

## **WHY IS HAIR SO IMPORTANT?**

Hair is something that we can all live without. It serves very little useful purpose, yet, when it is lost, it can be devastating to us. Why? Because it is also part of our identity; it is part of what makes us different from other people; so, when hair is lost, that identity becomes lost. Whether dark, redhead or blond(e) – or scarlet or bright green if that is what we wish to do with it – our hair is making a statement about us in its style, colour and length. This is why we are so distressed when the hair is lost.

## **WHAT IS HAIR?**

At risk of boring you with what might seem to be irrelevant details of hair and hair growth, a basic understanding is useful in understanding what happens in hair growth and hair loss and what we do to our hair when we treat it with perms, tints and colours.

Hairs are fine fibres made up of keratin, a protein substance that grow from hair follicles, which are down growths in the skin. They are made up of bundles of fibres, which are very elastic in their properties. These fibres are called 'polypeptide chains', and these are linked together by bonds and linkages called 'hydrogen bonds' and 'disulphide linkages'. The hair is formed deep in the skin tissue. At its base is a bulbous swelling, hence this section is called the 'hair bulb'.

The hair has its own blood supply from capillaries, its own nerve supply, and sebaceous glands. It even has a muscle which serves little purpose, but will make the hair stand on end when we are cold, or very frightened.

The hair shaft is covered with protective scales which overlap one another, all pointing towards the hair tip. These are called 'cuticles', and they protect the main body of the hair, the 'cortex'.

## **HOW THE HAIR GROWS IN NORMAL CIRCUMSTANCES**

The average human scalp has between 100,000 and 120,000 hairs, which we shed at the rate of around 100 per day; but new hair growth replaces them at about the same rate. In the white races, the hair grows for around five to seven years at the rate of approximately 1.25cms (half an inch) a month. This growing phase is known as the 'anagen' phase.

At the end of the growing time, the hair moves into a resting phase called the 'catagen' phase. This period lasts approximately two weeks. Then the final 'telogen' phase takes place, lasting up to three months, during which the hair bulb shrinks and detaches itself from the hair follicle in which it sits. The hair is then shed.

Meanwhile, beneath the growing hair bulb, a new hair is forming, which will eventually take its place. This hair grows as a result of cell division (known as 'mitosis'). These cells are continuously dividing. As they do this, they effectively push the hair upwards. This is a continuous cycle, which continues from before birth, throughout life.

Hair naturally grows to a point. It is only when hair is either cut or broken that the point is lost. From then on the hair should be regularly trimmed, or it will begin to split and break.

Hair is extraordinarily strong, and can withstand regular chemical treatments (such as perms and tints) with no adverse reactions at all, providing no damage is done to the scalp. It can also withstand some degree of traction. However, traction (or pulling of the hair) is harmful and can lead to permanent hair loss. The only exception is the eyebrows, which we all know can be shaped by plucking, yet manage to regrow continually.

## **EXCESSIVE HAIR LOSS**

There are many causes of excessive hair loss (that is, loss in excess of 100 hairs per day) – for example, childbirth, some medications, poor diet, anorexia, injury to the neck or upper back, and post-operative and post-febrile (high temperature) effects. This hair loss is called a 'telogen effluvium'. Whatever the trigger is, more hairs than normal pass straight from anagen to telogen. They then gradually diminish in size, and some two to three months later fall away. In many circumstances, once the assault or original cause has ceased, the hair regrows spontaneously, usually after about three months.

## **LOSS FROM CHEMOTHERAPY**

When some forms of chemotherapy are given, the mitosis of the cells in the hair papilla is inhibited. The result is that the hair ceases to grow, and falls suddenly. The hairs do not shrink away slowly as described above, but can fall within days of the 'assault'. This is called an 'anagen effluvium', as the hairs fall whilst still in their anagen phase. This happens with quite a few drugs. Listing them here is not relevant because, when the drug is essential to health, it is not a matter of choice. The best that can be done is to advise the patient that the hair will fall, and on how to cope and prepare for this happening. Advance knowledge is of very great value. There are always questions to be asked and answered; this is the important part that a trichologist can play.

## **THE 'COLD CAP'**

Blood supply is one of the ways that the body regulates heat. When we are cold in winter, the body naturally closes down the blood capillaries on the skin surface to prevent heat loss. Sometimes we notice that the skin becomes 'blue'. Although it is not really blue, the lack of blood pales the skin a great deal. Conversely, when we become very hot, the skin becomes flushed and red. This is the body sending as much blood as possible to the surface to aid body cooling.

Using the body's own mechanism (with a little assistance from the cold cap), restrictions of blood supply are possible. As you may be aware, the cold cap can only be used in certain circumstances. Its first purpose is to decrease the flow of blood to the hair bulb, so preventing the drug which is in the blood stream from attacking the hair and effecting its growth.

The second purpose is to lower the temperature under the cap, reducing metabolism (the chemistry of the cells). This is possibly more important in reducing hair loss than the more obvious reduction of blood flow to the scalp.

There are occasions when the cap treatment is unsuitable for the patient.

1. When the half-life of the drug (that is, the time that it is active in the blood stream) is too long. (It is only possible from a tolerance point of view, to wear the cap for maximum of two hours. So if the half-life of the drug is more than two hours, use of the cap is obviously not appropriate.)
2. Where the drug is required to circulate the entire body. (Blocking off the supply of blood to the scalp would prevent the proper action of the drug.)

Whilst the cold cap is effective in many cases, it does not always prevent the hair loss. It is in these circumstances that the loss of hair has to be faced.

It should also be noted that hair regrowth after chemotherapy is almost always spontaneous.

## **WIGS**

It is advisable, if possible, to make arrangements for a wig before the hair is lost. Choose a supplier who will give you time in choosing and will give advice.

To purchase from a department store can be both embarrassing and, without at least one other person's opinion, could be disastrous. Where advice is not available, there are a few hints in making your choice.

- Most people think that they would prefer a real hair wig, as it is more natural. But that is not so today.
- Modern monofibre wigs are very realistic in their appearance, and they are no longer shiny and unnatural as they used to be.
- Hair wigs are very expensive to buy initially and require regular dry cleaning and setting or blow drying, which adds to the expense.
- Monofibre wigs can be hand-washed, dried overnight and require only a brushing through, as the style is heat-sealed into the wig when it is made.
- You should choose the same volume of hair as you had before. Too much hair will look 'wiggly'. If in doubt, choose a wig with very slightly less hair than you had before.
- You should also choose your own colour or one shade lighter. Remember, if the hair is darker than your natural colour, it will look wrong to your friends, and will draw attention to the problem.
- Remember this: it is the very old wigs, the ill-fitting, the too dark, and those on elderly people who have had them since the days before they went grey, that you see in the street. The good wigs, you never notice.

## **DIET**

Your hair growth is dependent upon your genetic inheritance, your health and (very importantly) your diet. To give hair a good start, diet is very important.

When you are undergoing chemotherapy you may not feel like eating, or you may not feel like eating that which is good for you or your hair growth. That doesn't matter. Over short periods of time, your hair will not suffer. It is continuously poor diets that have a detrimental effect on hair growth.

To start with, you may (depending on your illness) be restricted as to when or what you may eat. Or you may simply have lost your appetite for food.

The following guidance should be of assistance to you:

A well-balanced diet containing fats, carbohydrates, proteins, minerals and vitamins, is necessary for good health and hair growth. In particular, the following foods help hair growth.

### **Protein foods**

Hair is made of a protein substance. Therefore protein is essential to hair growth. Nevertheless, in the western world we eat far more protein than is actually necessary for our health. So small quantities of the following are good for the hair:

Eggs, meat, fish, soya, nuts, cheese, milk, seeds and pulses.

### **Iron foods**

The hair also relies heavily on iron for growth. The following foods contain the iron that we need:

Meat (red meat in particular), eggs, pulses, nuts, dark green leafy vegetables.

### **B12**

B12 is also helpful in absorbing the iron from foods:

Yeast products, bread, Marmite. liver, meat, fish.

### **Vitamin C**

Fresh fruits (citrus fruits in particular), tomatoes, all fresh vegetables (if not over-cooked). (Vitamins are water soluble, so boiling removes some of their food value.)

### **Zinc**

Whole grain foods, peas, eggs, oysters and genuine maple syrup.

## HAIR CARE

When the hair begins to grow again, after the drug has been withdrawn, there are usually worries about caring for it. After all, it is now very much more precious than it ever was before.

As stated above, hair is very strong and your normal hair care routine will ultimately be fine. When the hair is very short, this will not be possible, and you may still wish to wear a wig for some time, until the length of hair is cosmetically acceptable.

Trichologists are often asked if a wig will damage or inhibit growth of the hair. The answer, in general, is no. However, if the fit is not too good, then hair may be rubbed off around the hair line – but this does not prevent those hairs from growing. Occasionally, when the hair begins to grow, the scalp may become 'scaly'. This happens for several reasons, but most commonly because the drugs may affect the skin as well as the hair. It is not uncommon to reach for the medicated shampoo once scaling is apparent, but this is normally not the answer. Medicated shampoos are designed to kill yeasts present in dandruff, or to slow down cell growth where there is an excess in some people. In the case of regrowing hair after drug therapy, the scalp mostly needs moisture not medication.

### Tip

When the hair first appears, and is therefore very short, if there is scaling present, wash the hair and scalp with Aqueous Cream BP. This cleans and moisturises in one go, and is very inexpensive.

### Tip

As the hair becomes longer, choose a very mild shampoo, preferably perfume free, and designed for regular washing. These shampoos will clean the hair only, without the perfumes and other unnecessary additives, which may dry the hair and scalp.

## When can I tint or perm my hair?

In general, once the hair is long enough, providing both hair and scalp are in good condition, these process can be carried out.

## When not to treat chemically

### Scalp

1. When scalp is scaly.  
Reason for not treating: the alkaline nature of most perming and tinting processes will make a dry scalp much more dry.
2. When scalp is sore or irritating.
3. If there are spots or rashes on the scalp.  
Reason for not treating: in the case of 2 and 3 above, application of some products could set up an allergic reaction.

### Hair

1. If hair appears to be drier than usual.
2. If hair is rough to the touch.
3. If the hair appears to be lighter in colour than before. (This happens when the outer cuticle is lifted, due to poor condition. The hair reflects the light, thereby appearing lighter than usual.)  
Reasons for not treating: in all the above three cases, the hair may be more porous than usual. This happens when the hair cuticles are raised, when the hair is in poor condition. The treatment of hair in this condition would result in a rapid absorption of the chemicals used. Hence, perm lotion would work

- too fast, and colours would be soaked up very rapidly, giving a darker and more permanent result, even if the colour was designed as a temporary one.
4. If the hair appears to be breaking, or not growing normally.  
Reason for not treating: any chemical treatment could exaggerate these problems.

As you are naturally keen to care for your hair now that it has regrown, here are a few useful facts about chemical treatments of the hair.

## **MYTHS ABOUT TINTS, PERMS AND OTHER PRODUCTS**

### **'Natural' tints and colours**

The only truly natural colours are those which contain only henna, only walnut or other vegetable dye. They can never lighten the natural colour of the hair. There are many so-called 'natural' products on the market that are not at all natural. They are the same as conventional tints with herbs, etc, added to them. As henna is a very bright red in colour, it is not natural if sold in any other than bright red. Other shades are produced by adding metallic salts, such as lead or copper. These products must not be used either before or after any product which contains peroxide. Therefore, after use of the above, most permanent tints and some semi-permanent tints and all perms should be avoided, as a chemical reaction will take place that will damage the hair.

### **Gentle perms**

There is no such thing as a gentle perm. It is simply that some are stronger than others! The fact is that the hair shaft with its links and bonds (discussed earlier) has to be temporarily broken down. The hair is re-shaped (around the curler) then re-formed by using the neutraliser. This process will do little harm, although it should be remembered that there is an inevitable weakening of the hair shaft, even when carried out correctly. By its very nature a perm cannot be mild, or it would not work!

### **Colours**

It may be useful to discuss the various forms of colours that are available, particularly as, when hair has recently regrown, you will not wish to make mistakes.

#### Temporary colours

These come in the form of shampoos (usually in sachets), sprays, hair paints and in mousses and setting aids. They last just for one or two shampoos. The reason is that the molecules of colour attach themselves to the cuticles on the outside of the hair, and are easily washed away. (Remember that if the hair is very dry or porous, these can penetrate the hair shaft causing them to become more permanent.)

#### Semi-permanent colours

These come in two very different forms. The first type of semi-permanent colour lasts for four to six washes. The product is fairly alkaline in its nature, but is not pre-mixed with any other product. The colour penetrates very slightly into the hair shaft. This allows several shampoos to take place before it gradually fades away due to shampooing.

The other semi-permanent type of colour lasts for 12 to 24 washes. It is mixed with another liquid (the developer) before application. This type of tint penetrates the hair shaft through the cuticle into the cortex. The penetration is not so deep as the permanent tints, and for this reason will eventually fade away, leaving no regrowth line. Hence its label of semi-permanent.

Almost all products for sale in Europe today are harmless to most of us. There is always a possibility that an individual may be allergic to some of them. For this reason, if the manufacturer recommends that a skin test is carried out prior to treatment, always do so.

**So if your hair and scalp are in good condition, and long enough to do something with, do it, and enjoy the results!**