**Hair after Cancer Treatment**

**Basic Facts about Hair**

The cells that produce our hair have the fastest growth rate of all cells in the human body. Each hair goes through an independent cycle of growth, which lasts on average 5 years. Each day we shed approximately 100 hairs as part of this cycle.

**When new hair grows back**

There are some differences between hair and growth rates across different ethnic groups.

<table>
<thead>
<tr>
<th></th>
<th>Caucasian</th>
<th>Asian</th>
<th>Afro-Caribbean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hair Shaft</strong></td>
<td>Oval</td>
<td>Round</td>
<td>Flat</td>
</tr>
<tr>
<td><strong>Thickness</strong></td>
<td>Mid-thickness</td>
<td>Thickest</td>
<td>Finest</td>
</tr>
<tr>
<td><strong>Key Characteristics</strong></td>
<td>Most variable type. Can be straight, wavy or curly</td>
<td>Straight. Most regular type</td>
<td>Curly, tight coiled. The shape hinders the spread of natural sebum across the hair, leaving it fragile and easily damaged.</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Blonde, brown, red</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td><strong>Rate of Growth</strong></td>
<td>1.2cm/month</td>
<td>1.3cm/month</td>
<td>0.9cm/month</td>
</tr>
<tr>
<td><strong>Density of Follicles</strong></td>
<td>Most dense</td>
<td>Least dense</td>
<td>Mid-density</td>
</tr>
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</table>
On average our hair grows around 1 cm per month (dependent on ethnicity). Healthy hair is actually rather strong; each hair can withstand up to 100gm. Made up of 3 layers, the outer layer (the cuticle) offers a protective function. The cuticle can be damaged by daily combing and brushing, as well as environmental influences, e.g. the sun.

Hair is composed partially from a special protein called keratin. When we colour hair, it is the protein in hair that the colour pigments attach to and so it is essential to have the correct protein levels. The rest of our hair is made up of water, fatty acids and other trace elements.

Hair and Cancer

Cancer cells also reproduce rapidly. Chemotherapy and radiotherapy are designed to target these fast growing cells, which is why our hair can be affected. Radiotherapy causes hair loss only in the area being treated.

The hair that grows back following treatment for cancer can be weak due to a lack of protein. With chemotherapy, your hair may start to grow back before the end of the treatment. You may have a full head of hair between 3-6 months following the end of your chemotherapy. There may be a number of differences between your new hair and your hair before treatment. For example, the hair often grows back very fine at first and may be a different texture, colour and possibly curly, even if it was previously straight. In most cases, your hair will revert over time back to its pre-cancer treatment condition and colour.

With radiotherapy, your hair re-growth may be slower than with chemotherapy; it usually takes 6-12 months before you have a full head of hair and it may grow back finer than before the treatment. Some people’s hair never grows back following radiotherapy or it may grow back patchy. The process of re-growth can be a lot slower if you tend to wear your wig or cover your scalp 24 hours a day. If your new hair is exposed to daylight it tends to speed up the growth of your hair after treatment.
If you do not lose your hair through treatment

Some people do not experience hair loss throughout their cancer treatment.

We do not recommend that hair is coloured during treatment. However, we recognise that some people will want to colour their hair and therefore we offer the following advice:

• Advise your hairdresser of your medical treatment so they can allow for any influence this might have on the colour result.

• A strand test is also advised.

• A skin sensitivity test should always be carried out, according to the manufacturer’s instructions.

• If there is any sign of a reaction – redness, soreness, itching, irritation, etc – the colour should be immediately washed off the hair.

• Use foiling techniques to keep the colour from coming into contact with the scalp.

• Avoid colours containing harsh chemicals, such as ammonia or resorcinol.

• Choose a semi-permanent colour and so avoid oxidative pigments (PPDs/PTDs).

• If using permanent colours, avoid the darker shades, as these have higher percentages of PPDs/PTDs (subject to hair analysis results).

Please note, due to the effect of the chemotherapy drugs on the hair, the end colour result may be affected. You may not end up with the exact colour you were expecting.

Caring for Hair

As we have discussed, hair growing back after chemotherapy or radiotherapy treatment is often weak and low in protein. Therefore it is recommended to avoid strenuous or harsh brushing. Use the hairdryer on a gentle heat setting, rather than high heat.

In addition, the condition of the hair may be improved through regular cutting by removing the damaged hair and promoting positive hair regrowth.

Thinning Hair

Thinning hair needs gentle treatment. Avoid vigorous or strenuous brushing and combing. Paddle brushes often include nodules on the bristles, which offer gentle massage of the hair and scalp. This encourages sebum production and stimulates blood flow. There are also massage brushes available for use during shampooing. These offer a gentle scalp massage, as well as helping to distribute the product across the head.
Avoid shampoos containing harsh sulphates. Instead look for ones with natural plant oils (eg: Jojoba and Sweet Almond Oil), which work in a similar way to the naturally occurring oils from our scalp and condition the hair. Other key ingredients are UV filters, to protect the hair from harmful environmental influences and anti-oxidants, (eg: green tea and fennel), which help to prevent damage. Remember to advise your hairdresser of your treatment, so they can recommend the most suitable products for you to use.

When using hairdryers, use a low heat setting and minimise use of hair straighteners and other styling appliances, as these operate at high temperatures. Regular trims may help to stimulate positive hair regrowth. Also, avoid tight hair-up styles, to prevent stress on the hair.

**The Scalp and Hair Re-Growth**

Healthy hair requires a healthy scalp. Hair needs the correct amount of nutrients which are supplied through the network of vessels and nerves in the scalp and which stimulate growth. Your scalp can be very dry, sensitive and scaly following chemotherapy. There are special treatments available for scalps. These treatments deliver nutrients to the scalp and protect it from harmful environmental influences.

They can also help to repair and moisturise your scalp, reducing irritation and inflammation.

Some ingredients used in such scalp treatments include:

- **Biotin, Folic Acid, Niacin, Thiamine HCL, Pantothenic Acid (Panthenol):** B vitamins, required for healthy skin, hair and nails.

- **Chamomile, Aloe Vera, Geranium, Rosemary extracts:** anti-inflammatory, anti-septic and soothing agents.

- **Fennel, green tea and tocopherol (vitamin E):** anti-oxidants, which help to prevent damage caused by unstable molecules.

Until such time that your hair is long enough to shampoo, an aqueous cream may be suitable for cleansing and moisturising the hair and scalp. Once your hair is long enough, you can begin to use a gentle shampoo and conditioner. Selected ingredients that can have a positive influence on hair and scalp include the following:

| Proteins, for example, Hydrolysed Wheat Protein, Hydrolysed Keratin and Wheat Amino Acids are ingredients in some hair conditioners. They help to build up the strength and stability of the hair. The structure of these proteins is similar to that of naturally occurring keratin in our hair. |  |
Plant oils, such as Jojoba and Sweet Almond Oil, are popular ingredients. They work in a similar way to the natural occurring oils from our scalp (sebum), form a thin film over the hair’s cuticle and condition and soften the hair. This can improve the feel, suppleness and shine of the hair. Dry hair lacks sebum and can be helped by using products which contain Pantothenic Acid (also called Panthenol). This is used in both rinse off and leave in hair conditioner.

Sunflower Seed Oil contains a high content of Vitamin E and may give other beneficial properties when applied to skin and hair. It can also protect from UV light. UV filters are important to help protect the hair from harmful environmental influences, such as damage from the sun, pollution, etc.

Anti-inflammatory, anti-septic and soothing agents are useful for sensitive scalps, for example Aloe Vera, Geranium, Rosemary, Bergamot and Chamomile extracts.

Conditioning and moisturising agents include Panthenol (Vitamin B12) and Comfrey extract.

Surfactants are the cleansing agent in a shampoo. They are partly water soluble, partly oil soluble and increase the spreading and wetting properties of a liquid. They are often the foaming agent in shampoos. Disodium Cocoamphodiacetate is an example of an extremely mild surfactant made from coconut derivatives.

(The above information is endorsed by the Institute of Trichologists)

Colouring Hair Post-Cancer Treatment

Although there is little evidence-based research in this area, current medical guidance suggests waiting six months before permanently colouring your hair. This is due to scalp sensitivity and the fragility of the new hair growth. Even after a suitable period of time, a hair professional should always do a skin sensitivity test to highlight any potential allergic reaction to the colour, as well as doing a wet stretch test on your hair to check strength and elasticity before colouring. Finally, a strand test to check the colour result should be completed.

If you are distressed by the colour of your new hair, professionals advise that temporary or semi-permanent hair colours be used until the hair becomes stronger. If using permanent colours, avoid the darker shades, as these have higher percentages of pigments (PPDs and PTDs).
It is recommended to use off-the-scalp (foiling) techniques to begin with, to stop the colour from coming into contact with the scalp. Also, avoid aggressive chemicals in hair colours, such as ammonia or resorcinol.

Before you begin to colour your hair, consult a hair professional, who will be able to assess the strength and condition of your hair and advise any specific products you should use. It is essential to note that colouring should not take place if your hair and scalp are brittle, excessively dry or flaky, irritated or breaking. Colouring must only be carried out once your scalp and hair are both healthy and able to go through the colouring process without damage or causing you any discomfort. It is very difficult to achieve a satisfactory colour result on hair which is not in good condition and different results achieved can be due to hair in different condition. It is important that you seek expert stylist advice prior to any attempts to colour your hair.

In the initial period following chemotherapy, hair may not respond to colour in the normal way and a trained hair professional will draw this to your attention. The final colour result can be affected by many things such as medication, condition of hair and previous colouring. A professional colourist, who is familiar with these considerations, will be able to advise you.

<table>
<thead>
<tr>
<th>Technique</th>
<th>Pigment Type</th>
<th>Effect on Hair</th>
<th>Example Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary</td>
<td>Direct Pigment</td>
<td>Coats the hair and lasts 1 wash</td>
<td>Colour mousse</td>
</tr>
<tr>
<td>Semi-permanent</td>
<td>Direct Pigment</td>
<td>Coats the hair and lasts 6-8 washes</td>
<td>Semi-permanent colour</td>
</tr>
<tr>
<td>Demi-permanent</td>
<td>Oxidative Pigment</td>
<td>Penetrates the cuticle and lasts more than 8 washes</td>
<td>Permanent colour with a low level of peroxide</td>
</tr>
<tr>
<td>Permanent</td>
<td>Oxidative Pigment</td>
<td>Changes the existing colour in the hair</td>
<td>Permanent colour with medium to high level of peroxide</td>
</tr>
</tbody>
</table>
Hair colour has been extensively tested to ensure it is safe to use under the conditions stated by the manufacturer. However, it is possible to be or become allergic to one or more of the ingredients used in hair colour. Other factors which can cause an adverse reaction to hair colour include tattoos, permanent make-up and medication.

If any of these apply to you or you have experienced a previous reaction to hair colour or have other allergies, always advise your stylist. A skin sensitivity test should always be carried out before colouring.

Relaxing/Straightening Hair Post-Cancer Treatment

The relaxing and straightening of hair is only recommended for hair that is in good condition and of a suitable length. The repeated combing of the hair during the process can put it under a lot of stress and particularly hair that is weak in protein can be prone to breaking under these conditions. Damaged hair should be treated according to the results of the wet stretch test until it is in a suitable condition for relaxing/straightening.
The straightening of Afro Caribbean hair is not advised at all until the hair and scalp are fully recovered. As with colouring, relaxing or straightening should not take place if the hair and scalp are brittle, excessively dry or flaky, irritated or breaking.

Benefits and Side Effects of Hair Extensions and Weaving

Hair extensions and weaving can offer some temporary benefits, including giving hair more volume. For individuals with healthy hair, extensions offer an alternative to thinning hair and hair loss. However, for damaged hair this is not generally encouraged. Many individuals do not like the worry that accompanies temporary hair extensions. These extensions can fall out easily, must be removed before bathing or swimming, and can be blown off in the wind. However, depending on the method you choose, hair extensions and weavings can also lead to further hair loss or thinning. When the weave is done too tightly it can pull on existing hair and lead to premature shedding. Weaving can also damage hair follicles causing breakage at the point of attachment. To help reduce the chance of damage or shedding, professional stylists should only apply extensions and proper care should be taken of existing hair and extensions as long as they are attached. As this technique can be damaging to existing hair strands, individuals need to think about the risk of this procedure. If you have very little hair, or excessive thinning, extensions may increase the risk of further hair loss.

We hope that you have found this information helpful. If you have further queries regarding hair loss that you would like to discuss, please do contact us.

Helpline: 01798 812547
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