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## Hair

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### Summary

- Hair loss disorders are common.
  - Medical research has led to the discovery of treatments for most cases of hair loss.
  - Dermatologists specialise in the treatment of diseases of the skin, hair and nails.
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Hair is the defining feature of all mammals. Each hair arises from within a hair follicle. The human body has approximately five million hair follicles spread across the entire skin surface, except for the palms of the hands, soles of the feet, and lips. Most of these follicles produce tiny vellus hairs that are cosmetically insignificant. Larger terminal hairs are found on the scalp, eyebrows, axilla (armpits), beard and pubic regions.

Hair keeps us warm, communicates the sensation of light touch and protects sensitive areas, such as the nose and eyes, from dust. The colour, curl, thickness and amount of hair depend on genetic factors.

### Normal hair growth

Human hair grows at the bulb, which is the only living part of the hair. Hair gets longer as cells in the bulb multiply and then mature into hair fibre cells. This process is called keratinisation, because hair is made of a protein called keratin, which is the same protein that makes up nails and the outer layer of the skin.

Hair grows in cycles. Each follicle produces hair for a period of months to years, before the bulb undergoes spontaneous involution and disappears. The follicle then remains dormant for three months before stem cells within the remnants of the follicle regenerate a new hair bulb. The original hair is shed during the dormant phase.

During the growth phase, an entirely new hair is formed. Human hair grows one centimetre every month. Hair length is determined by the duration of the growth phase.

On the scalp, most hairs grow continuously for three years and achieve a length of 36 centimetres. In the armpits and groin, the growth typically only lasts six to nine months, and the hairs stop growing at six to nine centimetres before being shed.

### Hair disorders

The broad categories of hair disorders include:

- hair shedding (telogen or anagen effluvium)
- baldness (alopecia)
- excess hair (hirsutism)
- hair infections
- developmental disorders.

### Hair shedding (telogen or anagen effluvium)

Hair is in a constant cycle of growth, rest and renewal. It is natural to lose some hair each day. Some conditions that cause abnormal hair shedding include pregnancy, severe illness, certain medication and chemotherapy. Chemotherapy is a course of drugs taken by people with cancer as part of treatment. A common side effect is hair loss. The hair usually grows back after the treatment is completed. Scalp cooling is a technique used during chemotherapy to prevent hair loss, which is available in some oncology centres.

### Baldness (androgenetic alopecia)

Testosterone and its by-product dihydrotestosterone (DHT) alter the type of hair fibre produced within hair follicles.

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Over time, long, thick terminal hairs transform into short, fine vellus hairs. This change occurs in a predictable pattern. In men, baldness begins with recession at both temples, and then occurs on the crown to produce 'male-pattern' baldness. Prescription medications may be able to stop the hair loss process and create partial hair regrowth. Hair transplantation can be beneficial for advanced cases. In women, androgenetic alopecia produces a progressive loss of hair volume over the crown, rather than complete baldness. The first signs are increased hair shedding and loss of ponytail thickness, followed by thinning over the crown after many years. Prescription medications are also available for women, which may slow hair shedding and stimulate hair to regrow. A number of genes have been identified that are associated with premature baldness.

### **Alopecia areata**

Alopecia areata produces circular patches of hair loss on the scalp and occasionally elsewhere on the beard or body. There may be an association with autoimmune disease. When alopecia areata is severe, every hair on the scalp and body may be shed from the follicle. As the follicles are dormant but not destroyed in alopecia areata, the hair sometimes regrows spontaneously. Most people require medical treatment to regrow their hair. Alopecia areata has a profound effect on emotional wellbeing. Depression and even suicide can occur.

### **Scarring alopecia**

Scarring alopecia is inflammation that destroys the hair stem cells and leads to a permanent bald patch. Specialist dermatology care is required to stop progression of the baldness.

### **Excess hair (hirsutism)**

In women, hirsutism is the growth of thick, dark hair in typically 'male' areas of the body, such as the face, chest and back. A common cause is polycystic ovarian syndrome (PCOS). However, in most cases, the cause is unknown.

### **Hair infections**

Some hair infections are contagious, which means the infection can pass from one person to another. Some examples of hair infections include: Ringworm – this fungal infection of the scalp typically starts as a small circle of red, itchy and scaly skin. As this ring grows, the hairs within its circumference snap off close to the scalp. Folliculitis – this bacterial infection of the hair follicles produces pimples on the scalp. It usually does not produce any hair loss.

### **Other hair disorders**

Developmental disorders are caused by the inheritance of altered genes, which result in either hair loss or altered hair fibre formation. Cosmetic over-processing (excessive treatments, such as bleaching, colouring or perming) can also weaken the hair shaft and cause breakage.

### **Where to get help**

- Your doctor
- **Australasian College of Dermatologists** Tel. 1300 361 821

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