

TESTOSTERONE

For Men

Testosterone is a powerful anabolic hormone. Just as estrogen and progesterone are the female hormones, testosterone is the male sex hormone (although women have testosterone levels onetenth to one-twelfth those of men.)

Testosterone is synthesized primarily by the testes in males, the ovaries in females, and adrenal glands of both sexes. Testosterone is synthesized from androstenedione, a metabolite of DHEA and progesterone, the precursors of which are pregnenolone and cholesterol.

In men, testosterone is produced in the testes, by a group of cells known as Leydig cells. These cells begin secreting high doses of testosterone during puberty to trigger increased lean muscle mass, sex organ growth, bone formation, deeper voice, and higher energy levels. Peak testosterone levels are reached in a man's early to mid-20s.

As a man ages, the Leydig cells that secrete testosterone begin to wear away. Because of this, between the ages of 40 and 70, the average man loses nearly 60% of the testosterone inside his body. Other lifestyle factors, such as overtraining, stress and alcohol, can also hasten the deterioration of Leydig cells, and cause testosterone levels to drastically decline.

Testosterone stimulates the body's development of muscle, bone, skin, and sex organs, along with masculine physical features, such as hair growth. Recently, scientists have discovered that testosterone also improves mental power, by enhancing visual and perceptual skills. Low levels can disrupt the body's blood sugar metabolism, leading to obesity and diabetes. Chronic deficiencies may also promote the early onset of osteoporosis and heart disease. Its use is popularly associated with enhancing libido but research is indicating that it is a vital factor in the prevention of cardiovascular disease as well as improving energy levels, bone density, muscle tone, prostate health, moods and vitality.

Recent research regarding the effect of testosterone on ageing demonstrates a gain in lean body mass and a possible decline in bone loss when used in elderly patients. Testosterone enhances aerobic metabolism and increases protein synthesis in males and females. This hormone decreases with age in both males and females. From puberty through the reproductive years, males synthesize 20 times more testosterone than females.

Indictors of Low levels of testosterone:	
Reduced libido	Can cause fatigue
High body mass index (obesity)	Irritability
Abdominal fat	Depression
High glucose and insulin levels	Aches and pain in the joints
Decreased bone density and Osteoporosis	Osteoporosis
Weight Loss	Thin and dry skin
Lowers cholesterol	Lowers Triglycerides

Lowers blood glucose	Reduces abdominal fat
Reduces blood clotting	Improves libido
Improves muscle mass and strength	Improves sensitivity to sexual stimulation
Can help impotence	Increases mental sharpness
Reduces depression	Increases bone mass
Enhances aerobic metabolism	Enhances moods
Increases protein synthesis	Can help reduce the risk of cancer and heart disease

Andropause – The Male Menopause

“Andropause” involves the progressive decline of free testosterone levels with age, coupled with an increase in production of a protein called sex hormone-binding globulin. Testosterone links with the protein, reducing its availability to the tissues. As a result of these hormonal changes, men as early as age forty can develop impotency or libido problems.

Just as the ovarian function at the time of menopause for women has substantial physiologic consequences, including an accelerated loss of bone mass, sleep and behavioural changes, vaginal atrophy and the loss of fertility, Andropause can also have profound effects on health and wellbeing in men, particularly on mood and libido and some even experience sweating and hot flashes at night.

The difference is that men experience a more gradual and incomplete loss of testicular function with increasing age resulting in reduced testosterone and sperm count.

Testosterone

For Women

In women, testosterone is produced in the ovaries, adrenal glands and to a lesser extent in the skin, brain and liver.

The ovaries continue to secrete testosterone following menopause, but there is a gradual decline as a women ages after menopause. This decline is not rapid or substantial as the decline in level of oestrogen and progesterone.

In women, testosterone enhances the sex drive, helps relieve menopausal symptoms, restores lost energy, strengthens bone, elevates mood and increases sensitivity to sexual pleasure in the nipples and genitals.

TESTOSTERONE AND MENOPAUSE

When the ovaries shut down during menopause, the quantity of testosterone produced is cut in half. Women who are taking NHRT usually respond and hot flashes and other symptoms of menopause are lessened. However, a small number of women do not. Researchers believe that these women may be more sensitive to the accompanying loss of testosterone.

Dr John Moran of the Optimal Health Clinic in London has pioneered hormone replacement therapy over the past decade, prescribing testosterone to men and women. He has noticed that many women respond positively when a small amount of testosterone is added to their NHRT program. Notably, libido and energy seems to be replenished.

More research needs to be done into testosterone and its effects on its use in NHRT with women.

In women, excess testosterone can have undesired side effects, such as acne, hirsutism, baldness and deepening of the voice. Side effects to low conservative dosages are very rare. Typical side effects for women are: deepened voice, enlarged clitoris, acne, Increased facial or chest hair.

Dosage: Women - average 5-10mg/day if needed but it is best to try DHEA first The dose in women is generally one-tenth that used in men.

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