

### Parts Of The Integumentary System

- ☞ Skin
- ☞ Sweat glands
- ☞ Sebaceous glands
- ☞ Hair
- ☞ Nails
- ☞ Subcutaneous tissue

### Age-Related Changes

- ☞ Thin skin & smaller elastin fibres
- ☞ Collagen loss → wrinkles - weaker & saggier skin
- ☞ Less melanin → pale skin & grey/white hair
- ☞ Reduced blood supply to skin → harder to regulate body temp
- ☞ Longer skin repair time

### Skin

#### Functions

- ☞ 1st defense line
- ☞ Maintains fluid balance
- ☞ Protects organs & structures
- ☞ Sunlight → Vitamin D
- ☞ Houses sensory receptors
- ☞ Regulates body temp

#### Layers

- ☞ Main skin layers: epidermis & dermis
- ☞ Subcutaneous tissues (not skin)

### Subcutaneous Layer

- ☞ Aka hypodermis (underneath the dermis)
- ☞ Not part of the skin, mainly made of connective & adipose tissue
- ☞ Rich blood supply
- ☞ Insulates body and sits between skin & underlying structure

### Epidermis

- ☞ Top skin layer
- ☞ Made of keratinocytes
- ☞ No blood supply - gets O<sub>2</sub> & nutrients from dermis

**Keratinisation:** Keratin protein deposited into cell

**Melanocytes:** Releases melanin & has arm-like projections to protect keratinocytes from UV light

#### Main Layers

| Stratum Corneum                    | Stratum Germinativum/Basale                                      |
|------------------------------------|------------------------------------------------------------------|
| ☞ Top layer of epidermis           | ☞ Bottom layer of epidermis                                      |
| ☞ Dead cells rubbed off & replaced | ☞ Continuously divides, older cells die & keratinise<br>↑ layers |

### Skin Colour

- ☞ Determined by 3 pigments:

#### Melanin

- ☞ Darkening pigment from melanocytes
- ☞ More melanin → darker skin colour

#### Carotene

- ☞ Carotene → Vitamin A for healthy eyes, skin, vision etc.
- ☞ Found in orange-coloured veggies
- ☞ Too much carotene → yellow/orange skin

#### Haemoglobin

- ☞ Bright red
- ☞ Dilated blood vessels → increased blood flow → increased haemoglobin → blushing/-redder skin
- ☞ Poorly oxygenated blood → decreased haemoglobin → cyanosis

### Dermis

- ☞ Underneath epidermis
- ☞ Tough & elastic

#### Connective Tissue

| Collagen Fibres                                  | Elastin Fibres         |
|--------------------------------------------------|------------------------|
| ☞ Gives strength & elasticity → young appearance | ☞ Allows stretchy skin |

#### Dermis Parts

- ☞ **Blood Vessels:** Blood to sweat, sebaceous glands, hair follicles & dermis tissue
- ☞ **Lymph Vessels:** Lymph & immune cells to dermis
- ☞ **Sensory Nerve Endings:** Nociceptors (pain), thermoreceptors (temperature), mechanoreceptors (pressure)
- ☞ **Hair:** Maintains heat, grows from hair follicles
- ☞ **Arrector Pili:** Contracts to raise hair & skin

- ☞ **Sebaceous Glands:** Creates & releases sebum → prevents dry/cracked skin

#### ☞ Sweat Glands:

| Eccrine Glands                  | Apocrine Glands                 |
|---------------------------------|---------------------------------|
| ☞ Clear & watery sweat          | ☞ Sweat + bacteria → body odour |
| ☞ Opens directly onto epidermis | ☞ Opens into hair follicles     |
| ☞ Regulates body temp           |                                 |

### Nails

- ☞ Made of tightly packed keratinized cells
- ☞ Protects toe & finger tips
- ☞ Made of nail plate & nail root

