

ACKNOWLEDGING THE HAIR SCIENCE

-GOING SCIENTIFIC WITH HAIR

INTRODUCING HAIR

- ▶ Hair is a protein filament that grows from follicles found in the dermis, or skin.
- ▶ It is a thread-like outer growth on our body.
- ▶ The Scientific study of hair is called “Trichology.”



COMPOSITION OF HAIR:

- ▶ Hair is chiefly composed of a protein called “KERATIN”. The chemical composition of hair varies with its color.
- ▶ Proteins, raw elements, **amino acids** and bonds work together in forming hair fiber.
- ▶ **Amino acids**, the building blocks of **protein**, are made up of COHNS elements, (**Carbon**, Oxygen, Hydrogen, Nitrogen and **Sulfur**).
- ▶ The average hair is composed of:
 - Carbon: 50.65%
 - Hydrogen: 6.36%
 - Nitrogen: 17.14%
 - Sulphur: 5%
 - Oxygen: 20.85%

FORMS OF HAIR:

Straight Hair

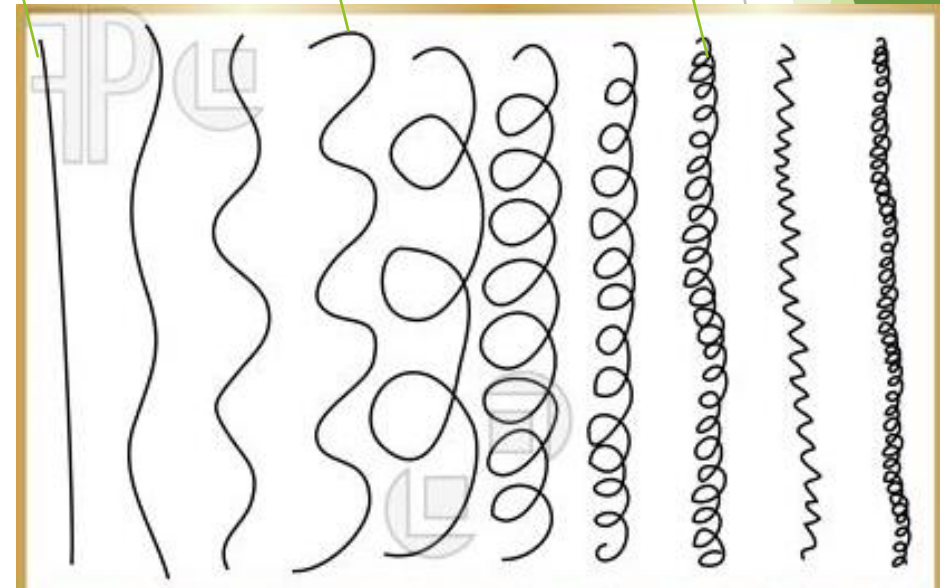
Wavy Hair

Extra Wavy Hair

Straight Hair

Wavy Hair

Extra Wavy Hair

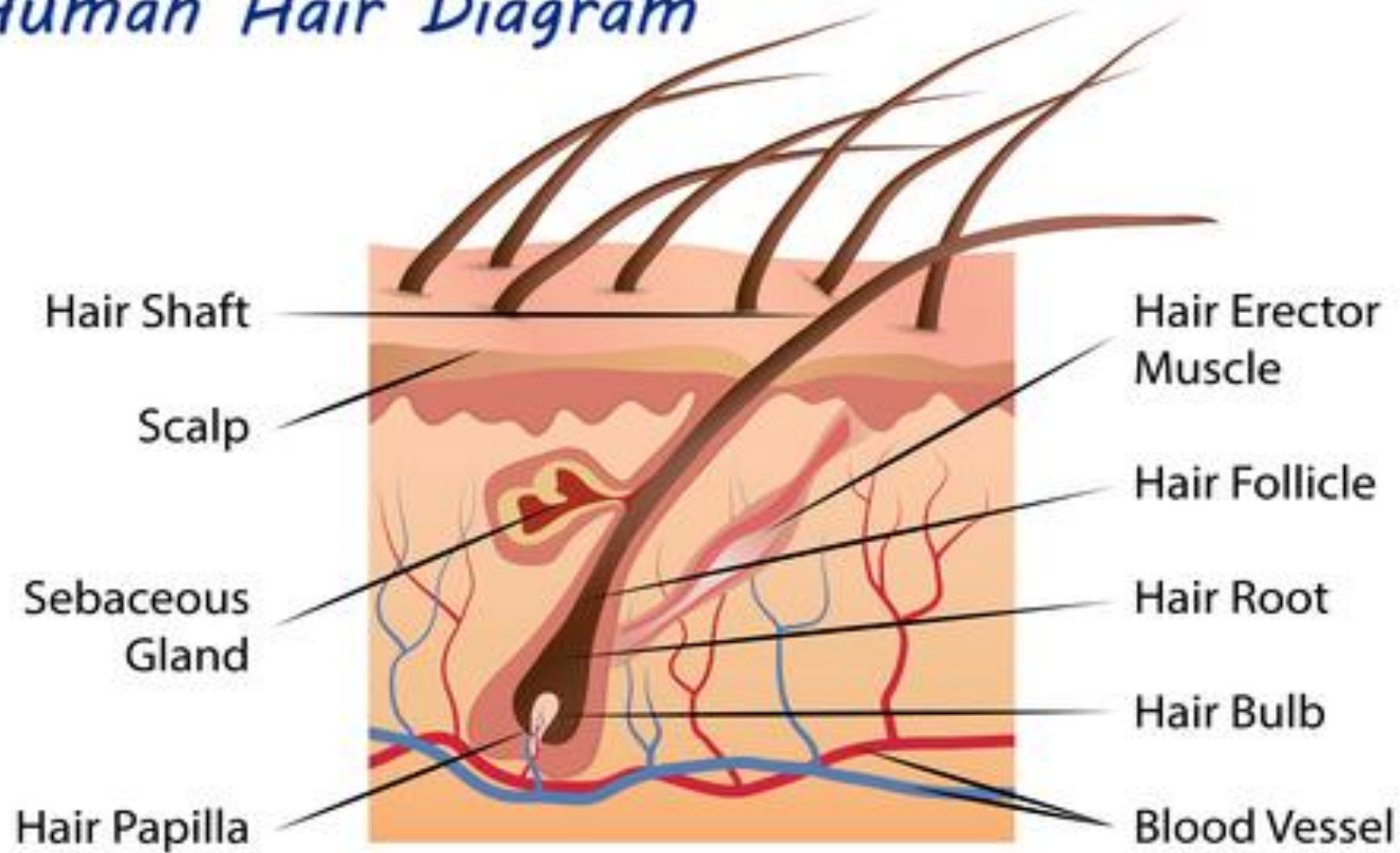


CHARACTERISTICS OF HAIR:

- ▶ In describing hair, we usually speak of its texture, elasticity, porosity, and density:
 - 1) Texture: The texture of hair may be coarse, medium, fine, or very fine. This is usually determined by the diameter of the hairs.
 - 2) Porosity: It refers to the ability of the hair to absorb moisture. Hair that is very porous takes less time to treat than does less porous hair.
 - 3) Elasticity: It refers to the ability of hair to stretch beyond its normal length and then spring back.
 - 4) Density: It refers to the amount of hair per square inch on the scalp. The hair are said to be thin, medium or thick depending upon how much hair there is.

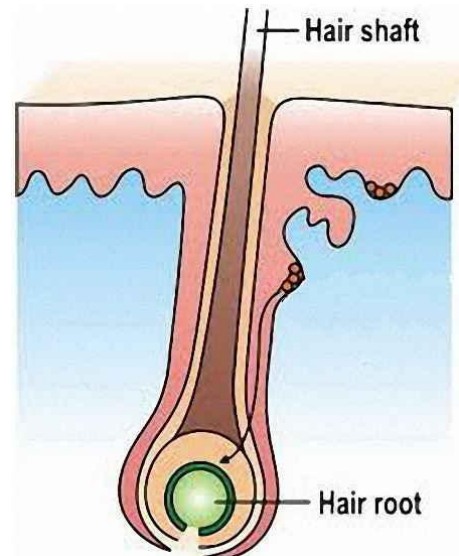
STRUCTURE OF HAIR:

Human Hair Diagram



DIVISION OF HAIR:

- ▶ There are two main divisions of Hair-
 1. Hair Root: It is that portion of the hair structure located beneath the skin surface. This the portion of the hair enclosed within the follicle.
 2. Hair Shaft: It is that portion of the hair structure extending above the skin surface.

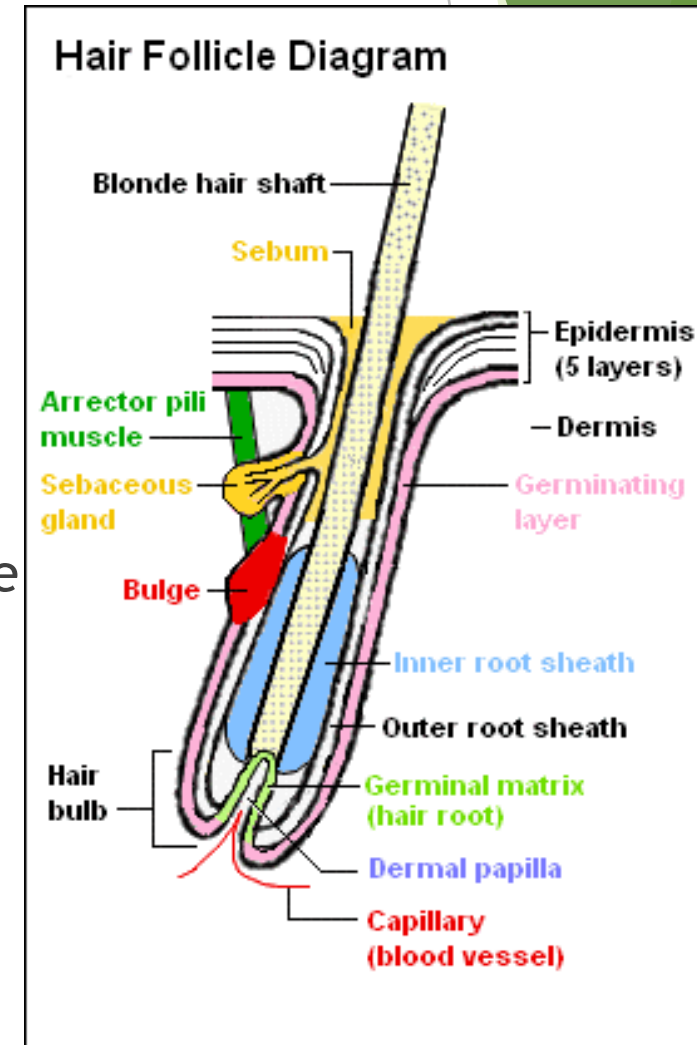


STRUCTURE ASSOCIATED WITH HAIR ROOT:

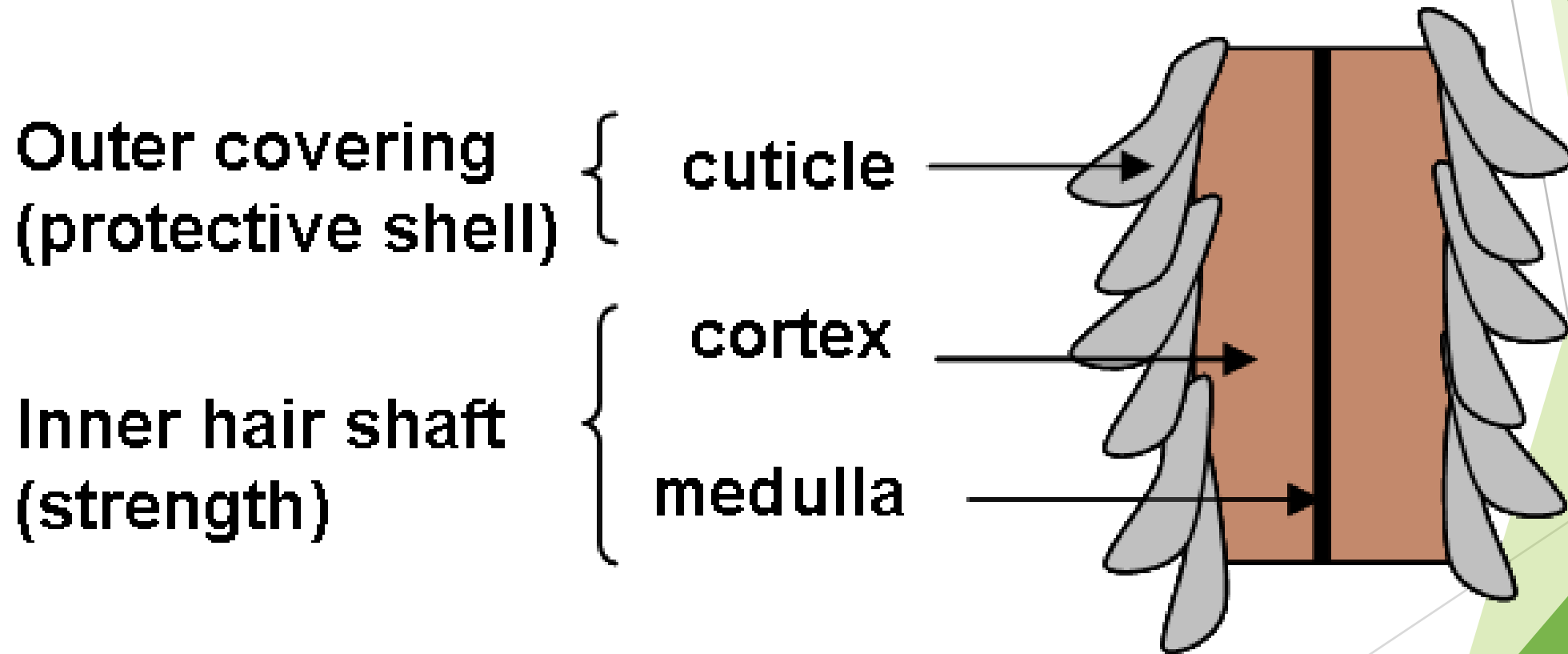
- ▶ **Hair Follicle:** It is a tiny tube-like structure in the skin which is like a test tube that holds the hair root. Every hair on your body has its own follicle.
- ▶ **Papilla:** It is found at the base of the follicle. It is well supplied with the blood vessels and nerves. It is through the Papilla that nourishment reaches the Hair Bulb. Papilla contributes to the growth and regeneration of Hair and it has the ability to produce hair cells. As long as the Papilla functions, the hair will grow.
- ▶ **Hair Bulb:** It lies just above the papilla and fits over it tightly and is nourished by the papilla.

STRUCTURE ASSOCIATED WITH HAIR FOLLICLE:

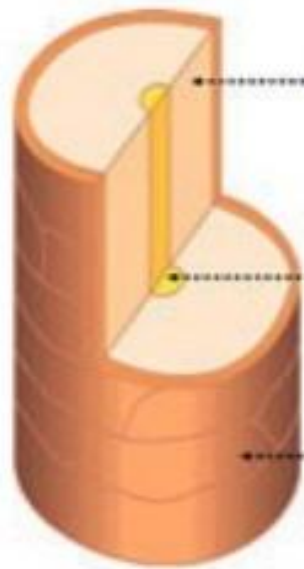
- ▶ **Arrector Pili Muscle:** It is a small involuntary muscle attached to the underside of Hair Follicle. Fear or cold contracts it causing the hair to stand up straight giving the skin the appearance of “gooseflesh”.
- ▶ **Sebaceous Gland:** It consists of little sacular structures situated in Dermis. Their ducts are connected to hair secretion of oily substance. Sebum gives luster and pliability to the hair and keeps the skin soft and supple.



LAYERS OF HAIR SHAFT



CUTICLE, CORTEX AND MEDULLA:



CORTEX 😊

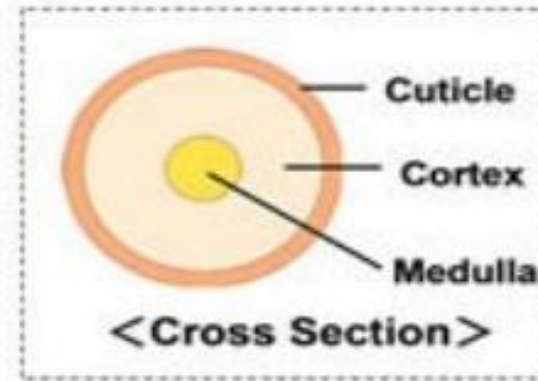
- Contains natural pigment (melanin) and moisture

MEDULLA 😊

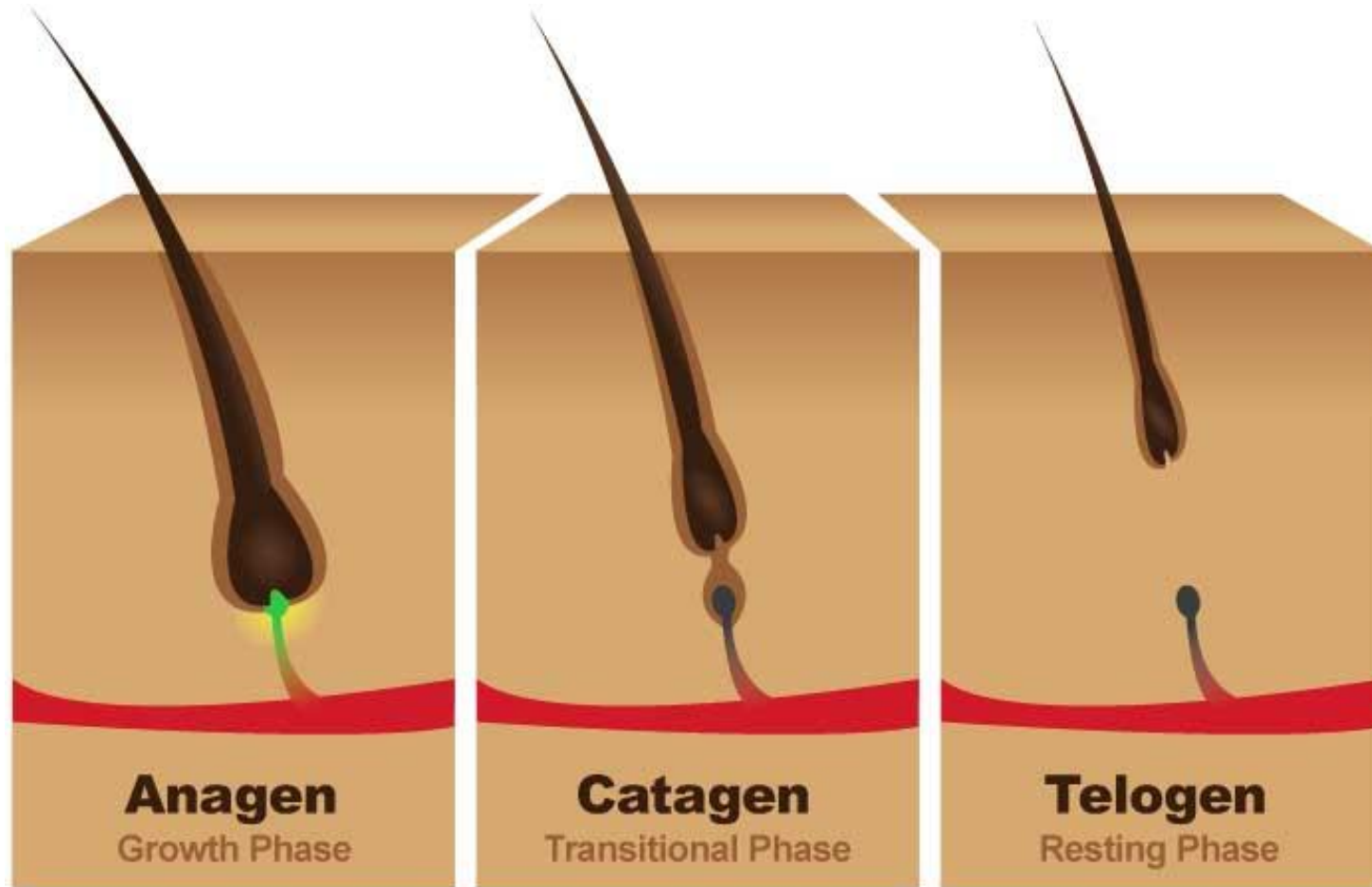
- Core of hair
- May even be absent

CUTICLE 😊

- Outer layer of hair shaft (Over-lapping keratin cell)
- Works as **protective scale**
- Cuticle is **transparent**



HAIR GROWTH AND REGENERATION:



Hair Growth Cycle

STAGES OF GROWTH CYCLE:

- ▶ Scalp hair growth follows a cycle which has three stages:
 1. Anagen: It is the first stage known as Active stage because hair grows actively in this stage. In this phase, scalp continues to grow anywhere from 2-6 years.
 2. Catagen: At the end of anagen stage, hair growth slows down, the follicle shrinks, the bulb thickens and slightly lifts from the papilla. This stage is also called Transitional stage.
 3. Telogen: This is the last stage which is also called resting phase. In this stage, papilla goes for rest for about 3 months and this stage ends when a new hair forming from the papilla pushes the old hair up and out. In this stage old hair is replaced by new hair. That's why this stage is also called Replacement stage.

HENCE THE CYCLE IS REPEATED AGAIN!