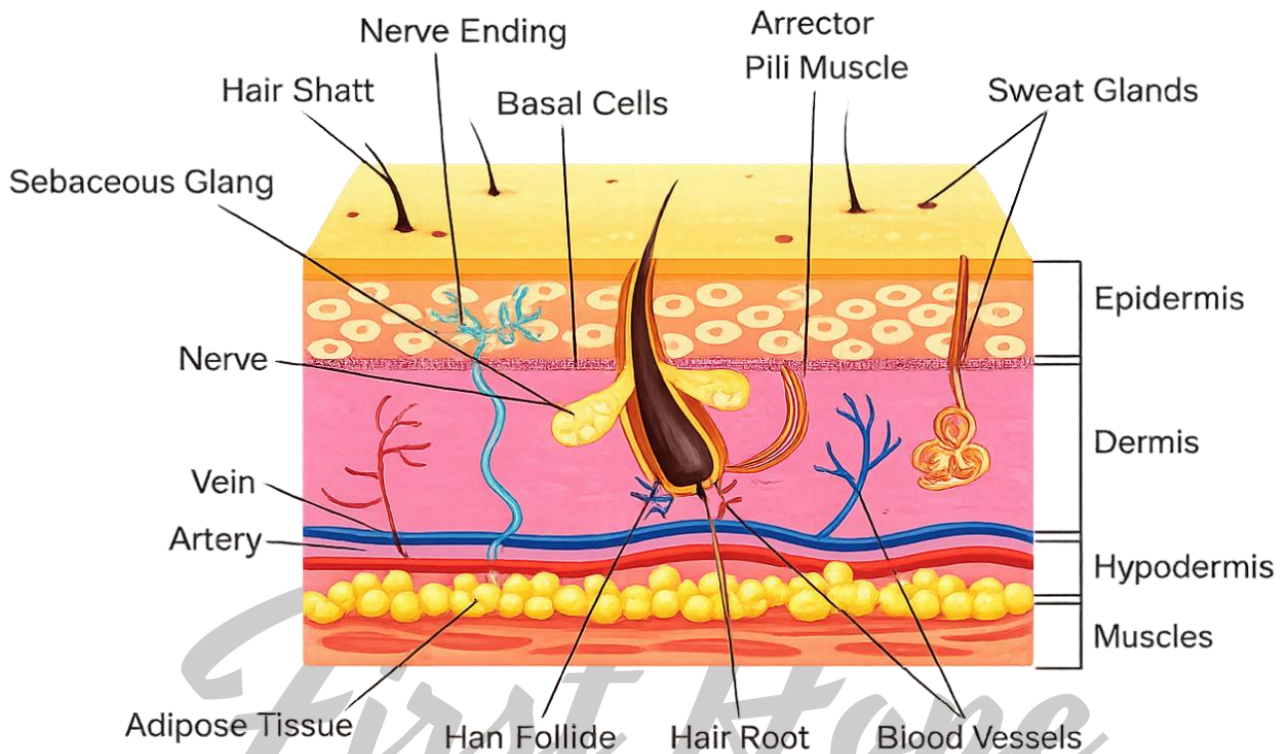


Cosmetics – Biological aspects

Structure of skin

- Skin is a **multi-layered protective organ** that prevents water loss, protects against microorganisms, regulates temperature, and provides sensation.



- Many cosmetic problems arise when the **normal structure or function of these layers is disturbed**.

Detailed Structure of Skin



1. Epidermis (Outer Layer)

- Thin, outermost layer
- Made mainly of **keratinocytes**

Contains:

- **Melanocytes** → produce melanin (skin color)
- **Stratum corneum** → outer dead cell layer acting as a barrier

Functions

- Protection from environment
- Prevents water loss
- Determines skin color

2. Dermis (Middle Layer)

- Thick, supportive layer

Contains:

- **Collagen** → gives strength
- **Elastin** → gives elasticity
- **Sebaceous glands** → produce oil (sebum)
- **Sweat glands** → regulate temperature
- **Hair follicles**
- **Nerves** → sensation

Functions

- Nourishes epidermis
- Provides elasticity and firmness
- Produces sweat and oil

3. Hypodermis (Subcutaneous Layer)

- Deepest layer
- Made of **fat tissue**

Functions

- Insulation
- Energy storage
- Shock absorption

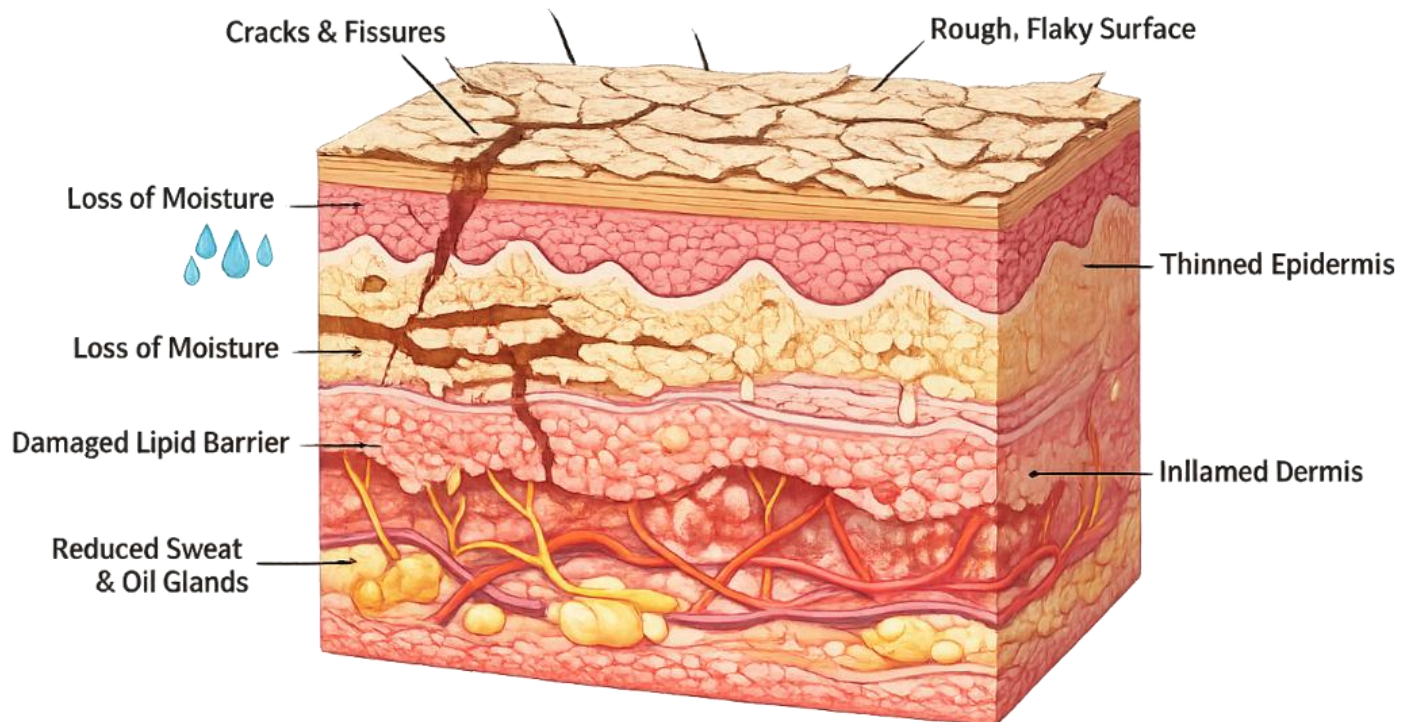
Skin: Common Problems

Dry Skin (Xerosis)

Related Structure

- **Mainly involves:**
 - Epidermis (stratum corneum)
 - Sebaceous glands (in dermis)

Dry Skin (Xerosis)



Mechanism / What Happens

1. Reduced sebum production

- Sebaceous glands produce less oil

2. Loss of moisture

- Increased water loss from epidermis

3. Reduced lipids in stratum corneum

- Decreases skin hydration

4. Skin barrier damage

- Weak barrier → cannot retain moisture properly

Structural Issue

- Damaged skin barrier function
- Leads to increased transepidermal water loss (TEWL)

Causes

- Cold weather
- Excess washing
- Aging (reduced oil production)

Result / Features

- Rough, flaky skin
- Tightness
- Increased sensitivity

Acne

Related Structure

- **Hair follicles + sebaceous glands** (pilosebaceous unit) in dermis



Mechanism / What Happens

1. **Excess sebum production**
 - Overactive sebaceous glands
2. **Blockage of hair follicle**
 - Dead skin cells clog pores
3. **Bacterial growth**
 - *Cutibacterium acnes* proliferates
4. **Inflammation**
 - Leads to redness and swelling

Structural Involvement

- Hair follicle becomes **clogged**
- Sebaceous gland becomes **overactive**

Causes / Triggering Factors

- Hormonal changes
- Excess oil production
- Poor skin hygiene

Result / Features

- Pimples
- Blackheads
- Whiteheads

Important Points

- **Common in areas with more sebaceous glands:**
 - Face
 - Chest
 - Back

Skin Pigmentation Disorders

Related Structure

- Melanocytes in epidermis



Mechanism / What Happens

- Increased production or **uneven distribution of melanin**

Structural Issue

- Increased activity or number of **melanocytes**

Causes

- UV radiation (sun exposure)
- Hormonal changes
- Skin injury or inflammation

Result / Features

- Dark spots
- Patches (hyperpigmentation)
- Uneven skin tone



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