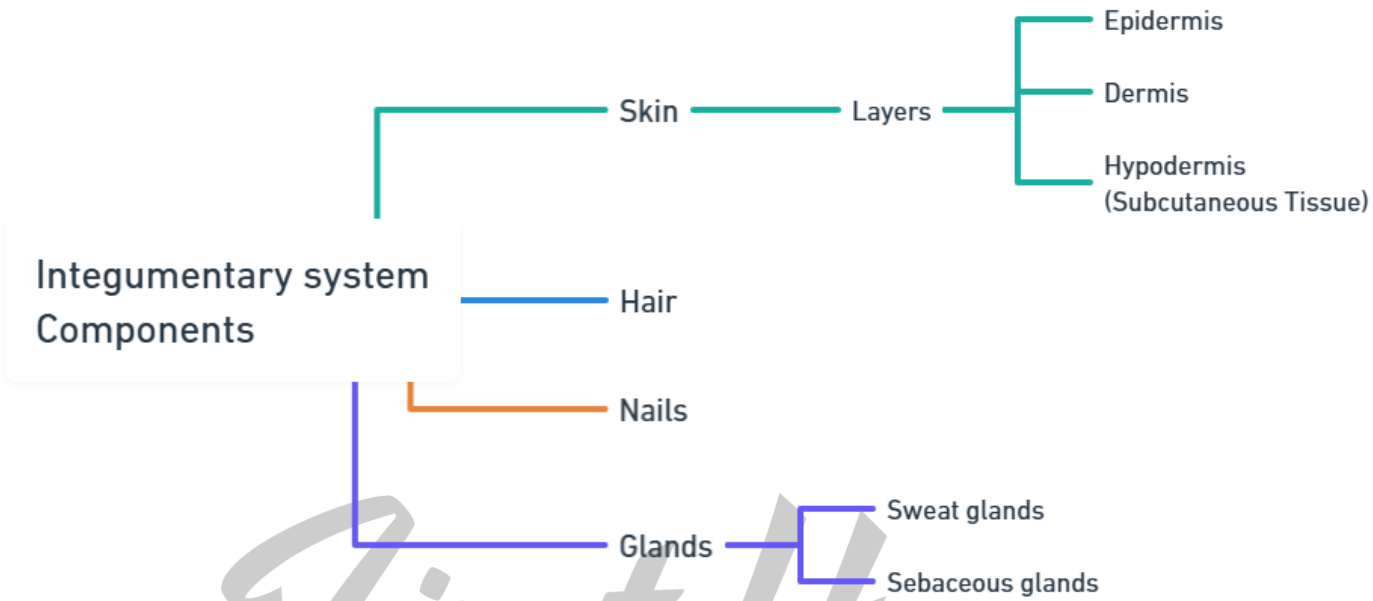
Integumentary System

Introduction: Integumentary System

- The integumentary system includes the skin, hair, nails, and glands, playing a crucial role in protection, sensation, temperature regulation, and more.

Key Components



First Hope

1. **Skin:**
   - The largest organ, with **three** layers:
     - A. **Epidermis:**
       - Outermost layer, protective barrier, contains melanocytes for skin color and UV protection.
     - B. **Dermis:**
       - Middle layer with connective tissue, blood vessels, nerve endings, hair follicles, and glands.
     - C. **Hypodermis:**
       - Deepest layer, mainly fat, provides insulation and cushioning.
2. **Hair:**
   - Made of keratin, provides protection, insulation, and sensory input.
3. **Nails:**
   - Keratin structures that protect fingertips and enhance the ability to grasp objects.
4. **Glands:**
   - A. **Sweat Glands:**

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- Regulate temperature through sweat.

B. Sebaceous Glands:

- Produce sebum, moisturizing the skin and hair.

C. Ceruminous Glands:

- Produce earwax, protecting the ear.

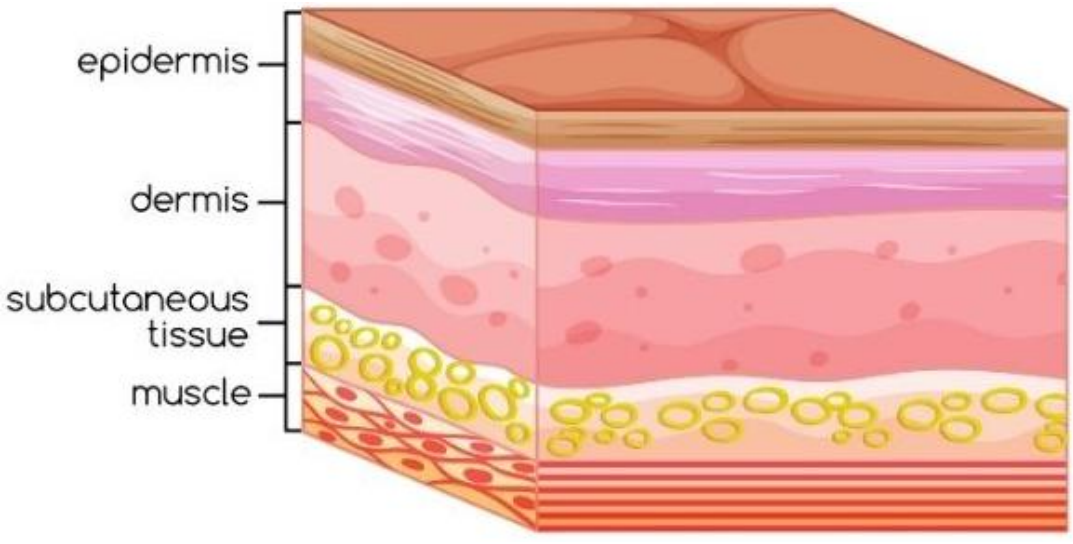
Functions:

1. **Protection:**
   - ➢ Shields against injury, pathogens, and UV radiation.
2. **Sensation:**
   - ➢ Detects touch, temperature, and pain.
3. **Temperature Regulation:**
   - ➢ Manages heat through sweat and blood vessel adjustments.
4. **Excretion:**
   - ➢ Removes waste via sweat.
5. **Vitamin D Synthesis:**
   - ➢ Produces vitamin D with sunlight exposure.
6. **Immune Defense:**
   - ➢ Hosts immune cells to combat pathogens.

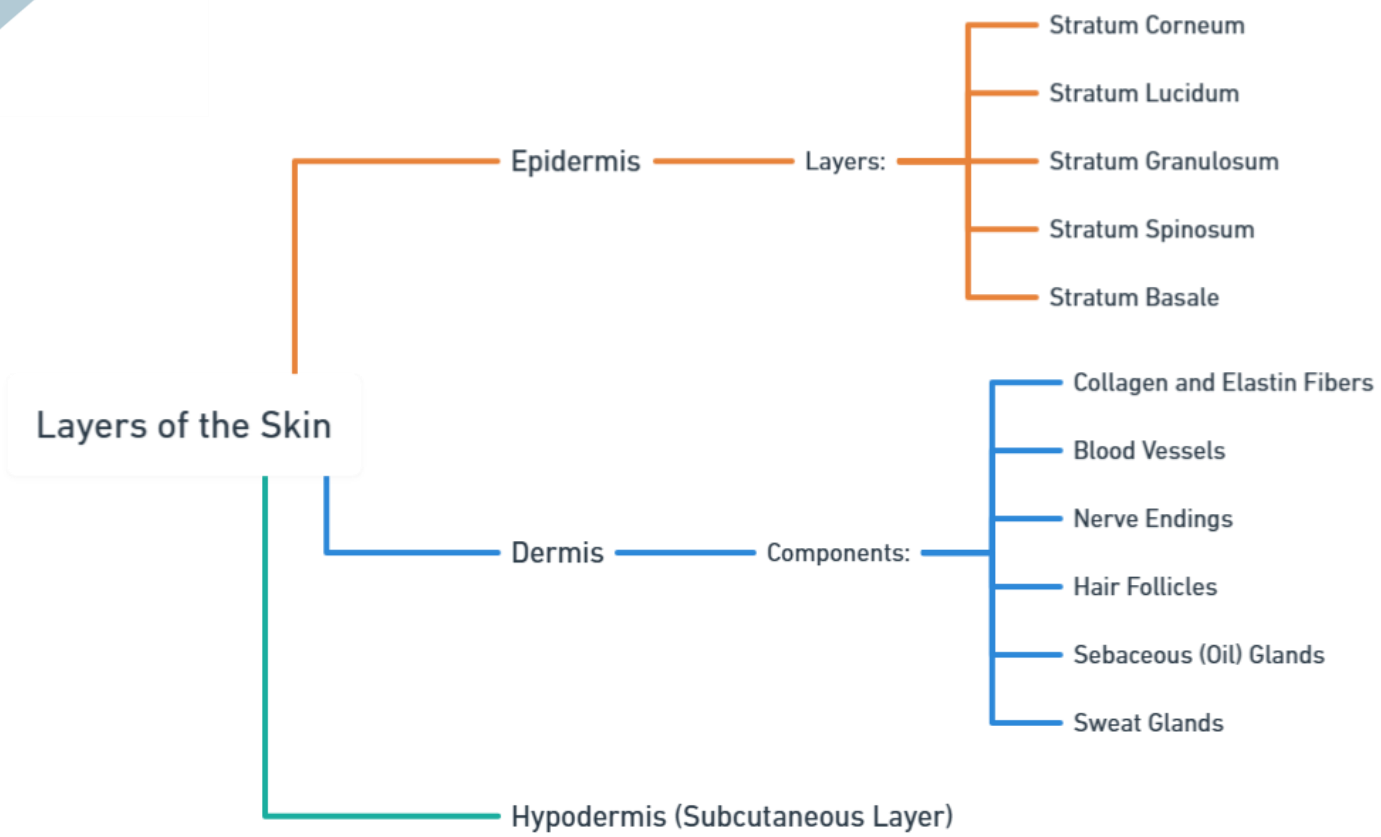
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Structure of the Skin

- The skin is the largest organ of the body and serves multiple essential functions.
- It is composed of three main layers, each with distinct structures and roles.



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1. Epidermis:

- The outermost layer of the skin, composed mainly of keratinocytes, which produce the protein keratin.

Layers of the Epidermis:

A. Stratum Corneum:

- The topmost layer, made of dead, flattened keratinocytes that provide a tough, protective barrier.

B. Stratum Lucidum:

- A thin, clear layer found only in thick skin areas like the palms and soles.

C. Stratum Granulosum:

- Where keratinocytes begin to die and form a waterproof barrier.

D. Stratum Spinosum:

- Provides strength and flexibility to the skin.

E. Stratum Basale:

- The deepest layer, where new skin cells are produced. It also contains melanocytes, which produce melanin for skin color and UV protection.

2. Dermis:

- Located beneath the epidermis, the dermis is thicker and composed of connective tissue, blood vessels, nerves, and various appendages.

Components:

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A. **Collagen and Elastin Fibers:**
   - Provide strength, elasticity, and structural support.

B. **Blood Vessels:**
   - Supply nutrients and oxygen to the skin and help regulate temperature.

C. **Nerve Endings:**
   - Detect sensations like touch, pressure, temperature, and pain.

D. **Hair Follicles:**
   - Structures from which hair grows.

E. **Sebaceous (Oil) Glands:**
   - Produce sebum, which moisturizes and protects the skin.

F. **Sweat Glands:**
   - Produce sweat for temperature regulation.

3. Hypodermis (Subcutaneous Layer):

- The deepest layer, primarily made of fat and connective tissue.
- **Function**: Provides insulation, stores energy, and acts as a cushion to protect underlying muscles and organs.

Functions of the Skin

1. Protection:

- Acts as a physical barrier against mechanical injuries, harmful chemicals, and pathogens.
- The acidic pH of the skin surface inhibits bacterial growth.
- Melanin in the epidermis protects against UV radiation.

2. Sensation:

- Nerve endings in the dermis allow the skin to sense touch, pressure, temperature, and pain, enabling the body to respond to environmental changes.

3. Temperature Regulation:

- Sweat glands produce sweat that cools the body when it evaporates.
- Blood vessels in the dermis dilate to release heat or constrict to retain heat, helping to regulate body temperature.

4. Excretion:

- Sweat glands excrete waste products like urea, salts, and water, helping to detoxify the body.

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5. **Vitamin D Synthesis:**
   - The skin produces vitamin D when exposed to sunlight, which is essential for calcium absorption and bone health.
6. **Immune Defense:**
   - The skin contains immune cells that detect and respond to pathogens, providing a first line of defense against infections.

Psoriasis

Introduction

- Psoriasis is a long-term (chronic) inflammatory skin disease in which skin cells grow much faster than normal.
- Normally, skin cells take about 28 days to mature and shed. In psoriasis, this process takes only about 3 to 7 days, causing skin cells to build up on the surface.



- Psoriasis is not contagious. It cannot spread from one person to another through physical contact.
- Psoriasis is an autoimmune disease because the body's immune system mistakenly attacks healthy skin cells.
- The disease usually occurs in repeated episodes with periods of improvement and worsening.

Types

1. **Plaque Psoriasis (Psoriasis Vulgaris)**
   - This is the most common type of psoriasis.
   - It causes raised, red patches covered with thick, silvery-white scales.
2. **Guttate Psoriasis**
   - This type appears as many small, drop-shaped red spots.
   - It often develops after a bacterial throat infection.

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