

Side effects include masculinisation with acne and excess body hair, scalp hair loss, fluid retention, deepening of the voice, enlargement of the clitoris and adverse effects on blood cholesterol. It is our experience that these side effects are rarely encountered if the appropriate dose of testosterone is administered and blood levels are regularly monitored.

Women with very low levels of SHBG may be at increased risk of side effects of testosterone and therapy should be used very cautiously with careful monitoring. Similarly, testosterone should not be used by women who are pregnant or lactating or who have a suspected cancer. Some studies have shown that high levels of testosterone are more common in women who develop breast cancer, however there is no data to indicate any association between testosterone replacement and breast cancer.

The current settings in which testosterone therapy may be beneficial in women include

- Early ovarian failure (early menopause)
- Loss of libido due to menopause following surgical removal of the ovaries, chemotherapy or radiotherapy.
- Loss of libido in the late reproductive years and after natural menopause when other potential causes of this problem have been addressed.
- Adrenal failure
- Pituitary failure

WARNINGS:

Testosterone levels must be monitored during treatment and the blood levels kept within the normal range for women.

- **Any woman using testosterone during child-bearing years must have reliable contraception as testosterone may result in virilization of a female fetus if it is used after conception.**
- **Women with severe acne or severe excess body hair, or with thin scalp hair should not use testosterone.**
- **All women using testosterone cream should have a blood test after 3 weeks use and should be reviewed at 6 to 8 weeks by their doctor.**
- **No woman should continue treatment beyond 6 months if a clear benefit has not been achieved.**
- **There is no information regarding the safety of the use of testosterone in women long term**

TESTOSTERONE TREATMENT FOR WOMEN Women's Health Program Monash University ©

- **Women normally have circulating in their blood 3 major sex hormones:** oestrogen, testosterone and progesterone.
- Each of these is produced by the ovaries. Oestrogen is also made throughout the body but particularly in body fat.
- Testosterone can also be made in other parts of the body from hormones (DHEA and androstenedione) that are produced by the adrenal glands
A young woman has higher blood levels of testosterone than oestrogen.

WHEN DO LEVELS FALL?

Testosterone *levels fall gradually before menopause* - a woman in her 40's has on average only ½ of the testosterone in her bloodstream as does a woman in her 20's. Testosterone levels *do not fall at the time of natural menopause.*

After a woman has her *ovaries removed by surgery* testosterone levels fall ~ 50%
Women with *adrenal gland failure*) have low testosterone .

Women who *have impaired pituitary gland function* have testosterone and adrenal androgen insufficiency.

BENEFITS OF TESTOSTERONE THERAPY

Testosterone has been shown to restore sexual interest, arousal and responsiveness as well as sexual satisfaction in premenopausal and postmenopausal women.

Testosterone therapy will not be the answer for someone who has a poor partner relationship, depression or poor sexual function and low wellbeing due to other causes.

Testosterone may improve bone density- there is no evidence that testosterone treatment will reduce fracture risk

ASSESSMENT

Women should have thyroid disease and iron deficiency excluded as possible causes of their symptoms by having a blood test for these conditions.

MEASURING TESTOSTERONE:

All women should have a blood test to measure their testosterone level before starting any testosterone therapy.

There is no set level of testosterone below which a woman can be said to be deficient, but it is essential that women with normal or high levels are not misdiagnosed and treated as though they have insufficient testosterone.

Most methods for measuring testosterone are imprecise. Blood should be taken between 8:00am -10:00am as testosterone levels vary throughout the day. For women who have

regular menstrual cycles, blood should be drawn at least 8 days after the start of menstruation.

As testosterone circulates in blood mostly bound to a protein called sex hormone binding globulin (SHBG) we also routinely measure SHBG levels to assist with diagnosis and management.

HOW CAN TESTOSTERONE THERAPY BE ADMINISTERED?

Currently no form of testosterone therapy is officially approved in Australia by the Therapeutic Goods Administration for women. However for many years it has been in common usage in public hospital specialist clinics, and in private practices for post-menopausal women.

Testosterone can be taken as tablets, by injection, as an implanted pellet, as a skin patch, gel or spray.

The *testosterone implant pellet* is the form mostly commonly used in Australia. This small pellet is implanted in the fat of the front lower abdomen, using a small incision (less than 1cm). The procedure takes approximately 10 minutes to perform. The pellet releases testosterone for about 3 to 6 months, after which time it needs to be replaced. The usual dose is 50 mg, although rarely 100 mg is required. Blood levels must be checked before further pellets are inserted.

A *testosterone cream*, Androfeme®, has been approved by Western Australian health authorities. Not all women are able to

effectively absorb this cream through their skin.

Testosterone tablets (Andriol®) are available on prescription. They are only available in a dose form suitable for men and therefore should not be used in women. *Testosterone injections* are only in doses suitable for men. These injections result in very high levels of testosterone. Their use in women cannot be recommended.

Testosterone skin patches, gels and a skin spray have been developed and are now undergoing research trials which are addressing their safety and efficacy. The use of testosterone and DHEA (another androgen) in the form of *lozenges* (also called *troches*) sucked in the mouth, is being promoted. These are said to be “bio-identical” however they contain exactly the same testosterone contained in the pellet, cream or patch etc. *The lozenges result in extremely high blood levels of testosterone, well above those appropriate for women.* There is no evidence that they are safe or effective and use cannot be recommended.

SIDE EFFECTS OF TESTOSTERONE TREATMENT:

Side effects of testosterone therapy are uncommon when testosterone is used in appropriately selected women and given in the appropriate dose.

Side effects will occur in any woman if the dose of the testosterone is in excess of her needs.