

# Chapter 3-II: Physiology and Histology of the Skin

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / \_\_\_\_\_ pts

## Part A — Interactive Activities

Matching · Word Bank · Sequence · True/False · Sort · Odd One Out

### Activity 1 — Match It!

Write the number of the correct term in the blank next to each description.

Column A — Descriptions	Ans.	Column B — Terms
A. Pigment-carrying granules found in melanocytes	_____	1. Tyrosinase
B. Protein bonds that hold epidermal cells together	_____	2. Melanosomes
C. Muscle attached to hair follicle that causes goosebumps	_____	3. Desmosomes
D. Immune cells that carry antigens to lymph nodes	_____	4. TEWL
E. Passive evaporation of water through the skin surface	_____	5. Arrector pili
F. Enzyme that stimulates melanin production	_____	6. Langerhans cells
G. Clear layer present only on the palms and soles	_____	7. Merkel cells
H. Touch and pressure receptors in the stratum germinativum	_____	8. Stratum lucidum

### Activity 2 — Word Bank Fill-In

Use each word from the Word Bank once to complete the sentences below.

#### WORD BANK

**acid mantle | barrier function | ceramides | lipids | pH 5.5 | sebum | TEWL**

The skin's (1)\_\_\_\_\_ protects it from irritation and intercellular water loss.

This protective surface film is called the (2)\_\_\_\_\_ and has an average (3)\_\_\_\_\_.

It is formed by (4)\_\_\_\_\_, sweat, and (5)\_\_\_\_\_.

When the barrier is damaged, (6)\_\_\_\_\_ increases, leading to dryness and sensitivity.

(7)\_\_\_\_\_ are lipid molecules essential to maintaining this protection.

### Activity 3 — Sequence It!

Number the five layers of the epidermis from 1 (deepest) to 5 (outermost).

- \_\_\_\_\_ Stratum Corneum
- \_\_\_\_\_ Stratum Germinativum
- \_\_\_\_\_ Stratum Granulosum
- \_\_\_\_\_ Stratum Lucidum
- \_\_\_\_\_ Stratum Spinosum

### Activity 4 — True or False

Circle True or False for each statement.

#	STATEMENT	TRUE	FALSE
1	The stratum germinativum is the outermost layer of the epidermis.	True	False
2	Elastin gives skin its strength and is necessary for wound healing.	True	False
3	Apocrine sweat glands are NOT attached to hair follicles.	True	False
4	The acid mantle has an average pH of approximately 5.5.	True	False
5	UVA rays are called burning rays.	True	False
6	Ceramides are important to the skin's barrier function.	True	False
7	The dermis contains five layers.	True	False
8	Tyrosinase is the enzyme that stimulates melanin production.	True	False
9	The stratum lucidum is present all over the body.	True	False
10	Tactile corpuscles are nerve endings sensitive to touch and pressure.	True	False

### Activity 5 — Sort It!

Write each term in the correct box for the skin layer where it is primarily found.

#### Terms

Melanocytes | Collagen | Desmosomes | Adipose tissue | Looped capillaries | Keratinocytes | Elastin | Merkel cells | Hyaluronic acid | Langerhans cells

Epidermis	Papillary Layer	Reticular Layer	Subcutaneous Layer

### Activity 6 — Odd One Out

Circle the term that does NOT belong. Write the reason on the line.

1. Stratum corneum / Stratum spinosum / Reticular layer / Stratum granulosum

Why: \_\_\_\_\_

2. Eccrine / Apocrine / Sebaceous / Sudoriferous

Why: \_\_\_\_\_

3. Collagen / Elastin / Tyrosinase / Hyaluronic acid

Why:

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4. UVA / UVB / HEV / SPF

Why:

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5. Melanin / Tyrosinase / Melanosomes / Desmosomes

Why:

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6. Tactile corpuscles / Merkel cells / Arrector pili / Sensory nerves

Why:

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## Part B — Fill in the Blank

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82 questions · Complete each sentence with the correct term.

1. The largest organ in the body is \_\_\_\_\_.
2. What protects the surface of the skin from external factors? \_\_\_\_\_.
3. \_\_\_\_\_ is part of the skin's natural barrier function.
4. How does skin protect itself from the sun? \_\_\_\_\_.
5. In what layer can melanocytes be found? \_\_\_\_\_.
6. Name the six functions of the skin:  
\_\_\_\_\_.  
\_\_\_\_\_.
7. Skin is nourished by the \_\_\_\_\_.
8. The stratum corneum is the \_\_\_\_\_ layer and is the outermost layer of the \_\_\_\_\_.
9. Where is melanin produced? \_\_\_\_\_.
10. What are melanosomes? The \_\_\_\_\_ producing \_\_\_\_\_ located in melanocytes.
11. The hair follicle extends to the \_\_\_\_\_ layer of the skin.
12. Where are collagen and elastin found? \_\_\_\_\_.
13. Where is collagen produced? \_\_\_\_\_.
14. Adipose tissue is in the \_\_\_\_\_ layer of the skin.
15. Stratum germinativum is located \_\_\_\_\_ the papillary layer.
16. Nails are made from \_\_\_\_\_ and are skin \_\_\_\_\_.
17. The skin reacts to cold, pain, pressure, and touch through \_\_\_\_\_ nerves.
18. Sebaceous glands produce \_\_\_\_\_.
19. Sudoriferous glands produce \_\_\_\_\_.
20. Looped capillaries are found in the \_\_\_\_\_ layer.
21. Desmosomes are \_\_\_\_\_.
22. What holds epidermal cells together? \_\_\_\_\_.
23. What gives skin pliability (elasticity)? \_\_\_\_\_.
24. Collagen gives skin \_\_\_\_\_ and is necessary for wound \_\_\_\_\_.
25. Adipose tissue is also called \_\_\_\_\_.
26. Sun-protecting lotion should have at least \_\_\_\_\_.
27. What nerves send messages to the brain to react to heat, cold, and touch? \_\_\_\_\_.

28. What muscle causes goosebumps? \_\_\_\_\_.
29. Thickest skin is on the \_\_\_\_\_ and \_\_\_\_\_.
30. Thinnest skin is on the \_\_\_\_\_.
31. Absorption of the skin is \_\_\_\_\_.
32. Nerve endings sensitive to touch and pressure are called \_\_\_\_\_.
33. Hyaluronic acid is found in the \_\_\_\_\_.
34. What is hyaluronic acid? A \_\_\_\_\_ fluid.
35. The outermost layer of the skin is called the \_\_\_\_\_.
36. Sudoriferous glands are also called \_\_\_\_\_.
37. Normal body temperature is \_\_\_\_\_ degrees Fahrenheit.
38. Sebum lubricates the \_\_\_\_\_ and \_\_\_\_\_.
39. Natural openings in the skin are \_\_\_\_\_ and \_\_\_\_\_.
40. What helps regulate the moisture of the skin? \_\_\_\_\_.
41. The main factor of skin aging is \_\_\_\_\_, responsible for approximately \_\_\_\_\_% of aging.
42. The main appendages of the skin are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
43. Histology is \_\_\_\_\_.
44. The two layers of the true (dermal) skin are the \_\_\_\_\_ and \_\_\_\_\_ layers.
45. Apocrine glands are attached to the \_\_\_\_\_, found under the \_\_\_\_\_ and in the \_\_\_\_\_ area, and are more active during \_\_\_\_\_.
46. Eccrine glands are found all over the body, primarily on the \_\_\_\_\_, are NOT \_\_\_\_\_ to hair follicles, and are more active during \_\_\_\_\_.
47. UVA rays are \_\_\_\_\_ rays and UVB rays are \_\_\_\_\_ rays.
48. The best defense against pollutants is \_\_\_\_\_.
49. Smoking causes a \_\_\_\_\_ in blood circulation and \_\_\_\_\_ blood vessels.
50. Drugs interfere with the body's intake of \_\_\_\_\_.
51. Alcohol overdilates \_\_\_\_\_.
52. Intercellular cement consists of \_\_\_\_\_, protective oils between \_\_\_\_\_ cells.
53. Healthy skin is \_\_\_\_\_, \_\_\_\_\_, and somewhat \_\_\_\_\_.
54. Subcutaneous tissue gives the body \_\_\_\_\_ and \_\_\_\_\_, provides a source of \_\_\_\_\_, and is a storage depot for \_\_\_\_\_.
55. What is the function of the epidermis? It is a \_\_\_\_\_, \_\_\_\_\_ covering of the body.
56. What is keratin? It is a \_\_\_\_\_ protein that provides \_\_\_\_\_ and \_\_\_\_\_ to the skin.
57. What happens in the stratum corneum? \_\_\_\_\_.
58. Estheticians work on which layer? \_\_\_\_\_.
59. What is another name for the cell removal process? \_\_\_\_\_ or \_\_\_\_\_.
60. Stratum lucidum is present on the \_\_\_\_\_ and \_\_\_\_\_.
61. Characteristics of the stratum lucidum: \_\_\_\_\_, lets \_\_\_\_\_ pass through, forms \_\_\_\_\_.

62. What is produced in the stratum granulosum? \_\_\_\_\_ bodies produce \_\_\_\_\_.
63. What happens to cells in the stratum granulosum? \_\_\_\_\_.
64. What gives the stratum spinosum its name? \_\_\_\_\_, which resemble prickly spines — \_\_\_\_\_.
65. Where does cell mitosis take place? \_\_\_\_\_.
66. Cells present in stratum germinativum: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
67. The dermis is also called \_\_\_\_\_ or \_\_\_\_\_.
68. There are \_\_\_\_\_ layers of the dermis.
69. The reticular layer is in the \_\_\_\_\_.
70. The reticular layer contains: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ acid, nerve \_\_\_\_\_, looped \_\_\_\_\_, \_\_\_\_\_ glands, \_\_\_\_\_ glands, \_\_\_\_\_ pili muscle, and lymph capillaries.
71. Hair and nails are skin \_\_\_\_\_ made from hard \_\_\_\_\_.
72. Skin color depends on \_\_\_\_\_.
73. TEWL stands for \_\_\_\_\_.
74. The technical term for the nail is \_\_\_\_\_.
75. The skin contains approximately \_\_\_\_\_ of the body's primary immune cells.
76. Products that suppress melanin production are referred to as \_\_\_\_\_.
77. The enzyme involved in melanin production is called \_\_\_\_\_.
78. Ceramides are \_\_\_\_\_ molecules with \_\_\_\_\_-holding capacity and are important to the \_\_\_\_\_ function of the skin.
79. Merkel cells are \_\_\_\_\_ receptors located in the stratum \_\_\_\_\_.
80. Langerhans cells are \_\_\_\_\_ cells that protect the body from \_\_\_\_\_.
81. What is the cause of microcirculation problems in the skin? \_\_\_\_\_.
82. What are the effects of high-energy visible light (HEV)? \_\_\_\_\_.