

~ Epidermal Accessory Organs

1. Nails

- Scalelike modifications of epidermis that form on dorsal tips of fingers and toes
- **Purpose:**
 - Protects dorsal tips
 - Prevent damage/distortion when fingers/toes are subjected to stress
- **Anatomy:**
 - **Nail body**- pinkish region
 - Underlying capillaries
 - **Free edge**- distal whitish region
 - No underlying capillaries
 - **Lunula**- whitish semilunar area of proximal end of nail body
 - White due to thickened stratum basale
 - **Nail folds**- portions of skin along lateral and proximal borders of nail
 - **Nail groove**- cutaneous slit into which the lateral margins are embedded
 - **Eponychium**- cuticle; narrow band of epidermis that extends from the margin of the nail wall onto the nail body
 - **Nail bed**- layer of epidermis the nail body covers; contains only the deeper, living cell layers of epidermis
 - **Nail root**- proximal part of nail embedded in skin
 - **Nail matrix**- actively growing part of the nail at the nail root
 - **Hyponychium**- thick; region of thickened stratum corneum over which free nail edge projects
 - **Nail plate**- nail root, body, and free edge

-Nail Disorders:

- **Longitudinal melanonychia**- brown-black vertical lines in nails
 - Overproduction of melanocytes; "nail moles"
 - Over 70% of darker skinned individuals
- **Bluish-black vertical lines**- Vitamin B and D deficiency
- **White spots**- zinc deficiency
- **Spoon nails**- koilonychia, thin nails that become flat or concave in shape: **iron deficiency**
- **Beau's lines**- horizontal lines indicative of temporary interference with nail growth: chronic malnutrition or severe illness or injury
- **Transverse leukonychia**- horizontal white lines: severe hypocalcaemia (**calcium deficiency**)
- **Yellow nail syndrome**- growth or thickening of nail slows or stops completely
 - Sometimes a sign of respiratory disease, like chronic bronchitis
- **Pitting**- appearance of needles poked through the nail

- o 5. Visual identification
 - Species, age, sex, individual identification
- o 6. Chemical signal dispersal
 - Help disperse pheromones- chemical signals involved in attracting a mate
 - Secreted by selected sweat glands in the axillary and pubic regions

- Hair Growth Cycle

- o 3 Stages
 - 1. Anagen Phase
 - Active phase of growth
 - Living cells of hair bulb rapidly grow, divide, and transform into hair
 - Longest part of growth cycle
 - 18 months to 7 years
 - Each hair strand grows 1/3 mm per day
 - 2. Catagen Phase
 - Brief regression period
 - Cell division ceases
 - Follicle shrinks toward scalp surface
 - 3-4 weeks
 - 3. Telogen Phase
 - Resting phase
 - Period in which hair sheds
 - After telogen phase, hair bulb cells are stimulated to start regrowth
 - Follicle reenters anagen phase
 - Normal hair loss= 10-100 hairs per day
 - Hair loss exceeding 100 hairs= possible health problems

- o Alopecia

- Thinning of the hair
- Occurs in males and females
- Usually a result of aging

- o Diffuse Hair Loss

- Hair shed from all parts of the scalp
- Often occurs in women
 - Due to hormones, drugs, or iron deficiency

- o Male Pattern Baldness

- Loss of hair from crown region of scalp
- Due to genetic and hormonal influences
 - Gene for male pattern baldness has 2 alleles: one for uniform hair growth, one for baldness
- In males:
 - Baldness allele is dominant

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Page 11 of 16