



Female Handbook

(Summary from Dr. Mark Gordon's Book: Interventional Endocrinology)

Medical science acknowledges that age related decline in the quality of our bodily functions and frequently finds a consistency in progressive loss of important hormones as we age. But what do the doctors do about it? In the recent past very little if anything, since it is accepted by traditional medicine that the progressive decay in our bodies is natural and anticipated. But nothing is natural about ignoring the ability of medical intervention and the replacement of these hormones to healthy physiological levels.

In returning deficient levels of hormones back to more youthful, physiological levels, we have seen improvement in multiple sclerosis, fibromyalgia, rheumatoid arthritis, dry eye syndromes, scarring of the lungs, accelerated fracture healing, repair of muscle damage, healing of chronic joint injury, regrowth of hair, return of hair color decreased depression, improvement in blood pressure, improvement of vision, decrease in joint pain with increased range of motion and on and on and on.

The role of a physician practicing Interventional Endocrinology is to evaluate the levels of all hormones such as; Thyroid, Testosterone, Estrogens, Progesterone, DHEA, DHT, Growth Hormone, IGF-I, and others to assure that they are all present and at healthy physiological levels.

Hormonal Profile

- The numeric values that we receive from the laboratory are entered in our reporting form. The ranges that we use are not related to your age since we have seen that it is common for our hormone levels to decrease as we age. This is not generally a reflection of optimal health. By returning your hormones to a healthier physiologic level you can improve your symptoms and have a better quality of life.

Chemistry Profile:

- This section contains blood sugar, liver function, bone chemistry, cholesterol, kidney functions, blood counts and urine analysis.

Suggested Program:

- After a review of your laboratory result, goals and medical history, a program is designed to provide a safe and effective treatment plan. There are usually a number of options that

are offered and discuss in the Handbook that you will choose once we get together to discuss them.

Anticipated Scheduled Visits:

- Based upon the "Suggested Program" an appropriate schedule for office visits and blood work is provided. In general during the initial treatment cycle of 12 weeks, we see you on a regular basis during which we draw blood to follow your response to treatment. It is only through this process that we can assure that we are getting the right dosing of all the products without over treating. Once we establish how you respond to treatment, the timing between visits can increase.

Review of Medication:

- If you are taking medication from your primary physician, we keep an accurate accounting of them. We do not recommend, change or alter any aspect of your primary care giver's treatment. In the event that the medications that you are on are no longer indicated to be of need, we will send you back to your primary physician to discuss with them your options.

UNDERSTANDING YOUR LABORTAORY TESTING

Hormone Profile

- 1 **Growth Hormone** is produced and released by the Anterior Pituitary Gland. Most of the hormone is released at night while we sleep. It is also produced and released by intense aerobic exercise and with fasting. High levels of carbohydrates and fats in our blood can decrease production and release of growth hormone. Human Growth Hormone stimulates the production IGF-1 of Insulin-Like Growth Factor by all cells. It appears that IGF-1 enhances protein synthesis which is the fundamental process needed for the repair and maintenance of all human cells, tissues and organs.
- 1 **Male Hormones** *Total Testosterone* is the sum of all forms of Testosterone in the blood. *Free Testosterone* is the fraction of Total Testosterone that is not attached to a carrier protein (Albumin). DHT dihydrotestosterone, the active metabolite of Testosterone. It is responsible for our sex drive, memory, attitude, ability to learn, and physical attributes. When it is elevated it can cause hair loss, acne, and enlargement of the prostate. At this time, there is no evidence to associate elevation of DHT with cancer of the Prostate or any other organ. *Sex Hormone Binding Protein* is a protein that is low when we are young and increases as we age. It binds to Testosterone and inactivates it. Having low level of the protein allows for more Testosterone to be available to help keep our bodies healthier. DHES-s of Dehydropiandrosterone is associated with a sense of well being, improved REMM sleep, decreasing body fat, lean body mass, enhanced immune function, and other

important issues of health. PSA of prostatic Specific Antigen is produced in response to inflammation of the prostate. This could be caused by a bacterial infection or due to either a benign or cancerous enlargement of the prostate. Levels above 4.0 or a change from one year to another greater than 20%, warrants further investigation.

- 1 Female Hormones Estrone (E1)** Estrone is the principal estrogen found in both the postmenopausal woman and the aged male. This increase in Estrone is due to the increased conversion of androstenedione to Estrone. **Estriol (E3)** is protective against breast cancer and its deficiency directly causes hot flashes and nervousness associated with “the change.” Progesterone diminishes the production of a cancer-causing form of estrogen called 4-hydroxy-estrone, while increasing the production of cancer-preventing Estiol. **Estradiol (E2)** This is the main female hormone that has been associated with protection against fracture, reduction in heart attacks, decreased Alzheimer’s disease and possible increased risks for Breast Cancer in those who are genetically predisposed.
- 2 Progesterone:** Cyclically, it prepares the uterus for the implantation of fertilized egg. Many women benefit from small amounts of extra progesterone during premenstrual time of the month. Progesterone can prevent salt from being absorbed leading to fluid retention; it raises the temperature in man and has hypnotic effects on the brain. Progesterone also acts on the respiratory system to decrease carbon dioxide levels in the blood and in the lungs. Raising progesterone slightly also prevents cravings which occur with huge swings of progesterone. Progesterone even affects levels of amino acids and lipid metabolism. Increasing calcium to 1500 mg a day for one-week premenstrual, will naturally raise the levels of Progesterone. Progesterone is a precursor to many other hormones; Cortisol, Aldosterone, Estradiol, DHEA, Testosterone, Estriol, and Estrone as well as Androstenedione.
- 3 Testosterone:** As in males, the benefits from supplementation or replacement of Testosterone are multifaceted. It has been found to be associated with mental functioning, energy levels, libido, sense-of-well being, learning, memory, body fat and muscle proportions, cholesterol levels, bone density and tissue healing. **DHEA-s:** Dehydroepiandrosterone is Androgenic Hormone responsible for a sense of well being, improved REM sleep, decreasing body fat and increasing lean body mass, enhancing the immune function and many other important issues of health.
- 4 Thyroid Hormones TSH** or Thyroid Stimulation Hormone is elevated when the thyroid gland is failing to supply sufficient hormone for our body. **Free T3** is the activated form of the thyroid hormone. **Free T4** is the pre-activated thyroid hormone. Both T3 and T4 are sensed by the brain to determine if the amount in the body is enough. If not, more TSH is released by the Pituitary Gland. There are over 31 million Americans with Thyroid Deficiency. Many have the symptoms of the deficiency but few are treated if their levels are

still within the “normal” ranges. A form of Hypothyroidism (low thyroid) that is associated with a borderline normal level of hormone is called “Subclinical Hypothyroidism or Euthyroid Hypothyroidism.” When these patients are treated appropriately, they wake up to life (live).

- 5 **Cardiac Status Homocysteine:** This product is produced in your body by metabolism of an amino acid called Methionine. When it accumulates in your blood it can cause cholesterol to harden on the lining of your blood vessels. Think of it as being the mortar and Cholesterol being the bricks. The harder the bricks are stuck together the harder they will be to remove. Fortunately, Homocysteine is decreased by three vitamins (**B6 B12 Folic Acid**). **C - Reactive protein (CRP):** An old protein with new found dangers. CRP and two other recently discovered proteins (IL-6 and ALP-a) are associated with **premature cardiovascular disease in men**. A recent 18-month long study found that these three proteins are elevated when the levels of Human Growth Hormone are low but, when replaced, significantly reduces them.
- 6 **Other Hormones Cortisol:** Is a hormone that has been found associated with STRESS. This stress hormone leads to the destruction of nerve cells and the death of brain cells. It can account for disorientation, irritability, headaches, and diminished mental abilities, Meditation, Royal Bee Jelly, Bee Pollen and Vitamin B5 (pantothenic acid) have all been shown to reduce the Cortisol level.
- 7 **Insulin:** Often only recognized as being associated with Diabetes when low, it can also be extremely elevated in a new disease called “**Syndrome-X of Metabolic Syndrome.**” Fasting levels for Insulin are much lower (less than 10) than after a meal (10-30)
- 8 **Hemoglobin A1c (HgA1c):** hemoglobin is the chemical inside of the red blood cells that is responsible for carrying oxygen that is absorbed into the blood with every breath. When this Hemoglobin is exposed to high levels of blood sugar, as in a Diabetic, it attaches to the hemoglobin molecule. WE can measure this complex which reflects the Average blood sugar level up for the past 120 days. So it is a good means of monitoring how your blood sugar levels have been for the past 4 months.

Chemistry Profile

A: Glucose: is the same as blood sugar. This can be elevated after a meal or because of Diabetes. It can be low if you have Hypoglycemia (low blood sugar). This can be caused from eating too much processed sugars and grains (flour). It can cause you to crave sweets and be the underlying cause for obesity. Allowing us to monitor your diet and exercise habits could lead to a better understanding of the cause.

B: Electrolytes: Na is Sodium, K is potassium and Cl is Chloride. These three elements regulate the entry of important compounds through the cell membrane. Deficiencies in these can cause weakness, muscle cramping and death.

C: Hepatic of Liver Functions are reflected in levels of Enzymes (SGOT, SGPT, ALK, Phos, LDH and GGTP). Hepatitis due to viral infections and chemical insults to the liver can make some or all of these enzymes elevated. These are used to monitor potential damage to the liver when chemicals are put into our bodies as food or drugs.

D: Bone and Joints: Calcium and Phosphorus are the two fundamental component of bone. Alterations in these can reflect changes to the bones. Uric Acid is a by-product of protein metabolic and is responsible for a type of Arthritis called Gout. Calcium is the major mineral found in our bones and gives them strength. Phosphate is another mineral that composes bon Mg of Magnesium is important for muscle relaxation and contraction.

E: Lipids Consists of Triglycerides or Fats, which are mostly from the food we eat. Our livers produce about 80% of our cholesterol, and 20% comes from the food we eat. HDL Cholesterol is the protective form of cholesterol with LDL Cholesterol is the harmful form. Triglycerides are the fats in our blood. Cholesterol is the name given to an array of chemicals that make up the fraction of blood that we refer to as “Cholesterol.” HDL is High Density Lipoprotein the “good” cholesterol. This level should be over 45mg%. The higher the number the more protection we have against atherosclerotic disease. LDL or Low Density Lipoprotein is the “bad” cholesterol. This level should be less that 100mg%. **Cardiovascular Risk Factor** is found by dividing the Total Cholesterol by HDL. An average risk is 4.4, one-half risk is 3.5 and a quarter risk is 2.7.

F: Renal or Kidney Group indicates how well our kidneys are removing by-products of metabolism from out blood. BUN of Blood Urea Nitrogen is a reflection of the metabolism of Creatinine is a breakdown product of muscle metabolism.

G: CBC and ESR; The Complete Blood Count also measures the Sedimentation Rate, a non-specific indicator of inflammation. The RBC or Red Blood Cell count tells us the number of red blood cells in our blood. Low levels are associated with anemia. High levels can be caused by over production or when we are dehydrated from nor drinking sufficient amounts of water every day. WBC or White Blood Cell count tells us the number of cells that are responsible for our immunity. Levels are elevated in infection states.

Hormone Profile	Results	Ideal Range			
Sommatomedin C (IGF1)		>250ng/ml			
Estrone		<15-200 pg/ml			
Estradiol		26 - 165 pg/ml			
Estriol		0-0.10 ng/ml			
Progesterone		3-25 ng/ml			
DHEAS		222ug/ml			
IGF Binding Protein 3		<3820 ng/ml			
Insulin		2-30 miu/L			
Testosterone Free		5 -5 pg/ml			
DHT Testosterone		11.5pg/ml			
Homocysteine		<10 umol/L			
TSH		<2.5 mcu/ml			
T3 Free		> 2.5 pg/ml			
rT3		90 - 350			
T4, Free		>1.5 ng/ml			
Cortisol		<15 ug/ml			
Vitamin D		>80 IU/ml			
C reactive Protein		<1.2 mg/dl			

The ideal range is at the 50th percentile of range. Treatment is geared to 50th-70th percentile

MENOPAUSE; A HORMONE DEFICIENCY SYNDROME

Menopause is a normal part of a woman's life, just like puberty. It is when the regulatory hormones that govern a woman's fertility change. The drop in these hormones alters the regularity of the menstrual cycle. The play between Luteinizing Hormone, Follicle Stimulating Hormone, Estrogens, and Progesterone leads to the development of an egg, thickening of uterine lining, and the ability to assist sperm to the ultimate goal of fertilization of the egg. Without these hormones orchestrated in harmony there is disruption of physiological function that affects not only the body but the mind.

This onset of changing hormone levels is called **perimenopopause**, which often begins several years before the woman's last menstrual period. At the point where the menstrual cycle is totally lost, and for one year after the last period, the time is known as **menopause**. After one year without a period one enters the stage called **Post-menopause**, which lasts for the rest of a woman's life.

Natural Menopause doesn't usually happen before the age of 40, but a very small number of women can experience a form of early menopause called premature menopause or precocious menopause around 30 years of age. On the other end some woman might not start menopause until their 50's. The average age is 51.

Artificially induced premature menopause can occur in smokers and from sugery where removing your uterus (hysterectomy) before menopause will make your periods stop, but your ovaries will still make hormones. That means you could still have symptoms of menopause like hot flashes when your ovaries start to make less estrogen. But, when both ovaries are removed (oophorectomy), menopause symptoms start right away, no matter what your age is, because your body has lost its main supply of estrogen.

There is not one symptom that clearly identifies the effects of diminished levels of Estrogens, Progesterone, and Testosterone. And, not every woman experiences the same degree and extent of symptoms with the decrease in these hormones. Therefore, it is impossible to predict exactly what signs and symptoms will constitute your entry into Perimenopause, Menopause, or Postmenopausal life. Being aware of the possibilities may alert you to seek medical evaluation and intervention in a more timely and comfortable manner.

- **Changes in your period.** This might be what you notice first. The accepted normal time between menstrual bleeding is 28 days. Some women may normally have slight differences in this timing during their fertile life. Frequently, there is a change in the timing and the period may no longer be regular. How much you bleed could change. It could be lighter than normal or even heavier. Periods may be shorter or longer. \

- **Hot Flashes.** These are very common around the time of menopause because they are related to changing estrogen levels. A *hot flash* is a sudden feeling of heat in the upper part or all of your body. Your face and neck become flushed. Red blotches may appear on your chest, back, and arms. Heavy sweating or cold shivering can follow. Flashes can be as mild as a light blush or severe enough to wake you from a sound sleep (called *night sweats*). Most hot flashes last between 30 seconds and 10 minutes.
- **Problems with vagina and bladder.** Deficiency of estrogen can cause a reduction in the naturally produced vaginal moisture leading to vaginal drying and thinning of the tissue. This could make sexual intercourse uncomfortable. There can be an increase in the occurrence of vaginal or urinary infections. You might find it hard to hold urine long enough to get to the bathroom. Sometimes your urine might leak during exercise, sneezing, coughing, laughing or running. These conditions can respond to both Testosterone and Estrogen replacement.
- **Sex.** Psychologically, the loss of Testosterone can increase the occurrence of depression, anxiety, irritability and drop your libido (sexual desires). There are a number of hormones which decrease with Menopause that do alter mental functioning. Many of these symptoms are based upon the hormonal deficiency that is Menopause. Replacing Estrogens, Progesterone and Testosterone can significantly improve upon these symptoms.
- **Sleep Problems.** You might start having trouble getting a good night's sleep. Maybe you can't fall asleep easily, or you wake too early. Night sweats might wake you up. You might have trouble falling back to sleep if you wake during the night. This appears to be the result of changing levels of Neurohormones.
- **Changes in your body.** You might think your body is changing. Your waist could get larger, you could lose muscle and gain fat. Your skin could get thinner. You might have memory problems, and your joints and muscles could feel stiff and achy.

These appear to be the direct results of a complex hormonal deficiency state. Although, many physicians would pass it off as just getting older. This is not 100% accurate as attested by thousands of patients on hormone therapy.

Potential Health Issues Associated with Menopause

- **Osteoporosis.** Day in and day out your body is busy breaking down old bone and replacing it with new healthy bone. Estrogen helps control bone loss. So losing estrogen around the time of menopause causes women to begin to lose more bone than is replaced. In time, bones can become weak and break easily. This condition is called osteoporosis. Talk to your doctor to see if you should have a bone density test to find out if you are at risk for this problem. Your doctor can also suggest ways to prevent or treat osteoporosis.
- **Heart disease.** After menopause, women are more likely to have heart disease. Changes in Estrogen levels may be part of the cause. But, so is getting older. As you age, you may develop other problems, like high blood pressure or weight gain, that put you at greater risk

for heart disease. Be sure to have your blood pressure and levels of triglycerides, fasting blood, glucose, and LDL, HDL, and total cholesterol checked regularly. Talk to your healthcare provider to find out what you should do to protect your heart.

MOOD CHANGES

Estrogen Dominance:

- 1 When estrogen is not balanced by progesterone, it can produce weight gain, headaches, bad temper, chronic fatigue, and loss of interest in sex – all of which are part of the clinically recognized premenstrual syndrome.
- 2 Not only has it been well established that estrogen dominance encourages the development of breast cancer thanks to estrogen's proliferative actions, it also stimulates breast tissue and can, in time, trigger fibrocystic breast disease – a condition which wanes when natural progesterone is introduced to balance the estrogen.
- 3 By definition, excess estrogen implies a progesterone deficiency. This, in turn, leads to a decrease in the rate of new bone formation in a woman's body by the osteoblasts – the cells responsible for doing this job. Although most doctors are not yet aware of it, this is the prime cause of osteoporosis.
- 4 Estrogen dominance increases the risk of fibroids. One of the interesting facts about fibroids – often remarked on by doctors – is that, regardless of size, fibroids commonly atrophy once menopause arrives and a woman's ovaries are no longer making estrogen. Doctors who commonly use progesterone will also cause fibroids to atrophy.
- 5 In estrogen dominant menstruating women where progesterone is not peaking and falling in a normal way each month, the ordered shedding of the womb lining doesn't take place. Menstruation becomes irregular. This condition can usually be corrected by making lifestyle changes and using a natural progesterone product. It is easy to diagnose by having a doctor measure the level of progesterone in the blood at certain times of the month.
- 6 Endometrial cancer (cancer of the womb) develops only where there is estrogen dominance or unopposed estrogen. This, too, can be prevented by the use of natural progesterone. The use of the synthetic progestins may also help prevent it, which is why a growing number of doctors no longer give estrogen without combining it with a progesterone drug during HRT. However, all synthetic progestins have side effects.
- 7 Water logging of the cells and an increase in intracellular sodium, which predispose a woman to high blood pressure or hypertension, frequently occur with estrogen dominance. These can also be side effects of taking synthetic progesterone [progestins]. A natural progesterone cream usually clears it up.
- 8 The risk of stroke and heart disease is increased dramatically when a woman is estrogen-dominant.

Progesterone Dominance

Although an uncommon finding, it is a potential result from the excessive use of supplemental Progesterone. Symptoms can include fatigue and sleepiness.

Testosterone

You might find yourself more moody, irritable, or depressed around the time of menopause. Developing science finds a relationship with low levels of Testosterone and increase in depression and anxiety. It appears that many of the major and minor hormones that your body makes influence the brain and its functioning. Restoring hormones to physiological levels has been shown to improve upon one's mental health.

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Treatment for Menopause: Replace the hormone of Youth

PREGNENOLONE

The Mother of all Hormones (steroids)

Cholesterol is the precursor the Pregnenolone. It is produced in the adrenal glands and also in the brain where it has been shown to be in the highest concentration. As a Neurosteroid, it is required for peak brain function by its ability to regulate memory and a sense of well-being. In regards to head trauma, Pregnenolone and its metabolites have been shown to be neuron-protective.

As stores of Pregnenolone (and DHEA) are depleted with advancing age there is a marked and often dramatic decline in the neuronal function, memory, and functioning under stress.

In the 1940's, Pregnenolone was used in the treatment of arthritis. Patients noted a decrease in pain, greater energy, improved strength and mobility. With the advent of Cortisone, it lost favor as a medical tool. Some important reasons for our using Pregnenolone are based upon these articles.

- 1 Pregnenolone Studies and Aging Cognitive Functions: Behavioral. *Hormones and Behavior* 40, 215-217 (2001), Mayo M et al

Cerebral Pregnenolone correlated with cognitive performance and is improved with replacement in deficient older adults. Pregnenolone increases Acetylcholine in amygdala, cortex and hippocampus.

- 1 Neuroactive Steroid Levels in Patients with Generalized Anxiety Disorder. *The Journal of Neuropsychiatry and Clinical Neurosciences* 2001; 13:396-398 Semeniuk et al.

Patients with Generalized Anxiety Disorder were found to have lower levels of Pregnenolone, which is a GABA A (benzodiazepine) receptor Agonist in low doses.

- 1 Analysis of neurosteroid levels in attention deficit hyperactivity disorder. Int J Neuropsychopharmacol 2001 Sep;4(3):259-64 Strous RD et al.

Inverse correlation between clinical symptoms and levels of DHEA and Pregnenolone in young male subjects aged 7-15 years with DSM-IV criteria and ADHD

- 1 Neurosteroids in the Hippocampus: Neuronal Plasticity and Memory Stress. Schumacher M 1997 Oct;2(1):65-78

There is accumulating evidence that some neurosteroids, in particular Pregnenolone sulfate, have strong influences on learning and memory processes, most likely by regulating neurotransmission in the hippocampus.

Dehydroepiandrosterone (DHEA)

Pregnenolone is the precursor to **DHEA**, which is produced in the adrenal cortex and brain. It is the most abundant steroid hormone produced and is the precursor to both androgens (male hormones) and estrogens (female hormones). Low levels of DHEA have been associated with Obesity, Type 2 diabetes, immune dysfunction, Cancer, Hypertension, Cardiovascular disease, Depression, Poor REM sleep, and loss of well-being, low libido and osteoporosis, to name a few. Preliminary research on DHEA was funded but the Federal Government and performed at UCSD.

- 1 **Dehydroepiandrosterone (DHEA) protects hippocampus cells from oxidative stress-induced damage.** Brain Res Mol Brain Res 1999 Mar 20; 66 (1-2): 35-41. Bastianetto S. Protects hippocampal neurons from oxidative damage in vitro neurons from Alzheimer's Disease. Hippocampal damage is a cause of age associated memory impairment.
- 2 **Actions of Dehydroepiandrosterone and its sulfate in the central nervous system: effects on cognition and emotion in animals and humans.** Brain Res Brain Res Rev 1999 Nov; 30 (3):264-88, Wolf. Experimental studies in elderly humans have revealed preliminary evidence for mood enhancing and antidepressant effects on measures of memory and attention could not be found.
- 3 **Low Dehydroepiandrosterone and ischemic heart disease in middle-aged men: prospective results from the Massachusetts Male Aging Study.** Am J Epidemiology 2001 Jan 1;153 (1):79-89. Feldman HA et al. This Prospective study of 1700 men, aged 40-70 years old showed that the lowest quartile of DHEA and DHEA-S has most ischemic heart disease independent of other risk factors.
- 4 **Dehydroepiandrosterone and coronary atherosclerosis.** Ann NY Acad Sci 1995 Dec 29; 774-271-80. Herrington DM. DHEA may inhibit atherosclerosis through its potent anti-

proliferative effects. Plasma levels of DHEA were inversely related to the development of accelerated coronary allograft vasculopathy. These data suggest that low plasma levels of DHEA may facilitate, and high levels may retard, the development of coronary atherosclerosis and coronary allograft vasculopathy.

- 5 **Effects of DHEA replacement on bone mineral density and body composition in elderly women and men.** Clinical Endocrinology (Oxford) 2000 Nov;53 (5):561-8. Villareal DT et al. Patients of an average of 73 years were placed on DHEA 50 mg/day x 6 months. The Bone Mineral Density of the total body and lumbar spine increased. Fat mass decreased and Lean Body Mass increased. The Serum IGF-1 increased on the average from 108 to 143ng/ml. In both the males and females there was an increase in Total Testosterone.
- 6 **Dehydroepiandrosterone for Adrenal Insufficiency.** The New England Journal of Medicine, Sept 30, 1999-Vol. 341, No. 14. Wolfgang Oelkers, M.D. This article included benefits to Bone, Vagina, Mood and well-being, improvement in Depression, Counteracts Glucocorticoids effects on the system, protects against general catabolism and bone and Lupus. It conclude by saying “**But don’t use it!**”

What is TESTOSTERONE?

Testosterone Levels in Women

While generally considered a male hormone, testosterone plays a part in women’s hormonal balance, in addition to estrogen and progesterone, which are the dominant sex hormones. Produced in small amounts by the ovary and adrenal gland, testosterone and other androgens are associated with psychological and physical energy levels, memory, assertiveness, ability to learn new information, as an anti-depressant, enhancer or to maintain sex drive (libido), creativity, spatial orientation, maintenance of lean muscle mass and decrease in body fat. These are but a few of the diverse benefits achieved from healthy physiologic levels of Testosterone. .

Testosterone production declines prior to and during menopause, when the production of female hormones decreases; postmenopausal women may produce up to 50 percent less testosterone than normal. Currently, researchers are investigating the effects of decreased testosterone levels on diminished libido and sexual arousal in women. In addition, many researchers credit testosterone supplementation with an increased sense of well-being in women.

Current Treatments for Testosterone Deficiency

There are three different approaches for the replacement or supplementation of Testosterone.

- 1 **Topical Testosterone**-usually as a component of a mixture of Estrogen and Progesterone, Testosterone can be added in quantities to deliver 1mg or 2mg. Creams or gels are effective means of providing for replacement therapy.

- 1 **Sublingual Testosterone**-Derived from Soy or Yams as a Bio-identical or Bio-Equivalent form of the hormone, is delivered as a “gummy bear” type of product that is placed under the tongue and allowed to slowly dissolve.
- 1 **Injectable Testosterone**-Is more invasive but a very consistent and effective manner of delivering the hormone. Usually dosages are given every two weeks to three weeks. Rarely have we seen a woman need treatment on a weekly basis.

CONCERNS

Secondary male characteristics and other side effects may appear in women when testosterone and DHT levels are abnormally elevated. They may consist of; oily skin, acne, thinning of scalp hair, growth of facial hair, decrease in body fat, increase in lean muscle mass, growth of hair on backs of fingers and around navel, enlargement of clitoris, heightened libido or sex drive, and heightened frequency and intensity of orgasms. These benefits and side-effects are does related thereby, amenable to adjustments in the dose and frequency of testosterone.

What about Those Lost Hormones?

These days you hear a lot about whether you should use hormones to help relieve some menopause symptoms. It's hard to know what to do. During perimenopause, some doctors suggest birth control pills to help with very heavy, frequent, or unpredictable menstrual periods. These pills might also help with symptoms like hot flashes, as well as prevent pregnancy.

As you are getting closer to menopause, you might be bothered more by symptoms like hot flashes, night sweats, or vaginal dryness. Your doctor might even suggest taking estrogen (as well as progesterone, if you still have a uterus). This is known as *menopausal hormone therapy* (MHT). Some people still call it hormone replacement therapy or HRT. Taking these hormones will probably help with menopause symptoms and prevent the bone loss that can happen at menopause. However symptoms are likely to recur when you stop MHT. Menopausal hormone therapy has risks. That is why the U.S. Food and Drug Administration suggests that women who want to try MHT to manage their hot flashes and vaginal dryness use the lowest dose that works for the shortest time it's needed.

Do Phytoestrogens Help?

Phytoestrogens are estrogen-like substances found in some cereals, vegetables, legumes (beans), and herbs. They might work in the body like a weak form of estrogen. They might work in the body like a weak form of estrogen. They might relieve some symptoms of menopause, but they could also carry risks like estrogen. We don't know. Be sure to tell your doctor if you decide to try eating a lot more foods that contain phytoestrogens or to try using an herbal supplement. Any food or over-the-counter product that you use for its drug-like effect could change how other prescribed drugs work or cause an overdose.

How Can I Stay Healthy After Menopause?

Staying healthy after menopause may mean making some changes in the way you live.

- Don't smoke. If you do use any tobacco, stop—it's never too late to benefit from quitting smoking.
- Eat a healthy diet—one low in fat, high in fiber, with plenty of fruits, vegetables, and whole-grain foods, as well as all the important vitamins and minerals.
- Make sure you get enough calcium and vitamin D—in your diet or in vitamin/mineral supplements.
- Learn what your healthy weight is, and try to stay there.
- Do weight-bearing exercise, such as walking, jogging, or dancing at least 3 days each week for healthy bones. But try to be physically active in other ways for your general health.

How Do I Decide What to Do?

It is important to establish the diagnosis of Menopause of assessing your hormones. Usually during this process many of your hormones will be altered below an ideal healthy level. A hundred years ago life expectancy was a lot shorter. Reaching menopause then meant a woman's life was nearing its end. Not so now. Women are living much longer. Today, a woman turning 50 can be expected to live, on average, almost 32 more years. Follow a healthy life style and plan to make the most of those years ahead of you!