



Testosterone Test

RESULT REPORT

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1 Your individual result report

Name	John Doe	Sample No.
Date of Birth	07.08.1990	Receipt of Sample 22.10.2015
Weight	176 lb	Posting of Report 22.10.2015

As per your request, we measured your testosterone level. For this purpose, we checked the concentration of the hormone testosterone in your saliva.

! Most of the testosterone in the blood is bound to proteins. !
Only about 3 % are unbound and bioactive.
The active form is released into the saliva
where it can be measured.

Certain life stages, underlying diseases and medications can change the testosterone level. Therefore, a regular check of your testosterone level is advisable.

The below-mentioned test results and assessment serves as an orientation without knowing anything further about your individual situation. Please do neither stop nor start a therapy on your own; instead, please consult a physician. This test cannot and doesn't intend to replace a visit to the doctor.

This document has been created digitally and is valid without a signature.

If you would like a personal consultation by our nutritional experts with regard to your test results or if you have any general questions, please contact us either via mail to support@cerascreen.co.uk or by dialing 020 36952395.

Your cerascreen® Team

2 Your test result

The level of testosterone in your saliva is as follows:

Sometimes, the testosterone concentration is also given in picomol per litre (pmol/l). This can be converted as follows: $1\text{pg/ml} \times 3.47 = \text{pmol/l}$

Saliva Testosterone (Morning value): **30,00 pg/ml**

Reference Value	
Men	Women
Range (pg/ml)	Range (pg/ml)
10 – 230,9	10 – 50,2

If these values are not within the normal range, you should consult a doctor to decide on further steps.

Factors influencing the individual testosterone level:

- The testosterone level decreases with age
- The highest testosterone level is found in younger adults
- Testosterone levels typically start to decrease from an age of 30 onwards
- Athletes should strive for a higher testosterone level

Guidance:

As a guidance, we created the following table. It shows the average results of healthy men:

Age	Results in pg/ml*
17-20	51-188
20-40	56-140
40-60	40-100

*The reference values are tentative and provided by our partner laboratory. It is possible that these values are adjusted with time.

3 How to normalize testosterone levels

Increasing testosterone levels

Taking tablets prescribed by your doctor is not the only way of increasing your level of testosterone. Many other factors also influence the level of testosterone:

What can I do to raise my testosterone level?

1. Physical exercise: Strength training stimulates the testosterone production.
2. Short interval training has a positive effect on the testosterone production. Extremely long endurance training units, in contrast, result in a decrease in the testosterone level.
3. Sufficient sleep: Testosterone is produced during sleep and a good night's sleep reduces stress (cortisol).
4. Lower your cortisol: The higher the cortisol blood level, the less testosterone is present. Cortisol is thus an antagonist of testosterone. Therefore: Try to relax!
5. Vitamin D: Studies show a correlation between vitamin D and testosterone production. After intake of vitamin D, higher testosterone levels were measured.
6. Zinc: Various studies have found that improving your zinc status can result in an increased testosterone level. Zinc ensures a reduction in oestrogen levels, which can increase testosterone levels. In addition, it can reduce the levels of cortisol, which also leads to an increase in testosterone.
7. Magnesium: Magnesium intake also results in an increase in testosterone levels according to various studies. Testosterone levels showed an even greater increase when the test persons engaged, in addition, in physical exercise.
8. Selenium: Optimize your selenium status! Here too, studies show that the intake of selenium (to compensate for a lack of selenium) can increase the level of testosterone.

! The same principle applies to all three minerals and vitamin D: First test and only then take supplements !

9. Abstain from alcohol and nicotine: Alcohol increases the level of cortisol. Smoking lowers the level of testosterone.

10. Reduce obesity: Overweight men produce less testosterone than normal-weight men. Fat is an active, hormone-producing tissue. Fat tissue, however, produces the “wrong hormones” (no testosterone) and there is a reduction in the level of testosterone.

11. Pay attention to your diet: A higher level of insulin leads to lower testosterone levels. Therefore, white sugar, white bread, fruit juices, highly processed foods and other foods that make sugar levels rise sharply should be eaten less. Whereas complex carbohydrates are beneficial for a slow rise in blood sugar. These can be found in food such as whole grains, legumes, fibre-rich fruits and sweet potatoes.

Normalizing testosterone levels in case of underlying diseases

In case of underlying diseases that cause a too low testosterone level, these need to be treated by a physician.

In cases of hypogonadism, treatment can be provided by a medical specialist by means of a hormone replacement therapy in the form of tablets, injections or special patches.

An increase in the testosterone level is achieved by anabolic steroids as synthetic testosterone analogues. This should only be done under medical supervision. Synthetic testosterone analogues are chemically modified so that their effect as a sex hormone is reduced. However, they reduce fat deposits and promote muscle building.

In men, the use of anabolic steroids leads to low sperm counts, gynecomastia (breast growth) and testicular shrinkage.

For women, this substance leads to so-called masculinisation with corresponding male hair growth, disruptions in the menstrual cycle and a deepened voice. Since the muscle-building effect increases the size of all muscles in the body, the size of the heart also increases, which is extremely dangerous.

The influence of excessive testosterone intake on the lipid metabolism becomes apparent by shifting the blood serum lipids (blood fats) from so-called “good” cholesterol, high-density lipoprotein (HDL) in the direction of the “bad” cholesterol low-density lipoprotein (LDH), which can lead to arteriosclerotic deposits, with known consequences such as thrombosis, myocardial infarction, strokes and liver damage. Mental changes and addictions are also possible as a result.

4 What causes low testosterone levels?

With age, testosterone production physiologically decreases in men more and more. In women, the concentration is less dependent on age, but still decreases over the years. The condition of a low testosterone level, if not caused by an illness, is known as hypogonadism.

There are debates about the existence of male menopause, a so-called andropause or physiological hypogonadism. In contrast to women and the menopause, only around every tenth men is affected.

Causes of decreased testosterone levels in men and women include obesity, severe malnutrition, severe chronic diseases, chronic stress, inflammation, condition after major surgery, alcohol or drug abuse, Addison's disease with low cortisol levels, liver cirrhosis, and not least long-term medication with cortisone or hormone therapy.

Especially for women, the menopause and hormonal contraceptives can lead to a reduction in testosterone levels. Ovarian insufficiency (subfunction of the ovaries) and treatment with anti-androgens may also be reasons.

In males, underactive gonads (e.g. Klinefelter's syndrome) or anabolic steroid abuse lead to low testosterone levels. This occurs because the testes and adrenal cortex reduce their own production when testosterone is being delivered from external sources, and they do not begin to immediately produce it again once this supply ceases.

The symptoms of testosterone deficiency range from declining muscle strength, reduced physical function, osteoporosis, depressive moods, anaemia, hyperglycemia (high blood sugar) to diabetes, libido disorders and low sperm counts.

5 What causes elevated testosterone levels?

Testosterone levels may be too high in men and women when testosterone is taken in (for example via a doping agent) or if there is an adrenal tumour. It can also be caused by problems in the androgen receptors. Cushing's disease – which involves increased levels of cortisol – may also be a reason.

Increased testosterone levels can be caused in women by ovarian cysts and tumours and androgenital syndrome. For men, they can be caused by endocrine active testicular tumours (Leydig cell tumour).

In women, the effects of increased testosterone include disruptions in the menstrual cycle, absence of periods, unwanted infertility and hirsutism (typically male body hair) with acne, hair loss and virilization (masculinization). For men, the complaints are similar to those which arise from taking anabolic drugs (see next chapter).

6 What is testosterone and what does the body need it for?

Testosterone is the most important male sex hormone (androgen). Women, however, also produce low amounts of testosterone.

In men, it is produced in the Leydig cells of the testes. In women, it is produced in the

theca cells of the ovaries. In addition, a low level of production takes place in the adrenal cortex of both sexes.

The release of testosterone is controlled by what is known as the hypothalamic-pituitary-gonadal hormone axis. This testosterone is produced from cholesterol.

Testosterone has various functions which are described below.

Blood

Testosterone promotes the release and uptake of the hormone erythropoietin, which is involved in the production of red blood cells in the bone marrow. Hereby, testosterone contributes to blood formation (hematopoiesis).

Brain

To date, it has been assumed that testosterone leads to an increased drive and motivation and even to aggressive behaviour. Currently, however, the role of testosterone in social contexts such as empathy, understanding and compassion is subject to much discussion.

Genitals

Already in the womb, testosterone is responsible for the development of sex characteristics and later for the production of sperm. The hormone leads to an increased sexual desire both in men and women.

Bones

Testosterone is involved in bone stability and bone growth.

Body Hair

From puberty onwards, the hormone is responsible for the typically male pattern of body hair and for female body hair.

Muscles and Fat

The hormone promotes muscle growth and affects lipid metabolism through an increased percentage of body fat using the hormone leptin.

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