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Crash Course Anatomy & Physiology #21: Muscles Part 1 – Muscle Cells

Name: _____ Date: _____

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1. The two proteins most responsible for muscle contraction are _____ and _____.
2. Muscle tissues turn _____ potential energy into _____ energy, or movement.
3. The three types of muscle tissue are _____, _____, and _____.
4. _____ muscle tissue is found in the walls of hollow organs like the stomach and blood vessels, and functions _____.
5. _____ muscle tissue makes up the heart, is striated, and functions _____.
6. _____ muscle tissue makes up about 640 muscles in the body, is striated, and mostly under _____ control.
7. Skeletal muscle fibers are surrounded by a plasma membrane called the _____.
8. Muscle fibers are organized into bundles called _____, which combine to form a whole muscle.
9. Within muscle fibers, the smallest contractile units are _____, which are separated by _____.
10. The _____ filament is made of actin, while the _____ filament is made of myosin.
11. The model that explains how actin and myosin interact to shorten the sarcomere is called the _____ model.
12. The proteins _____ and _____ act as "bodyguards" that block myosin from binding to actin.
13. The organelle in muscle cells that stores calcium ions is called the _____.
14. The _____ potential travels along the _____ and into _____, triggering calcium release.
15. Muscle contraction requires energy in the form of _____, which is generated in abundance by _____.

Crash Course Anatomy & Physiology #21: Muscles Part 1 – Muscle Cells KEY

1. The two proteins most responsible for muscle contraction are **actin** and **myosin**.
2. Muscle tissues turn **chemical** potential energy into **mechanical** energy, or movement.
3. The three types of muscle tissue are **smooth**, **cardiac**, and **skeletal**.
4. **Smooth** muscle tissue is found in the walls of hollow organs like the stomach and blood vessels, and functions **involuntarily**.
5. **Cardiac** muscle tissue makes up the heart, is striated, and functions **involuntarily**.
6. **Skeletal** muscle tissue makes up about 640 muscles in the body, is striated, and mostly under **voluntary** control.
7. Skeletal muscle fibers are surrounded by a plasma membrane called the **sarcolemma**.
8. Muscle fibers are organized into bundles called **fascicles**, which combine to form a whole muscle.
9. Within muscle fibers, the smallest contractile units are **sarcomeres**, which are separated by **Z lines**.
10. The **thin** filament is made of actin, while the **thick** filament is made of myosin.
11. The model that explains how actin and myosin interact to shorten the sarcomere is called the **sliding filament** model.
12. The proteins **tropomyosin** and **troponin** act as "bodyguards" that block myosin from binding to actin.
13. The organelle in muscle cells that stores calcium ions is called the **sarcoplasmic reticulum**.
14. The **action** potential travels along the **sarcolemma** and into **T-tubules**, triggering calcium release.
15. Muscle contraction requires energy in the form of **ATP**, which is generated in abundance by **mitochondria**.

15 Questions

Answer Key Included

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