

**RAVEN CHAPTER 43 GUIDED NOTES: THE ANIMAL BODY & PRINCIPLES OF REGULATION**

**Raven 9<sup>th</sup> edition**

1. Describe the overall body plan of vertebrates.

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2. List and briefly define the 4 levels of organization of the vertebrate body.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

3. List the 4 primary tissues in vertebrates:

- a. . \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

4. List the 11 principal organ systems of the vertebrate body.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_
- 6. \_\_\_\_\_
- 7. \_\_\_\_\_
- 8. \_\_\_\_\_
- 9. \_\_\_\_\_
- 10. \_\_\_\_\_
- 11. \_\_\_\_\_

5. List some examples of epithelial tissues in the vertebrate body.

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6. From which embryonic germ layer(s) is epithelial tissue derived?

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7. Describe the functions of epithelial tissues.

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8. Discuss the remarkable regenerative property of epithelial tissue. How does this make the liver different from other organs?

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9. List some examples of connective tissue *proper* in the vertebrate body.

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10. From which embryonic germ layer is connective tissue derived?

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11. Describe the functions of connective tissues.

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12. What characteristic distinguishes *special* connective tissue?

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13. List some examples of *special* connective tissue in the vertebrate body.

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14. Briefly describe the structure, development, and function of each of the special connective tissues.

a. cartilage

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b. bone

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c. blood

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15. Briefly describe the characteristics and functions of the 3 types of muscle tissues.

a. smooth \_\_\_\_\_  
\_\_\_\_\_

b. skeletal \_\_\_\_\_  
\_\_\_\_\_

c. cardiac \_\_\_\_\_  
\_\_\_\_\_

16. Briefly describe the characteristics and functions of nerve tissues.

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17. List and briefly describe the function of the 3 types of nerve tissue.

a. \_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_

c. \_\_\_\_\_  
\_\_\_\_\_

18. Distinguish between an exoskeleton and an endoskeleton.

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19. Explain how the skeleton combines with an antagonistic muscle arrangement to provide a mechanism for movement.

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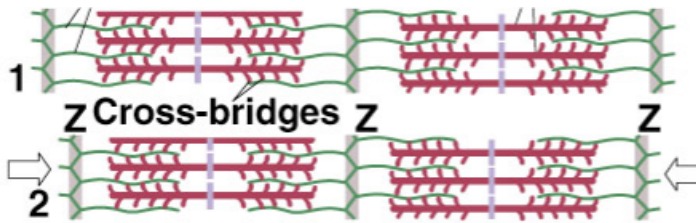
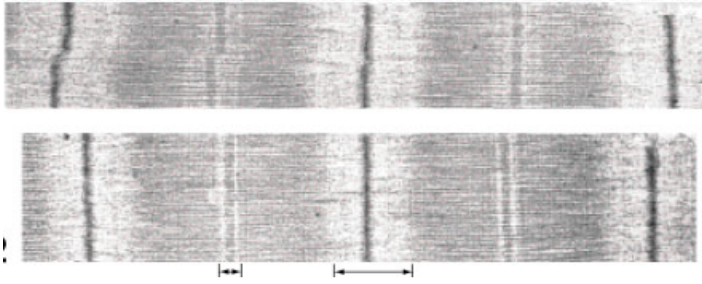
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20. Describe the structure of a skeletal muscle.

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21. Label the structure of a sarcomere on the diagram below:



22. Explain the sliding filament mechanism of muscle contraction.

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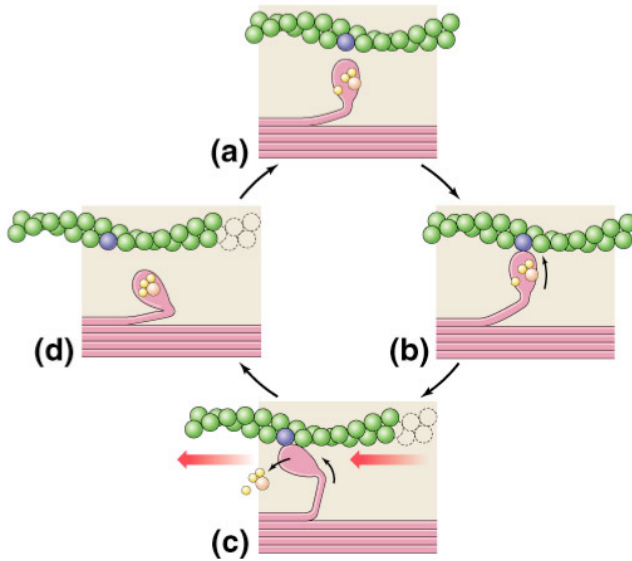


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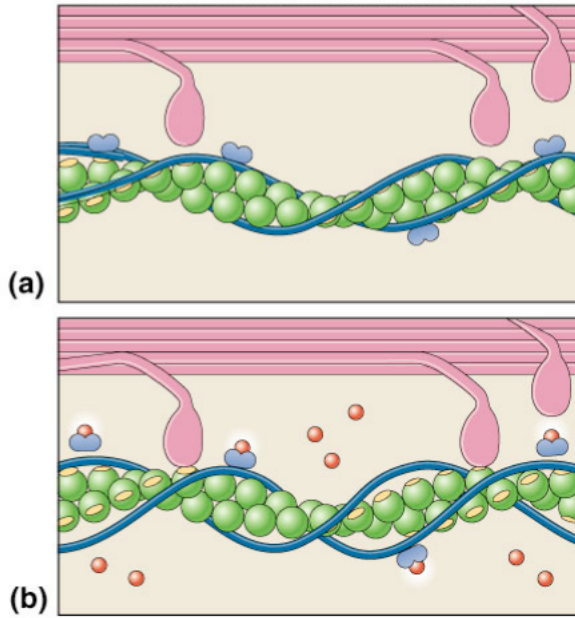


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23. Label the diagram below and explain the cross-bridge cycle in muscle contraction. Be sure to highlight the role of ATP.



24. Label the diagram below and explain how a muscle contraction is controlled. Be sure to discuss the role of calcium.



25. Explain how a motor neuron stimulates a muscle to contract.

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26. Explain how the nervous system produces *graded* contractions of whole muscles.

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27. Distinguish between fast twitch and slow twitch muscles.

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