

Frequently Asked Questions about Andropause (Male Menopause) and Testosterone Replacement Therapy INDIAN LAKE MEDICAL WEIGHT LOSS & WELLNESS, PLLC

■ WHAT IS ANDROPAUSE OR “MALE MENOPAUSE”?

As men and women age, there is a natural decline in the body's ability to produce hormones. When this change occurs in women it is referred to as **menopause**. In men it is called **andropause**. The condition was first described in medical literature in the 1940's and the term andropause was first used in a medical article in 1952. In women, menopausal changes occur quickly and the physical symptoms are very noticeable (hormones fluctuate like a roller coaster ride). In men, andropause occurs over a longer period of time (typically 10-15 years) and the changes are gradual and far more subtle – but no less significant. Male menopause is not a myth. A recent survey found that 70% of the general public believes that men experience a mid-life stage similar to menopause in women.

TESTOSTERONE is to men what **ESTROGEN** is to women. Testosterone is the hormone responsible for normal male sexual behavior = and is involved in many metabolic processes such as lipid metabolism, glucose metabolism, and bone and muscle development. 95% of testosterone is produced by the testicles in response to signals from the brain. A small amount is produced in the adrenal glands. Every male experiences a drop in “free” (“bioavailable”) testosterone as they get older, and the amount of decline varies from man to man. Free testosterone is the active form of testosterone in the body. Free testosterone can move throughout the body to perform its designated functions.

Starting around age 30, testosterone levels in men begin to drop. By age 50, the brain signal to make more testosterone has weakened significantly and a man's testosterone level has dropped by about 40% from the peak levels of his younger years. Further aggravating this problem is the body's production of **Sex Hormone Binding Globulin (SHBG)**, which increases by 1-2% per year after age 40. SHBG is a blood protein that attaches to testosterone. Once testosterone is bound to SHBG it becomes unavailable for use. Protein-bound hormones are not fully biologically active. Only unbound (free) testosterone is active in the body.

Another contributing factor to the onset of andropause is the increased production of **aromatase**. Aromatase is an enzyme found in the body that converts testosterone into estradiol (a potent natural estrogen). As men age, their bodies produce larger amounts of aromatase, which causes a shift in the ratio of testosterone to estrogen. In younger men the ratio of testosterone to estrogen approximates 50:1. In older men the ratio drops to 20:1 or even as low as 8:1. As estrogen levels in a man increase, the effects of testosterone are cancelled and estrogenic effects, such as enlargement of the breasts, weight gain, and prostate problems can develop.

Men are always taught to rise above their afflictions and not show any signs of weakness. The fact that andropause comes on so gradually, coupled with men's stubbornness and pride, doesn't allow them to openly talk with doctors, family, and friends about the changes they are experiencing. Andropause is a health problem that responds rapidly to treatment. It has gained international acceptance as a medical condition, and physicians are becoming increasingly aware of the effective treatment options available.

■ WHAT ARE THE SYMPTOMS OF ANDROPAUSE?

1. Decreased and **energy** (fatigue, tiredness), and reduced strength and stamina in both work and play.
2. Increase in **body fat**, especially around the midsection.
3. Decreased mental acuity and **concentration**, impaired decision making abilities, and forgetfulness.
4. Development of **osteoporosis** – estimated that 1 in 8 men over the age of 50 have osteoporosis characterized by a rounding of the shoulders and a loss of height. Osteoporosis puts men at an increased risk of fractures. Wrists, hips, spine, and ribs are commonly involved.
5. Decrease in **sex drive**, sex desire, strength of orgasm, and erectile function. Is your only desirable bedroom activity “getting a good night's sleep?”
6. Loss of **competitiveness**. Increased passivity & lassitude.
7. Decreased eagerness/enthusiasm/**enjoyment of life**.
8. Loss of **self-esteem**, increased anxiety, nervousness, and development of depression.
9. Decreased **physical agility** and athleticism.
10. More **sad**, angry, and/or grumpy than usual.
11. Deterioration in your **work performance**.
12. Low testosterone has been associated with an increased **risk of cancer, heart disease, diabetes**, and immune disorders.

■ TAKE OUR ANDROPAUSE QUIZ.

USING THE LIST ABOVE, PUT A CHECK NEXT TO THE SYMPTOMS YOU ARE EXPERIENCING.

How many boxes did you check? If you checked symptom #5, or if you checked more than a couple of boxes, you should consider making an appointment with your prescriber. It is certainly possible that other health problems could be causing some of your symptoms and it is important that you have a thorough medical evaluation to identify them. However, if you are in generally good health and haven't had a lot of medical problems in your life, your symptoms could be simply from low free testosterone. Encourage your prescriber to order a test of your free-testosterone level -- see what the results show.

■ TELL ME MORE ABOUT THE TEST TO DETERMINE IF I HAVE LOW TESTOSTERONE?

You should have a **blood test or a saliva test** that measures **bio-available (free) testosterone**. Do not confuse this test with a **total testosterone** test. The American Association of Clinical Endocrinologists (AACE) recommends checking levels of free testosterone when evaluating for male sexual dysfunction. Unfortunately, total testosterone is the test most often measured when men go to their doctor with andropausal complaints. Indian Lake Medical Weight Loss can, at any time, check your blood testosterone levels.

An estimated 50% of men over the age of 50 have free testosterone levels below the lowest level of normal 30-40 year old men. Most of your testosterone is bound by **SHBG** in the blood and unusable or unassessable. A total testosterone determination cannot distinguish how much is free and available. **It is possible that you could have a normal total testosterone level but a low free testosterone level.**

■ WHAT ARE SOME OF THE REPORTED BENEFITS OF TESTOSTERONE REPLACEMENT?

- Significant increase in libido (sex drive and sex desire).
- Improvement in the quality and frequency of erections, and strength of orgasm.
- Increase in muscle mass and strength (handgrip, leg strength, and arm strength).
- Increase in bone density above the fracture threshold. Bone density in the spine and increased strength in the paraspinal muscle area are commonly observed following replacement therapy.
- Decrease in visceral fat.
- Improvement in mental function (critical thinking and decision making ability), and verbal fluency.
- Improved athletic agility and performance, and restoration of competitive edge.
- Increased endurance (as measured by an increase in treadmill time in men limited by coronary artery disease. In studies, testosterone has been shown to increase dilation of coronary arteries in men and increase exercise tolerance).
- Improvement in lipid profile (decreased triglycerides, increased HDLs, lowered LDLs) with physiological replacement doses. Note – excess testosterone supplementation has been shown to have the opposite effect on lipid/cholesterol metabolism.
- Improvement in blood sugar control (testosterone decreases insulin resistance, which is a major cause of type 2 diabetes).
- Improvement in an overall sense of well-being and friendliness. Many men thought they were just depressed until they experienced the dramatic changes that occur with responsible testosterone replacement.
- Decreased anger, irritability, sadness, tiredness, and nervousness.

■ WHAT NOT TO EXPECT FROM RESPONSIBLE TESTOSTERONE REPLACEMENT.

Over the last few years, testosterone replacement therapy has received a lot of bad publicity largely due to concerns of abuse – especially among athletes and bodybuilders. Responsible testosterone replacement therapy is intended to produce and maintain physiologic concentrations of testosterone, without providing unnecessary and potentially dangerous excess. Doses should be individually tailored to adequately alleviate andropausal symptoms without causing side effects or safety concerns. Responsible testosterone supplementation **will not**:

- Help you bench press more than your workout partner.
- Allow you to participate in bodybuilding competitions.
- Return your randiness to that of an 18 year-old.
- Allow you to recapture your lost youth.

■ I DON'T HAVE PROSTATE CANCER BUT THERE IS A HISTORY OF PROSTATE CANCER IN MY FAMILY. IS TESTOSTERONE SUPPLEMENTATION SAFE FOR ME?

- Before starting on testosterone supplementation, men should be screened for prostate cancer by having, at a

minimum, a baseline PSA (prostate-specific antigen) test, a DRE (digital rectal examination), and hematocrit level, testosterone and estradiol levels. An annual PSA and DRE are recommended for all men using testosterone replacement. Prostate cancer has a strong genetic link in families. If your father, brother, uncle, or grandfather had/has prostate cancer, consult with your physician before beginning a testosterone replacement program. Indian Lake Medical maintains a strict policy and procedure of labs reassessment every 3 months.

■ DOES TESTOSTERONE CORRECT ERECTILE DYSFUNCTION (ED)?

52% of men over the age of 40 have some degree of erectile failure. The loss of erectile capacity is an important issue for virtually every man. Sexual dysfunction causes significant emotional problems for both the man and his partner. For men, an inability to become erect leads to feelings of inadequacy, embarrassment, weakness, fear of further sexual failures (performance anxiety), and depression. His partner may also develop emotional issues such as doubts about her own attractiveness or questions about the man's faithfulness.

Erectile Dysfunction (ED), previously referred to as impotence, is an anatomical condition in which the veins in a man's penis do not fill with enough blood to achieve erection, or to maintain an erection long enough to complete intercourse. ED can be caused by an underlying health problem such as high blood pressure, high cholesterol, diabetes, heart disease, or depression.

Other contributing factors of ED include smoking, alcohol use, certain prescription medications, drug abuse, and stress. ED is treated with medication such as Viagra® (sildenafil), which increases blood flow to the penis. Unfortunately, Viagra® doesn't work unless you are sexually stimulated. This is where testosterone plays an important role.

Low free testosterone levels are commonly found in men with ED. Testosterone is the hormone that increases sexual desire and sexual drive. In the body, testosterone acts both centrally (in the brain) and peripherally (in the penis, testicles, and blood vessels) to stimulate and maintain an erection. A man who is supplementing with natural testosterone will feel more sexual, will want to have sex more often, and will find it easier to become sexually stimulated and erect. While testosterone may not always cure ED, if poor sexual performance is really due to a lack of desire or drive, then testosterone is the remedy. A return of sexual desire is one of the most satisfying outcomes of testosterone replacement.

Many physicians are also prescribing testosterone for women. Women produce testosterone (about 1/10th as much as men do) and their production declines with age. Testosterone in women helps stimulate their sex drive, increases mental acuity, and helps prevent bone and muscle loss.

■ CAN I TAKE TESTOSTERONE WITH VIAGRA®, LEVITRA®, OR CIALIS®?

Yes, testosterone works in different ways and can potentiate the effects of the other medications. Evidence suggests that 95% of ED problems are resolved when Viagra® and testosterone are co-administered. Even more intriguing, many patients find that they need a lower dose of Viagra® (or don't need it at all) when they start supplementing with testosterone. This makes testosterone therapy even more cost-effective when you consider the expense of Viagra®.

■ WHO SHOULD NOT BE USING TESTOSTERONE?

Most medical experts agree that men with the following medical conditions **should not use** testosterone:

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| ➤ Prostate Cancer | bladder outlet obstruction. | thrombosis (blood clots) |
| ➤ Breast Cancer | ➤ Liver disease | ➤ History of allergic reaction |
| ➤ Severe benign prostatic hypertrophy (BPH)-related | ➤ Kidney disease | to anabolic steroids. |
| | ➤ History of venous | |

■ WHAT ARE SOME OF THE REPORTED SIDE EFFECTS OF TESTOSTERONE?

In therapeutic replacement dosages, natural testosterone has few side effects. Side effects are more likely to occur with higher than normal replacement dosages. Side effects are generally an indication that your dosage needs to be adjusted. Possible side effects include:

- ◆ Changes in skin condition – acne, oily skin.
- ◆ Male pattern baldness – usually because of higher replacement doses and the conversion of testosterone to DHT (dihydrotestosterone) - a testosterone metabolite linked to male pattern baldness.

- ◆ Headache.
- ◆ Frequent or prolonged erections.
- ◆ Increase in breast size (a result of testosterone conversion to estrogen). If this occurs, reduce your dosage. We recommend having your estradiol levels checked regularly while using testosterone. Arimidex may be prescribed as an estrogen blocker.
- ◆ Elevated hematocrit – this occurs with high doses and needs to be watched closely
- ◆ Testicular atrophy, decreased spermatogenesis - these symptoms can occur with high replacement doses and abuse of anabolic steroids due to feedback inhibition.
- ◆ Testosterone levels above the physiologic range for males may increase the risk of development of atherosclerotic heart disease.

■ WILL MY PSA INCREASE WHILE ON TESTOSTERONE REPLACEMENT THERAPY?

A number of studies have looked at this. The general conclusion is that your PSA may rise slightly but only to normal levels. PSA is a good indicator of the effects of androgens on the prostate. Some patients with low free testosterone have very low PSA levels. When supplementation is prescribed for these patients, PSA increases to normal levels but not higher. Prostate size also does not increase during therapy.

■ ARE THERE SOME DIETARY OR LIFESTYLE CHANGES THAT WILL HELP MY ANDROPAUSE SYMPTOMS?

WHAT TO AVOID:

- Excessive alcohol consumption – alcohol has a proven direct depressant effect on the ability to achieve and maintain erection. Alcohol also causes a rise in estrogen levels in the body. Estrogen in women can rise dramatically just after one drink. Alcohol also decreases zinc concentrations in the body. Adequate zinc levels are needed because zinc inhibits aromatase levels in the body.
- Tobacco use – nicotine cause vasoconstriction of blood vessels including the vessels that are trying to bring blood to the penis to achieve erection. Research shows that heavy smokers have a greater incidence of erectile dysfunction than non-smokers.

WHAT TO IMPROVE:

- Regular exercise – increases the body's production of testosterone, decreases visceral fat (reduces aromatization), lowers blood pressure, and improves circulation, all of which helps with erectile dysfunction.
- **Lose Weight** – fat cells contain aromatase and obesity causes more conversion of testosterone to estrogen.
- Change your diet. High fat diets and pesticide residues in food increase your estrogen exposure. Eat more cruciferous vegetables (broccoli, cauliflower, cabbage, Brussels sprouts, radishes, Bok Choy, collard greens) – these vegetables contain potent anti-oxidants and have strong anti-cancer fighting properties. They contain indole-3-carbinol (I3C) which helps minimize testosterone aromatization to estrogen. In the presence of stomach acid, I3C combines with itself to form DIM (di-indolyl methane). Studies have demonstrated that DIM reduces the incidence of prostate enlargement. DIM acts as an active surveillance for cancer cells. DIM and I3C are available as supplements from most quality health food and vitamin stores.
- Watch your caffeine, alcohol, and sugar intake - these are all "testosterone robbers."
- **Zinc supplementation** – zinc inhibits aromatase levels in the body. Zinc is necessary for normal pituitary function. The pituitary gland sends the signal to the testes to produce more testosterone.
- A good multivitamin + mineral product daily. Supplement with extra Vitamin C and Vitamin E. Both are potent antioxidants. Vitamin C (1000 mg/day) decreases aromatase activity. Vitamin E (200 iu/day) is also said to help improve sex drive and function.
- Selenium supplementation (50-200 mcg/day) - selenium levels are important for testicular and prostate function. Selenium helps increase the antioxidant effects of vitamin E and the amino acid glutathione. Low selenium levels are linked to prostate cancer.
- Saw Palmetto is an herb that prevents the conversion of testosterone to dihydrotestosterone (DHT). Increased DHT levels contribute to male-pattern baldness and cause prostatic enlargement. Saw Palmetto also blocks the effects of estrogen on the prostate thus minimizing the growth stimulating effects of estradiol.
- Better stress management. Chronic stress causes an increased secretion of endogenous epinephrine, which causes vasoconstriction and aggravates sexual dysfunction. Chronic stress also increases cortisol levels which causes an increase in abdominal fat and leads to increased conversion of testosterone to estrogen.

■ WHAT ABOUT THE USE OF TESTOSTERONE IN PATIENTS WITH TYPE 2 DIABETES?

There appears to be a strong correlation between low levels of testosterone and the development of type 2 diabetes in men. Testosterone supplementation has been shown to reduce insulin resistance in male diabetic patients – this may actually allow them to decrease their need for insulin shots and/or diabetic medications.

■ SOMEONE TOLD ME THAT TESTOSTERONE IS CONVERTED TO ESTROGEN. HOW DOES THAT HAPPEN?

Did you know that a male, age 55, may actually have a higher level of estrogen than his 55 year-old spouse? As women get older estrogen production declines. As men get older estrogen levels tend to **RISE** in part due to a process called **aromatization**. Aromatization occurs when the enzyme **aromatase** stimulates the conversion of testosterone into estradiol (also known as E2). Estradiol is a potent natural estrogen. Menopausal women have been using it for years to control hot flashes and night sweats. Aromatization occurs primarily in fat tissue. Beginning in their mid-40's, men start becoming feminized by estrogen due in part to the following contributing factors:

- Men have an age-related natural decline in testosterone production that causes a loss of muscle mass and an increase in flabbiness.
- The increased body fat causes more testosterone to be converted to estrogen due to aromatization.
- The increase in estrogen causes an increase in the production of Sex Hormone Binding Globulin (SHBG). SHBG has an affinity for testosterone. SHBG binds to "free" (unbound) testosterone in the blood. Only free testosterone is able to exert its effects in the body. Thus the higher amount of SHBG reduces free testosterone and exacerbates the build-up of estrogen.

■ ARE THERE WAYS TO MINIMIZE THE AROMATIZATION OF TESTOSTERONE TO ESTROGEN?

Two of the most important factors in minimizing the conversion of testosterone to estrogen are:

- Supplement with the correct replacement dosage and frequency. Excess testosterone supplementation can encourage aromatization to estrogen. The body is unable to adequately store unneeded testosterone. **When supplementing with testosterone it is always best to use lower doses and administer them more frequently than to give large single doses.** Frequent application is also better at maintaining circulating testosterone levels and discouraging binding to SHBG.

■ WHAT IS FEEDBACK INHIBITION?

Feedback inhibition is one of the body's responses to excess testosterone supplementation. When the brain senses that you have too much testosterone coming from outside sources it will begin to shut down your own natural testosterone production. Ultimately, this can lead to testicular atrophy (shrinking of the testicles), and decreased spermatogenesis (reduction in sperm production). Feedback inhibition is a problem that occurs with bodybuilders who are using high doses of anabolic steroids. Supplementing with a low dose of testosterone should not interfere with your body's own natural production.

■ WHAT IS DOWN-REGULATION OF TESTOSTERONE RECEPTORS?

Down-regulation is another safety response mechanism the body uses when exposed to excessive testosterone supplementation. When down-regulation occurs, testosterone receptors in the body become resistant to the effects of testosterone. Down-regulation is reported when men supplement with doses much greater than what is required physiologically.

In these men, when they first begin testosterone replacement they feel great, but after a couple of months they notice that the testosterone doesn't seem to be working for them as well as it did when they first started using it. Without checking saliva levels, their doctor may recommend an increased dose. This causes a temporary fix and the men feel great again, but after another couple of months they reach yet another plateau where the testosterone just doesn't seem to be working. They try another increase in dosage and the same thing occurs. This is the classical presentation of the down-regulation of testosterone receptors. When it comes to testosterone replacement, if the initial good results wane after a few months, there is a good chance the dose is too high.

■ WHAT TYPE OF ONGOING MONITORING IS SUGGESTED?

- PSA levels and digital prostate examinations
- Cholesterol levels (total cholesterol, HDL, LDL)
- Triglycerides
- Fasting Blood Glucose
- Complete Blood Count (CBC)
- Testosterone level
- Estrogen level with each testosterone determination.

■ WHEN SHOULD I START FEELING BETTER?

- ◆ In the first two weeks of testosterone replacement, you can expect to notice an increase in mental quickness and an overall improved sense of well-being. The results are subtle.
- ◆ After about 3-4 weeks you should notice more energy and an increase in sex drive. You will have more spontaneous erections, night dreams, sexual daydreams, and an overall increased interest in sex.
- ◆ As you continue with your replacement therapy you will see continued improvement in energy levels, endurance, muscle tone, a decrease in body fat, and more enthusiasm for life's activities. You will find yourself wanting to spend less time on the couch with the TV remote control, and more time enjoying what life has to offer!

■ DOES TESTOSTERONE REPLACEMENT REQUIRE A PRESCRIPTION?

Yes. Testosterone is an anabolic steroid. Because of its potential for abuse among athletes and body builders, testosterone is regulated by the Drug Enforcement Administration (DEA). Testosterone can only be ordered by your prescriber (physician, nurse practitioner, or physician assistant) within the scope of his/her practice. All prescribers must possess a valid DEA license to prescribe testosterone replacement. As required by law, we will verify the legitimacy of all prescriptions. We will refuse to fill any prescription that does not meet the intentions and guidelines of responsible testosterone replacement.

■ HOW MUCH DOES IT COST?

It depends on your daily dosage. Typically a monthly prescription will cost anywhere from \$200 - \$300 per month depending on your dosage. Because we don't accept insurance up front, our goal is to offer testosterone to men at prices less than the co-pays.

For patients that would like to try to get reimbursed from their insurance company, we give all of our clients a detailed and completed insurance claim form that they can simply sign and submit directly to their insurance company. Many of our patients who submit claims receive partial reimbursement for the cost of their testosterone cream.

Hormone imbalance is associated with every major disease that plagues Western society (cancer, heart disease, osteoporosis, and diabetes). Declining hormones combined with poor lifestyle, poor diet, lack of exercise, and too much stress are largely responsible for our health problems and frailties in later life. Responsible testosterone replacement therapy is something to consider.

If you are considering responsible natural testosterone replacement, gather as much information as you can and learn about all the options available.

Have a complete physical exam and hormone level testing done. Make an informed decision.

QUESTIONS, THOUGHTS, CONCERNS. – (615) 822 - 9002