

Surprising Factor Behind Sudden Cardiac Arrest

A 2014 study reveals that low testosterone or high levels of estrogen can sharply increase the risk of sudden cardiac arrest in men. Failure to grasp this simple blood testing concept may be a contributing factor in over 260,000 American deaths each year. Find out how the FDA misinterpreted published human data about testosterone replacement and the critical importance of testing estrogen blood levels in men before testosterone is prescribed.

By [William Faloon](#).

Most people associate heart attack with coronary artery blockage. Yet 50% of cardiovascular deaths originate from a condition called sudden cardiac arrest, which is the unexpected acute loss of heart function.¹

Sudden cardiac arrest is usually caused by an **electrical disturbance** that disrupts the heart's rhythmic pumping action. When cardiac arrest happens, blood flow to the entire body stops.²

If not immediately treated, **sudden cardiac arrest** results in cessation of life. Survival rates remain low despite modern resuscitation attempts.³

In a groundbreaking **2014** study, researchers measured **testosterone** and **estrogen** levels to correlate risk of **sudden cardiac arrest**. The findings revealed that lower levels of **testosterone** or higher levels of **estrogen** in **men** were strongly associated with greater risk of **sudden cardiac arrest**.⁴

These revelations are significant because they provide a basis to identify men at risk for **sudden cardiac arrest** and implement preventative treatments, such as boosting deficient **testosterone** and suppressing excess **estrogen**.

Life Extension[®] members should not be surprised at these findings. They know we've been testing testosterone and estradiol **blood levels** in men for the past **19 years**.

Standing in our way of saving more lives is the **FDA**, who continues to discourage **hormone balance** in aging men despite overwhelming data showing reduction in **heart attack** risk.^{4,5}

What the FDA and conventional medical community still do not comprehend is that when **natural testosterone** is administered to men, it is imperative that **estradiol** blood levels be tested to ensure that the **testosterone** is not converting to excess **estrogen**. Failure to grasp this simple **blood testing** concept may be causing over **100,000** needless American deaths each year.

Each year in the United States, out-of-hospital **sudden cardiac arrest** strikes more than **350,000** people, or about **1,000** per day.⁶ Men account for **75%** of these cases. Only **5%** of those stricken survive.^{1,7}

Magnesium and **potassium** are critically involved in regulating the heart's *electrical* signaling.

Deficiency of these minerals (**magnesium** or **potassium**) predisposes humans to **sudden cardiac arrest**.⁸⁻¹¹

Each heartbeat is controlled by the opening and closing of mineral "**channels**" in cardiac cells.¹²

Testosterone plays a role in **modulating** potassium channels, which regulate the flow of potassium between the bloodstream and cardiac cells.¹³ **Testosterone** regulates **calcium channels**, preventing too much blood calcium from entering cardiac cells.¹⁴ **Magnesium** also protects against excess calcium channel infiltration.^{15,16}

Low **testosterone** is associated with abnormal **EKG** readings that predispose people to **sudden cardiac arrest**.¹⁷⁻²⁰

In a first-of-its-kind study, men with higher **testosterone** were found to be **25%** less likely to suffer **sudden cardiac arrest**. This same study found that men with higher **estradiol** levels suffered twice the risk of **sudden cardiac arrest**.⁴

The significance of this landmark study is that it ties together a puzzle that has baffled conventional cardiology for decades. To put the data from the study in perspective, a mere **23%** increase in median testosterone level was associated with a **25%** reduction in sudden cardiac arrest. Just a **31%** increase in median level of **estradiol** doubled risk of **sudden cardiac arrest**.

This data corroborates a large body of previously published research linking low testosterone and/or excess estrogen²¹ to sharply higher rates of overall cardiovascular disease.²²⁻²⁹

What Happens In Cardiac Arrest?

Coronary artery disease is associated with the majority of sudden **cardiac arrests**.¹ Even temporary blockage of a coronary artery can create an **electrical disruption** that results in acute heart failure.

While the term “arrest” implies stoppage of the heart, what usually happens first in **sudden cardiac arrest** is that the heart loses its rhythmic ability to pump blood, which is medically termed **ventricular fibrillation**.³⁰ The result of ventricular fibrillation is uncoordinated rapid beating of the hearts chambers, loss of blood flow and blood pressure. Death quickly follows unless a defibrillator timely restores normal heart rhythm.

If cardiac arrest is caused by a blocked **coronary artery**, emergency surgery is required to insert a **stent** or **bypass** the occluded artery.

CONCLUSIONS FROM THE TESTOSTERONE REVIEW PUBLISHED BY THE AMERICAN HEART ASSOCIATION

The American Heart Association commissioned a review of previously published studies to evaluate the role that testosterone might play on cardiovascular disease risk. Here are excerpts from the **Concluding Summary** of the **American Heart Association’s** review:³¹

“Low endogenous bioavailable testosterone levels have been shown to be associated with higher rates of all cause and cardiovascular-related mortality. Patients suffering from coronary artery disease, congestive heart failure, type II diabetes, and obesity have all been shown to have lower levels of endogenous testosterone compared with those in healthy controls. In addition, the severity of coronary artery disease and congestive heart failure correlates with the degree of testosterone deficiency.”

“Testosterone replacement therapy has also been shown to improve the homeostatic model of insulin resistance and hemoglobin A1c in diabetics and to lower the BMI in obese patients.”

“These findings suggest that men with lower levels of endogenous testosterone may be at a higher risk of developing atherosclerosis.”

“This review article has demonstrated that normal testosterone levels play an important role in maintaining cardio-vascular health, and testosterone replacement therapy in men with hypogonadism improves obesity, type II diabetes, myocardial ischemia, exercise capacity, and QTc length.”



American Heart Association Analysis

At the end of **2013**, a meticulous examination of studies relating to testosterone and cardiovascular disease was published in the *Journal of the American Heart Association*.

The findings from this analysis corroborate much of what you've read in *Life Extension*[®] magazine over the past three decades.

According to this review conducted on behalf of the *American Heart Association*, low levels of **testosterone** in **men** are associated with:³¹

- Greater risk of developing coronary artery disease
- More severe atherosclerosis
- Type II diabetes
- Increased visceral adiposity (belly fat)
- Metabolic syndrome
- Insulin resistance
- Carotid artery stenosis (narrowing)
- Obesity
- Abnormal EKG (electrocardiogram) tests
- Angina pectoris (chest pain caused by reduced blood flow to the heart)³²
- Reduced arterial dilation (caused by impairment of calcium and potassium channels)
- Increased body mass index
- More severe congestive heart failure
- Higher rates of all-cause and cardiac mortality (death)

What impressed me about this **American Heart Association** analysis is that it also reviewed studies that failed to show a benefit to testosterone and identified flaws that rendered the findings highly questionable. **Life Extension**[®] has previously published many articles exposing similar flaws caused by improper testosterone prescribing practices.³³⁻³⁶

These findings suggest common causes of disability and death in men are related to low testosterone levels. It should be refreshing to longtime **Life Extension**[®] supporters that a respected mainstay of conventional medicine, i.e. the **American Heart Association**, has published this favorable data about **testosterone**.

You might think this confirmatory report would result in the widespread implementation of testosterone replacement therapy. Instead, an **FDA** advisory panel is taking steps to restrict the ability of aging men to replenish their testosterone.

Critical Need To Balance Estrogen

The media, FDA, and much of mainstream medicine have misinterpreted the published scientific literature as it relates to testosterone and heart disease risk.³⁷⁻⁴¹ If one looks at studies where testosterone is inappropriately prescribed to men with various cardiovascular risk factors, an increased risk of death has sometimes been observed.^{42,43}

Overlooked is the fact that men at higher risk for vascular disease also have a greater propensity to rapidly convert (aromatize) testosterone to **estrogen** in their bodies. Excess estrogen in males causes blood platelets to aggregate, which increases the probability of an abnormal **blood clot** forming in jagged coronary arteries. Heart attacks often occur in response to blood clots that form in coronary arteries⁴⁴ with unstable atherosclerotic plaque.⁴⁵⁻⁴⁷

A study published in the *Journal of the American Medical Association* (JAMA) measured blood **estradiol** (a dominant estrogen) in **501** men with chronic heart failure. Compared to men in the balanced estrogen quintile, men in the lowest estradiol quintile were **317%** more likely to die during a three-year follow-up, while men in the highest estradiol quintile were **133%** more likely to die.⁴⁸

The men in the balanced quintile—with the fewest deaths—had serum **estradiol** levels between **21.80** and **30.11 pg/mL**.⁴⁸ This is virtually the ideal range that *Life Extension*[®] has long recommended aging men strive for.

Any man contemplating testosterone restoration or concerned about heart attack risk should test their testosterone and estradiol **blood** levels. If estradiol levels exceed **30 pg/mL**, simple steps can be taken to inhibit the *aromatase* enzyme that converts testosterone to estrogen. This provides the dual advantage of keeping estrogen levels in optimal ranges while increasing testosterone (since less testosterone is converted to estrogen).

FDA Claims Testosterone May Increase Heart Attack Risk

In early **March 2015**, the **FDA** issued an edict regarding **testosterone** drugs. Labels of testosterone drugs must now carry a **warning** that testosterone may *increase* risk of heart attack and stroke.⁵²

This new mandate is based on a FDA advisory panel report that admits there is only a “*weak signal of cardiovascular risk*” with testosterone use.⁵³

The FDA’s inappropriate new warning will curtail the prescribing of testosterone, limit insurance coverage, and drive up costs to consumers. The consequences to the health and finances of aging men will be devastating (including more **sudden cardiac arrests**).

The problem we have with the FDA’s findings is that they are based on an egregious *misinterpretation* of the human data.

An article published in the *Journal of the American Medical Association* sheds some light on how the FDA advisory committee came to their erroneous conclusion.⁵ There was not one mention about testing men’s **estrogen blood levels** prior to prescribing testosterone. In fact, **blood tests** were omitted so frequently that it comes as no surprise that some men were dangerously overprescribed testosterone.

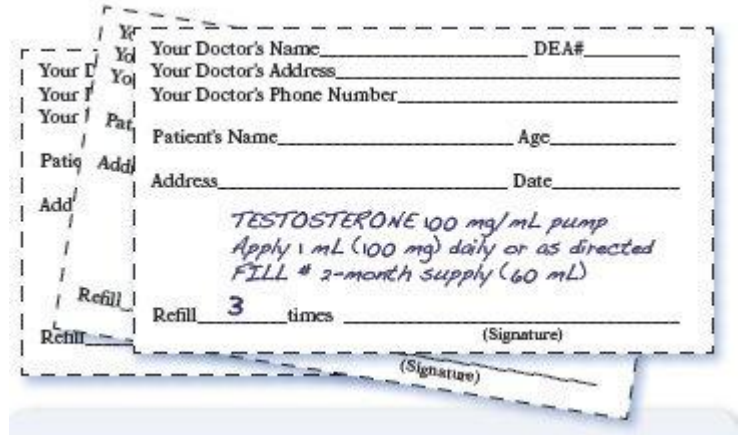
The FDA advisory panel’s report reveals egregious failures of mainstream physicians to *properly* prescribe testosterone. According the advisory panel report, **28%** of patients were prescribed testosterone without requisite **blood testing**.^{5,53}

We suspect the number of men being prescribed testosterone without requisite **blood testing** is substantially higher than the **28%** the FDA estimates. This omission by prescribing physicians helps explain why the FDA now wants to curb the use of testosterone. But as you’ll read next, there is a more efficient solution from a cost, safety and practicality standpoint.

As men age, testicular production of testosterone markedly declines. This often occurs as *aromatase* levels increase, especially in the presence of surplus **abdominal fat**.⁴⁷ Aromatase is the enzyme that converts testosterone to estrogen.

Low **testosterone** or excess **estrogen** in men was shown to elevate risk of **sudden cardiac arrest** in a recent study.⁴

The link between low testosterone and cardiovascular disease risk in males was discovered long ago. What follows are descriptions from just a few of many studies supporting this conclusion:



- A study evaluated the relationship between testosterone levels and all-cause mortality over approximately 20 years. Men with low total testosterone levels (under **241 ng/dL**) were **40%** more likely to die than those with higher levels of testosterone. This finding was consistent regardless of age, lipid levels, and other variables.⁴⁹
- Another study looked at whether low testosterone levels were associated with an increased risk for mortality in male veterans. Men classified as having a low testosterone level had **88%** increased mortality after adjusting for other known mortality factors.⁵⁰
- A third study examined the relationship between testosterone levels and mortality due to all causes, cardiovascular disease, and cancer. The study included over 11,000 patients aged 40 to 79 years. Low testosterone levels at baseline were significantly associated with increased mortality from cardiovascular disease, cancer, and all causes. After adjustment for variables, an increase of **173 ng/dL** of total testosterone was associated with a **19%** decreased risk for mortality.⁵¹

These studies help corroborate *Life Extension*[®]'s long-standing position that low testosterone in males is a significant mortality factor. The take home message is to have one's **blood tested** for testosterone and estradiol to enable adjustments to be made based on one's individual results.

Let Pharmacists Prescribe Testosterone

It never ceases to astound me how backwards conventional doctors are when it comes to prescribing testosterone to their aging male patients.

They almost universally omit testing **estradiol**, which can place their patients at great risk for heart attack or ischemic stroke.^{73,74} Many men have found that **inches** can be taken off their waistline in response to testosterone therapy.⁷⁵⁻⁷⁷ This is important because abdominal (belly) fat secretes lots of *aromatase* that converts testosterone into estrogens.^{47,78} Men with **estradiol** levels over **30 pg/mL** should consider a low-dose aromatase-inhibiting drug (like anastrozole) so they can enjoy the benefits of increased testosterone and optimized estradiol.

Instead of asking hurried doctors to figure this out, why not let pharmacists review a man's **blood test** results and provide the appropriate dose of **testosterone cream** and an *aromatase-inhibiting* drug if needed. A pharmacist (or any enlightened individual for that matter) can easily see if red blood cells, PSA, or liver enzymes are excessively elevated and refer the consumer to a physician for additional testing.

This sweeping change would save Americans time and money, and probably spare human lives as pharmacists may wind up doing a better job than untrained physicians that prescribe **testosterone** with no **blood testing**.

(No one questions the value of having access to a physician with **expertise** in the prescribing of **natural hormones**.)

HORMONE BALANCE REQUIRES PROPER BLOOD TESTS

Maintaining youthful balance of **testosterone**, **estrogen**, **progesterone**, and **DHEA** can help forestall the diminished quality of life humans face as they age.

Prescribing testosterone without **blood testing** exposes men to the following problems:

- Too much or too little testosterone
- Too much or too little estrogen
- Excess red blood cell formation
- Liver injury
- Clinically relevant pre-existing prostate cancer

Testosterone promotes healthy red blood cell formation, which is beneficial for the aging men suffering frank or subclinical anemia.⁵⁴⁻⁵⁷ Men with a condition called *polycythemia vera*,^{58,59} which is an overproduction of red blood cells, are advised to avoid testosterone replacement, as are men with severe liver impairment.^{60,61} **Blood testing** can readily detect liver problems or overproduction of red blood cells.

Men with testosterone-sensitive prostate cancer should avoid testosterone until their malignancy is brought under control.⁶² Contrary to erroneous reports the media ignorantly disseminates, higher testosterone levels do not increase prostate cancer risk.⁶³⁻⁷² **PSA** blood tests can reveal the status of one's prostate gland.

Men with high blood estradiol (estrogen) levels should take an aromatase-inhibiting drug like anastrozole (**0.5 mg** twice a week) to bring estradiol into optimal range (**20 to 30 pg/mL**). This is critically important even if a man chooses not to initiate testosterone replacement.

Here are the **optimal blood levels** of testosterone, estradiol and other relevant markers men should strive for:

Total Testosterone: 700-900 ng/dL

Free Testosterone: 20-25 pg/mL

Estradiol: 20-30 pg/mL

PSA: Under 2.5 (the lower the better)

Red Blood Cells: Within normal reference ranges

Liver enzymes: Within normal reference ranges

All of these measurements are included in the comprehensive **Male Panel** blood test that many **Life Extension**[®] members have done annually. (Call **1-800-208-3444** to order.)

How Many Lives Are Being Lost?

Each year, **263,000** men perish from **sudden cardiac arrest** in America. It remains a leading cause of death.¹

A recent finding (corroborated by previous published studies) indicates a substantial percentage of these deaths can be avoided if men just modestly restore youthful **hormone balance**, i.e. increase deficient testosterone and reduce excess estradiol.^{4,79-82}

Standing in the way of this scientific rationality is a slew of state and federal **regulations** that drives up costs and creates bureaucratic inefficiencies.

The only way of knowing one's individual hormone status is to test for it. This is not something that can be guessed, and **95%** of those stricken with **sudden cardiac arrest** don't get a second chance to take corrective actions.

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