



# Male pattern hair loss

### What is baldness or hair loss?

Hair loss can happen on any part of the body for a variety of reasons, and can range from being mild to severe. Male (and female) pattern hair loss is hair loss specifically from the head. Extreme forms of hair loss happen when there is hair loss all over the head and body.

### What is male pattern hair loss?

Male pattern hair loss (also known as androgenetic alopecia) is a progressive hair thinning condition and is the most common type of hair loss in men.

Male pattern hair loss typically begins at the forehead, with the hairline gradually receding along the sides to form an 'M' shape. The remaining hair may become finer and shorter, with hair at the crown (back) of the head also beginning to thin. The amount of hair loss can vary amongst men and is usually influenced by an individual's genetic make-up. In severe cases, the receding forehead hairline may eventually extend to the thinned crown, leaving a horseshoe pattern of hair around the sides of the head.

There are slight variations in how male pattern hair loss can happen.

**Frontal hair loss** – hair loss happens from the hairline at the forehead but not at the crown.

**Vertex hair loss** – hair loss happens at the crown but not the hairline at the forehead.

Usually, most men will have a combination of both types of hair loss patterns.

### What causes hair loss?

There are many different causes of hair loss including certain illnesses (including disorders of the immune system), stress as a result of major surgery, chemotherapy, radiotherapy, hormonal problems, fungal infections, and as a side-effect of some medications. Scarring from burns can also cause permanent hair loss.

Hair loss in patches, sudden hair loss, breaking of hair shafts or hair loss associated with redness, scaling or pain are likely to be caused by specific health conditions.

### What causes male pattern hair loss?

While it is not completely understood why the hair follicles on men's heads stop producing new hairs, the male hormone DHT (dihydrotestosterone) is thought to play a part.

Testosterone, the most important male sex hormone (androgen) in men, is responsible for the growth of bone and muscles, sexual function and for producing physical characteristics in men including facial and body hair. In the body, testosterone is converted to DHT by an enzyme (5-alpha reductase). DHT acts on different organs in the body including the hair follicles and cells in the prostate. For reasons we don't understand, hair follicles sometimes become more sensitive to DHT, slowing down hair production and producing weaker, shorter hair. Sometimes hair growth stops completely. It is not clear why different hair follicles are affected at different times, making the balding process gradual or why only scalp hairs are affected.



In male pattern hair loss, hair recedes in an 'm' from the forehead. The bald patch over the crown eventually meets the top points to form a horseshoe shape.

### How common is male pattern hair loss?

The majority of Australian men will experience some form of hair loss in their lifetime. For men between the ages of 20 and 45 who start to lose scalp hair, there is a 95 per cent chance they are experiencing male pattern hair loss. Male pattern hair loss varies from population to population due to genetic background.

### Is thinning hair and hair loss reversible?

Thinning hair or loss of hair is not reversible, but there are medications to treat male

pattern hair loss that can stop or slow hair loss. Some men may even experience new hair growth with treatments.

### Should I be concerned about hair loss?

Many men accept male pattern hair loss as a normal part of ageing. For some men, for a variety of reasons, their concern for their hair loss prompts them to seek treatment for cosmetic reasons to try and stop or slow further hair loss.

If you start to lose your hair suddenly, if your hair loss happens in clumps or is significant enough that you notice large amounts falling out, it is not male pattern hair loss. It is recommended that you discuss these types of hair loss with your GP. Further investigation may be needed to determine the cause.

### What is the emotional impact on men experiencing hair loss?

While hair loss is a normal part of the ageing process for most men, it can be distressing for some, particularly if it is excessive or happens at an early age. Men experiencing hair loss can feel less confident, less attractive and may think it makes them look older. While many men accept that they are losing their hair, a small number may suffer from depression as a result. It is recommended that men speak to a counsellor if they are feeling upset or they are obsessing about their hair loss.

### How is hair loss treated?

There are a number of treatments available for hair loss, and treatments often work well in most cases. Men usually seek treatment for cosmetic rather than medical reasons.

### Wigs and hairpieces

Hair weaving, hairpieces or a change of hairstyle may disguise hair loss and is generally the least expensive and safest treatment for male pattern hair loss.

### Surgery

Hair transplantation involves removing tiny plugs of hair from areas where it continues to grow and inserting them in bald areas. This can cause minor scarring and carries some risk of skin infection. Multiple

transplantation sessions are usually needed and can be expensive. Results, however, are often excellent and permanent. Choosing a surgeon with experience in this operation is recommended.

### Medications

There are medications that can be used to treat male pattern hair loss that tend to have results in stopping or slowing hair loss, with new hair growth happening in some men. The two main medications used to treat male pattern hair loss are:

**Finasteride** - also known as Propecia® - is an oral medication that works by blocking the conversion of testosterone to DHT. The hair follicles are then not affected by DHT and can enlarge back to normal. About two in three men who take finasteride every day experience some hair re-growth. About one in three men experience no hair re-growth, but most don't experience any further hair loss.

Finasteride has no effect in about one in 100 men. The chances are therefore quite high that finasteride will help hair re-grow or at least stop more hair from falling out.

Most men do not notice any effects from taking finasteride for up to four months. It can take up to one to two years for full hair re-growth to happen. Any improvement in hair growth is usually greatest over the crown than over the frontal areas of the scalp. If treatment is stopped, the balding process will begin again, meaning if successful, treatment needs to be ongoing to continue hair re-growth. Side-effects are uncommon, but about two in 100 men taking finasteride experience a loss of sex drive (libido).

Finasteride taken at a higher dose (marketed as Proscar®) is also commonly taken by men to treat benign prostate enlargement, and has been found to reduce the risk of developing prostate cancer. However, research has found that men who do develop prostate cancer whilst taking the drug have an increased risk of the cancer being more aggressive<sup>1</sup>. However, whether this arises because finasteride induces more aggressive disease, or simply

because finasteride makes it easier to detect more aggressive disease earlier is not certain<sup>2</sup>. Nevertheless, men taking finasteride for hair loss should not be worried as the dose of finasteride given for hair loss is much lower than what is used to treat prostate enlargement but should speak to their doctor if they have any concerns. The low dose used for treating hair loss does not seem to have an effect on the development of prostate cancer.

**Minoxidil** - also known as Rogaine®, Hair a-gain®, Hair Retreva® - is a lotion that is rubbed onto the head. There is debate as to how well it works, but it is believed about half of the men who use minoxidil experience a delay in further balding. About 15 in 100 men have good hair re-growth, while hair loss continues in about one in three users.

Minoxidil needs to be rubbed onto the scalp every day, and taken continually for four months before results are noticeable. As with finasteride, treatment needs to be ongoing for hair growth to continue. Any new hair that does re-grow tends to fall out two months after treatment is stopped. Side-effects are uncommon, but minoxidil can cause skin irritation or a rash in some men.

### Is there a link between male pattern hair loss and prostate cancer?

Because testosterone through the action of DHT is involved in the growth of the prostate and hair growth, some preliminary studies have been done to see if men who are balding are at an increased risk of prostate cancer. An Australian study found a link between men with vertex hair loss (hair loss from the crown only) and prostate cancer<sup>3</sup>. There were no associations found between prostate cancer and men with frontal hair loss, or frontal hair loss together with vertex hair loss. The reason for this link between vertex hair loss and prostate cancer is not clear and further studies are needed.

### What are the myths about male pattern hair loss?

#### Standing on your head lessens hair loss

The 'blood-flow' theory, which led men to stand on their heads in the 1980s, can be found in the advertising for many of the ineffective hair loss treatments on the market, but again is an unfounded myth in the treatment of male pattern hair loss. While minoxidil is suspected for working, in part, by increasing blood flow to hair follicles, there is no evidence that standing on one's head can stop hair loss or cause hair to re-grow.

#### Hair loss comes from your mother's side of the family

There is a myth that hair loss is a genetic trait passed down from the mother's side of the family. Genetics is the cause of male pattern hair loss, but a number of genes are responsible, and genes are most likely contributed by both parents. The condition does run in families, so if there is a close relative with male pattern hair loss, then there is a higher risk another relative will develop the condition.

#### Hair loss happens in men with high testosterone levels

Some men think they are losing their hair because they have higher levels of the male sex hormone testosterone. High levels of testosterone are not linked with hair loss. However, some studies have shown that men with high levels of 'free' testosterone (only 2 per cent of the total amount of testosterone produced by the body) are more likely to have vertex hair loss (from the crown only).

<sup>1</sup>Thompson IM et al. The influence of Finasteride on the development of prostate cancer. *NEJM* 2003; 349: 213-222

<sup>2</sup>Lucia MS, Et al Finasteride and high-grade prostate cancer in the Prostate Cancer Prevention Trial. *J Natl Cancer Inst* 2007; 99:1375-1383

<sup>3</sup>Giles GG, Severi G, Sinclair R, English DR, McCredie MRE, Johnson W, Boyle P, Hopper JL. Androgenetic alopecia and prostate cancer: findings from an Australian case-control study. *Cancer Epidemiology, Biomarkers & Prevention* 2002; 11: 549-553

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