

# Skin and Muscle Physiology

Biology · Answer Key · 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