SEMEY MEDICAL UNIVERSITY

STUDENT INDEPENDENT WORK

HISTOLOGY OF HAIR AND NAIL

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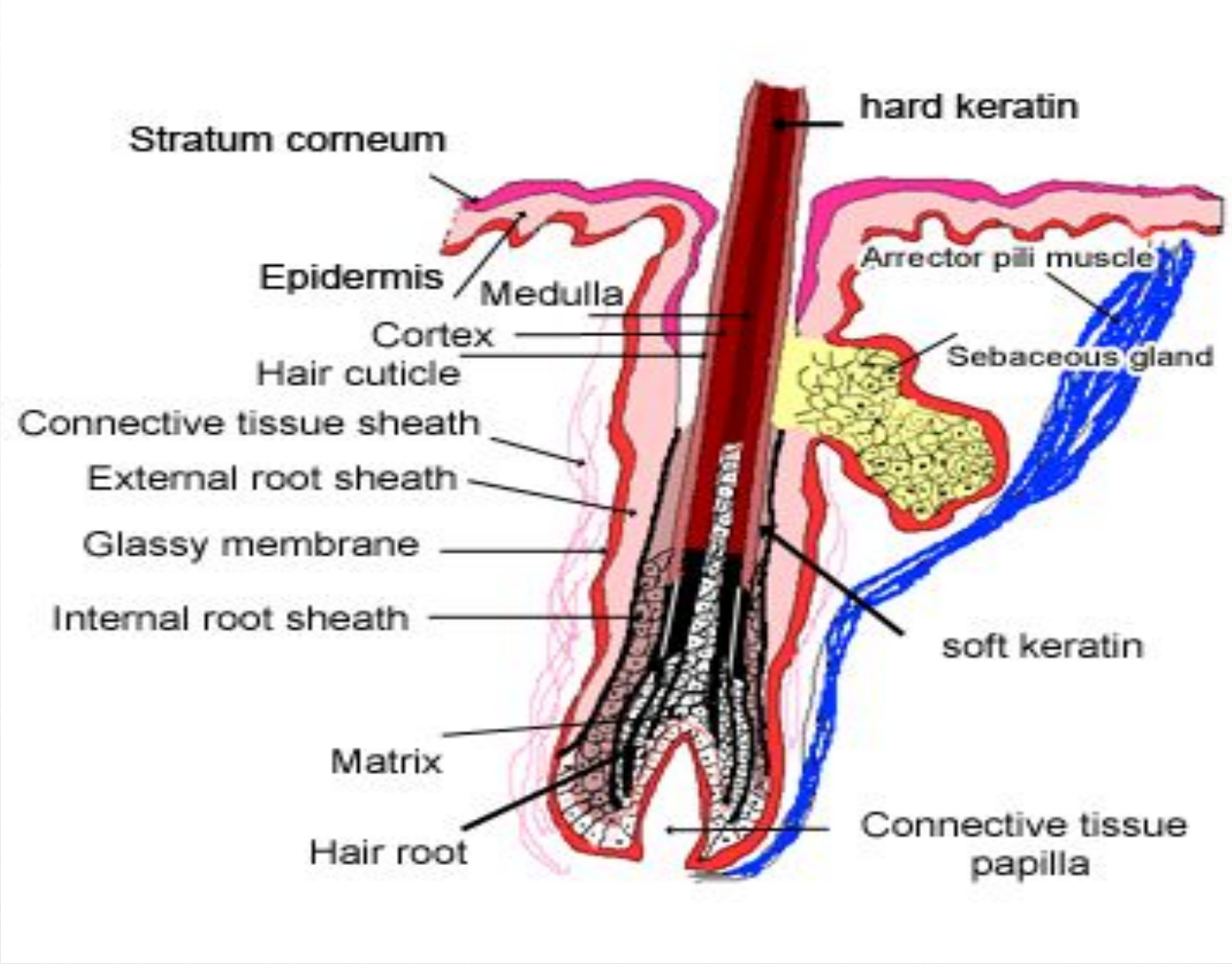
PLAN:-

- **Morphology and Structure of Human Hair**
- **Parts of hair**
- **Regions of hair**
  - The cuticle
  - The cortex
  - The medulla
- **Types of hair**
  - The vallus:-
  - The terminal:-
  - The intermediate:-
- **Changes of hair**


hard keratin
Stratum corneum
Epidermis
Medulla
Cortex
Hair cuticle
Connective tissue sheath
External root sheath
Glassy membrane
Internal root sheath
Matrix
Hair root
Arrector pili muscle
Sebaceous gland
soft keratin
Connective tissue papilla

Parts of hair:-

- The shaft
- The root or follicle

  - The hair is formed by cells of the dermal papilla at the base of the follicle.
  - Follicles are formed during the growth of the foetus, no new follicles are formed post natally.
  - The major function of hair is thermal insulation.

Regions of hair

The cuticle:-

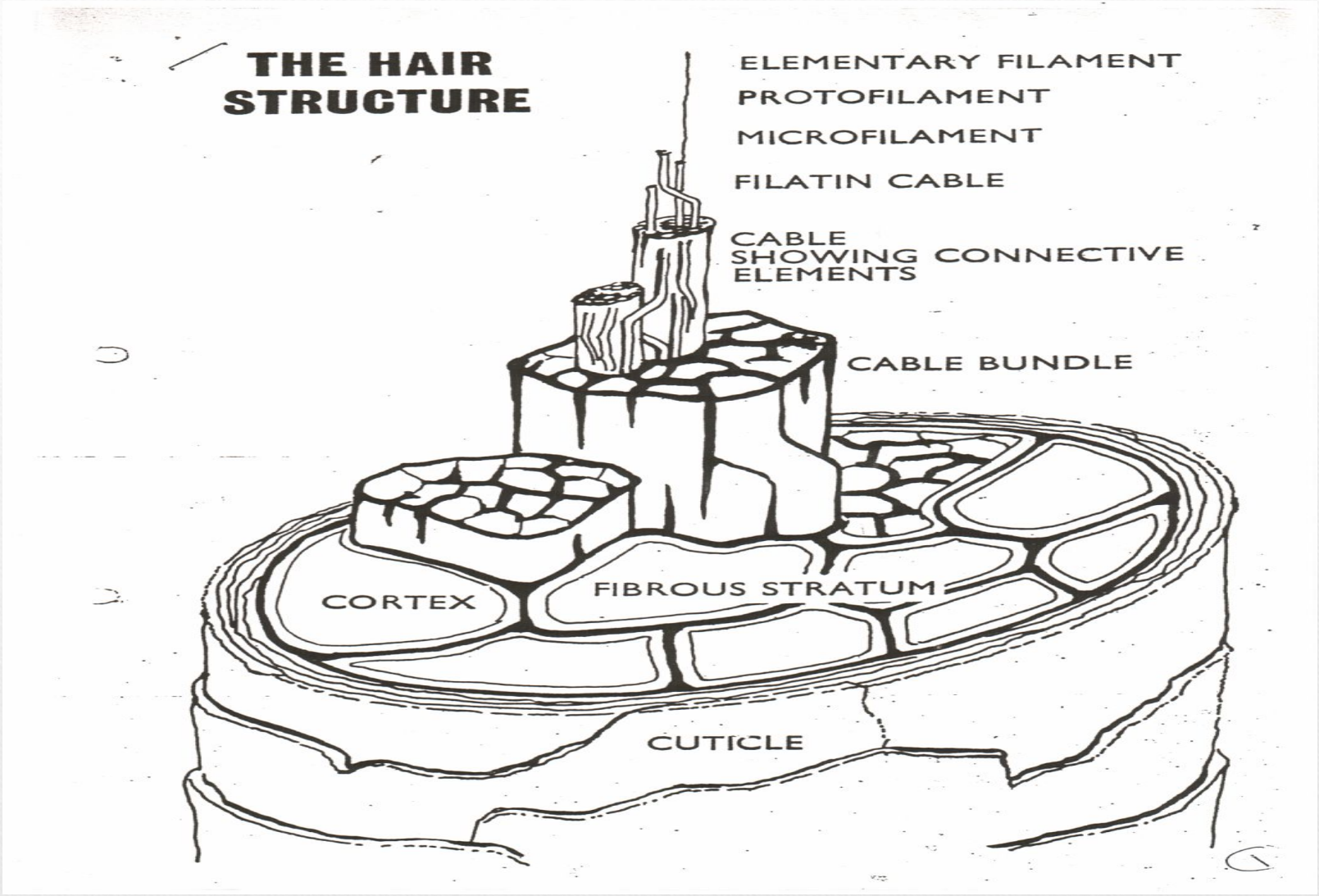
- the outer region – encircles the cortex, and is made of 5 to 15 overlapping layers. Externally is seen as a series of uneven edges, which can be forced outwards by combing or friction. There are gaps between these layers, permitting small molecules to enter or leave the cortex

The cortex:-

the middle region – which has a fibrous appearance, long strands of fibers run along the length of the hair, interweaving so as to form a structure of great strength and elasticity.

The medulla:-

- a central canal. The cells are nucleated near the papilla, but the cell contents are lost they progress upwards. Many hairs have no medulla.


THE HAIR STRUCTURE
ELEMENTARY FILAMENT
PROTOFILAMENT
MICROFILAMENT
FILATIN CABLE
CABLE SHOWING CONNECTIVE ELEMENTS
CABLE BUNDLE
CORTEX
FIBROUS STRATUM
CUTICLE

Types of hair

The vallus:-

- are short, fine, soft, usually non pigmented and unmedullated

The terminal:-

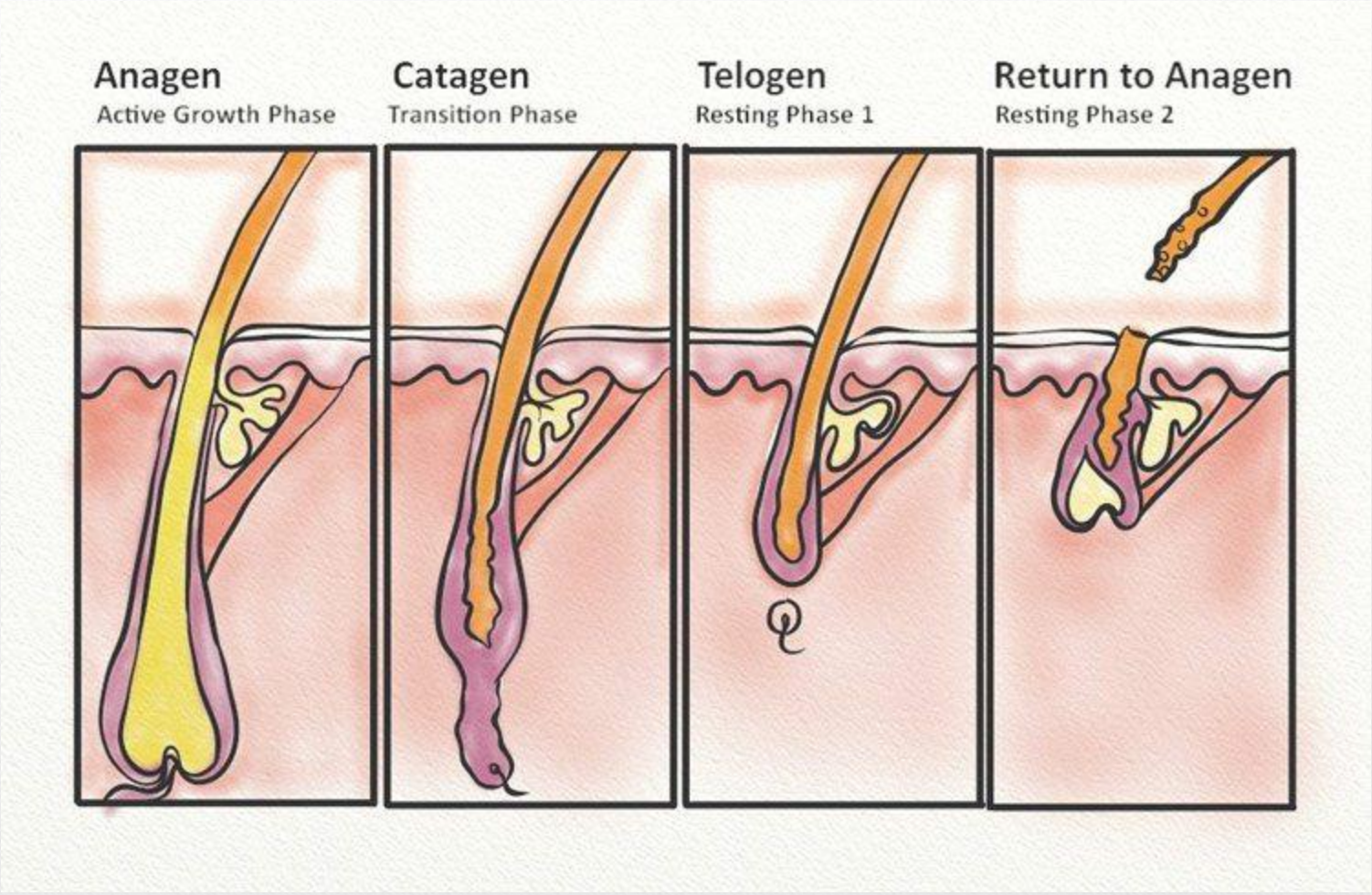
- are large, darkly pigmented and often medullated 90% of the hairs on the chest, trunk, shoulders, legs and arms of men are terminal, only 45% on women.

The intermediate:-

- occur on the scalp, their morphology falls between those of terminal and vellus and they are medullated and contain moderate amount of pigment.

Changes of hair:-

- Anagen phase: The hair grows at a rate of about 1cm/ month, during which the old hair is shed and new growth begins. Of 100,000 – 150,000 scalp hairs on human adult, regardless of sex, 90% are in the anagen phase
- Catagen phase: 5% resting phase
- Telogen Phase: 5%


Anagen
Active Growth Phase
Catagen
Transition Phase
Telogen
Resting Phase 1
Return to Anagen
Resting Phase 2