



Low Testosterone in Men: Causes, Effects, and Solutions

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Men's testosterone levels declining-Testosterone levels in men normally decline with age at the rate of about 1-2% per year, starting around age 30. Prevalence of low testosterone ranges from 10-40%, depending on age and circumstances.

Although testosterone levels in men naturally decline with age, recent decades have seen these levels decrease at a faster rate and at an earlier age. Prevalence of low testosterone in younger men is as high as 20%.

A 2020 report to the American Urological Association¹ saw significant declines in average testosterone levels among U.S. males ages 15-39 when comparing 1999 levels to more recent averages. National Health and Nutrition Examination Surveys (NHANES) from 1999 to 2016 analyzed serum testosterone levels in 4,045 adolescents and young men.

Average serum testosterone levels:

- 1999-2000: 605.39 ng/dL
- 2003-2004: 567.44 ng/dL
- 2011-2012: 424.96 ng/dL
- 2013-2014: 431.76 ng/dL
- 2015-2016: 451.22 ng/dL



Causes of declining testosterone levels in men -The causes for declining testosterone levels can basically be divided into two categories – individual and global.

Individual refers to personal characteristics and health conditions of a particular person, while global refers to things like xenoestrogens and other toxins in our environment.

Personal health considerations. Health conditions that can contribute to lower testosterone levels include overweight/obesity, diabetes, hypertension, liver disease, kidney disease, sleep apnea, and stress. Certain medications also can cause low testosterone levels, including opiates, high blood pressure medications, statins, and anti-depressants.

External contributors: Exposure to environmental toxins, particularly xenoestrogens in the air, water, and food we eat are major contributors to hormone disruptions. For example, exposure to xenoestrogens, from environmental exposure to plastics, sunscreens, and other chemicals, can tip the balance between estrogen and testosterone in favor of estrogen.

Signs and symptoms of low testosterone in men-Men with low testosterone might exhibit an array of signs and symptoms, including:

Reduced libido	Erectile dysfunction	Low sperm count
Poor sperm motility/infertility	Loss of body hair	Breast enlargement
Decreased muscle mass	Muscle fatigue	Low energy
Moodiness/irritability		

Lifestyle approaches to increasing testosterone

There are numerous dietary and other lifestyle interventions that can help to improve testosterone levels.

Specific foods. Several foods have been shown to increase testosterone levels. Some of these foods help boost levels of key nutrients like zinc or vitamin D, low levels of which can contribute to low testosterone.

Salmon –highest source of vitamin D	Olive oil	Oysters – highest source of zinc
Egg yolks	Liver	Asparagus
Crab/lobster	Beans	Pomegranate juice

Let's take a look at a little science. In a study of 60 healthy male volunteers (ages 23-40), consumption of extra virgin olive oil for three weeks increased blood levels of testosterone by 17.4%.²

A study of 60 men and women (average age 39) found 500 mL (a little more than 2 cups) of pomegranate juice daily for two weeks caused a small but significant increase in salivary testosterone levels in the men and women participants.³

Mediterranean Diet. There is a strong correlation between low testosterone and metabolic syndrome in men. Low testosterone increases the risk for metabolic syndrome, while metabolic syndrome also increases the risk for low testosterone.

The Mediterranean Diet is one of the best diets for individuals who have metabolic syndrome. Plus, the Mediterranean Diet includes many of the foods in the above list – including olive oil, fish, legumes, and plenty of colorful vegetables and fruits. In general, the Mediterranean Diet consists of large amounts of vegetables and moderate amounts of fruit, in addition to whole grains, beans, nuts, and seeds. Fish, and to a lesser extent low-fat meat and poultry, are eaten in moderation. Fresh fruit is the typical daily dessert, and olive oil is the primary source of fat. Simple carbs are kept to a minimum.

Specific nutrients. Low levels of both vitamin D and zinc have been associated with low testosterone levels in men.

Studies have found an association between low zinc levels and low testosterone levels. For example, one study found lower levels of zinc in semen were associated with lower blood levels of free testosterone.⁴

Low zinc levels have been associated with low testosterone in both younger and older men, and supplementing zinc to older men can increase testosterone levels.^{*5} Although there are numerous dietary sources of zinc, oysters are by far the best source, providing 74 mg per 3-ounce serving – almost five times the recommended daily intake.

Studies show two things about vitamin D and testosterone: (1) low vitamin D levels are associated with low testosterone, and (2) supplementing vitamin D in men with low D blood levels can increase testosterone.* In a study of 102 men (average age 53) who supplemented with vitamin D, testosterone levels increased and markers of metabolic syndrome improved during a 12-month period.⁶ Wild-caught salmon is the richest source of vitamin D, with 988 IU of D3 in 3.5 ounces (100 grams).

Endurance exercise. Aerobic exercise can be a double-edged sword when it comes to testosterone levels and depends on the intensity. Endurance exercise can increase testosterone levels – as long as it is not done to excess (excess endurance exercise of the type engaged in by a marathon runner or long-distance triathlete can have the opposite effect and decrease testosterone).

A study of 10 trained endurance athletes found that three different endurance exercise protocols – interval training, circuit training, and tempo run – resulted in increased blood and salivary testosterone levels.⁷

Strength training. Resistance training can boost testosterone levels too. In one study, testosterone levels increased in both younger and older participants who engaged in repetitive exercises using resistance machines.⁸ In an exercise plus diet study, resistance training along with a ketogenic diet over 10 weeks significantly increased testosterone levels in 25 college-age men.⁹

Sleep. It seems like more and more research is pointing to a lack of sleep as a contributing factor to numerous health conditions. Low testosterone is no exception. A study in young healthy men found that decreasing sleep from eight hours per night to five hours per night for only one week resulted in a 10-15% decrease in testosterone levels.¹⁰

Stress reduction. Studies show excess stress can increase salivary cortisol levels and decrease salivary testosterone levels. Practicing yoga, which combines physical postures, breathing exercises, and simple meditation, has been shown to improve sleep, mood, stress, and fatigue. The practice of yoga can also reduce cortisol levels and be an excellent stress-reducing tool.¹¹

Assertive behavior. In an interesting study, actors and actresses acted out scenes in which they were bosses firing employees – playing the parts as both men and women bosses. Acting like a boss resulted in increased saliva levels of testosterone in both men and women, but more so in women – and it didn't matter if they were playing the part of an assertive woman or man.¹²

Plant-based supplements to help support healthy testosterone levels

Several plant-based extracts have been shown to support healthy testosterone levels in men.* Let's take a look at a few of them that have supportive research.

Shilajit. Is it a plant? Is it a mineral? We'll let you decide. Shilajit is decomposed plant matter, fermented for thousands of years by soil organisms, that then seeps out of cracks in rocks in the Himalayas. It contains urolithins (antioxidants), humic acids (particularly fulvic acid), and 40 different minerals (it's 20-40% mineral, but low in heavy metals). Shilajit has been the subject of several studies showing its benefit for supporting healthy testosterone and DHEA levels.^{13,14} Studies also show shilajit supports improved circulation¹⁵ and decreased muscle fatigue after exercise.¹⁶

Ashwagandha. Add healthy testosterone balance to ashwagandha's wide ranging effects – from cognitive support to benefiting stress and sleep.* A study in overweight men found a specific ashwagandha extract called Shoden® supported healthy testosterone and DHEA levels.¹⁷ Shoden ashwagandha is a high potency extract, containing 35% withanolide glycosides – from the leaves and roots of ashwagandha. By using both the root and the leaf, a broader range of withanolides is present.

Luteolin. Many flavonoids, because of their structural similarity to sex hormones like estradiol and testosterone, can bind to these same hormone receptors. Luteolin from Chrysanthemum is one such flavonoid¹⁸ and supports a healthy ratio of testosterone to estrogen.*

Thorne's Advanced Testosterone Support (Available at Body Concepts)

Thorne's newest innovation for men's health is Advanced Testosterone Support, featuring purified PrimaVie® shilajit, Shoden® ashwagandha, luteolin as a phytosome, and zinc bisglycinate, the latter two formulated for enhanced absorption.

Explore the benefits of Advanced Testosterone Support [here](#).

Also, check out the newest additions to our multivitamin/mineral formula Men's Multi 50+: Addition of lycopene for enhanced prostate and cardiovascular support*

- Addition of copper and increased zinc for overall men's health support

Testosterone is an important sex hormone for both men and women. This article focuses on testosterone levels in men. For more information on testosterone levels in women, check out the article [Abnormal Testosterone Levels in Women](#) on *Take 5 Daily*.