

Structure of the Hair

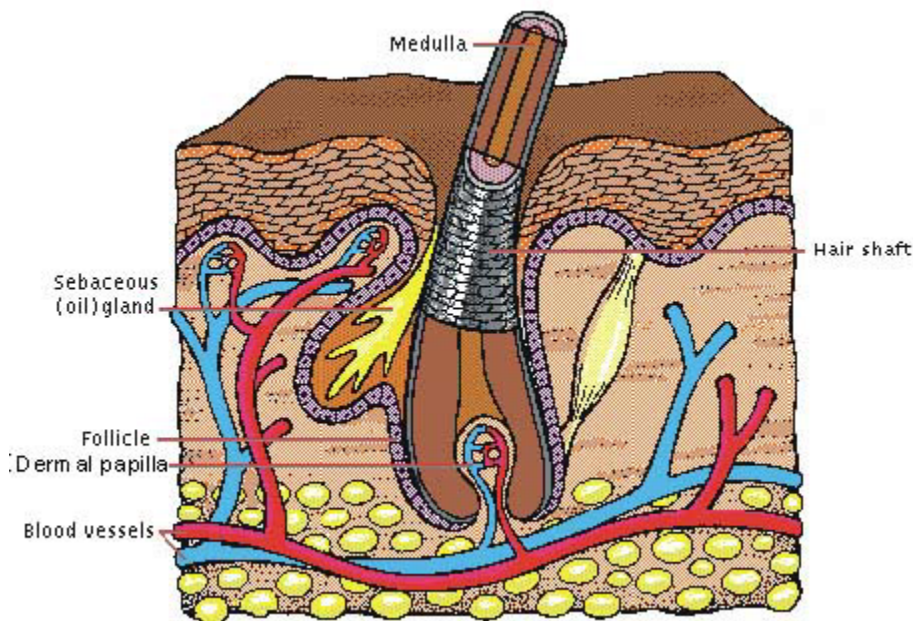
Hair is composed of strong structural protein called keratin. This is the same kind of protein that makes up the nails and the outer layer of skin.

Each strand of hair consists of three layers.

- 1) An innermost layer or medulla which is only present in large thick hairs.
- 2) The middle layer known as the cortex. The cortex provides strength and both the color and the texture of hair.
- 3) The outermost layer is known as the cuticle. The cuticle is thin and colorless and serves as a protector of the cortex.

Structure of the hair root

Below the surface of the skin is the hair root, which is enclosed within a hair follicle. At the base of the hair follicle is the dermal papilla. The dermal papilla is fed by the bloodstream which carries nourishment to produce new hair. The dermal papilla is a structure very important to hair growth because it contains receptors for male hormones and androgens. Androgens regulate hair growth and 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 this type of hair loss.



The Hair Growth Cycle

Hair follicles grow in repeated cycles. One cycle can be broken down into three phases.

- 1) Anagen - Growth Phase
- 2) Catagen - Transitional phase
- 3) Telogen - Resting Phase

Each hair passes through the phases independent of the neighboring hairs.

Anagen Phase - Growth Phase

Approximately 85% of all hairs are in the growing phase at any one time. The Anagen phase or growth phase can vary from two to six years. Hair grows approximately 10cm per year and any individual hair is unlikely to grow more than one meter long.

Catagen Phase - transitional phase

At the end of the Anagen phase the hair enters into a Catagen phase which lasts about one or two weeks, during the Catagen phase the hair follicle shrinks to about 1/6 of the normal length. The lower part is destroyed and the dermal papilla breaks away to rest below.

Telogen Phase - resting phase

The resting phase follows the catagen phase and normally lasts about 5-6 weeks. During this time the hair does not grow but stays attached to the follicle while the dermal papilla stays in a resting phase below. Approximately 10-15 percent of all hairs are in this phase at any one time.

At the end of the Telogen phase the hair follicle re-enters the Anagen phase. The dermal papilla and the base of the follicle join together again and a new hair begins to form. If the old hair has not already been shed the new hair pushes the old one out and the growth cycle starts all over again.