Androgen deficiency in women

Summary

- 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 lethargy and loss of sexual interest, while other researchers contend that there is not enough evidence to support the existence of the condition.
- A woman who chooses to have testosterone replacement therapy needs close and regular monitoring to minimise her risk of side effects.

Androgen deficiency in women is a controversial concept. Androgens are hormones that contribute to growth and reproduction in both men and women. They are usually thought of as male hormones, but the female body also naturally produces a small amount of androgens.

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 lethargy and loss of sexual interest. Other researchers believe that there is not enough evidence to support the existence of the condition.

Androgens explained

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
- 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 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
• 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
A full medical check-up is important. 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, to check testosterone levels blood should be taken in the morning, when testosterone levels are at their peak. For a woman of reproductive age, the test should take place about eight to 20 days after the start of her menstrual period.

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

Treatment of androgen deficiency in women (testosterone replacement therapy)
Since 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 (1 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. This is called testosterone replacement therapy.

One concern with testosterone replacement 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 should not have testosterone replacement therapy, unless they are also having oestrogen replacement 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.

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There have been few studies examining testosterone use in premenopausal women. 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 replacement therapy in women, so the long-term health risks and benefits are unknown. The longest study of testosterone use in women followed the women for up to four years. They 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 replacement therapy in women**

Women who choose to have testosterone replacement 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 their risk of side effects.

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

- masculine physical characteristics – such as facial hair, 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).

**Sometimes testosterone replacement therapy in women is not appropriate**

Testosterone replacement therapy should not be given to women who:

- are pregnant or planning to become pregnant
- are of reproductive age, 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
- suffer from acne
- have hirsutism (excessive body or facial hair)
- suffer from alopecia (hair loss)
- have steroid-dependent cancers.

**Where to get help**

- Your doctor
- Gynaecologist
- Endocrinologist
- Local community health service
- Specialised women’s health clinic
- [Jean Hailes for Women’s Health](https://www.jeanhailes.org.au) Tel. 1800 JEAN HAILES (1800 532 642)