

The Skin (Integumentary System)

Basic Structure of the Skin

1. Complete the following statements by writing the appropriate word or phrase on the correspondingly numbered blank:

The two basic tissues of which the skin is composed are dense connective tissue, which makes up the dermis, and 1, which forms the epidermis. Most cells of the epidermis are 2. The protein 3 makes the dermis tough and leatherlike. The specialized cells that produce the pigments that contribute to skin color are called 4.

1. stratified squamous epithelium
2. dead
3. Keratin
4. melanocytes

2. Four protective functions of the skin are Prevention of desiccation, protects against thermal damage, prevents bacterial invasion, and protects against UV radiation.

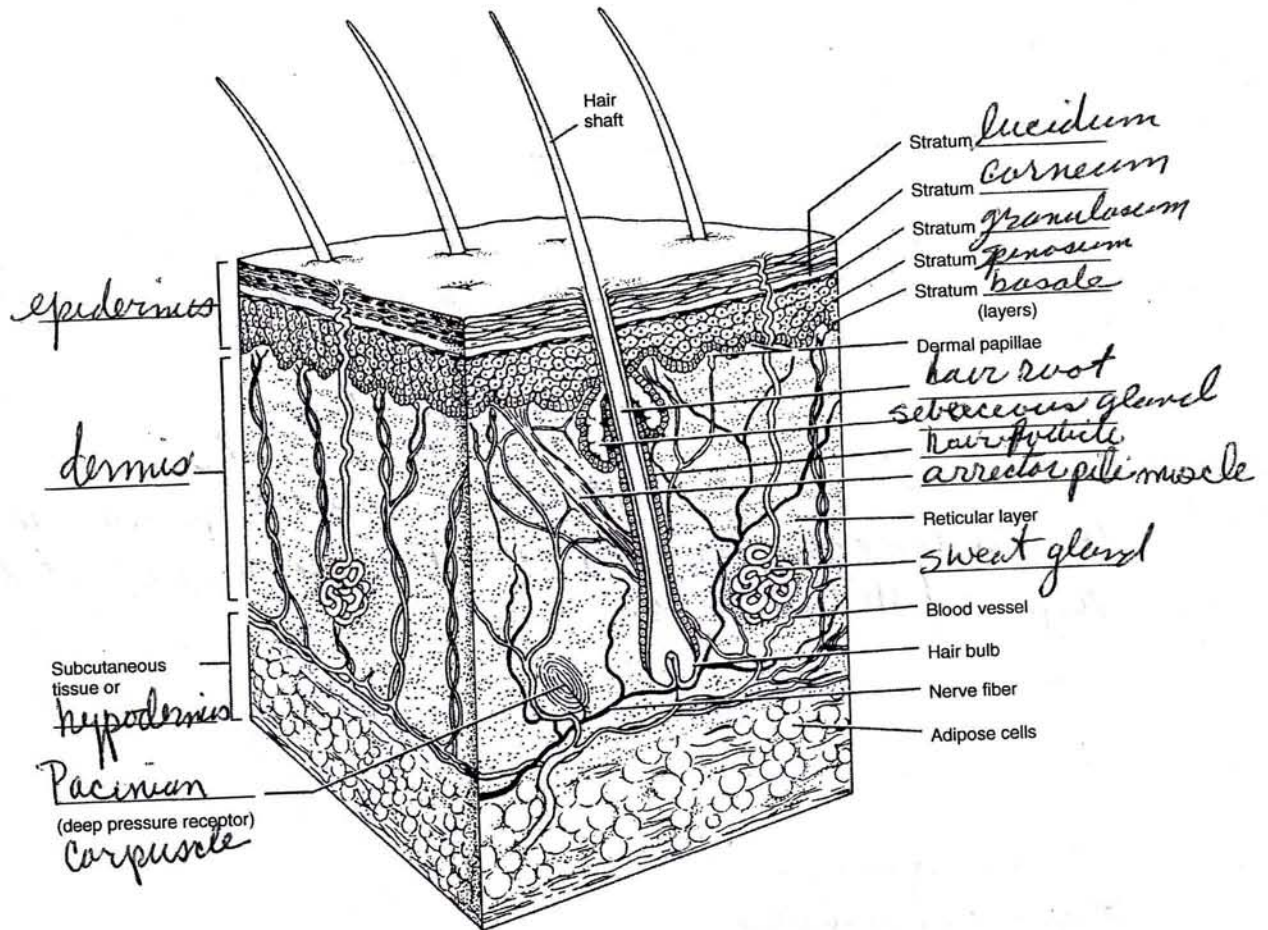
3. Using the key choices, choose all responses that apply to the following descriptions.

Key: stratum basale stratum lucidum reticular layer
 stratum corneum stratum spinosum epidermis (as a whole)
 stratum granulosum papillary layer dermis (as a whole)

- | | |
|----------------------------------|---|
| <u>stratum spinosum</u> | 1. layer containing sacs filled with fatty material or keratin subunits |
| <u>stratum corneum/lucidum</u> | 2. dead cells |
| stratum corneum | 3. the more superficial dermis layer <u>papillary layer</u> |
| <u>epidermis</u> | 4. avascular region |
| <u>epidermis</u> | 5. major skin area where derivatives (nails and hair) reside |
| <u>stratum basale</u> | 6. epidermal region exhibiting the most mitoses |
| <u>stratum corneum</u> | 7. most superficial epidermal layer |
| <u>dermis or reticular layer</u> | 8. has abundant elastic and collagenic fibers |
| <u>stratum basale</u> | 9. region where melanocytes are most likely to be found |
| <u>stratum corneum</u> | 10. accounts for most of the epidermis |

Review Sheet

4. Label the skin structures and areas indicated in the accompanying diagram of skin.



5. What substance is manufactured in the skin (but is not a secretion) to play a role elsewhere in the body?

Vitamin D

6. How did the activity "Visualizing Changes in Skin Color Due to Continuous External Pressure" relate to formation of decubitus ulcers? (Use your textbook if necessary.)

Pressure areas restrict the blood supply to the area causing localized area of tissue necrosis and death

7. Some injections hurt more than others. On the basis of what you have learned about skin structure, can you determine why this is so? It depends on the relative number of pain receptors in the area

Review Sheet

8. What was demonstrated by the two-point discrimination test? There are more touch receptors in fingers than other areas

9. Two questions regarding general sensation are posed below. Answer each by placing your response in the appropriately numbered blanks to the right.

1-2. Which two body areas tested were most sensitive to touch?

1-2. fingers, lips

3-4. Which two body areas tested were the least sensitive to touch?

3-4. upper arms + legs

10. Define *adaptation of sensory receptors*:

The ability of receptors to adjust to stimulation

11. Why is it advantageous to have pain receptors that are sensitive to all vigorous stimuli, whether heat, cold, or pressure?

Grosses of hot, cold and pressure also produce pain

Pain receptors do not adapt. Why is this important?

So that you do something about the cause of pain

12. Imagine yourself without any cutaneous sense organs. Why might this be very dangerous?

You would have to rely on ~~the~~ sight to know if you are in danger which can not see everywhere, as even
Appendages of the Skin help during sleep

1. Using the key choices, respond to the following descriptions. (Some choices may be used more than once.)

Key: arrector pili hair follicle sweat gland—apocrine
 cutaneous receptors nail sweat gland—eccrine
 hair sebaceous glands

sebaceous gland

hair follicle

sweat gland—eccrine

hair follicle

sweat gland—apocrine

hair + sebaceous glands

hair + nail

cutaneous receptors

sweat glands—apocrine

nail

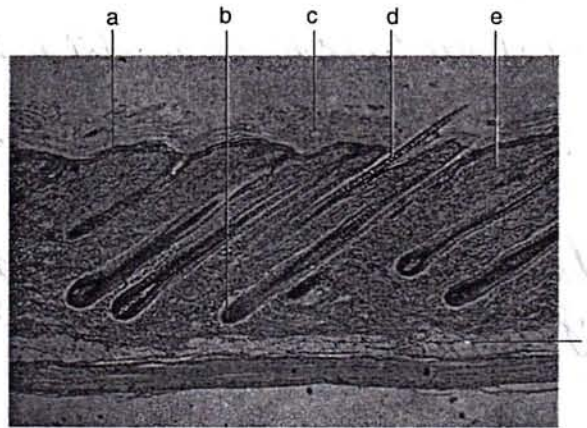
- Acne is an infection of a(n) _____
- Structure that houses a hair.
- More numerous variety of perspiration gland that produces a secretion containing water, salts, and vitamin C; activated by rise in temperature.
- Sheath formed of both epithelial and connective tissues.
- Type of perspiration-producing gland that produces a secretion containing proteins and fats in addition to water and salts.
- Found everywhere on body except palms of hands and soles of feet.
- Primarily dead/keratinized cells.
- Specialized structures that respond to environmental stimuli.
- Its secretion contains cell fragments.
- "Sports" a lunula and a cuticle.

Review Sheet

2. How does the skin help to regulate body temperature? (Describe two different mechanisms.) _____

- (1) When capillary blood flow to the skin is enhanced, heat radiates from the skin surface; restriction of blood flow conserves heat.
- (2) Activity of sweat glands, i.e., when perspiration evaporates from the skin surface, heat is lost.

3. Several structures or skin regions are lettered in the photomicrograph below. Identify each by matching its letter with the appropriate description that follows.



f adipose cells
e dermis
a epidermis

b hair follicle
d hair shaft
c sloughing stratum corneum cells

Plotting the Distribution of Sweat Glands

1. With what substance in the bond paper does the iodine painted on the skin react? _____
2. Which skin area—the forearm or palm of hand—has more sweat glands? _____
- Which other body areas would, if tested, prove to have a high density of sweat glands? _____
3. What organ system controls the activity of the eccrine sweat glands? _____

Credits

PHOTOGRAPHS

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