Testosterone Improves Men’s Health

Testosterone, the hormone that gives men their male characteristics, is associated with better health, less cardiovascular disease and diabetes, and possibly even less cancer, including prostate cancer. This association might

only be a marker for good health in general, since a man in good health could be expected to have a normal testosterone (T) level. But the evidence is convincing that it's more than an association and that testosterone protects men's health.

Low testosterone is associated with a higher death rate

A study of male veterans found that low testosterone, defined as a value of less than 250 ng/dL (current normal range is 264-916), was associated with nearly double the death rate compared to men with normal testosterone. Even when men who died in the first year after measurement were excluded, in order to avoid reverse causation (i.e. that ill health causes low testosterone), the relation remained.

In a geriatric rehabilitation center, low testosterone was associated with an increased risk of dying within 6 months, even when other health factors were considered.

These are not the only studies to have found this relationship. For example, in a group of several hundred men, testosterone in the lowest quartile (fourth) was associated with a 40% increased risk of death over the following 20 years. Low testosterone predicted increased risk of death from cardiovascular and respiratory disease, "independent of multiple risk factors and several preexisting health conditions", but was not significantly related to cancer.

Low testosterone is risk factor for cardiovascular disease. Testosterone is essential for normal blood vessel function and is protective against atherosclerosis.

What might explain this association?

Testosterone and insulin resistance

One good candidate is insulin resistance. The metabolic syndrome, which is characterized by insulin resistance, obesity, high triglycerides, increased fasting blood sugar, and high blood pressure, is associated with low testosterone. It seems possible that whatever factors are causing the metabolic syndrome may cause low testosterone; or causation may go from low T to metabolic syndrome; or the causation could run in both directions in a positive feedback loop. (In my opinion, the last option is correct.)

In frank diabetes, low T "precedes elevated fasting insulin, glucose, and hemoglobin A1c (HbA1C) values and may even predict the onset of diabetes".

Treatment of insulin resistance increases testosterone. In a group of middle-aged, overweight, and insulin resistant men, but who had normal testosterone levels, treatment of insulin resistance with an anti-diabetic drug increased testosterone.

Testosterone supplementation improves health

If low testosterone truly causes disease, then increasing T ought to improve health. And this in fact is what we see.

First of all, news reports in the past couple of years have sounded alarms that testosterone supplementation (testosterone replacement therapy, TRT) may increase the risk of heart attacks. This view appears to be unfounded.

The largest meta-analysis (analysis of other studies) that's been undertaken on testosterone supplementation said this:

> The present systematic review and meta-analysis does not support a causal role between TS and adverse CV events. Our results are in agreement with a large body of literature from the last 20 years supporting TS of hypogonadal men as a valuable strategy in improving a patient's metabolic profile, reducing body fat and increasing lean muscle mass, which would ultimately reduce the risk of heart disease.

Note the phrase, "reducing body fat and increasing lean muscle mass, which would ultimately reduce the risk of heart disease." This is important and likely gets to the heart of why testosterone supplementation improves health, which we'll discuss below.

Testosterone replacement therapy improves insulin resistance in diabetic men.

> Testosterone replacement therapy reduces insulin resistance and improves glycaemic control in hypogonadal men with type 2 diabetes. Improvements in glycaemic control, insulin resistance, cholesterol and visceral adiposity together represent an overall reduction in cardiovascular risk.

Also in men with diabetes, low testosterone was associated with double the death rate, while testosterone therapy improved survival.

In men with low testosterone, men who had ever used any form of supplemental testosterone for however long, had about a 30% decreased risk of adverse cardiovascular events.

Here's a mind blower: Normalization of Testosterone Levels After Testosterone Replacement Therapy Is Associated With Decreased Incidence of Atrial Fibrillation. "These novel results suggest that normalization of TT levels after TRT is associated with a significant decrease in the incidence of AF." The risk of atrial fibrillation after testosterone therapy was reduced by 20%.

Testosterone may even be protective against high-grade prostate cancer.

There are many, many more studies like this, but what we've cited so far shows clearly that low testosterone is a risk factor for chronic disease, and that testosterone supplementation has a favorable effect on cardiovascular risk, as well as improved survival.

Why testosterone improves health

If you read many of these studies, you see that even among the experts – the endocrinologists, urologists, and cardiologists – there's no clear agreement as to why low testosterone worsens health and testosterone supplementation improves it. Nevertheless, there are some clear hints.

One is the connection to insulin resistance noted above.

Insulin resistance is connected to obesity, a poor diet loaded with refined carbohydrates and vegetable oils, low muscle mass, and lack of exercise, not to mention aging. All of these factors are also connected to low T.

By improving T, either through supplementation or by dealing with these other factors such as obesity, etc., then health is improved.

One of the most important factors in good health is body composition, that is, the relative proportions of body fat and lean (muscle) mass. A relatively high fat mass and low muscle mass predisposes to all of the diseases of aging, such as heart disease, cancer, and diabetes, as I documented in my book, Muscle Up.

Testosterone increases muscle and decreases fat

Testosterone boosts muscle mass and decreases fat mass, both in older men, and in younger men.

Since greater muscle mass and less fat mass is associated with good health in so many ways, testosterone's effects in this area is likely highly related to its other health benefits. Boost muscle and decrease fat in an overweight type 2 diabetic, for example, and his or her insulin resistance improves.

Are testosterone's health benefits linear, that is, does more testosterone always mean better health, up to a limit anyway? Or is there merely a threshold, such that only clinically low testosterone harms your health?

Put it another way: in any one individual, you for instance, does boosting a normal testosterone, let's say from 500 to 700, improve your health?

That's a difficult question to answer, but some evidence says that it does. For example, testosterone's effects on muscle growth and fat loss are dose-dependent.

The important lesson

What all of this means is that men should ensure that their testosterone levels are at least within the normal range.

If they are not, you're exposing yourself to unnecessary health risk.

And if they are not, you should do what's necessary in the way of lifestyle factors, such as diet, exercise, and sleep, to bring your T into the normal range. If you can't bring them to normal through lifestyle factors, consider testosterone supplementation, or testosterone replacement therapy (TRT).

In my next article, I'll discuss how to optimize your testosterone through lifestyle.

PS: In my most recent book, Best Supplements for Men, I discuss supplements that can increase testosterone.

PPS: Check out my Supplements Buying Guide for Men.