C5.6

Images of the Integument System (Skin)

(d) Sectional view of dermal papillae, epidermal ridges, and epidermal layers
(a) Sectional view of skin and subcutaneous layer
(b) Sectional view of skin
(c) Epidermal ridges and sweat pores
(d) Sectional view of dermal papillae, epidermal ridges, and epidermal layers
(a) Keratinocyte

(b) Melanocyte

(c) Intraepidermal macrophage (Langerhans) cell

(d) Tactile epithelial (Merkel) cell
Location of four principal cell types in epidermis of thick skin.
(a) Hair and surrounding structures

- Hair shaft
- Hair root
- Arrector pili muscle
- Eccrine sweat gland
- Sebaceous gland
- Hair root plexus
- Bulb
- Papilla of the hair
- Apocrine sweat gland
- Blood vessels
(b) Several hair shafts showing the shingle-like cuticle cells
(c) Frontal and transverse sections of hair root
(d) Transverse section of hair root

- Epithelial root sheath
  - Hair follicle:
    - Internal root sheath
    - External root sheath

- Dermal root sheath
- Hair root:
  - Cuticle of the hair
  - Cortex
  - Medulla
NAIL ROOT is the portion that is not visible

EPONYCHIUM (cuticle) is the stratum corneum of the epidermis

LUNULA is the thick, white part of the nail

NAIL BED is the skin below the nail plate

NAIL BODY is the visible portion of the nail

FREE EDGE extends past the finger or toe

HYPONYCHIUM secures nail to the fingertip

Epidermis

Dermis

Phalanx (finger bone)

NAIL MATRIX is the epithelium proximal to the nail root. It contains dividing cells, which produce new nail cells

(a) Dorsal view

(b) Sagittal section showing internal detail
(a) Dorsal view
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HYPONYCHIUM secures nail to the fingertip

Epidermis

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Phalanx (finger bone)

(b) Sagittal section showing internal detail
(a) Division of stratum basale cells and migration across wound

(b) Thickening of epidermis

Epidermal wound healing
Epidermal wound healing

(a) Division of stratum basale cells and migration across wound
(b) Thickening of epidermis

(c) Inflammatory phase
(d) Maturation phase
(c) Inflammatory phase

- Blood clot in wound
- Epithelium migrating across wound
- Fibroblast
- Collagen fibers
- Monocyte (macrophage)
- Neutrophil
- Dilated blood vessel
- Damaged blood vessel
- End of clot

(d) Maturation phase

- Scab
- Resurfaced epithelium
- Collagen fibers
- Scar tissue
- Fibroblast
- Restored blood vessel

Deep wound healing
(a) Fourth week

Ectoderm

MESENCHYME
(b) Seventh week

- **PERIDERM**
- **BASAL LAYER**
(c) Eleven weeks

- INTERMEDIATE LAYER
- Epidermal ridge
- BASAL LAYER
- Dermal papilla
- MELANOBLAST
- Developing collagen and elastic fibers
(d) Twelve weeks

- Basal layer
- Bud of developing sudoriferous gland
- Hair bud
(e) Fourteen weeks

- Develop sudoriferous gland
- Develop sebaceous gland
- Hair bud
(f) Sixteen weeks

- Developing sebaceous gland
- Hair shaft
- Papilla of the hair
(a) Normal nevus (mole)  (b) Malignant melanoma
(a) First-degree burn (sunburn)
(a) First-degree burn (sunburn)
(b) Second-degree burn (note the blisters in the photograph)
(c) Third-degree burn
(b) Second-degree burn (note the blisters in the photograph)
(c) Third-degree burn
Pressure ulcer on heel