

Hair Loss

The medical term for hair loss is alopecia and there are many types.

What is the normal cycle of hair growth and loss?

Hair is composed of protein called keratin. Keratin is an extremely strong protein which makes hair resistant to wear and tear. This is the same kind of protein that makes up the nails and the outer layer of skin.

The hair follicle is basically the root of the hair. At the base of the hair follicle is a bulb shaped structure called the dermal papilla. The dermal papilla is fed by the bloodstream which carries nutrients to produce new hair. The dermal papilla produces the pigment called melanin which gives the hair colour. The dermal papilla is a structure very important to hair growth because it contains receptors for male hormones and androgens. Androgens regulate hair growth in scalp hair. Androgens may cause the hair follicle to get progressively smaller and the hairs to become finer in individuals who are genetically predisposed to male pattern hair loss.

The cycle of hair growth lasts for 2 to 3 years. Each hair grows approximately 10 cm per annum. Each cycle of hair growth can be broken down into three phases. These are the growth phase, the transitional phase and the rest phase. Each hair goes through each phase, independent of neighbouring hairs.

About 85% of hairs are growing at any one time meaning they are in the growth phase. The growth phase can vary from 2 to 6 years and a hair would continue to grow to about 1 metre if uncut. At the end of the growth phase, the hair enters the transitional stage which only lasts about two weeks. Hair then enters the resting phase which lasts about 5 to 6 weeks. During the resting phase the hair is still attached to the hair follicle but is not growing. After the resting phase the hair is shed and a new hair starts to grow in its place thus starting a new hair growth cycle. Resting hairs are randomly spread throughout the scalp so that no bald spots are seen.

The average person has 100,000 hairs on their scalp. It is normal to shed some hair each day as part of the hair growth cycle described above, the average person loses about 50 to 100 hairs per day. However some people may suffer from excessive hair loss for different reasons. This can affect men, women or children. I will describe the most common causes and possible treatments in this article.

Male (or female) Pattern baldness

Male pattern baldness is a hereditary condition in which fewer new hairs grow to replace those that shed. It is passed down from generation to generation in our genes. Male pattern baldness can be inherited from the father or the mother. The gene that causes male pattern baldness was identified in 2008, raising hopes that a cure may be found in the not too distant future.

Drug companies are currently spending billions trying to discover a cure. Male-pattern baldness is the commonest type of hair loss. Its medical name is androgenic alopecia. As well as affecting men, it can sometimes affect women (female-pattern baldness). It affects about one third of the population. It can start early, sometimes in the teens and early 20s. However, nearly all men have some degree of baldness by the time they reach 60. Male and female pattern baldness follows a pattern of a receding hairline, followed by thinning of the hair on the crown and temples. Pattern baldness only affects the scalp; it does not affect hair on other parts of the body.

Male pattern and female pattern baldness is caused by hair follicles becoming oversensitive to the hormone dihydrotestosterone (DHT), which is made from the male hormone testosterone. The follicles react to DHT and eventually shrink. The hair becomes thinner and grows for a shorter length of time than normal. The balding process is gradual because different follicles are affected at different times.

Treatment for male pattern baldness

There is no cure for male (or female) pattern baldness however there are some treatments which can slow down its progression or stimulate some hair growth.

Examples include minoxidil, tretinoin and zinc. See more information on these products in the next section of this article (under alopecia areata).

A low dose of a drug called finasteride can prevent hair loss and cause re-growth in male pattern hair loss. It works by stopping the conversion of testosterone to dihydrotestosterone (DHT). The strength of finasteride used to treat male pattern baldness approximately 1.25mg which is not available in Ireland. Finasteride 5mg tablets are only available in Ireland and is licensed to treat benign prostatic hyperplasia (enlarged prostate) in men. The brand Propecia® is available in many countries such as the UK and US. Propecia® contains finasteride 1mg and is specifically licensed to treat male pattern baldness; however it is not available in Ireland. Therefore, consultants in Ireland prescribe finasteride 1.25mg as an unlicensed indication for male pattern hair loss and pharmacists split the 5mg tablet in quarters so the patient has the correct strength (1.25mg). There is a good success rate from finasteride with about 2 out of 3 men experiencing hair re-growth. One in three men experience no hair growth from finasteride however it does stop further hair loss. It can take up to 6 months to notice results from finasteride and up to 2 years for full hair growth. Side effects are rare at the low dose used for male pattern baldness but it can cause loss of libido (sex drive) in about 2 in 100 patients. It should not be used by women. Whelehans stock a less expensive generic version of finasteride called Fintrid®.

Techniques such as hair transplantation, scalp flaps, and other procedures may be considered. Success rates vary, specialist advice is needed if surgery is considered and they are generally expensive.

Alopecia Areata

Alopecia areata is an autoimmune condition. Our immune system normally only attacks infections such as bacteria and viruses, but in the case of alopecia areata, it attacks the hair follicles instead. White blood cells called T-lymphocytes attack the hair follicle causing the hair to stop growing and enter the resting phase. The cause is not fully known. The hair follicles are not permanently damaged, and in many cases the hair grows back within a few months. There is a genetic link to alopecia areata with evidence that it runs in families in about one in five cases.

It initially appears as a rounded bald patch about an inch in diameter and affects men and women equally. It often starts in childhood. It is estimated about 1 in 100 people suffer from alopecia areata with many only experiencing one bout with normal growth afterwards but about 20% experience permanent hair loss. There are three types of alopecia areata depending on the severity of hair loss. Alopecia areata is patchy hair loss, alopecia totalis is total scalp hair loss and alopecia universalis is the loss of all body and scalp hair.

Treatment of Alopecia Areata

There is no cure for alopecia areata but there are treatments with varying degrees of success. What works for one person may not work for another. The treatment used depends on the degree of hair loss and in general treatment is broken into two groups; those with less than 50% hair loss and those with more than 50% hair loss.

For those with less **than 50% hair loss**, treatment is as follows. The first choice in mild cases is normally corticosteroids. This would be a corticosteroid cream or lotion applied directly to the bald area (eg) Betnovate[®] cream or application. Alternatively a corticosteroid might be injected directly onto the bald area. Re-growth does not occur in all patients and if it does occur, it will only occur as long as treatment continues.

Tretinoin (Retin A[®]) is normally used for acne. However it has recently started to be used as a treatment for both alopecia areata and male pattern baldness. Retin A[®] gel is rubbed into the bald areas. It works best when used in combination with Minoxidil (Rogaine[®]). Often minoxidil is used in the morning and Retin A[®] gel is used in the evening as Retin A[®] leaves the skin sensitive to sunlight so strong sun is best avoided. The main side effects of Retin A[®] cream is red, irritated and stinging skin but this can improve with time.

Minoxidil is more often used for male pattern baldness but can be effective for alopecia areata. It can help with patchy alopecia areata but is not effective when there is 100% hair loss. It may stimulate limited hair growth in a small number of people but it will only work for as long as it is used. It will take four months to notice any benefits. Rogaine[®] is the brand of minoxidil and 1ml must be applied twice daily to dry scalp. It can be used in men and women but should be discontinued if no benefit after a year. It works by stimulating hair follicles. It is available in a 2% strength and a 5% strength (Rogaine[®] Extra strength).

Oral zinc has been shown to be of occasional benefit in alopecia areata. Its effectiveness is thought to be due to its affect on the immune system. It is also thought to have anti-androgenic affect which means it may help with male (and female) pattern baldness. However very high doses are needed for it to be effective and this may result in side effects including vomiting and diarrhoea. Too much zinc can also cause a deficiency of other essential minerals such as copper, magnesium, iron and manganese. The use of high levels of zinc for hair loss is debatable.

For those with **greater than 50% hair loss**, treatment is different. Oral corticosteroids (eg. Deltacortil[®]) are sometimes prescribed for extensive scalp hair loss or when the condition is rapidly spreading. Corticosteroids taken orally are thought to be more effective than local injections of corticosteroids into the scalp. However, corticosteroids have many side effects, especially if used long term, this is why they are reserved for alopecia areata with over 50% hair loss. Side effects of corticosteroids include stomach irritation, weight gain, osteoporosis, glaucoma, thinning skin and irregular periods in women.

PUVA treatment involves taking a psoralen which is a light sensitive drug and then undergoing a short exposure to UVA which is a long-wave ultraviolet light. Treatment takes place over a three to six week period with sessions two to three times a week. It is normally done by specialists in hair loss.

Applying irritants or allergens to the scalp to cause an allergic reaction is sometimes used as a treatment for hair loss. The idea is that this allergic reaction then draws the T-lymphocytes away from the hair follicle, thus allowing the hair a chance to start re growing. Examples of substances used include diphenylcyclopropenone and ditranol. This method is done under the supervision of a consultant.

Immuno-suppressive drugs such as ciclosporin (Neoral[®]) or azathioprine (Imuran[®]) were developed to stop the immune system from rejecting transplanted organs following transplant surgery. Because immuno-suppressants suppress the immune system, they are sometimes used to treat severe cases of autoimmune diseases (diseases where the immune system attack the body) such as psoriasis, arthritis and crohn's disease. Because alopecia areata is an autoimmune disease, immuno-suppressants are sometimes used. It is thought that by suppressing the immune system they stop T-lymphocytes attacking the hair follicles, thus causing hair growth. However the main problem with suppressing with the immune system is that it can lead to a lowered resistance to infection. Because of the high incidence of side effects with immuno-suppressants, they are reserved for severe cases of alopecia areata and are used under specialist supervision. Regular blood tests are needed for those taking immuno-suppressants as they can cause life threatening blood disorders.

Apart from Rogaine[®], all of the above medicines listed for treating alopecia areata are only available with doctor's prescription.

Cancer treatment hair loss

This is hair loss caused by chemotherapy or radiation used for the treatment of cancer. Its scientific name is anagen effluvium and the hair loss is usually sudden, and occurs between 1 to 3 weeks after the start of cancer treatment. Often the hair falls out in large clumps and in many cases it occurs overnight. Some doctors recommend cutting the hair short in advance of the hair falling out.

Up to 90% of hair is sometimes affected. However this type of hair loss is temporary and hair grows back once treatment is finished; however the hair may not grow back as thickly as it was prior to treatment. On the other hand, some people find it grows back thicker and healthier than before treatment. Some people find that when it grows back, it is a different texture, for example curly hair growing back straight or the hair changes colour. Not all chemotherapy drugs cause hair loss so the doctor will advise in advance if it will occur. Some patients decide to wear wigs while their hair is lost and nowadays there is a great selection of very natural looking wigs. The cancer team in hospital or pharmacist can advise on where wigs are available.

Telogen Effluvium (temporary hair loss)

Telogen effluvium is a temporary type of hair loss which can occur for many reasons including sudden or severe stress. It is characterised by thinning of hair throughout the scalp. Therefore, patches of hair loss are not seen in this type of hair loss. It occurs more often in women as child birth is one of the most common causes of it. Other causes include abortions, crash diets, starting or stopping contraceptives, drug therapy and severe emotional stress such as bereavement.

It is quite common for women to experience hair loss about 3 months after childbirth. This loss is due to hormones. During pregnancy, high levels of the hormones oestrogen and progesterone cause the body to keep hair that would normally fall out so the hair is fuller and thicker. After child birth, hormones return to pre-pregnancy levels, the excess hair falls out and the normal cycle of growth and loss starts again.

The contraceptive pill can cause hair loss as some pills contain a small amount of male hormones thus causing a mild form of pattern baldness in some women. In a similar way to after child birth, stopping the contraceptive pill reduces the level of oestrogen and progesterone in the blood, leading to a temporary hair loss in some women.

About 3 or 4 months after an illness or a major surgery, some people suddenly notice the loss of a large amount of hair. This hair loss is related to the stress of the illness and is temporary.

Hormonal problems may cause hair loss. For example, if the thyroid gland is overactive or underactive, hair may fall out. Hair growth will return to normal once the thyroid disorder is successfully treated by a doctor. Hair loss may occur if male or female hormones, known as androgens and estrogens, are out of balance. Correcting the hormone imbalance will stop the hair loss.

Some medicines can cause hair loss. Normal hair growth re-occurs when the medicine is stopped. Medicines that can cause hair loss include anticoagulants such as warfarin and heparin which are used to thin blood to prevent clots, gout medication such as allopurinol, some high blood pressure medication such as beta blockers, vitamin A (if too much is taken) and antidepressants such as SSRIs (eg) Fluoxetine, sertraline, citalopram. It is important to note that most people who use these medicines do not experience hair loss. If it occurs, the doctor can change to a suitable alternative.

Some infections can cause hair loss. Fungal infections of the scalp such as ring worm can cause hair loss in children. The infection is easily treated with antifungal medicines.

Hair loss may occur as part of an underlying disease, such as lupus, anaemia (low iron) or diabetes. Hair growth normally returns to normal once the condition is treated.

Self induced hair loss

Wearing pigtales, braids or using tight hair rollers can cause a type of hair loss called traction alopecia. Hair loss usually occurs between the rows or at the part where hair is pulled tightly. Treatment involves changing hairstyle so pulling stops. The hair will grow back if the pulling does not occur for an excessive period of time. However, if the pulling is not stopped before scarring of the scalp develops, permanent hair loss may occur. Hot oil hair treatments or chemicals used in hairstyles called "perms" may cause inflammation of the hair follicle, which can result in scarring and hair loss.

Scarring hair loss

Scarring alopecia, also called cicatricial alopecia, is a rare condition which occurs when inflammation damages and scars hair follicles, causing permanent hair loss. The cause is generally unknown. It can sometimes be due to bacterial, fungal or viral infections. It is characterised by rough patches on the surface of the scalp made up of small blood vessels and connective tissue. There are many potential causes of scarring alopecia, many of them very rare. Potential causes include discoid lupus erythematosus and lichen planus which are often treated with corticosteroid ointments, lotions or creams.

How your diet affects your hair?

Nutritional deficiencies can contribute to increased hair loss by weakening hair shafts that cause breakage to the hair and slow re growth. Hair problems that are caused by nutritional deficiencies can be corrected by a good diet. The main nutrients involved in hair health include vitamin A, certain B vitamins, the vitamin biotin, vitamin C, copper, iron, zinc, protein, and water.

Adequate intake of vitamin A is vital in helping to promote the growth and health of cells and tissues throughout the body, including the hair and scalp. Prolonged vitamin A deficiency can lead to hair loss and dandruff caused by the build up of cellular debris in the hair follicles.

The daily intake of vitamin A for adults is 5,000 IU (international units). The body gets vitamin A in two ways. Firstly from plant sources in the form of carotenoids, such as beta carotene that converts to vitamin A in the body. These sources include red, yellow, and orange fruits and vegetables, especially dark green leafy vegetables. The body also gets vitamin A from animal sources in the form of retinol. Good animal sources include liver, fish oils, eggs and fortified milk. However, too much vitamin A can actually cause hair loss and is toxic to the liver. Therefore it is important not to take two supplements with vitamin A such as cod liver oil and a multivitamin. Always check with your pharmacist if not sure.

Of all nutrients, biotin has the biggest impact on hair growth. It is found in food sources such as eggs and liver, however if someone has thinning or damaged hair; a biotin supplement is a good choice. Whelehans Traditional Tonic contains biotin so would be a benefit. In addition to biotin, other B vitamins reduce hair loss. Vitamin B3, also known as niacin, helps with circulation at the scalp which promotes hair re growth. Vitamin B5 has a similar effect and can also help slow down hair turning grey hair. Vitamin B9, which is folic acid, can also help hair to grow. Whelehans Traditional Tonic is a good source of all these B vitamins.

Anaemia (iron deficiency) is a cause of hair loss in women more than men. This is most vulnerable to iron deficiency include women who do alot of sport, pregnant women and women who recently gave birth. Whelehans Traditional Tonic is a good source of iron as it contains the recommended daily amount of iron.

Viviscal Hair Repair

Viviscal[®] Hair Repair is a new product on the market especially designed to help damaged and thinning hair. It restores damaged hair from the effects of over styling, heat treatments, straighteners, colouring, extensions etc. It contains a mix of vitamins and minerals important to hair and skin health, including amino acids and the scientifically developed AminoMar C which is a marine protein extract which could be to the key to solving many modern day hair problems. It also contains Grape Seed extract, a super anti-oxidant rich in polyphenols which is 20 times more powerful than Vitamin E and 50 times stronger than Vitamin C to enhance and protect the natural health of damaged hair.

Disclaimer: Please ensure you consult with your healthcare professional before making any changes recommended

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