITS & EFFECTS OF GROWTH HORMONE

» Skin—Increased skin elasticity, texture, and tightness
» Energy—Increased energy and emotional stability
» Bone—Improved bone strength
» Sexual Power—Increased sexual potency and frequency
» Muscle—Increased muscle strength and mass
» Fat—Decreased fat tissue
» Memory—Improved mental functioning, strength & mental focus
» Heart—Improved cardiovascular strength and lower blood pressure
» Kidney—Improved kidney function
» Immune System—Improved immunity and healing
» Hair—Improved hair texture
» Cholesterol—Elevated HDL and lowered LDL
» Loss of Body fat
» Boost your Energy, Strength, and Endurance
» Better Sleep

GROWTH HORMONE REPLACEMENT IMPROVES QUALITY OF LIFE

» Energy
» Vitality
» Anxiety
» Depression
» Well-being
» Self-control
Signs and Symptoms of AGHD—Continued

The first major study showing the promise of HGH therapy was published in the New England Journal of Medicine (Rudman; 323:1-6 1990). This study was orchestrated by the renowned Dr. Daniel Rudman. It divided 21 men (between the ages of 60 and 80) with IGF-1 levels less than 350 IU per liter into two groups: 12 test subjects and 9 control subjects.

A 6-month period of data collection was followed by a 6-month period in which the 12 test subjects received HGH injections and the 9 control subjects did not. The results were promising: increases in lean muscle mass, decreases in adipose fat tissue, and increases in vertebral bone height. All test subjects had measurable increases in HGH levels, as measured by IGF-1 blood values.

The control group had none of these results. The effects of six months of human growth hormone on body mass and adipose-tissue mass were equivalent in magnitude to the changes incurred during the 10 to 20 years of aging.

Since Rudman’s landmark study, leading doctors and healthcare professionals worldwide have performed many studies that all come to the same conclusion – HGH therapy works. For a complete background on recent and past HGH studies and information on HGH therapy in general, the book entitled “Grow Young With HGH” by Dr. Ronald Klatz (ISBN 0-06-098434-1) is fascinating reading and a “must read.”
# Getting Started with Human Growth Hormones

A quick and easy way to see if human growth hormone may be right for you is to answer the following questions:

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>ABSENT</th>
<th>MILD</th>
<th>MODERATE</th>
<th>SEVERE</th>
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</thead>
<tbody>
<tr>
<td>Do you often feel tired?</td>
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<td>Do you feel happy most of the time?</td>
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<td>Do you often go through mood swings?</td>
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<td>Do you anger easily?</td>
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<td>Are you depressed often?</td>
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<td>Do you often feel anxious or stressed out?</td>
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<td>Do you feel you work too hard?</td>
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<td>Do you often look forward to retirement (not to pursue an activity, but to do less?)</td>
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<td>Do you keep in touch with friends?</td>
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<td>Do you maintain an interest in sex?</td>
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<td>Is your sex life declining?</td>
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<td>Do you have trouble falling or staying asleep?</td>
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<td>Do you feel well rested after sleep?</td>
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<td>Do you find yourself forgetting things?</td>
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<td>Do you find it harder to think clearly?</td>
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<td>Do you use memory aids (ex. lists)?</td>
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<td>Do you have problems concentrating?</td>
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<td>Are you in poor physical health?</td>
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<td>Are you more than 20% above your ideal weight?</td>
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<td>Is it very difficult for you to lose weight?</td>
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<td>Have you developed a spare tire or love handles?</td>
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<td>Does your musculature look youthful?</td>
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<tr>
<td>Do you feel your overall health is good?</td>
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<td>Do you often get colds or feel sick?</td>
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<td>Do you commonly feel aches or pains?</td>
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<td>Is your blood cholesterol over 200?</td>
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<td>Is your blood cholesterol over 240?</td>
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<td>Men, is your HDL less than 45?</td>
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<td>Women, is your HDL less than 55?</td>
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<td>Is your blood pressure normal?</td>
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<td>Has your vision noticeably deteriorated?</td>
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<td>Do you have to urinate frequently?</td>
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<tr>
<td>SYMPTOMS</td>
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<tr>
<td>Do you have digestive problems?</td>
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<td>Does the skin on your face, neck, upper arms, and abdomen appear to hang?</td>
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<td>Do you think you look older than your age mates do?</td>
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<td>Do you have cellulite on your thighs?</td>
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<td>Do you need haircuts less frequently?</td>
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<td>Does it seem to take a long time for cuts and bruises to heal, or for wounds to close?</td>
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<td>Is it getting harder to exercise?</td>
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<td>Do you seem to have less strength for gripping or lifting?</td>
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<td>Is your endurance less?</td>
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<td>Is your breathing more labored when you exercise hard?</td>
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<tr>
<td>Do you find the longer you live, the better you feel about life?</td>
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<td>Are you age 45 to 54?</td>
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<td>Are you age 55 to 64?</td>
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<tr>
<td>Are you age 65 or above?</td>
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</table>

**NOTES:**

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Hormone Replacement Therapy

**Patient Information Sheet**

NAME: __________________________________________

**Have you experienced any of the following symptoms recently?** Please circle the number that best describes your experiences with “1” being Extremely Mild and “10” being Extremely Severe.

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<tr>
<th>Symptom</th>
<th>1</th>
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<th>4</th>
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<tr>
<td>Sleep Disturbance</td>
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<td>Fatigue</td>
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<td>Irritability</td>
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<td>Prostate Enlarge</td>
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<td>Low Libido</td>
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<td>Arthritis</td>
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<td>Erectile Dysfunction</td>
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<td>Decrease in Strength</td>
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<td>Loss of Recent Memory</td>
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<td>Heart Disease</td>
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<td>Depression</td>
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<td>Lack of Motivation</td>
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<td>Decreased Bone Mass</td>
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<td>Hair Loss</td>
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<td>Loss of Height</td>
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<td>Decreased Sports Performance</td>
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<td>Decreased Work Performance</td>
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<td>Sleep Right After Meal</td>
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<td>Enjoyment of Life</td>
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25
The Eve Quiz for Women

Take this quiz to help you determine if bio-identical natural hormone replacement is right for you:

1. Have you noticed a decrease in your sex drive?
2. Do you have less energy than you used to?
3. Do you experience more depressed moods than usual?
4. Do you have difficulty falling asleep or staying asleep?
5. Have you noticed a change in your memory or concentration levels?
6. Do you find yourself more anxious than in the past?
7. Have you noticed an increase in vaginal dryness?
8. Do you suffer from hot flashes and/or night sweats?
9. Are you suffering from mood swings or irritability?
10. Do you notice an increase in food cravings?

*Women answering yes to a combination of any 4 or more of these symptoms may be candidates for bio-identical hormone replacement therapy

The Adam Quiz for Men

Take the following quiz to help you determine if testosterone replacement is right for you:

1. Have you noticed a decrease in your sex drive?
2. Do you have less energy than you used to?
3. Have you noticed a decrease in your strength?
4. Have you lost height?
5. Are you getting less enjoyment out of life than you used to?
6. Are you sad and/or grumpy?
7. Are your erections less strong?
8. Have you noticed a decrease in your sports performance?
9. Do you fall asleep soon after dinner?
10. Has your performance at work decreased?

*Men answering “Yes” to questions 1, 7, or a combination of any 4 or more may be candidates for bio-identical hormone replacement therapy
Sexual Dysfunction

Sexual dysfunction refers to a person’s decreased ability to become or stay aroused. These sexual dysfunctions may include, but are not limited to sexual desire, arousal disorders, orgasm disorders and/or pain associated with intimacy. These symptoms are usually related to changes in the production and regulation of hormones within the body. In men, decreased testosterone production as a result of aging is often the main hormonal reason for sexual dysfunction. In women, hormonal sexual dysfunction usually results from deficiencies in estrogen production.

**MANIFESTATIONS OF SEXUAL DYSFUNCTION:**

» Decreased desire for sexual activity
» Decreased ability to become aroused
» Loss of orgasms
» Impotence
» Vaginal dryness
» Pain during intercourse
» Inability to control timing of ejaculation
» Hypersexuality
Weight Loss & Nutritional Therapy

Our holistic healthcare approach means that we don’t believe that there is a cure-all solution for living healthy and losing weight. We believe that going on a diet shouldn’t be something that people mindlessly go through and then quit a month later. Good health is not just about a new diet, it is about proper nutrition and a healthy lifestyle. In order to get the most out of a diet, you have to work at it and at Ageless Preventative Medical Clinic we are here to help you with that in any way we can. In addition to the nutritional therapy and diet that we can help design for you, exercise and an overall healthier lifestyle are key to helping you not only lose the weight, but to keep it off. We understand that losing weight is not just a physical battle, but a mental battle as well. Our holistic approach stresses that the mental and physical aspects of being healthy are ultimately tied together and are equally important in achieving your weight loss goals.

Nutritional Therapy

Many of the foods in the modern diet do not have the same nutritional content as they once had in the past. This is due in part to the depleted soil which many of the fruits and vegetables we eat are grown in. While some of these fruits and vegetables are larger in size than they were in the past, they are also less rich in vitamins and essential nutrients. Where our diets fall short:

<table>
<thead>
<tr>
<th>NUTRIENT</th>
<th>IMPORTANCE</th>
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<tbody>
<tr>
<td>Zinc</td>
<td>Improves immune function, wound healing, growth and development</td>
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<tr>
<td>Calcium</td>
<td>Helps protect bones and control blood pressure</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Helps control blood sugar and blood pressure, may help in the prevention of diabetes and heart disease</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>Improves immune function, may reduce the risk of certain cancers</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>Improves immune function and controls blood sugar</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Helps in tissue growth and repair. May reduce the risk of strokes and certain types of cancer</td>
</tr>
<tr>
<td>Folic Acid</td>
<td>Promotes normal cellular growth and development. Helps control homocysteine levels</td>
</tr>
</tbody>
</table>

As we age our digestive tract gradually loses its ability to adequately absorb vitamins and nutrients. Scientific research has shown that when we consume a sufficient quantity of vitamins and minerals that it can help to significantly protect against harmful diseases and leads to an overall healthier lifestyle. While nutritional supplements are not a replacement for food, in conjunction with exercise and a balance diet they can significantly improve your health. At Ageless Preventative Medical Clinic we can help find the right mix of nutrients for you based on your body chemistry in order to help you live a healthier lifestyle.
What is HCG?

Human Chorionic Gonadotropin (HCG) is a hormone naturally produced in the body and is significantly increased during pregnancy. HCG has many functions within the body including maintaining progesterone production & immune function during pregnancy. As a mother goes through the stages of pregnancy, her HCG levels correspondingly rise in order to help maintain nutrition for the growing placenta. It is for this reason that HCG is sometimes used for early pregnancy testing. However it should be noted that while HCG can be used as a fertility drug in high enough doses (10,000 units for a one time use), the amount of HCG used in the HCG weight loss program is far less (150 units, 6 days a week) & does not significantly increase a woman's chances of getting pregnant while on the diet.

Origins of the HCG Diet

The HCG diet was created by Dr. A.T.W. Simeons in the late 1960's. Dr. Simeons observed that pregnant women in India whom are naturally subjected to calorie-deficient diets were still bearing healthy newborn children. He hypothesized that the increased levels of HCG produced by the placenta during pregnancy must be responsible for aiding in the nutrition and development of the child throughout pregnancy. He reasoned that the hypothalamus programs the body to use HCG to utilize the mother’s fat stores in order to help protect the developing fetus. He began using low doses of HCG in conjunction with a low calorie diet in order to help facilitate weight loss. What he observed is that it helped overweight & obese adults to lose dramatic amounts of fat & weight in a short amount of time. Furthermore he found that the fat which was lost was not the “good” protecting fat that surrounds the organs, but rather the “bad” fat which is typically found in problem areas such as the buttocks, thighs, under arms and waist line.

CRITERIA FOR STARTING HCG WEIGHT LOSS PROGRAM
» Physical exam and laboratory analysis of CBC, CMP, TSH, Lipid Profile within the last year
» BMI greater than 25
» Must be 19 years or older
» Weekly clinic visits until the desired weight loss is achieved
» Follow up monthly for maintenance program is optional
Overview of Program

Phase 1
An optional month of cleansing, consisting of eating organic healthy foods and doing various herbal cleanses to the body.

- Set up an appointment for a 1 hour consultation with our healthcare practitioner.
- Print out the online nutritional analysis nutritional worksheet from the Ageless Preventive Medical Clinic website and bring the completed forms with you to your first appointment. Also bring any laboratory analysis that you have had done in the last year (optional).
- During the first visit, the healthcare practitioner will explain the weight loss program and answer any questions about the administration of the hCG and the calories and foods the patient should eat. Vital signs, weight, BMI, and a physical assessment will be done during the visit.
- After the initial 1 hour consultation, the patient is required to make weekly appointments to weigh in, assess vital signs, pick up the hCG for the next week and get questions answered if needed.

Phase 2
HCG will be given along with a low calorie diet—HCG is administered by injection, or sublingual. The diet is a strict specific 800 calorie per day diet plan.

- For 2 days, you eat as many calories as possible with HCG.
- Start the low calorie diet, along with HCG on day 3. HCG injection must be skipped one day per week to prevent immunity, but the low calorie diet is maintained. This time frame applies to those administering by injection. Those administering the HCG sublingually are allowed to stay on Phase 2 until they’ve lost all the weight they would like to. With the sublingual method, the HCG can be taken every day without risk of immunity.
- After 40 days on the HCG, do 72 hours on the low calorie diet without the HCG.

Phase 3
Go 3 weeks on a diet without starches and sugars. Eat lean meats, fruit, nuts, vegetables, whole grain breads and low fat dairy. If you go 2 pounds over your last HCG day, you must have a steak day, where you have only water or tea until dinner, and then eat a steak and either an apple or a tomato.

Phase 4
Eat a balanced diet of lean meats, fruit, nuts, vegetables, whole grain breads and low fat dairy. Avoid processed foods. You must continue to weigh yourself every day, and the steak day applies in this phase as well. If you are at your desired weight, you will stay on phase 4 for the rest of your life. If you weigh yourself everyday and do the steak day immediately if you go over 2 pounds, you shouldn’t need to go on a diet again. If you haven’t lost all the weight you would like and are taking the injections, you must stay on Phase 4 for 3 weeks, and then you can start a second round of Phase 2, with the hCG and low calorie diet. The only difference is with each round you do, you must double the amount of time in Phase 4. For example, if you are in your second round, you must stay in Phase 4 for 6 weeks. If it is your third round, you must stay in Phase 4 for 12 weeks.

In order to see any of the positive effects that this diet may have it is important to keep our healthcare practitioner up to date with your progress. By doing so we can help to identify areas where the program may be falling short and curtail it to your body to maximize results for you. This is why it is important to schedule follow up meetings so we can help you reach your weight loss goals. Remember that losing weight should be done in a safe, responsible manner. This is why it is important to eat a balanced diet and to exercise everyday in addition to our weight loss program. Our weight loss program isn’t just about losing weight; it is about living a healthier life.
Environmental Toxins

In the modern urbanized society we are exposed to far more artificial environmental toxins than humans ever have been in the past. From industrial byproducts to pollution and heavy metal exposure, we are exposed to more artificial toxic materials now than ever before. In addition to the depleted soil our fruits and vegetables are grown in with artificial fertilizers we also directly expose ourselves to many preservatives and toxic impurities in beauty products such as mascara, lip balm and suntan lotion.

Xenoestrogens
Xenoestrogens are synthetically produced compounds that induce estrogen-like effects in the body. They are believed to be a potential agent for many medical conditions most notably conditions associated with reproduction. It is believed that the chemically similar structure of xenoestrogens to naturally produced estrogen may increase the incidence of breast cancer in women, a decreased sperm count in men and additional complications in both men and women due to an imbalance between testosterone and these estrogen-like synthetic compounds. Xenoestrogens are commonly found in the following compounds:

- 4-methylbenzylidene camphor (found in sunscreen lotions)
- Dieldrin, lindane, heptachlor, methoxychlor, & DDT (found in insecticides)
- Phthalates (found in plasticizers)
- Phenosulfonamide & erythrosine (found in red dyes)

Wax, Vaseline, and Other Petroleum Derivatives
Petroleum is a naturally occurring mixture of various hydrocarbon chains, trace amounts of heavy metals and other organic compounds. While petroleum is often associated with crude oil, there are many derivatives of petroleum that are distilled and processed for a variety of different everyday purposes. These everyday petroleum products that our body comes in contact with include wax used in the packaging of frozen foods, lubricants such as Vaseline and a variety of plastics. Despite our knowledge about the potential negative side effects associated with carcinogenic hydrocarbons (some of which are found in tobacco smoke) found in some petroleum products, people continue to use them even on infants. In fact Petrolatum (commonly known as Vaseline) is listed as a probable human carcinogen according to the European Union due to its potentially cancer-causing carbon chained derivatives: ethylene oxide, 1,3-butadiene and various polycyclic aromatic hydrocarbons. It is suspected that the incidental ingestion or absorption of these petroleum-based hydrocarbon chain structures may lead to a variety of diseases including breast and lung cancer.

Mercury
Mercury is a highly toxic metal which is a silver liquid at room temperature. It is extremely toxic when ingested or inhaled. Mercury is found in a variety of products including many types of fish, thermometers, thermostats, blood pressure cuffs, batteries, fluorescent light bulbs and has been used in the past for dental fillings and mascara. Mercury is also found in the environment in volcanic rock, various types of mining facilities and sewage sludge. Mercury poisoning can result in damage to the brain, lungs and kidney as well as several other different deadly diseases. Often patients that have been exposed to mercury have little to no symptoms or history of the exposure. Lab testing is needed to determine the extent of the exposure which is why it is important that everyone be tested and consult with their healthcare provider about the risks of mercury poisoning.
**Methods of Testing**

Ageless Preventative Medical Clinic offers three types of testing methods to help evaluate patient hormone levels. Although no testing actually takes place at the clinic, the healthcare practitioner will facilitate getting you all the supplies you need in order to get fast, accurate test results. The three methods of testing that APMC provides are saliva, a capillary test and a blood draw test. These three methods are used because they are considered the most accurate ways to assess patient hormone levels.

**Saliva**

Ageless Preventative Medical Clinic utilizes the saliva testing to assess both the initial baseline hormone levels as well as for follow up testing. Follow up testing is done in order to assess how the body is responding to the hormone treatment and to adjust the dose if necessary. Saliva testing is done through either ZRT Laboratory or Labrix Clinical Services testing facilities. For the saliva test we provide you with four small vials to collect saliva in, first when you wake up in the morning, right before lunch, right before dinner and right before bedtime. Additionally we provide you with a UPS or USPS ready to send box with prepaid postage. While APMC does require cash or credit payment for these tests at the time of your consultation and will NOT bill your insurance for this testing, we do provide you with a universal insurance claim form that will allow you to be reimbursed if your insurance covers the rendered services.

**Blood Spot**

Ageless Preventative Medical Clinic utilizes a blood spot test to assess both the initial baseline hormone levels as well as for follow up testing. Follow up testing is done in order to assess how the body is responding to the hormone treatment and to adjust the dose if necessary. Unlike the saliva test, the blood spot test is a finger prick blood testing method which is done just once within 30 minutes of waking up in the morning and is sent to ZRT Laboratory. The blood spot test is similar to a blood glucose test in which we provide you with two sterile lancets and a blood spot card where you place your finger to identify the hormones to be tested. Additionally we provide you with a UPS ready to send box with prepaid postage to ZRT. While APMC does require cash or credit payment for these tests at the time of your consultation and will NOT bill your insurance for this testing, we do provide you with a universal insurance claim form that will allow you to be reimbursed if your insurance covers the rendered services.

**Blood Draw**

Ageless Preventative Medical Clinic also uses a traditional blood test in which blood is drawn from the arm in order to determine baseline hormone levels. We do not however recommend the use of this type of blood test for follow up testing because it has not proven to be as accurate as either the blood spot testing from the finger or the saliva testing methods. While this type of testing can be done using your family practice physician, most of our patients generally use Quest Diagnostics because they are familiar with our practice and are able to test all of the hormone levels we desire. Quest is also familiar with billing insurance for these services and thus payment will occur at the time of testing at Quest.
## Cost & Expenses

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<th>CPT CODES</th>
<th>SALIVA HORMONE TESTS</th>
<th>COST</th>
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<tr>
<td>82670</td>
<td>Estradiol (E2)</td>
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<tr>
<td>82677</td>
<td>Estriol (E3)</td>
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<td>DHEA-S</td>
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<td>82530</td>
<td>AM Cortisol (C)</td>
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<td>82530 x 2</td>
<td>AM/PM Cortisol 2 Tubes</td>
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<td>MALE HORMONE PROFILE II (IGF-1, T, SHBG, PSA)</td>
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<td>$185</td>
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</tbody>
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*Note: All costs and codes are subject to change without notice.*
Sources and Resources

T. Colborn et al, Our Stolen Future, Penguin-Plume, 1997

J.S. Cohen, Overdose: The Case Against the Drug Companies, Tarcher-Putnam, 2001

D.L. Berkson, Hormone Deception, Contemporary Books, 2000

C. Dean, MD, The Miracle of Magnesium, Ballantine Books, 2003

F. J. Gilchrist, et al. The effect of long-term untreated growth hormone deficiency (GHD) and 9 years of GH replacement on the quality of life (QoL) of GH-deficient adults. Clinical Endocrinology (Oxford) 2002 Sep;57(3):363-70

A. Hill, MD, The Testosterone Solution, Prima, 1997

K. Jensen, MD, & L. Vanderhaeghe, No More HRT, Health Venture, 2002

J. Krop, MD, Healing The Planet One Patient At A Time, KOS Inc., 2002


M. Nestle, Food Politics: How the Food Industry Influences Nutrition and Health, University of California Press, 2001


U. Reiss, MD, Natural Hormone Balance for Women, Pocket Books, 2001

J. Robinson, Prescription Games, MacClelland & Steward, 2001

S. Rogers, MD, Detoxify or Die, Sand Key Co., 2002

Z. Rona, MD, Boosting Male Libido Naturally, Alive Books, 2002


R. Sahelian, MD, Saw Palmetto: Nature’s Prostate Healer, Kensington, 1998


A. Simeone, Pounds & Inches: A New Approach to Obesity, Salvator Mundi International Hospital, 1967


M. Walker, Elements of Danger: Protecting Yourself Against the Hazards of Modern Dentistry, Hampton Roads, 2000

M.R. Werbach, MD, Textbook of Nutritional Medicine