

Chapter 5: Integumentary System

I. Overview of the Integumentary System

A. List the five major functions of the integumentary system:

1. _____
2. _____
3. _____
4. _____
5. _____

II. Hypodermis

A. It consists of _____ with _____ & _____

B. When not part of the skin it is also called _____ or _____

III. Skin

A. Dermis

1. The dermis is responsible for most of _____
2. What is the main connective tissue fiber present? _____
3. Reticular Layer - main layer of dermis
 - a. Is this layer deep or superficial? _____
 - b. This layer is composed of _____
 - c. What is responsible for cleavage or tension lines? _____

 - d. When the dermis ruptures it may produce _____
4. Papillary Layer
 - a. The layer is named for _____
 - b. The layer is composed of _____

B. Epidermis

1. The epidermis consists of _____
2. Most cells of the epidermis are _____
3. Where are new cells formed? _____
4. What is it called when surface cells slough off? _____

5. What does the process of keratinization refer to: _____

 6. Stratum Basale - deepest layer of epidermis
 - a. This is composed of _____
 - b. What anchors this layer to the basement membrane? _____
 - c. This layer produces new cells by the process of _____
 1. One daughter cell _____
 2. The other daughter cell _____
 - d. How long does it take a cell to desquamate? _____
 7. Stratum Spinosum
 - a. This layer is composed of _____
 - b. The spine like appearance in the microscope is due to _____

 - c. What does the term "Stratum Germinativum" refer to: _____

 8. Stratum Granulosum
 - a. This layer is composed of _____
 - b. Contains protein granules of _____
 - c. The nucleus and organelles _____ & the cell _____
 9. Stratum Lucidum
 - a. This layer appears as _____
 - b. This layer consists of _____
 10. Stratum Corneum - the most superficial layer
 - a. This layer consists of _____
 - b. What is a "cornified cell"? _____
 - c. What is keratin? _____
 - d. The structural strength of the stratum corneum is due to _____
and _____
- C. Thick and Thin Skin
1. Thick skin has how many epithelial strata? _____
 2. Where would you find thick skin? _____

3. What is responsible for the ridges of thick skin? _____
4. Functionally the ridges _____ & _____
5. What layer is absent from thin skin? _____
6. Which type of skin is more flexible? _____
7. Which type of skin will have hair? _____
8. What causes a callus to develop? _____
9. Where would you find a corn? _____

D. Skin Color

1. Melanin

- a. What amino acid is used to produce melanin? _____
 - b. Melanin is produced by _____
 - c. What is a melanosome? _____
 - d. Describe how melanin gets inside keratinocytes: _____

 - e. Melanin production is determined by:
 1. _____
 2. _____
 3. _____
 - f. Genetics determines the:
 1. _____ and _____ of melanin produced by melanocytes
 2. _____, _____, & _____ of melanosomes
 - g. Hormones usually increase melanin production during _____
 - h. Exposure to ultraviolet light _____ & _____
- ##### 2. Carotene
- a. Is a _____ pigment commonly found in _____
 - b. Excess carotene accumulates in the _____ & _____
 1. This gives the skin a _____
- ##### 3. Hemoglobin
- a. Blood flowing through the skin gives it a _____
 - b. What does cyanosis mean? _____

IV. Accessory Skin Structures

A. Hair

1. Define the following three hair terms:

- a. Lanugo _____
- b. Vellus hairs _____
- c. Terminal hairs _____

2. Hair structure

- a. What part of the hair is found above the skin surface? _____
- b. What is the name for the hair part below the skin surface? _____
- c. What is the hair bulb? _____
- d. What is the dermal root sheath? _____
- e. What is the epithelial root sheath? _____
- f. Where is the matrix found? _____
 1. What is produced by the matrix? _____

3. Hair Growth

- a. During the growth stage _____
- b. What happens to the hair at the end of the resting stage? _____

4. Hair Color

- a. Color is due to the amount of _____
- b. What causes hair color to fade or become white? _____

B. Muscles

1. What are the arrector pili? _____

2. How does hair position change when the arrector pili contract? _____

- a. The raised areas produced by this movement are called _____

3. What two events can cause the arrector pili to contract?

- a. _____
- b. _____

4. What two benefits do most animals receive from this response?

- a. _____
- b. _____

C. Glands

1. Sebaceous Glands

- a. The glands are located in the _____
- b. Structurally they are simple _____
- c. These glands produce _____
 1. This substance is _____ rich in _____
- d. How do sebaceous glands release sebum? _____
 1. Therefore functionally sebaceous glands are classified as _____
- e. Most sebaceous glands are connected to _____
- f. What are the two functions of sebum?
 1. _____
 2. _____

2. Sweat Glands or Sudoriferous Glands

- a. Which type of sweat gland is most common? _____
- b. Describe the composition of merocrine (eccrine) sweat gland secretions:

- c. What does sweat do for a person? _____
- d. Where are apocrine sweat glands found in humans? _____

- e. Apocrine sweat glands become active at _____
- f. Body odor from sweat is the result of _____

3. Ceruminous Glands

- a. Ceruminous glands are located in _____
- b. Cerumen is the combined secretions of _____ & _____
- c. Functionally cerumen _____

D. Nails

1. List three functions of nails:
 - a. _____
 - b. _____
 - c. _____

2. Define the following terms related to nails:
 - a. Nail root _____
 - b. Nail body _____
 - c. Nail fold _____
 - d. Nail groove _____
 - e. Eponychium _____
 - f. Hyponychium _____
 - g. Nail bed _____
 - h. Nail matrix _____
 - i. Lunula _____
3. The nail is composed of _____

V. Summary of Integumentary System Functions

A. Describe six ways in which the integumentary system is involved in protection:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

B. Sensations

1. What sensations do we experience because of receptors in the integumentary system? _____
2. The epidermis and dermal papillae are well supplied with _____

3. The dermis and deeper tissues contain receptors for:

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

C. Temperature Regulation

1. For the body to lose excess heat:

- a. Blood vessels in the dermis _____
- b. Sweat spreads over the skin _____

2. For the body to conserve heat dermal blood vessels _____

3. Does contraction of arrector pili in humans prevent heat loss? _____

D. Vitamin D Production

1. Functionally Vitamin D is important in raising blood levels of:

- a. _____
- b. _____

2. Vitamin D production requires the skin to be exposed to _____

E. Excretion

1. List three waste products contained in sweat:

- a. _____
- b. _____
- c. _____

2. The quantity of waste products in sweat is _____

VI. Effects of Aging on the Integumentary System

A. List two reasons the skin is more easily damaged as a person gets older:

1. _____
2. _____

B. What causes the skin to sag and wrinkle? _____ &

C. Why does the skin become drier? _____

D. Elderly often suffer from heat prostration because _____

E. Generally the number of functioning melanocytes _____

F. What causes age spots? _____