

Androgen deficiency in women

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 including lethargy and loss of sexual interest. Other researchers believe that the condition, if it exists, is too poorly understood to treat safely.

Symptoms of androgen deficiency

Some of the proposed symptoms and signs of androgen deficiency in women may include:

- Lethargy
- Loss of muscle mass and strength
- Loss of libido
- Lack of motivation
- Low emotional state
- Lowered mood.

Female 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 most common androgen is testosterone. Dehydroepiandrosterone (DHEA), dehydroepiandrosterone sulphate (DHEAS) and androstenedione are also referred to by some as androgens, although they are actually converted to testosterone and so may be called 'pre-androgens'.

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.

Cause of androgen deficiency

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 drugs called gonadotropin-releasing hormone antagonists, chemotherapy or radiotherapy.
- **Oestrogen therapy** – the combined oral contraceptive pill or oestrogen replacement therapy for managing the symptoms of menopause. Oestrogen, with or without a progestin, suppresses the hormone which stimulates androgen production and when given by mouth, increases the binding protein for testosterone, making less 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 amount of the androgen-stimulating hormone.
- **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 to deficiency of pituitary adrenocorticotrophic hormone (ACTH).
- **Hypopituitarism** – a rare disorder of the pituitary gland.

Diagnosis of androgen deficiency

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 and depression. Your doctor may need to assess you for these conditions.

No specific test for androgen deficiency exists. Many blood 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 24-hour period.

Typically, blood to check testosterone levels 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.

Treatment of androgen deficiency

Since androgen deficiency in women is still controversial, there is no standard treatment, and no licensed or registered treatment is available for women in Australia.

The most commonly used treatment is testosterone. Most research has been performed in women who have undergone menopause and have had both ovaries removed. Testosterone products are available in different forms, including a skin cream, subcutaneous (under the skin) pellet or 'implant'.

These products are not currently licensed in Australia for use in women. One concern is that the most readily available testosterone products, designed for use in men, contain too much testosterone for the female body. Most Australian specialists familiar with this area recommend treatment with a low-dose testosterone cream or a low-dose subcutaneous pellet.

Doctors generally recommend that a woman should not have testosterone replacement therapy unless she is 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.

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

Other medical uses of testosterone treatment

Research suggests that some Australian doctors use testosterone replacement therapy to treat a range of women's health conditions such as:

- Bone loss or osteoporosis
- Iatrogenic (caused by medical treatment) ovarian failure
- Premenstrual syndrome (PMS).

Side effects of androgen deficiency

A woman who chooses to have testosterone replacement therapy needs close and regular monitoring to minimise her risk of side effects. It is also essential to consult a doctor who is knowledgeable in this area, can give accurate and up-to-date advice and monitor treatment properly.

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 (some of these may be permanent). These are extremely unlikely if dosage is monitored appropriately.
- Aggressive mood swings
- Sleep apnoea
- Hirsutism – excess hair growth
- Headache.

Some women should never be given testosterone

Testosterone replacement therapy should not be given to women who:

- Are pregnant or planning to become pregnant
- 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 Tel. 1800 JEAN HAILES (532 642)

Things to remember

- 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 including lethargy and loss of sexual interest, while other researchers contend that the condition, if it exists, is too poorly understood to safely treat.
- A woman who chooses to have testosterone replacement therapy needs close and regular monitoring to minimise her risk of side effects.

This page has been produced in consultation with, and approved by:

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