

# How Low Testosterone Affects Men's Health

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## STORY AT-A-GLANCE

- › Low testosterone affects up to 38.7% of men over 45, causing symptoms like low libido, fatigue and weight gain. It's linked to increased risks of metabolic syndrome and cardiovascular disease
- › Obesity and diabetes are closely connected to lower testosterone levels, creating a cycle that's hard to break. Excess fat tissue interferes with testosterone production through various mechanisms
- › Low testosterone levels (below 213 ng/dL) are associated with higher all-cause mortality risk. Balanced hormone levels, including luteinizing hormone and estradiol, are crucial for overall health
- › Andropause, or male menopause, involves a gradual decline in testosterone levels starting around age 40. This affects cardiovascular health, body composition and increases risks of heart problems
- › Natural strategies to boost testosterone include KAATSU training, regular sun exposure and avoiding endocrine-disrupting chemicals

If you're a man over 45, you may be experiencing symptoms like low libido, fatigue, mood changes or weight gain without realizing one common underlying cause — low testosterone. Up to 38.7% of men in this age group have insufficient testosterone levels.<sup>1</sup>

The American Urology Association considers levels below 350 ng/dL to be low, though some experts argue for a lower threshold of 250 ng/dL.<sup>2</sup> Regardless of the exact number, it's the combination of low levels and symptoms that matters.

Low testosterone isn't just about sexual health. It can increase your risk of metabolic syndrome and cardiovascular disease as you age. Symptoms may include obesity, Type 2 diabetes, osteoporotic fractures, generalized weakness and even facial hair loss.<sup>3</sup> If you're experiencing these signs, it's worth investigating your testosterone levels.

Ideally, blood samples should be taken between 7:00 a.m. and 11:00 a.m. when testosterone is highest. Don't dismiss your symptoms just because you're getting older – low testosterone is a treatable condition that can significantly impact your quality of life. While I don't recommend testosterone supplements, there are multiple ways to increase your testosterone levels naturally.

## **The Testosterone-Obesity-Diabetes Connection**

Your body composition plays a crucial role in testosterone production. Obesity and diabetes are closely linked to lower testosterone levels, creating a vicious cycle that can be hard to break. Excess fat tissue, especially around your abdomen, can interfere with testosterone production in several ways:<sup>4</sup>

- 1. Leptin resistance** – Fat cells produce leptin, which can lead to central leptin resistance and reduce signals in your brain that stimulate testosterone production.
- 2. Increased estrogen** – Fat tissue contains an enzyme that converts testosterone to estrogen, further lowering your testosterone levels.
- 3. Inflammation** – Fat cells produce inflammatory cytokines that can interfere with testosterone production and reduce insulin sensitivity.

These mechanisms not only lower your testosterone but also contribute to insulin resistance, putting you at risk for Type 2 diabetes. Low testosterone can also lead to decreased muscle mass and increased fat accumulation, worsening the cycle. If you're

struggling with weight issues or diabetes, it's essential to have your testosterone levels checked. Addressing low testosterone could be a key factor in improving your metabolic health and breaking this harmful cycle.

## **Low Testosterone May Increase Your Risk of All-Cause Mortality**

There's a strong relationship between sex hormones and mortality risk in men. A comprehensive meta-analysis of nine studies, covering more than 255,830 participant-years, has revealed some eye-opening insights.<sup>5</sup> If your testosterone levels fall below 213 ng/dL, you may face a higher risk of all-cause mortality. Also concerning, testosterone levels below 153 ng/dL were associated with increased cardiovascular mortality risk.

But testosterone isn't the only hormone you should be concerned about. The study found that men with luteinizing hormone (LH) levels above 10 IU/L or estradiol levels below 5.1 pmol/L also had a higher risk of all-cause mortality. These findings underscore the importance of **maintaining balanced hormone levels** as you age. It's not just about feeling energetic or maintaining muscle mass — your hormone levels could be a matter of life and death.

While testosterone often takes center stage in discussions about male hormones, this research highlights the importance of often-overlooked players, including dihydrotestosterone (DHT). DHT, a potent form of testosterone responsible for the expression of male features, showed a nonlinear relationship with mortality risk.<sup>6</sup>

Both very low and very high levels were associated with increased risk. Men with DHT levels below 0.69 nmol/L had a 19% higher risk of all-cause mortality and a 29% higher risk of cardiovascular mortality compared to those with levels around 2.45 nmol/L.<sup>7</sup> However, risk also increased at DHT levels above 2.45 nmol/L. These findings underscore the complexity of hormonal health. It's not always a case of "more is better" — balance is key.

While much of the research focused on mortality risk, the study, published in the *Annals of Internal Medicine*, also provided valuable insights into the relationship between hormones and cardiovascular disease (CVD) risk. Men with DHT concentrations below 0.59 nmol/L had an increased risk of incident cardiovascular events.<sup>8</sup>

## **The Link Between 'Male Menopause' and Cardiovascular Health**

As you enter your 40s and beyond, you may be unaware of a silent threat to your heart health: andropause, also known as male menopause. While it's not directly comparable to female [menopause](#), there are some similarities and important differences to consider.

Unlike female menopause, which involves a relatively abrupt drop in hormone levels, men experience a gradual decline in testosterone levels as they age. This process typically begins around age 40 and continues throughout life. Men can experience a decrease in testosterone levels of about 1% per year after age 40.<sup>9</sup>

This gradual decline in testosterone levels doesn't just affect your libido and muscle mass; it also impacts your cardiovascular system. Research has shown that men with lower testosterone levels are at higher risk for cardiac problems and mortality.<sup>10</sup> In fact, a significant number of men with congestive heart failure have been found to have testosterone deficiency.<sup>11</sup>

Low testosterone levels can contribute to the accumulation of visceral fat, which is closely linked to insulin resistance and an unfavorable lipid profile. These factors can accelerate the hardening of your arteries, a process known as atherosclerosis. However, maintaining healthy testosterone levels can have protective effects on your heart. It can help shorten the heart-rate-corrected QT interval, improve glycemic control and induce vasodilation.<sup>12</sup>

## **Andropause and Body Composition: More Than Just Weight Gain**

As you age and your testosterone levels decline, you might notice changes in your body composition that go beyond simply gaining a few pounds. Testosterone plays a crucial

role in regulating your body's fat distribution and muscle mass. When levels drop, you may experience a shift in where your body stores fat — from under your skin to deep in the abdomen (visceral fat).<sup>13</sup>

Visceral fat is metabolically active and can increase your risk of various health problems, including diabetes and heart disease. At the same time, lower testosterone can lead to a loss of muscle mass, a condition known as sarcopenia. This double whammy of increased fat and decreased muscle can significantly impact your strength, mobility and overall health.

The good news is that addressing low testosterone levels can help reverse these trends. Increasing testosterone levels has been shown to decrease visceral fat accumulation and increase lean body mass.<sup>14</sup> It does this by activating androgen receptors, which initiate a fat-burning process and promote the differentiation of mesenchymal cells into muscle fibers rather than fat cells.

## **The Role of Biomarkers in Diagnosing Andropause**

Recognizing andropause isn't always straightforward, but certain biomarkers can provide valuable insights into your hormonal health. While testosterone is the primary hormone associated with andropause, it's not the only one to consider. Other hormones and proteins in your body can offer a more complete picture of your endocrine health.<sup>15</sup>

For instance, sex hormone-binding globulin (SHBG) levels tend to increase with age, which can affect the amount of free testosterone available in your body. Estradiol, a form of estrogen, also plays a role. The ratio of testosterone to estradiol can be a useful indicator of andropause, with lower ratios associated with more severe symptoms.<sup>16</sup>

Other biomarkers to consider include dehydroepiandrosterone sulfate (DHEAS), a precursor to testosterone that also declines with age, and prolactin, which tends to increase in older men and can contribute to symptoms like decreased libido. Even your thyroid hormone (thyroxine) and sleep hormone (melatonin) levels can provide clues about your andropause status.<sup>17</sup>

## **Obesity and Sleep Apnea: A Double Threat to Testosterone Levels**

If you're carrying excess weight, particularly around your midsection, you may be facing a double threat to your testosterone levels. A study of severely obese men revealed that obstructive sleep apnea (OSAS) is strongly associated with lower testosterone, independent of age and body mass index.<sup>18</sup> OSAS, characterized by repeated breathing pauses during sleep, affected a staggering 96.2% of the study participants.

The more severe the sleep apnea, as measured by frequency of breathing disruptions and oxygen desaturation, the lower the total and free testosterone levels tended to be. This relationship held true even after accounting for other factors like metabolic syndrome, a cluster of conditions including high blood pressure, high blood sugar and abnormal cholesterol levels.

The findings suggest that poor sleep quality and intermittent nighttime oxygen deprivation may be directly impacting your body's ability to produce testosterone, beyond the known effects of excess body fat. Your overall metabolic health also plays a crucial role in maintaining healthy testosterone levels. Both total and free testosterone showed negative correlations with various metabolic factors, including waist circumference, blood pressure and fasting glucose levels.

Interestingly, the researchers used a continuous metabolic syndrome score to quantify **overall metabolic health**, finding that higher scores (indicating poorer metabolic health) were linked to lower testosterone levels.<sup>19</sup> This underscores the importance of addressing not just weight, but also the underlying metabolic imbalances that often accompany obesity, to support your hormonal health.

## **Testosterone Therapy: No Increased Heart Risk for Men**

While I don't recommend testosterone supplements, concerns about testosterone replacement therapy (TRT) and heart health may be unfounded, according to a comprehensive study published in *Progress in Cardiovascular Diseases*.<sup>20</sup> This meta-

analysis of 30 randomized controlled trials, involving 11,502 patients, suggests that TRT does not increase your risk of heart problems or death.<sup>21</sup>

The researchers examined various cardiovascular outcomes, including overall cardiovascular events, stroke, heart attack and death from any cause. They found no significant difference between men receiving testosterone therapy and those given a placebo. This held true across all measured outcomes, with similar rates of events in both groups.

These findings challenge the 2015 U.S. Food and Drug Administration warning about potential cardiovascular risks associated with testosterone products.<sup>22</sup> This information could be particularly relevant if you're over 50, as the average age of participants in the analyzed studies ranged from 61 to 62 years old.

However, it's important to note that this research doesn't mean TRT is risk-free or suitable for everyone. The study focused specifically on men with diagnosed hypogonadism, not those using testosterone for other reasons.

## Strategies to Raise Testosterone Naturally

There are only **four hormones** I believe many adults can benefit from — progesterone, thyroid hormone T3, DHEA and pregnenolone. However, if you have low testosterone, there are several evidence-based strategies you can use to boost your levels naturally.

One innovative approach gaining attention is **KAATSU training**, also known as blood flow restriction training. This technique involves using specialized bands to partially restrict blood flow to your limbs during exercise, tricking your body into thinking it's working harder than it actually is. Research suggests this can lead to increased growth hormone and testosterone production.<sup>23</sup>

Avoiding **endocrine-disrupting chemicals**, such as phthalates, bisphenol A and PFOAs is also important, as these chemicals affect testosterone levels.<sup>24</sup> Regular sun exposure is another strategy; if you get sufficient sun exposure it will increase your testosterone levels.<sup>25</sup>

While a gradual decline in testosterone levels is a common part of aging, it's important to recognize that significant drops can lead to serious health consequences. To optimize your levels, work with a holistic health care provider to develop a personalized approach, as hormone balance is complex and individual. By staying informed and proactive about hormonal health, men can take steps to maintain their vitality and reduce health risks as they age.

Last but not least, it's also important to recognize that excess estrogen will impair testosterone levels and functions as well. To address estrogen dominance, I recommend using a natural anti-estrogen compound hormone like progesterone. Progesterone also helps address problems with endocrine-disrupting chemicals from plastics and other environmental sources that activate estrogen receptors.

## **How to Use Progesterone**

Before you consider using progesterone, it is important to understand that it is not a magic bullet, and that you get the most benefit by implementing a Bioenergetic diet approach that allows you to effectively burn glucose as your primary fuel without backing up electrons in your mitochondria that reduces your energy production. My new book, "Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy" comes out very soon and covers this process in great detail.

Once you have dialed in your diet, an effective strategy that can help counteract estrogen excess is to take transmucosal progesterone (i.e., applied to your gums, not oral or transdermal), which is a natural estrogen antagonist. Progesterone is one of only four hormones I believe many adults can benefit from. (The other three are thyroid hormone T3, DHEA and pregnenolone.)

I do not recommend transdermal progesterone, as your skin expresses high levels of 5-alpha reductase enzyme, which causes a significant portion of the progesterone you're taking to be irreversibly converted primarily into allopregnanolone and cannot be converted back into progesterone.

## **Ideal Way to Administer Progesterone**

Please note that when progesterone is used transmucosally on your gums as I advise, the FDA believes that somehow converts it into a drug and prohibits any company from advising that on its label. This is why companies like Health Natura promotes their progesterone products as "topical."

However, please understand that it is perfectly legal for any physician to recommend an off-label indication for a drug to their patient. In this case, progesterone is a natural hormone and not a drug and is very safe even in high doses. This is unlike synthetic progesterone called progestins that are used by drug companies, but frequently, and incorrectly, referred.

Dr. Ray Peat has done the seminal work in progesterone and probably was the world's greatest expert on progesterone. He wrote his Ph.D. on estrogen in 1982 and spent most of his professional career documenting the need to counteract the dangers of excess estrogen with low LA diets and transmucosal progesterone supplementation.

He determined that most solvents do not dissolve progesterone well and discovered that vitamin E is the best solvent to optimally provide progesterone in your tissue. Vitamin E also protects you against damage from LA. You just need to be very careful about which vitamin E you use as most supplemental vitamin E on the market is worse than worthless and will cause you harm not benefit.

It is imperative to avoid using any synthetic vitamin E (alpha tocopherol acetate – the acetate indicates that it's synthetic). Natural vitamin E will be labeled "d alpha tocopherol." This is the pure D isomer, which is what your body can use.

There are also other vitamin E isomers, and you want the complete spectrum of tocopherols and tocotrienols, specifically the beta, gamma, and delta types, in the effective D isomer. As an example of an ideal vitamin E, you can look at the label on our vitamin E in our store. You can use any brand that has a similar label.

You can purchase pharmaceutical grade bioidentical progesterone as Progesterone Powder, Bioidentical Micronized Powder, 10 grams for about \$40 on many online stores like Amazon. That is nearly a year's supply, depending on the dose you choose.

However, you will need to purchase some small stainless steel measuring spoons as you will need a 1/64 tsp, which is 25 mg and a 1/32 tsp, which is 50 mg. A normal dose is typically 25-50 mg and is taken 30 minutes before bed, as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

Unfortunately, this vendor frequently runs out of product, and if that's the case, then you can use [Simply Progesterone by Health Natura](#). It's premixed with vitamin E and MCT oil. Again, while Health Natura states that its product is for "topical use only," I recommend applying it transmucosally, by rubbing it on your gums.

If you are a menstruating woman, you should take the progesterone during the luteal phase or the last half of your cycle, which can be determined by starting 10 days after the first day of your period and stopping the progesterone when your period starts.

If you are a male or non-menstruating woman, you can take the progesterone every day for four to six months and then cycle off for one week. The best time of day to take progesterone is 30 minutes before bed as it has an anti-cortisol function and will increase GABA levels for a good night's sleep.

This is what I have been personally doing for over a year with very good results. I am a physician so do not have any problems doing this. If you aren't a physician, you should consult one before using this therapy, as transmucosal progesterone therapy requires a doctor's prescription.

## Sources and References

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