

**GOVT.POLYTECHNIC,  
BBSR  
BEAUTY CULTURE  
DEPT.  
HAIR DRESSING-I**

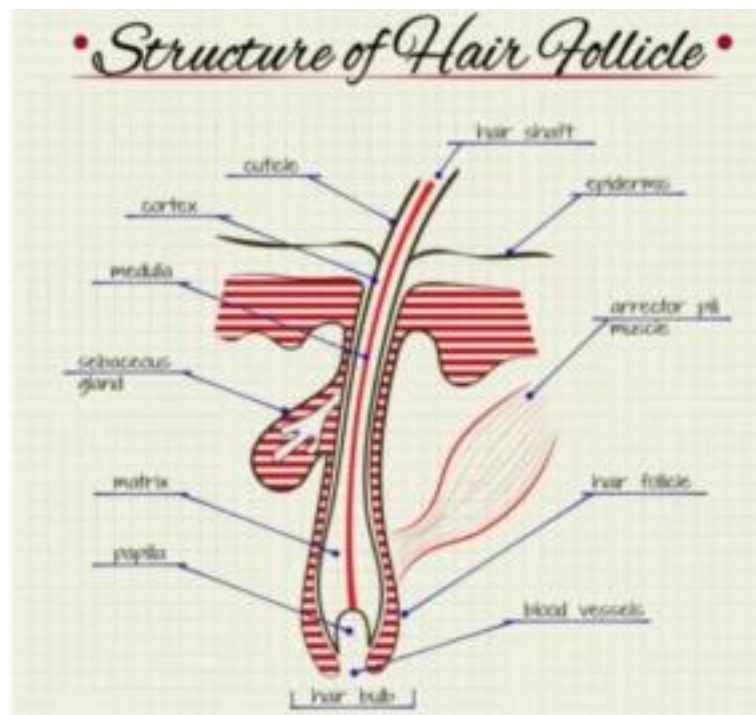
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# Chapter 1 Structure of Hair

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## Structure of Hair



Hair is an appendage of the skin. It is a slender threadlike outgrowth of the skin and scalp of the human body. There is no sense of feeling in the

hair on the head or body due to the absence of nerves in the hair.

The study of hair technically called **trichology** is of paramount importance to the cosmetologist. The chief purpose of the hair is adornment and protection of the skull from heat and injury.

To keep the hair healthy and beautiful, proper attention must be given to its care and treatment knowledge and analysis of the customer's hair, factful suggestions for improvement and sincere interest in maintaining its health and beauty should be the concern of every cosmetologist.

Abusing the hair by harmful cosmetic applications or faulty hair treatment can cause the head structure to become weakened or damaged.

### Composition of the hair

Hair is chiefly composed of a protein called keratin which is present in all horny growths such as nails, claws, and hoofs. The chemical composition of hair is :

1. Carbon – 50.56%

2. Hydrogen – 6.36 %

3. Nitrogen – 17.14%

4. Sulphur – 5.0 %

5. Oxygen – 20.35%.

The chemical composition varies with the color of the hair space. Light hair contains less carbon and hydrogen and more Oxygen and sulphur.

Dark hair contains more carbon and less oxygen and sulphur.

Dt. 9/12/2020

### Division of the hair

Full-grown hair, as found on the human body, is divided into two principal parts, the hair root, and the hair shaft.

The hair root is a portion of the hair structure found near with the skin surface. This is a portion of the hair and closed within the follicle.

The hair shaft is the portion of the hair structure extending above the skin surface.

### Structure associated with the Hair root

Structures closely associated with the hair root are the hair, follicle,

hair bulb, and hair papilla

The hair follicle is a tube-like depression or pocket on the skin or scalp and encasing the hair root for every hair. There are follicles that vary in depth, depending upon the thickness and location of the skin or scalp.

The bottom of this pocket contains finger-like projections called papilla, from which new hair develops.

One or more oil glands are attached to each follicle.

These funnel-shaped mouths of hair follicles are favorite breeding places for germs and for the accumulation of sebum and dirt.

The follicle does not run straight down into the skin and skull but is set at an angle so that the hair above the surface has a natural flow to one side. Full stop this natural flow is sometimes called as headstream of the scalp since the angles run according to areas, by which natural hair emerges from the scalp slanting in a given direction.

The hair bulb is a thickened club-shaped structure forming the lower part of the hair root. The lower part of the hair bulb is hollowed out to

fit over and over the hair papilla.

The hair papilla is a small cone-shaped elevation found at the bottom of the hair follicle that fits in the hair bulb. Within the papilla, there is each blood vessel that helps in the growth and regeneration of the hair. It is through the papilla that nourishment reaches the hair bulb. Papilla has the ability to produce hair cells. It is known as the “mother” or productive organ of the hair. As long as the papilla functions, the hair will grow. New hair cells can't be formed nor can the hair grow without the papilla. If the papilla is healthy and well-nourished it will produce new hair.

### Structure connected to Hair follicle

The arrector pili is a small involuntary muscle attached to the underside of a hair follicle, fear or cold contracts it causing the hair to stand up straight and giving the skin the appearance of “goosebumps”. Eyelash and eyebrow have a lack of an arrector pili muscle.

Sebaceous or oil glands consist of little secular structures situated in the dermis. Their ducts are connected to hair follicles; secretion of oily substance sebum,

which serves to give luster and pliability to the hair and keeps the skin surface soft and supple. However, sebaceous glands frequently become trouble makers. By overproducing they bring on a common form of oily dandruff and can be an important contributing cause of hair loss or baldness

Sebum- The production of sebum is influenced by 5 factors, some of which are subjected to personal control namely,

1. Diet
2. Blood circulation
3. Emotional disturbances
4. Stimulation of endocrine glands
5. Drugs

## Hair Shaft

The structure of the hair is composed of cells arranged in 3 layers.

1. Cuticle-It is the outside horny layer, is composed of transparent, overlapping, protective scale-like cells pointing away from the scalp and towards the hair ends chemical solutions raise these scales so that solutions can enter into the hair shaft. 2. Cortex-It is the middle layer or inner layer, which gives strength and elasticity to the hair, is made

up of cells. This layer contains the pigment which gives the hair its color.

3. Medulla—It is the innermost layer is referred to as pith or narrow of the hair shaft and is composed of round cells. The medulla may be absent in fine or very fine hair.

## Chapter 2 Shampoo

Dt. 19/12/2020



The shampoo is a hair care product used for washing hair. It is usually in liquid form chemical or organic ingredients that are effective in cleaning or removing dirt from the hair. This shows the Importance of shampoo in hair care because it can be formulated for many important aspects of hair care.

2 A solid black rectangular box used to redact the student's name.

- a. Shampoo keeps your scalp clean.
- b. Shampoo can help with the treatment of oily hair.



- c. Shampoo can help with hair loss.
- d. It can improve your hair hygiene.

Dt. 21/12/2020

➤ If you don't shampoo the sebum can quickly build up and make your hair oilier than you like.

➤ Sebum also attracts microfauna that can cause dandruff and other hair issues. ➤ To clean your scalp from sebum as well as any residue from other hair products shampooing is important.

➤ Shampoo can be used in cleaning out excess oil and dust that may be trapped in the hair. ➤ Specifically, shampoos that have been formulated to take care of oily hair without washing the condition of the scalp.

- Dry scalp is another big problem that some people have to deal with because a sebaceous gland in the skin doesn't have the ability to create enough oil.
- Due to dry scalp, our head produces dandruff which can be trapped by using a special shampoo.

[REDACTED]

➤ Hair loss can occur for a few reasons both dandruff and psoriasis can thin your hair and increase of DHT ( dihydrotestosterone ) hormone can shrink hair follicles.

➤ There are shampoos formulated to deal with that issue.

➤ Generally, typical hair loss treatment shampoo can come with

medication. Contents

Most shampoos are detergents (sodium Laureth sulfate) through the various chemicals like stabilizers, preservatives, condition, perfume, and color are added.

Type

There is a good range of products tabled as for oily, dry and normal hair.

O [REDACTED]

This shampoo contains a high concentration of detergent. These shampoos are based on an ion surfactant. The higher concentration of detergent does not hamper the natural oil hidden in the scalp.

D

These shampoos are mildly concentrated with detergent which is based on non-ionic surfactants it leaves behind a constant residue of oil because this is beyond the reach of surfactant.

Normal hair

The pH of shampoos should be natural or slightly acidic. The acid dissipated protein on the surface which acts as a protective layer.

### Additives

- The shampoo contains natural additives like egg, henna, beer, collagen, chitin, etc.
- Egg, beer, and henna make the hair long and give body to the hair and it has a conditioning agent.
- Broken down gelatin gives additional body and conditioning to the hair. It may also repair split ends.
- Amino acids and panthenol give body to the hair.
- Extract of henna is another ingredient being used in shampoo which gives body and glows to the hair without any coloration.

S

1. Before shampooing detangle your hair by brushing hair thoroughly.
2. Select the shampoo according to your hair type and condition of

hair. 3. Take a small quantity of shampoo at a time and use finger tips to apply making protection on the hair.

4. With circular motion and only using finger tips make a lather on your scalp. 5. Don't use your nails which can cause abrasions on the scalp.

6. Give importance to the hairline.

7. Use warm for shampooing, by this grease and dust comes out easily. 8. Wash the shampoo thoroughly and make sure that no residue remains on the scalp. 9. Put towel on the head for 5 to 10 mins by which the moisture will return to the hair. 10. Towel dry your hair using fingertips by using circular motion.

## Rinse

After shampooing the residue should be cleaned thoroughly and an acid coat should be left behind to make the hair look healthy and luxurious.

## Purpose of Rinse

1. Hair is electrically charged immediately after shampooing it is easily tangle, becoming unmanageable.
2. The rinse reduces the friction between hair fibres and increases surface

conductivity. So the electric charge lasts and in air becomes manageable.

### Effect of Rinse

- The degradation of charge in hair is caused by combing, brushing, washing and drying.
- The scalp of the hair cuticle are damaged.
- The rinse coats the hair helping to flatten and smoothen the scalp. Thus, softening the hair and gives a shine and body.



Rinse can be of 3 types:

1. Homemade/herbal rinse
2. Cream rinse
3. Color rinse

### Homemade rinse

- Lemon juice, vinegar or tea water are often considered good.
- Most of the shampoos are alkaline so that acid neutralises the residue effect of the shampoo and make a many form acidic coating on the hair.

### Cream rinse

- The active ingredient of the most creams are ionic surfactant.

- This cream doesn't penetrate the outer layer of the hair shaft they mainly coat the hair helping to flatten and smooth the scalp of the hair which temporarily fill in the broken patches in the cuticle just like those cover cracks in the well. This softens the hair and gives it shine and body.

### Color rinse

• The coloring products available can be classified as temporary colorants are water thin solution which can be applied or sprayed on the hair to change the natural color. • It makes a film of color on outer cuticle the effect only lasts till next shampoo. P [REDACTED]

- To give the hair a new look.
- To blend the color with the natural color of hair.
- To give the hair a dramatic effect.

D [REDACTED]

- Being water soluble it can be washed off by rain.

### Semi-permanent Dye

Semi-permanent dyes can penetrate cuticle to reach the cortex without changing the structure of hair. Most semi-permanent dyes are shampoo based and lather is kept for specific period of time, then rinsed off. The effect lasts for 4 to 5

shampoos and gradually fades away. Purpose

- In semi-permanent dyes a good range of color is available.
- For fashion sake one can have different looks every now and then.
- People having grey hair can blend it with dyes.

D

It is a repeated process which one has to color in every month and so.

### Permanent Dyes

Permanent dyes can be categorized into 2 types.

A.

The most common natural permanent dyes is henna. Though it gives an orange-red color to hair, we can alter the color by adding coffee, amla, etc.

- Henna is a super conditioner.
- It gives the hair body and bounce.
- It can arrest the greying rate.
- Dandruff can be brought under control by the antifungal property of henna.

**PARA-PHENYLENE-DIAMINE** is the major component of all the synthetic permanent hair dyes. The dye penetrated cuticle right into the cortex cell. The chemical change offers there by changing the color of the hair.

### Purpose

The color is permanent and cannot be removed by shampooing.

Subsequent dyeing is necessary to color the new hair growth and not the fading of color. D XXXXXXXXXX

1. PARA-PHENYLENE DIAMINE causes allergic reaction so its necessary to do a patch test before using dyes.
2. Hair dyes also weakens the hair protein and increases the porosity of the hair.
3. Reaction can occur after several hours, after use or after several applications. Sometimes the reaction may be very painful.
4. Some people develop breathing difficulty.
5. Prolonged use can result in darkening of the skin, face and neck.

### Patch Test

The patch test must be given before 24 hrs of application. The dye used for the patch test must be of the same shade and mixture. As the dye intended to be used for the hair color(dye). Procedure

1. Select test area, either behind the ear extending partly into hair line or an inner fold of elbow.
2. Wash test area with mild soap and dry the area with cotton.
3. Prepare test solution as per the direction the proportion of the dye as developer but in smaller quantity.
4. Apply on the skin about the skin of a coin.
5. Examine test area for either negative or positive reaction. A negative skin test will show no sign of inflammation.



A negative skin test is recognised by the presence of redness, swelling, itching, blisters. S [REDACTED]

1. Give patch test before 24 hrs of application.
2. Don't apply dye or tint on the scalp.
3. Use clean applicator, bowls, brushes, combs and towels.
4. Don't brush the hair roughly or vigorously prior to application time.
5. Read manufacturer's direction.
6. Use plastic or glass bowls for mixing the dye.
7. Don't mix dye long before getting ready for application of dye.
8. Discard the left over dye.
9. Suggest conditioning treatments for dyed hair.
10. Use a mild shampoo.
11. Use lukewarm water for removing extra color.
12. Don't allow the dye to come in contact with the patron's(client) eyes.
13. Fill out a dye record card for each application.

S [REDACTED]

### Definition

The word massage comes from the Arabic word 'Masa' meaning 'to touch' or 'to stroke'. Massage is scientific method of manipulating the body by rubbing, kneading, tapping or stroking with hands and fingers.

Before Hippocrates, the father of medicine that is 6th century B.C.

that Greeks were using massage as a cure of ailment.

### Area of Massage

The cosmetologist is limited to certain areas of body massage mainly:

1. Scalp
2. Face, neck and shoulder.
3. The upper chest and back.
4. Hands and arms.
5. Feet and legs.

### Benefits

Massage involves the application of external manipulation of the body. To master technique requires a knowledge of anatomy and considerable practice performing various movements. For thousands of years people have enjoyed the benefits of massage. Quick gentle pressure in the correct direction provides the following benefits:

1. Relaxation of the nerves.
2. Relief from body tension.
3. Increase in blood circulation.
4. Increase in lymph circulation.
5. Contraction of muscles for toning.
6. Stimulation of skin gland activity.

7. Relief from muscle pain.
8. Calming and relaxing for the client.
9. Creams are used.

## Methods

Every massage treatment combines one or more of the basic movements. Each manipulation is applied in a definite way for a particular purpose. The result of a massage treatment will depend on the amount of pressure, direction of movement on the duration of each type of manipulation. Direction of movement is from the insertion of the muscle towards its origin. **B**

1. **P**

Petrissage is a technical name for kneading movement. This rolling and gentle squeeze of the muscles under the skin increases circulation of blood and lymph and stimulates muscles for a toning effect. This movement is usually limited to back, shoulder and arm massage. Pulling a form of petrissage is usually even with light pressure

2. **E**

Effleurage is a light continuous stroking . It is used for relaxing and soothing. Effleurage increases the circulation of skin surface. Surfaces of the palms is used over large surfaces and pads of the fingers are employed over small surfaces. Effleurage is frequently applied over the forehead, face, scalp, back,

shoulders, neck, chest, arms, and hands for a soothing and relaxing effect.

### 3. Tapotement

This form of massage is the most stimulating. It increases blood circulation and promotes muscle contraction. It involves tapping, slapping, and harking movements. In tapping, the fingertips are brought down against the skin in rapid succession. The finger must be flexible to create an even force over the area being treated. In slapping movement, the palms are in contact with the skin in a light, firm, and rapid slapping movement, one hand follows the other.

Hacking movement employs the wrist and edges of the hands. Both the wrist and fingers must move fast, light, firm, flexible motion against the skin in alternate succession.

### 4. E

Friction is a circular deep rubbing movement. Friction greatly increases circulation and is used most commonly on the scalp, arm, and hands. It increases the glandular activity of the skin.

Circular friction movements are usually employed on the scalp, arms, and hands. Light circular friction movements are usually used on the face and neck.

Wringing is a vigorous movement that is used mainly on hands, arms,

and legs. The cosmetologist's hands are placed a little apart from both the sides of the arms or legs, while the hands work downward. The flesh is twisted against the bones in opposite direction.

5. R 

These are required in the case of arms and leg manipulation. Both hands of cosmetologists are active as the flesh is twisted down the arms in the same direction. The chucking movement is accompanied by grasping the flesh firmly in one hand and moving the hand up and down along the bone, while the other hand keeps the hand or leg in a steady position.

6. 

The movement is accompanied by rapid muscular contractions in the arm of the cosmetologist while the ball of the fingertips is pressed firmly on the point of application. It is a highly stimulating movement we sparingly and never exceed a few second duration on any one spot.

  
1. Towel

2. Plain Comb

3. Tail Comb

4. Small Bowl

5. Oil

## 6. Cotton

### Procedure

1. Make the client sit on a comfortable chair.
2. Drape a towel on the shoulder.
3. Make the hair tangle free using the wide tooth comb.
4. Take the required amount of oil in a small bowl.
5. Heat the oil a little bit.
6. Make parting using a tail comb and apply oil dipping a swab of cotton.
7. Apply oil all over the scalp.
8. Using the pad of the fingers different strokes should be given.
9. Soothing movements is given in between the stroke.
10. All the movements should be upward.
11. There should not be any jerk on hard pulling and tugging.
12. Special attention should be given to the hairline and the tips of the hair.
13. To end off the massage tapotement movement is applied.