

Skin and Muscle Physiology

Biology · Practice Test · 20 Questions

1. What is the function of the hypodermis?

- A) Attaching skin to underlying muscles and storing fat
- B) Protecting the body from external damage
- C) Regulating body temperature
- D) Producing oil for the skin

2. Which accessory structure of the skin helps in regulating body temperature and removing waste?

- A) Hair
- B) Nails
- C) Sweat glands
- D) Sebaceous glands

3. Sebaceous glands secrete an oily product called sebum, which helps to keep the skin soft and pliable.

- A) True
- B) False

4. What are the three concentric layers of cells that make up the hair shaft and root?

- A) Medulla, Cortex, Cuticle
- B) Epidermis, Dermis, Hypodermis
- C) Epithelium, Connective tissue, Muscle tissue
- D) Keratin, Melanin, Collagen

5. Nails are made of tightly packed, hard, keratinized epidermal cells.

- A) True
- B) False

6. The visible portion of a nail is called the:

- A) Nail root
- B) Nail body
- C) Free edge
- D) Nail matrix

7. Sweat glands are also known as:

- A) Sebaceous glands
- B) Sudoriferous glands
- C) Hair follicles
- D) Dermal papillae

8. What is the process called when the length of a skeletal muscle shortens during contraction due to the sliding of thick and thin filaments?

- A) Sliding filament mechanism
- B) Muscle fatigue
- C) Action potential propagation
- D) Neurotransmitter release

9. Thick filaments in muscle are primarily composed of which protein?

- A) Actin
- B) Troponin
- C) Tropomyosin
- D) Myosin

10. Which part of the myosin molecule contains the ATP binding site?

- A) Myosin tail
- B) Myosin head
- C) Actin binding site
- D) Z-line

11. The formation of a cross-bridge occurs when the energized myosin head attaches to the actin binding site.

- A) True
- B) False

12. What is the term for the movement of the cross-bridge that pulls the thin filament towards the center of the sarcomere?

- A) ATP hydrolysis
- B) Power stroke
- C) Detachment
- D) Cross-bridge cycling

13. What binds to the ATP binding site on the myosin head to cause the detachment of myosin from actin?

- A) Calcium ions
- B) ATP
- C) ADP
- D) Actin

14. What is cell division defined as?

- A) The process by which a parent cell divides into two or more daughter cells
- B) The synthesis of new proteins within a cell
- C) The movement of molecules across a cell membrane
- D) The formation of new organelles within a cell

15. During which phase of mitosis do chromosomes condense and become visible?

- A) Prophase
- B) Metaphase
- C) Anaphase
- D) Telophase

16. In which phase of mitosis do chromosomes align at the equatorial plate?

- A) Prophase
- B) Metaphase
- C) Anaphase
- D) Telophase

17. What happens to the centromeres during anaphase?

- A) They split, and sister chromatids separate
- B) They condense and become visible
- C) They disappear
- D) They form spindle fibers

18. In telophase, chromosomes decondense and two new nuclei are formed.

- A) True
- B) False

19. Cytokinesis is the division of:

- A) The nucleus
- B) The cytoplasm and organelles
- C) The cell membrane
- D) The chromosomes

20. What is the primary function of hair?

- A) Protection, insulation, and sensation
- B) Regulating body temperature
- C) Producing oil
- D) Forming sweat