Andropause
Andropause describes an emotional and physical change that many men experience as they age. Although the symptoms are generally related to aging, they are also associated with significant hormonal alterations.

Andropause is a natural subtle decline in hormones that happens as men age. While medical professionals have known for a long time that the production of hormones by the testes slowly decreases as men age, interest has developed only recently in the clinical implications of andropause.

Andropause is also referred to as male menopause, male climacteric andropause, male andropause, late onset hypogonadism, androgen decline in the aging male (ADAM) or viropause. The term andropause may be considered somewhat inappropriate because the process is not universal and occurs subtly over time. In women, menopause occurs universally and usually happens dramatically.

Andropause is a fairly common condition and the incidence of andropause (or hypogonadism) increases with age. The incidence from ages 40-49 is estimated between 2%-5%. From ages 50-59, the incidence is estimated between 6% and 40%. From ages 60-69, the incidence is estimated between 20%-45%. The incidence from ages 70-79 is estimated between 34% and 70%. The incidence of hypogonadism in men older than 80 is estimated at 91%.

Symptoms of Andropause
Andropause is most commonly characterized by a subtle and gradual onset, and slow progression, of symptoms. • Diminished sexual desire and erectile quality. In particular, a decrease in nocturnal erections is a significant sign of decreased androgens. • Mood changes. This can also be associated with decreases in intellectual activity, fatigue, depression, anger and poor spatial orientation. • A decrease in lean body mass, along with decreases in muscle mass and strength. • A decrease in body hair. • A decrease in bone density resulting in osteoporosis. Osteoporosis can often lead to increased incidence of bone fractures and breaks. • An increase in fat surrounding the internal organs. Often these changes are attributed to the natural and unavoidable consequences of aging. However, not all men show andropause symptoms as they age and not all men show a significant decrease in androgens as they age. It is important to remember that not all of these symptoms need be present to identify andropause. They do not all appear to the same degree in all men, and some men may suffer from one or two – but not all - of these symptoms.

Causes of Andropause
There may be many factors that contribute to andropause. As men get older, the Leydick cells, which produce most of the testosterone “bursts” in the testes, do not secrete testosterone as frequently and each “burst,” on average, includes less testosterone. There is also a decrease in the hormones that prod the testes to make testosterone and there is an increase in the conversion (aromatization) of testosterone to other hormones including estradiol and DHT.

The Effects of Testosterone on Andropause
Broadly defined, androgens are the overall grouping of male hormones. They are made in the testes and in the adrenal gland (a small gland located above the kidney that produces a significant number of hormones). The main functions of androgens are:
• Initiation and maintenance of spermatogenesis. That is, they signal to a man’s body to produce sperm. • Male gender determination during pregnancy. • Sexual maturation at puberty, controlling sexual drive and potency.

In men, androgens are known to affect muscle, bone, the central nervous system, prostate, bone marrow and sexual function.

We know that testosterone causes “the androgenic effects” determining and shaping the male reproductive tract in an infant as well as the development of secondary sexual characteristics (body hair and male pattern baldness are examples). Androgens are also responsible for prenatal differentiation of the male fetus and for the development of the male reproductive tract. Androgens play an important role in stimulating and maintaining sexual function in men. Testosterone is necessary for normal libido, ejaculation and spontaneous erections.
## Andropause Glossary - Definition of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Androgens</td>
<td>An overall grouping of male hormones. They are made in the testes and in the adrenal gland.</td>
</tr>
<tr>
<td>Andropause</td>
<td>A natural emotional and physical change that occurs with age caused by a decrease in male hormones. Symptoms of andropause include: low sex drive, difficulties getting erections or erections that aren't as strong as usual, lack of energy, depression, irritability and mood swings, loss of strength or muscle mass, increased body fat and hot flashes.</td>
</tr>
<tr>
<td>Leydic Cells</td>
<td>Specialized cells in the testes that produce testosterone.</td>
</tr>
<tr>
<td>Low Testosterone</td>
<td>A decrease in the normal level of testosterone hormone produced by the testes.</td>
</tr>
<tr>
<td>Male Hormones</td>
<td>See Androgens above</td>
</tr>
<tr>
<td>Male Menopause</td>
<td>See Andropause above.</td>
</tr>
<tr>
<td>Testosterone</td>
<td>A male hormone produced by the testes. It is responsible for the proper development of male sexual characteristics.</td>
</tr>
<tr>
<td>Testosterone Replacement Therapy</td>
<td>Treatment that aims not only to reach normal levels of serum testosterone, but also to normalize levels of secondary hormones that are affected by low testosterone levels. Treatment options include: oral, tablets/ capsules, injections, plantable long-acting slow release pellets and transdermal (through the skin) patches and gels.</td>
</tr>
</tbody>
</table>

## ADAM Questionnaire:

Using a screening questionnaire can be helpful in diagnosing andropause. The most useful questionnaire is the ADAM (androgen decline in the aging male) Questionnaire. It is very simple and very effective at identifying those men who suffer from andropause. However, not all men who screen positively for these symptoms have andropause. The symptoms may be the result of other causes so that a positive diagnosis can only be made with appropriate blood testing.

### Androgen Decline in the Aging Male

Please check YES or NO

1. Do you have a decrease in libido (sex drive)? □ YES □ NO
2. Do you lack energy? □ YES □ NO
3. Is your strength or endurance decreased? □ YES □ NO
4. Have you lost height? □ YES □ NO
5. Have you noticed decreased “enjoyment of life”? □ YES □ NO
6. Are you sad or grumpy? □ YES □ NO
7. Are your erections less strong? □ YES □ NO
8. Have you noticed a recent deterioration in your ability to play sports? □ YES □ NO
9. Do you fall asleep after dinner? □ YES □ NO
10. Has there been deterioration in your work performance? □ YES □ NO

*If you answered ‘yes’ to more than 3 questions, you may be experiencing the symptoms of Andropause.*

© Michael A. Werner, MD, FACS, 2010
Our Practice

Dr. Werner is a urologist with fellowship training in two subspecialties: male infertility and sexual dysfunction. He has chosen to limit his practice to these two complex and technical areas. Dr. Werner strongly believes that you need to have a complete understanding of the medical options available to you and a full understanding of the benefits and risks involved in each decision. Together, you will decide on the course of treatment that makes the most medical and personal sense for you.

Dr. Werner is committed to communicating promptly, thoroughly and frequently with both you and the other professionals involved in your care.

Erectile Dysfunction and Andropause

Dr. Werner has treated thousands of patients who suffer from erectile dysfunction (ED) and other conditions related to male sexuality.

Our practice has extraordinary success in helping men achieve their goals when addressing issues of impotence and erectile dysfunction. Thirty percent of men suffer from premature ejaculation, a condition which usually has a very negative effect on his and his partner’s sexual satisfaction. Fortunately, this can almost always be managed successfully with a combination of behavioral and medical treatments. Expert in the assessment and treatment of Andropause and reduced sex drive, the practice includes testosterone replacement therapy among the variety of solutions offered to our patients.

Dr Werner provides the spectrum of solutions for Peyronies Disease, delayed Ejaculation, and hormonal imbalance related to male sexual health.

Infertility Evaluation and Treatment

Often couples will come to Dr. Werner and M.A.Z.E. Laboratories for male fertility testing while the female partner is being tested by her Ob/Gyn. This saves time and effort and can uncover male factors in a couple’s fertility challenges. Since M.A.Z.E. Laboratories is on site, comprehensive and clinically appropriate testing often can be conducted on the same day as an office visit. This is particularly useful for patients coming from long distances,
as it decreases the number of appointments Werner uses leading edge technology to create the most accurate picture of the male factors that may hinder a couple’s ability to conceive. This may include treatments to improve sperm production, or if necessary, procedures to retrieve sperm.

Up to one-third of male fertility problems go undetected by a conventional lab. Dr. Werner’s Laboratory can save patients time because the fully comprehensive fertility testing allows a couple to develop a treatment plan quickly and professionally.

Dr. Werner favors a microsurgical approach to varicocele repair given its higher success rate and shorter recovery. He is also a specialist in the area of sperm mapping, a procedure that can detect sperm in the testes prior to IVF, so that couples only embark on that path when positive results are possible.

Most importantly, Dr. Werner is an easy-going and empathetic practitioner who devotes as much time as it takes to maximize a couple’s chances for success.

**Related areas of specialization**

- Adolescent Varicocele
- No Scalpel, No Needle Vasectomy
- Vasectomy Reversal
- Female Sexual Dysfunction
- MAZE Fertility Laboratory
- Complex Semen Analysis
- Hormone Testing
- Sperm Processing for IUI
- Sperm Banking
- Cord Blood Banking

**State-of-the-Art Medical Care**

Medical advances in the areas of male infertility and sexual dysfunction are continually evolving, and these developments can significantly impact your treatment. Dr. Werner has highly specialized training in these areas and his practice is devoted exclusively to cutting edge solutions, safe and carefully considered treatment options, and successful outcomes.

Dr. Werner’s practice also houses a state-of-the-art laboratory, M.A.Z.E. Laboratories, on site. Directed by Dr. Werner, the laboratory is the only local lab that provides precise, comprehensive semen analyses and sperm banking as well as sperm processing and cord blood banking. Because the lab is on site, its services can be coordinated with your clinical care, making your evaluation and treatment more thorough, effective, and convenient.
LOW TESTOSTERONE AND CARDIOVASCULAR DISEASE

Cardiovascular Disease (CVD) refers to diseases of the heart and blood vessels. Examples of diseases in this category are congestive heart failure, coronary artery disease, angina, high blood pressure and stroke.

Cardiovascular disease, in many cases, is caused by atherosclerosis - an excess build-up of plaque on the inner wall of a large blood vessel, which restricts blood flow.

In a small observational study comparing men presenting for scheduled angiography, testosterone levels were significantly lower in males with coronary artery disease compared to men with normal coronaries. (1)

Literature suggests that exogenous testosterone (testosterone acquired from outside the body’s own testosterone-making system) is associated with a reduced risk of cardiovascular disease and more favorable levels of certain risk factors for heart disease; however, the relationship between the development of cardiovascular disease and serum testosterone levels remains uncertain.

Elevated lipids and apoproteins in the blood are risk factors associated with cardiovascular diseases, in particular, high total cholesterol and high LDL (low density lipoprotein). These lipids are pro-atherogenic – they may form deposits in the walls of the blood vessels - whereas HDL (high density lipoprotein) is protective against these deposits.

There is a more consistent relationship with testosterone and other lipid fractions. Most studies of elderly or hypogonadal populations report reductions in total cholesterol, LDL and apo-protein B after treatment with exogenous testosterone.

A study measuring the effects of testosterone replacement on lipid levels in the hypogonadal population, showed reductions of up to 22% in total cholesterol and 15% in LDL. (2)
LOW TESTOSTERONE AND CARDIOVASCULAR DISEASE (con’d)

Hypertension (high blood pressure) is another established risk factor for coronary artery disease, and lowering high blood pressure reduces the risk of cardiovascular events. Testosterone levels have shown to be lower in populations of men with hypertension than in men with normal blood pressures. This may be because testosterone acts like a natural vasodilator (causing dilation of the blood vessels) by reducing peripheral vascular resistance; therefore, lowering blood pressure.

The purpose of secondary prevention in patients with vascular disease is to reduce the incidence of subsequent events, thus prolonging the duration and quality of life. There are well-established therapies for coronary disease that target the known cardiovascular risk factors. There is a lot of evidence that suggests that testosterone treatment in men has potentially beneficial effects on virtually all of the coronary risk factors, as well as an independent anti-atherogenic action. In addition, testosterone therapy improves the ischemic threshold and therefore the quality of life in patients with symptomatic coronary disease. This is important, since it is rare that a secondary prevention treatment can make a patient feel better.

Bibliography (CVD)


Testosterone and Bone Density

During youth, bone grows in length and density. During the teen years, maximum height is reached, but bones continue to grow denser until about age 30 when peak bone mass is attained. After that point, bones slowly start to lose density or strength. Throughout life, bone density is affected by heredity, diet, sex hormones, physical activity, lifestyle choices and the use of certain medications.

Most people don’t know they have decreased bone density until they get tested or they break a bone. A bone mineral density (BMD) test is the best way to check bone health, since osteoporosis is basically a silent disease.

Osteoporosis causes the skeleton to weaken and the bones to break. It poses a significant threat to more than 2 million men in the United States. One in four men over age 50 will have an osteoporosis-related fracture in their remaining lifetime.

It develops less often in men than in women because men have larger skeletons, their bone loss starts later and progresses more slowly, and they have no period of rapid hormonal changes.

Hypogonadism is widely considered to be an important cause of male osteoporosis, occurring in up to 20% of men with vertebral fractures and 50% with hip fractures.

Testosterone is known to play an important role in the maintenance of the male skeleton; therefore, improving bone density in men with hypogonadal osteoporosis. Testosterone is known to decrease bone resorption and stimulate bone mineralization.

Treatments with calcium plus vitamin D and bisphophonates are widely used in men, when osteoporosis is documented and hypogonadism has been excluded. The poor knowledge on male osteoporosis accounts for the lack of well shared protocols for the clinical management of the disease.

Osteoporosis is a debilitating side effect of testosterone deficiency. It is practical for all men beginning testosterone replacement to receive calcium and vitamin D, and maintain a reasonable exercise regimen. Baseline BMD and follow-up bone density measurements are appropriate with consideration of bisphosphonate treatment as a possibility in those whom osteoporosis develops.