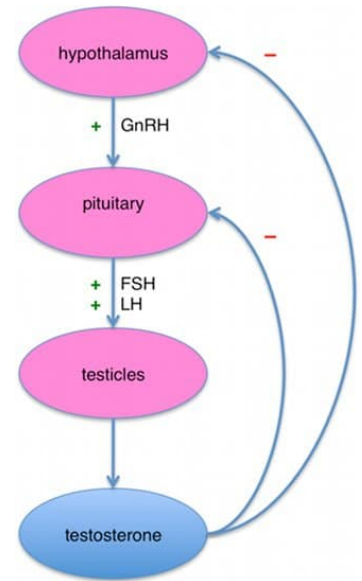


Low testosterone (T), also called hypogonadism, is a failure of the testes to produce the male sex hormone testosterone. This can occur due to either a testicular disorder (primary) or the result of a disease process involving the hypothalamus and pituitary gland (secondary). Indicators of low T include symptoms of fatigue, depression, hair loss, loss of muscle mass, low sex drive, trouble getting or keeping an erection, osteoporosis, and infertility.

In a healthy individual, when T is low, the hypothalamus stimulates the pituitary gland through gonadotropin-releasing hormone (GnRH) to produce luteinizing hormone (LH). LH is then released into the bloodstream where it travels to the Leydig cell receptors in the testes. Once LH binds to the receptors, sperm and T are created and T levels rise which then negatively regulates the secretion of GnRH, FSH, and LH. Once in the bloodstream, T binds to androgen receptors in the liver, muscles, fat tissue, and other organs where it's able to exert its effects of sperm production, increasing muscle mass, maintaining bone health, uptake of sugar from the blood, and hair growth.



The liver is also an important organ in T production and regulation. The liver produces healthy cholesterol as well as sex hormone-binding globulin (SHBG). Cholesterol is used as a skeleton to begin the production of T in the testes. Leydig cells in the testes convert cholesterol into T. If there is a low amount of cholesterol being produced, although the testes can produce a small amount, it is not enough to maintain healthy T levels.

About 40-50% of the total T is bound to SHBG. SHBG decreases the level of free T in the bloodstream due to the fact that once bound to SHBG, T is biologically inactive. Excess SHBG, which often occurs in patients with liver disease, can create a T deficiency because the SHBG binds itself to too much free T in the bloodstream which creates the symptoms seen in low T patients.³

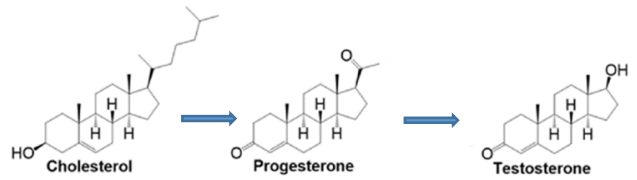
The main causes of a T decline include poor circulation to the testes, pituitary gland deficiencies, and liver disease. Compromised blood flow can occur for a number of reasons including aging, radiation, and testicular injury. Because the testes are located within the scrotum, which hangs outside the body, they do not have the protection of muscles or bones. This makes the testes vulnerable to injury. Testicular injury and trauma can cause a decrease in blood flow to the testes. The capacity of the testes to secrete testosterone is severely limited by decreased testicular blood flow.¹

Pituitary gland dysfunction can occur from a pituitary gland tumor, anxiety/stress, or a traumatic brain injury. Anxiety and stress affect the pituitary gland through an increase in cortisol levels. High cortisol levels suppress GnRH activity which directly affects the pituitary gland's ability to produce LH, which is critical in the production of testosterone.

Structural and functional damage to the liver can cause low T in the blood. Common health issues that can cause a liver deficiency include diabetes, alcoholism, obesity, and cirrhosis. There is a direct correlation between decreased insulin sensitivity and low free T. T deficiency is common in men with diabetes, regardless of the type. A study performed found that 43% of type 2 diabetic men have reduced total testosterone levels and 57% have lower free testosterone levels.² T levels are partly influenced by insulin resistance. Increased blood sugar suppresses the pituitary gland production of LH. On the other hand, low T levels can also decrease the body's sensitivity to insulin.⁴

Alcoholism can lead to low T through the damage that alcohol has on the testes, sperm count, and liver. In obese individuals, fat cells metabolize free T. When there are above average fat cells in the body, more T will be utilized from the bloodstream. Cirrhosis of the liver causes an increase in SHBG. A study performed found that SHBG was significantly increased in patients with liver cirrhosis compared with healthy subjects.³

Cholesterol is an organic molecule that is mainly synthesized in the cells of the liver. Cholesterol serves as a precursor for the biosynthesis of steroid hormones including T, aldosterone, cortisol, bile acid, and vitamin D. Cholesterol is a fat-soluble molecule and therefore is bound to lipoproteins including High-Density Lipoproteins (HDL) and Low-Density Lipoproteins (LDL). HDL and LDL are also synthesized by the liver. The LDL also called “bad” cholesterol carries cholesterol from the liver to the body’s cells. The HDL also called “good” cholesterol absorbs cholesterol in the tissue and blood and carries them back to the liver. The liver then flushes it from the body. A study of 293 men with type 2 diabetes showed that testosterone levels correlate positively with HDL cholesterol levels in men with type 2 diabetes.⁵



A new study that evaluated nearly 3,500 men who had erectile dysfunction found that Statin therapy prescribed to lower cholesterol also appears to lower testosterone levels.⁶ Statin lowers cholesterol by reducing the liver's production of cholesterol. Statin blocks an enzyme called HMG CoA reductase that the liver uses to make cholesterol. The reduction of liver's cholesterol production depletes the substrate for testosterone synthesis leading to lower T.

Wellness Recommendation

In TCM, low T due to reduced testicular synthesis caused by poor circulation to the testes, reduced pituitary gland production of LH, and poor liver function is viewed as kidney Yin and Yang as well as liver Yin deficiencies. The wellness recommendation for low testosterone includes Masculine +. Masculine + enhances the kidney Yin and Yang and nurtures liver Yin to support the body in increasing and sustaining healthy T levels caused by liver and pituitary deficiencies as well as circulatory issues. The herbal ingredients utilized have been shown to increase T levels by reducing SHBG, increasing blood flow to the genitals using the same mechanism as Viagra, decreasing blood glucose levels, and increasing LH levels. These mechanisms allow Masculine + to help patients suffering from low T caused by any of the three main causes. Patients can experience improved strength, energy levels, and libido as well as better concentration and overall mood in 2 weeks with the use of Masculine + at 3 capsules per day. Further improvement in libido and energy levels as well as improved erections can be achieved in 1 month. It is recommended to continue the protocol to maintain healthy testosterone levels. If the patient's symptoms plateau, increase the dosage to 2 capsules 3 times a day.

For patients who have liver conditions, diabetes or on Statin, Brown and LC Balancer are also recommended to improve liver health and improve insulin sensitivity and HDL production. For patients who have liver cirrhosis, Brown, LC Balancer, and Cirrhonin are also recommended to help break down the fibrotic tissue in the liver and repair liver damage to further reduce the SHBG levels.

Selected Case Studies

Low Testosterone Symptom Improvement in 2 Weeks

Dr. Michael Biamonte, NY (Oct 2020)

A 65-year-old male patient presented with low testosterone levels. He was experiencing multiple symptoms including decreased libido and energy levels. Dr. Biamonte recommended Masculine + from Wei Labs at 3 capsules per day. Masculine+ is an all-natural herbal formula that helps to combat low testosterone levels caused by liver and pituitary deficiencies as well as circulatory issues.

After two weeks on the product, the patient reported a 50% improvement in many of his symptoms. His concentration, strength, energy levels, libido, and overall mood all improved greatly.

After one month on Masculine+, the patient stated that he has noticed another increase in his libido and energy levels, as well as improved erections.

Increased Testosterone Levels and Stress Tolerance in a Low T patient

Wei Laboratories Practitioner, CRNP, IFMCP, PA (April 2023)

A 42-year-old male patient was diagnosed with low testosterone around July 2022. He was experiencing anxiety, low stress tolerance, low energy, fatigue, and sluggishness that would interfere with his daily life. He was taking Ashwagandha but wasn't noticing much improvements.

His practitioner recommended Wei Laboratories Low Testosterone Protocol for him. This protocol includes Masculine + which works to enhance the kidney Yin and Yang and nurtures liver Yin. The herbal ingredients utilized have been shown to increase T levels by reducing sex hormone-binding globulin which is produced in the liver and binds itself to too much free T in the bloodstream. Masculine + also increases blood flow to the genitals and increases LH which helps to increase levels of T.

Within a few days of taking Masculine + at a low dosage, he noticed improvements with energy levels. He did notice a plateau in his improvements which was concluded to be a result of not being consistent with the dosage. After slightly increasing the dosage, he reported feeling calmer. After three months, his sleep had improved and he was noticing improvements in his stress tolerance. By four months on Masculine +, it was recommended to add in Brown and Calm to further help with stress and anxiety and improve liver health.

The patient was able to get blood work done before starting the protocol and again after being on the protocol for six months. He was extremely happy with his results and where his T levels are at. There was a slight increase in the estradiol level (1.7 pg/mL to 2.0 pg/mL) however, his testosterone levels went from 78 pg/mL to 90 mg/mL. The patient will continue taking the Brown and Masculine + but at a higher dosage and receive another test within the next few months.

TEST NAME	RESULTS 07/10/22	RANGE
Salivary Steroids		
Estradiol	1.7	0.5-2.2 pg/mL
Progesterone	26	12-100 pg/mL
Testosterone	78	44-148 pg/mL (Age Dependent)
DHEAS	10.3	2-23 ng/mL (Age Dependent)
Cortisol	4.9	3.7-9.5 ng/mL (morning)

TEST NAME	RESULTS 03/01/23	RANGE
Salivary Steroids		
Estradiol	2.0	0.5-2.2 pg/mL
Progesterone	22	12-100 pg/mL
Testosterone	90	44-148 pg/mL (Age Dependent)
DHEAS	10.1	2-23 ng/mL (Age Dependent)
Cortisol	6.2	3.7-9.5 ng/mL (morning)

<dl = Less than the detectable limit of the lab. N/A = Not applicable; 1 or more values used in this calculation is less than the detectable limit. H = High.

Improved Stamina and Libido with Kidney Support & Masculine+

Allen Fraley, DC, WA (Oct 2020)

A 32-year-old male patient came to us to increase his sperm count as well as improve his libido, which he has felt declining over the past 5 years. Previously, he had noticed symptoms of fatigue, slight weight gain, and some restless sleep. The practitioner prescribed a 3-month kidney support protocol from Wei Labs, consisting of LC Balancer, Xcel, KS, MI, and M-Strong. The patient had experienced an improvement in his sleep and fatigue following the protocol.

After his 3-month kidney support regimen, he was placed on a maintenance protocol which included Masculine+. On his first day of the new protocol, he noticed a great increase in his strength, stamina, and libido.

After one month the patient is having sustained improvements in strength, stamina, and libido. The patient is choosing to continue with this protocol as he feels he is able to get much more work done in a day than he was previously. The patient's wife has also gotten on a similar protocol to address her health issues as she has seen her husband improve so quickly.

Improved Alertness and Overall Wellbeing on Masculine +

Dr. Frances Bernard, DC (November 2020)

A 52-year-old male patient was experiencing brain fog, decreased libido, and trouble concentrating. The patient also suffers from ADHD.

Dr. Bernard recommended the patient start Wei Labs Masculine + which helps to increase testosterone levels. This recommendation was made based on the fact that low testosterone can cause the symptoms the patient had been experiencing.

After two weeks on the formula, the patient stated the biggest benefit was an increase in his alertness and he felt less groggy with better concentration. He also reported an increase in his overall wellbeing.

A blood test performed after starting the product showed that his testosterone levels increased from 631 ng/dL to 673 ng/dL. The patient is continuing on with the product for the rest of the month to continue to see improvements in libido and concentration.

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