
Androgen deficiency in women

Summary

- Androgens are hormones that contribute to growth and reproduction in both men and women.
 - Androgens are usually thought of as male hormones, but the female body naturally produces a small amount of androgens too.
 - Androgen deficiency in women is a controversial concept. Some researchers argue that the condition causes symptoms such as tiredness and loss of sexual interest. Other researchers say that there is not enough evidence to support the existence of the condition.
 - If you choose to have testosterone therapy you will need close and regular monitoring to minimise your risk of side effects.
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Androgen deficiency in women is a controversial concept. Androgens are hormones that contribute to growth and reproduction in both men and women. Androgen production in women tapers off with increasing age. By the time a woman is 40 years old, her androgen levels are about half of what they were when she was 20.

Some researchers believe that androgen deficiency in women can cause symptoms that include tiredness and loss of sexual interest. Other researchers believe that there is not enough evidence to support the existence of the condition.

What are androgens?

Androgens are hormones. Hormones are chemical messengers that communicate with tissues in the body to bring about many different changes. Androgens are usually thought of as male hormones, but the female body naturally produces a small amount of androgens too – on average, about one tenth to one twentieth of the amount produced by the male body.

The ovaries, adrenal glands, fat cells and skin cells make the female body's supply of androgens. The ovaries convert testosterone into the female hormone oestrogen.

Symptoms of androgen deficiency in women

Some of the suggested symptoms of androgen deficiency in women may include:

- lethargy (tiredness)
- loss of muscle mass and strength
- loss of libido
- lack of motivation
- low wellbeing
- lowered mood.

Causes of androgen deficiency in women

Some of the possible causes of androgen deficiency in women include:

- **ageing** – a drop in testosterone (one of the androgens produced by women) naturally occurs in all women over time from about the late teenage years
 - **oophorectomy** – the surgical removal of the ovaries
 - **chemical oophorectomy** – ovarian failure caused by certain medication, such as gonadotropin-releasing hormone antagonists, chemotherapy or radiotherapy
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- **oral (tablet form) oestrogen therapy** – the combined oral contraceptive pill or oestrogen tablets for managing the symptoms of menopause. The combined oral contraceptive pill shuts down the ovarian production of androgens. In addition, oral oestrogen of any type increases the binding protein for testosterone, making less testosterone available for biological action
- **hypothalamic amenorrhoea** – the loss of menstrual periods in a woman of reproductive age, which could be caused by various factors such as stress, extreme weight loss or extreme exercise. This again lowers the ovarian production of hormones including androgens
- **hyperprolactinaemia** – overproduction of the pituitary hormone prolactin
- premature ovarian failure – early menopause (before the age of 40), with various causes
- **adrenal insufficiency** – primary or secondary
- **hypopituitarism** – a rare disorder of the pituitary gland.

Diagnosis of androgen deficiency in women

If you think you may have androgen deficiency, it is important to have a full medical check-up. The symptoms of androgen deficiency are similar to those of many other conditions, such as:

- hypothyroidism (underactive thyroid)
- iron deficiency anaemia
- autoimmune disease
- depression.

Your doctor may need to assess you for these conditions.

No specific test for androgen deficiency exists. Many blood and salivary tests for testosterone levels lack accuracy when measuring the low levels present in women, though some sensitive testosterone tests are now available.

Testosterone is difficult to measure for many reasons. For example, the amount circulating in the blood does not reflect the amount active inside body cells. To further complicate matters, a woman's blood test results can vary depending on when the test is taken, because hormone levels fluctuate, not just throughout the menstrual cycle, but during every day.

Typically, if you are having your testosterone levels checked, blood needs to be taken in the morning, when your testosterone levels are at their peak. If you are a woman of reproductive age, the test should take place about eight to 20 days after the start of your menstrual period.

Treatment of androgen deficiency in women (testosterone therapy)

As the existence of the condition 'androgen deficiency in women' is still under debate, there is no standard treatment, and no licensed or registered treatment is available for women in Australia.

Most Australian specialists familiar with androgen deficiency in women recommend treatment with a low-dose testosterone cream (one per cent) for daily application. The aim of testosterone treatment is to restore testosterone levels to those within the higher range of normal for an adult woman of early reproductive age.

One concern with testosterone therapy is that the most readily available testosterone products, designed for use in men, contain too much testosterone for the female body.

Doctors generally recommend that postmenopausal women do not have testosterone therapy unless they are also having oestrogen therapy (women who still have their uterus also require progesterone treatment). One clinical trial, however, showed that testosterone given without oestrogen is effective, although it also showed a slightly higher rate of breast cancer in the women given testosterone-only treatment.

Most research in this area has been performed in women who have undergone menopause and have had both ovaries removed.

Few studies have been done examining testosterone use in premenopausal women, as there is a risk that testosterone could harm a developing baby and result in the need for termination of pregnancy. For this reason, failsafe contraception is necessary if premenopausal women are treated with testosterone. This remains a very controversial area.

There have been no long-term studies of testosterone therapy in women, so the long-term health risks and benefits

are unknown. The longest study of testosterone use in women was over a period of up to four years. The women involved were postmenopausal and received oestrogen treatment in addition to testosterone.

The main side effects noted in this study (using a testosterone patch) included skin reactions to the patch and unwanted hair growth. Three cases of breast cancer were detected over the four-year period, which was the expected rate in the age group of women in the study.

Side effects of testosterone therapy in women

Women who choose to have testosterone therapy need to consult a doctor who is knowledgeable in this area, can give accurate and up-to-date advice, and who can monitor their treatment properly. Close and regular monitoring is necessary to minimise the risk of side effects.

The risk of side effects depends on many factors, such as the treatment method, the dosage and the length of the therapy. Some of the known side effects of too much testosterone therapy in women include:

- masculine physical characteristics – such as facial hair growth, acne, male-pattern balding, deepened voice, clitoral enlargement (these last two are irreversible). These characteristics are extremely unlikely to develop if dosage is monitored appropriately and if testosterone levels are maintained within the normal range for young adult women of reproductive age
- aggression or irritability
- hirsutism – excess hair growth (at the site of testosterone cream application or elsewhere on the face or body).

When testosterone therapy in women is not appropriate

Testosterone therapy is not appropriate for women who:

- are pregnant or planning to become pregnant
- are of reproductive age and sexually active, but not using adequate contraceptive measures (testosterone can cause serious abnormalities to develop in an unborn baby and termination of pregnancy is likely to be advised if a woman becomes pregnant while using testosterone)
- are breastfeeding
- have acne
- have hirsutism (excessive body or facial hair)
- have alopecia (hair loss)
- have steroid-dependent cancers.

Where to get help

- Your **GP (doctor)**
- **Gynaecologist**
- **Endocrinologist**
- Local community health service
- Specialised women's health clinic
- **Jean Hailes for Women's Health** Tel. 1800 JEAN HAILES (**1800 532 642**)

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