Chapter 4  Skin and Body Membranes

Classification of Body Membranes

1. The mucous, serous, and cutaneous membranes are all composite membranes composed of an epithelial layer underlaid by a connective tissue layer. A mucous membrane is an epithelial sheet underlaid by a connective tissue layer called the lamina propria. Mucous line the respiratory, digestive, urinary, and reproductive tracts; functions include protection, lubrication, secretion, and absorption. Serous membranes consist of a layer of simple squamous epithelium resting on a scant layer of fine connective tissue. Serosal line internal ventral body cavities and cover their organs; their function is to produce a lubricating fluid that reduces friction. The cutaneous membrane, or skin, is composed of the epithelial epidermis and the connective tissue dermis. It covers the body exterior and protects deeper body tissues from external insults. The synovial membranes, which line joint cavities of synovial joints, are composed entirely of connective tissue. They function to produce lubrication to decrease friction within the joint cavity.

2. In each case, the visceral layer of the serosa covers the external surface of the organ, and the parietal layer lines the body cavity walls.

Figure 4–1:

Integumentary System (Skin)

3. Figure 4–2:

4. 1. As the basal cells continue to divide, the more superficial cells are pushed farther and farther from the nutrient supply diffusing from the dermis. 2. Water-proofing substances (keratin and others) made by the keratinocytes effectively limit nutrient entry into the cells.


6. 1. A or stratum corneum, D or stratum lucidum. 2. A or stratum corneum, D or stratum lucidum.

8. Figure 4-3:

9. 1. E or sebaceous glands.  2. A or arrector pili.  3. G or eccrine sweat glands.  4. D or hair follicle.  
   5. F or apocrine sweat gland.  6. C or hair.  7. B or cutaneous receptors.  8. E or sebaceous glands, and F or 
   apocrine sweat glands.  9. G or eccrine sweat glands.


12. 1. C or third-degree burn.  2. B or second-degree burn.  3. A or first-degree burn.  4. B or second-degree burn.  
    5. C or third-degree burn.  6. C or third-degree burn.

13. It allows estimation of the extent of burns so that fluid volume replacement can be correctly calculated.


15. Pigmented areas that are Asymmetric, have irregular Borders, exhibit several Colors, and have a Diameter greater 
    than 6 mm are likely to be cancerous.

**Developmental Aspects of the Skin and Body Membranes**

16. 1. C or dermatitis.  2. D or delayed-action gene.  3. F or milia.  4. B or cold intolerance.  5. A or acne.  
    6. G or vernix caseosa.  7. E or lanugo.

**The Incredible Journey**


**At the Clinic**

18. Chemotherapy drugs used to treat cancer kill the most rapidly dividing cells in the body, including many matrix 
    cells in the hair follicles; thus, the hair falls out.

19. The baby has seborrhea, or cradle cap, a condition of overactive sebaceous glands. It is not serious; the oily deposit 
    is easily removed with attentive washing, and soon stops forming.

20. Bedridden patients are turned at regular intervals so that no region of their body is pressed against the bed long 
    enough to deprive the blood supply to that skin; thus, bedsores are avoided.

21. Porphyria (a) may have been Count Dracula's disease.

22. Besides storing fat as a source of nutrition, the hypodermis anchors the skin to underlying structures (such as muscles) 
    and acts as an insulator against heat loss.

23. The body of a nail is its visible, attached part (not its white free edge). The root is the proximal part that is embedded 
    in skin. The bed is the part of the epidermis upon which the nail lies. The matrix is the proximal part of the 
    nail bed and it is responsible for nail growth. The cuticle is the skin fold around the perimeter of the nail body. 
    Since the matrix is gone, the nail will not grow back.

24. The peritoneum will be inflamed and infected. Since the peritoneum encloses so many richly vascularized organs, a 
    spreading peritoneal infection can be life threatening.

25. He probably told her that regeneration would occur and grafts would not be needed if infection was avoided.