

Safe & effective
TESTOSTERONE
replacement for men

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Finally start feeling like yourself again with safe, effective testosterone therapy!

You just don't feel like yourself anymore. Your energy level has dropped off, and you don't have the get-up-and-go or strength you had when you were a younger man. To make matters worse, things have cooled down considerably in the bedroom, and frankly, even though you hate to admit it, you're even feeling a bit depressed. While it's entirely normal for a guy's testosterone levels to drop off as he ages, if your numbers plummet *too* low, these... and other troubling symptoms... could very well be symptoms of low testosterone.

But simply "talking to your doctor about Low T," as the drug commercial breezily advises, isn't nearly as cut and dry as it sounds. You surely have heard at least some of the recent rumblings about testosterone replacement therapy potentially increasing the risk for heart attack and stroke in older men with a history of cardiovascular disease. These reports are based on several recent studies that have cast a dark shadow on testosterone replacement. And I don't blame you one little bit if you're confused. Even the so-called experts are clashing over what this new data *really* means.

Luckily, you've got me in your corner. I'll help blow away that confusion and make some sense out of this data—including the most recent study that clears up those testosterone misconceptions about heart risks—so you, and your doctor, can make a truly informed choice. And before you're done reading this article you will have gotten the clinical insiders scoop on how you can use testosterone replacement safely and effectively so you can *finally* start feeling like yourself again.

Testosterone can REDUCE your heart risks!

Let's start with one important fact. Testosterone is a critical hormone with wide-ranging health benefits. And maintaining your levels of this hormone can impact your health in a mind-boggling variety of ways. For instance, proper testosterone levels can help increase your lean muscle mass and strength, reduce your body fat, improve your libido and sexual function, reduce your blood sugar levels (if you're diabetic), support your bone density, fight depression, drive off dementia, and even... believe it or not...*reduce* your risk of cardiovascular disease!

But let's take a look at those negative testosterone studies. In January 2014, a study published in the journal *PLOS ONE* found an increased risk of heart attacks in

testosterone users in the first three months of therapy. That risk was higher in men who had a history of cardiovascular disease.¹

The *supposed* overall increased risk of heart attack, at 36%, is nothing to sneeze at. You'd be right to be concerned about that number. Any reasonable thinking man would be. But there's a problem. The study had a couple of major flaws, some big enough to drive a truck through. And those flaws make the well-meaning researchers conclusions questionable at best and totally invalid at worst.

The study drew its data from large health-care databases. This is known as a cohort study. But what's strange about *this* study is that the investigators compared men who initiated testosterone therapy to those who started on a class of erectile dysfunction drugs known as PDE-5 inhibitors. Common examples of PDE-5 inhibitors include Viagra, Levitra, and Cialis. These drugs relax smooth muscle of the penis allowing it to fill with blood. The problem with pitting these two groups against one another is that PDE-5 inhibitors have been shown to have *benefits* for the cardiovascular system. For example, they reduce blood pressure in the pulmonary (lung) arteries, relieve heart failure, coronary artery disease, and high blood pressure.²

Another problem with the study was that it lasted only three months. That's not nearly enough time to determine whether the increase in heart problems was from the testosterone therapy or from pre-existing cardiovascular disease. As one expert put it, "It's unlikely that heart attacks could develop in such a short period of time."³ To make matters worse, the study didn't take into account the amount of testosterone used, a critical factor.

Flawed studies lead to flawed results

Another study, this one published in the *Journal of The American Medical Association* in 2013, analyzed a group of men from the VA. The researchers say they found an association between testosterone therapy and an increased risk of death, heart attack, or stroke.⁴ But once again, this study is peppered with flaws.

To begin with, researchers didn't follow enough parameters to make it a meaningful study. For example, only 60 percent of the patients had their testosterone level checked after initiating therapy. In addition, increased blood viscosity... a condition in which the number of red blood cells become concentrated hindering circulation... should always be monitored with testosterone therapy. But the researches failed to track it.

To make matters worse, volunteers used in the study were all sick to begin with. More than 80 percent of the participants had a history of coronary artery disease and about 50 percent had diabetes. The study was clearly flawed making the results flawed too. And the conclusions these researchers reached shouldn't be used to determine whether testosterone therapy is for you.

Could testosterone be your heart's BFF?

With all the recent media hype about the dangers of testosterone you might be surprised to learn that there are studies linking the hormone to *positive* heart changes. The first was a review published in the *Journal of the American Heart Association* in December 2013. The authors completed a comprehensive review of the clinical literature examining the associations between testosterone and cardiovascular disease. More than 100 studies were included in the massive review and the conclusions were quite telling.⁵

Low testosterone levels were associated “with higher rates of all-cause and cardiovascular-related mortality.”⁶ In other words, men with *lower* testosterone levels were linked to *higher* death rates. The researchers noted that men with coronary artery disease, congestive heart failure, type 2 diabetes and obesity had lower testosterone levels compared to healthy men.

In addition, the worse the testosterone deficiency was the more severe the case of coronary artery disease and congestive heart failure was.⁷ And the men with low testosterone levels were found to have a higher risk of atherosclerosis in the carotid arteries, abdominal aorta, and thoracic aorta. In other words, the men with poorer testosterone levels were *also* in poorer health.

It also turned out that the men who were actually receiving testosterone replacement therapy (TRT) had great overall results. Men with coronary artery disease who received TRT had improved heart function as demonstrated with electrocardiogram (EKG) and exercise stress testing. And the TRT benefits didn't end there. Testosterone helped relax the coronary arteries improving blood flow through the heart. And the guys with congestive heart failure fared well too. Testosterone was shown to “significantly improve exercise tolerance.”⁸ (Interestingly, three past studies, also published in major medical journals, were unable to nail down any clinical significance between testosterone replacement and cardiovascular risk either.)^{9,10,11}

Testosterone replacement was also shown to improve insulin resistance and blood glucose control for men with type 2 diabetes. Diabetes is strongly linked to plaque forming in the arteries, so improving or reversing the condition naturally leads to better

circulation and overall heart health. In addition, testosterone therapy was found to have improved the body mass index (BMI) for those men with a deficiency.

Clearly the combined conclusions of over one hundred testosterone studies are more meaningful than the results of a couple of poorly designed ones. Rest assured that what the science is *really* saying here... the *good* science at any rate... is that men with testosterone deficiency can have exceptionally good results from testosterone replacement therapy.

And that brings us to the most recent study we have on testosterone and cardiovascular risks. The study was presented at the American Association of Clinical Endocrinologists (AACE) 23rd Annual Scientific and Clinical Congress. It included data from 40 specialized clinics (with doctors who have more experience in the proper use and monitoring of men with testosterone therapy) from around the United States. And I'm sure you can guess what their analysis found. Yes, testosterone therapy in men is NOT associated with an increased risk for heart attack or stroke and, in fact, it may even be cardio protective!¹²

Researchers analyzed the data of almost 20,000 men who received testosterone therapy over 5 years (2009-2014). Their findings could not have been any more conclusive. They found the "risk for a heart attack was 7-fold lower and the risk for stroke 9 times lower compared with samples from the general population. Further, there was no evidence of worsening of preexisting MI or stroke in patients treated with testosterone."¹³ And unlike the two studies I mentioned earlier that connected testosterone to an increased heart risk, the patients followed in *this* study received regular follow-ups, had longer testosterone treatments, and achieved better overall blood levels.¹⁴

What you NEED to know about testosterone

Most of your testosterone is bound to a carrier protein known as sex hormone binding globulin and a lesser amount to albumin. Only one to three percent is unbound and active in your cells where it has tremendous physiological effects. For instance, it helps with energy, muscle size and strength, libido, focus, mood, glucose metabolism, tissue regeneration, bone density, heart function, and lung function.

But when it comes to testosterone it all *really* starts in the brain. Surprised? Don't be. Although testosterone is mainly produced in your testicles, the stimulus for its production originates in your brain. The part of your brain known as the hypothalamus releases a hormone called Gonadotropin Releasing Hormone (GNRH) that then stimulates your pituitary gland to release Luteinizing Hormone (LH). The LH in turn

stimulates specialized cells in your testicles, called Leydig Cells, to produce testosterone. Your body has a feedback mechanism, called the Hypothalamic-Pituitary Axis (HPA), which can increase or decrease the messages released by your hypothalamus or pituitary gland. Occasionally there are problems in the brain or pituitary gland itself (such as a benign tumor) that prevent these hormonal messages from getting to your testicles. In other cases, the messages are present but your Leydig Cells are unable to efficiently produce testosterone. In either case, the end result is a testosterone deficiency and the symptoms to go with it.

Men with low testosterone are typically tired (despite a healthy diet and lifestyle), they often have less interest in women, and depression and mood problems are common. Other potential symptoms include trouble with erections, a loss of body hair, hot flushes and night sweats, poor concentration and memory, insomnia, and a decreased ability to do physical or mental work.

Taking your testosterone “like a man”

There are various ways to administer testosterone. They include...

- intramuscular injections, which are normally given once a week or once every two weeks
- implantable pellets which are placed under the skin of the lower abdomen, upper thighs, shoulders, or buttocks every 3 to 6 months
- buccal implants or sublingual tablets that adhere to the gum tissue and are normally used twice a day
- patches that are applied every two weeks to shaved skin of the abdomen, upper arms, back, or upper thighs
- topical (transdermal) gels or creams that are applied daily to the skin (the most popular method with patients)

Other than buccal or sublingual tablets which are absorbed into the blood stream, testosterone shouldn't be taken orally due to liver damage concerns.

There are advantages and disadvantages of each type of testosterone administration, but I've had the best results with the topical or injectable forms of the hormone. The most cost-effective option for those who don't have good insurance coverage is to have your prescription fulfilled by a compounding pharmacy. Testosterone is a controlled substance and needs to be prescribed by a licensed doctor.

Lab values should always be done before you start testosterone therapy. A blood, urine, or salivary test can be used to confirm whether you actually have a testosterone

deficiency. I also recommend that men get a baseline PSA and a complete blood count to get a baseline reading on your red blood cell levels. Also, routine blood work including a metabolic panel will help to evaluate other important items such as liver function which is involved in testosterone metabolism. And since hormone deficiency doesn't occur in isolation it's best to test a panel of hormones including thyroid, DHEA, cortisol, estrogens, progesterone, Dihydrotestosterone, and growth hormone. Also a physical exam, including a digital rectal exam, should be part of your doctors' initial evaluation.

Since testosterone starts to drop at around age 40, I recommend both men and women have their levels monitored to find a deficiency as soon as possible. The younger you are the more likely you can have your testosterone deficiency treated with non-testosterone therapies. Examples include better nutrition, sleep, and supplementation with nutrients such as zinc, maca, tribulus terrestris, epimedium, and magnesium.

Topping off your testosterone levels

If you're under 55 and suffering from low testosterone it's important to figure out the root cause(s) of your deficiency. For example, toxic metals such as lead, cadmium, and mercury can interfere with your body's production of testosterone. Proper testing can identify the problem, and if heavy metals are the culprit specific chelation therapies can reverse the condition allowing your testosterone levels to return to normal.

No matter your age, if your testosterone level is mildly deficient then diet and lifestyle changes... along with nutritional supplements... can help optimize your testosterone level. The prescription medications HCG (Human Chorionic Gonadotropin) or Clomid (Clomiphene Citrate) can be used to stimulate your testicles to produce testosterone independently. Within just two to three months you may notice results.

After four to six weeks of treatment I always retest to see how testosterone and all the other markers have changed. Typically, I also monitor estrogen levels closely to make sure they don't get too high which may lead to prostate enlargement. Dihydrotestosterone, which can also influence prostate health, can be monitored as well. Lab testing is normally repeated every four to six months. Of course, your symptoms should also be monitored all along for signs of improvement.

Bypass hormone buildups

When you're taking supplemental testosterone some of it will, inevitably, be converted into estradiol, a type of estrogen. We want to keep those levels from getting too high.

Holistic doctors often use the botanical extract Chrysin in their topical formula to do this. While I don't know of any studies demonstrating Chrysin's effectiveness in preventing estrogen levels from getting too elevated, many doctors have reported this benefit. Another good option for controlling those rising estrogen levels is the Chinese herbal blend called Myomin. A typical dose is two capsules of Myomin twice a day. Some doctors prescribe the drug Anastrozole, but I find that this isn't necessary for most patients.

To prevent the buildup of dihydrotestosterone which can lead to prostate enlargement or hair loss there are several natural options known as 5 alpha Reductase inhibitors. Examples include natural progesterone (50 mg nightly), zinc (50 mg twice a day), gamma linoleic acid (1000 mg), beta sitosterol (600 mg), quercetin (1500 mg), melatonin (3 mg), and the herbal extract Saw Palmetto (320 mg). The drug Finasteride can also help control dihydrotestosterone levels. However, I don't recommend it since research shows it carries a small risk of aggressive prostate cancer.

There *are* some potential side effects with testosterone, but I rarely witness them with patients. This is likely because I monitor them so closely and use other natural therapies for optimal hormone balance and metabolism. (It's well worth your time to seek out a doctor skilled in integrative medicine so you can avoid them too.) If you're using topical testosterone be sure to never make skin to skin contact with other people or pets for two hours after applying the hormone. I recommend using disposable gloves with topical treatments to help reduce the chances of contamination. Occasionally men whose testosterone levels get too high feel aggressive or have acne breakouts. These side effects are easily reversed with a reduced dose or simply stopping the testosterone. Other rare side effects which can occur include low sperm count, arthritis, breast enlargement (although testosterone can also *help* with this), or reduced testicle size.

Recent studies have found no association between testosterone therapy and prostate cancer. However, specific estrogen metabolite testing will help your doctor monitor your estrogen levels and your prostate cancer risks at the same time. For example, 2-hydroxyestrone urinary estrogens are associated with lower prostate cancer risk while 16 alpha hydroxyestrone is associated with increased prostate cancer risk.

How statins stick it to testosterone

While the conventional medicine myth that cholesterol is deadly is alive and well, the opposite is actually true. You can't live without it. In fact, the basic building block for testosterone—as it is for *all* the other steroid hormones—is cholesterol. So, it's no surprise that with millions of Americans on cholesterol-suppressing statin drugs many

of us with healthy testosterone levels are in serious danger of having them drop like rocks in water. And research has confirmed the danger, demonstrating that statins reduce testosterone levels in both men and women.¹⁵

Tips and tricks for better testosterone levels

- Step up the shuteye—Lack of sleep can impair testosterone production. Commit to 7 to 8 hours a night.
- Drop a few pounds—Overweight or obese men often have lower testosterone levels.
- Move it or lose it—Regular exercise, including weight training, twice a week can help stimulate testosterone production.
- Stop stressing—High levels of stress hormones can reduce testosterone production.
- Do a drug check—Certain medications can reduce testosterone levels. Examples are pain medications (Opioid drugs such as OxyContin) and prednisone.
- Drop the bottle—Reduce your alcohol intake. Excessive alcohol consumption increases estrogen levels and reduces testosterone.
- Pump up the protein—A protein deficiency can contribute to low testosterone levels.
- Avoid creepy chemicals—Bisphenol-A, the chemical found in plastics and lining of cans, disrupts hormone balance.

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