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*Shaping Lives...
Empowering Communities...*

Muscular Tissue

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Muscle Tissue

- Muscle is one of our 4 tissue types and muscle tissue combined with nerves, blood vessels, and various connective tissues.
- Muscles are quite complex and as we'll find out, they are a marvel of both biology and physics.



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General characteristics

1.

Excitability

- The ability to receive and respond to a stimulus
 - **In skeletal muscle**, the stimulus is a neurotransmitter (chemical signal) release by a neuron (nerve cell).
 - **In smooth muscle**, the stimulus could be a neurotransmitter, a hormone, stretch, ΔpH , ΔPco_2 , or ΔPo_2 .
 - **In cardiac muscle**, the stimulus could be a neurotransmitter, a hormone, or stretch.
- The response is the generation of an electrical impulse that travels along the plasma membrane of the muscle cell.



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2. Contractility

- The ability to shorten forcibly when adequately stimulated.
- This is the defining property of muscle tissue.

3. Extensibility

- The ability to be stretched (Extended)

4. Elasticity

- The ability to recoil and resume original length after being stretched.



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Functions

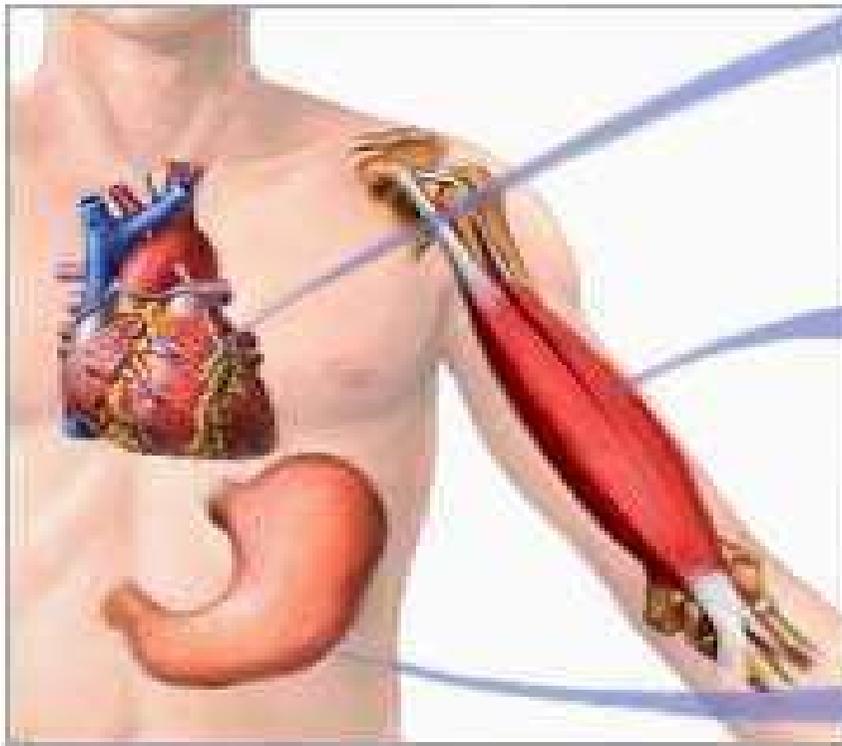
- Movement**
- Locomotion**
- Maintains posture**
- Produces heat**
- Facial expressions**
- Pumps blood**
- Peristalsis**



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3 Types of Muscle Tissue



Cardiac muscle cell



Skeletal muscle cell



Smooth muscle cell



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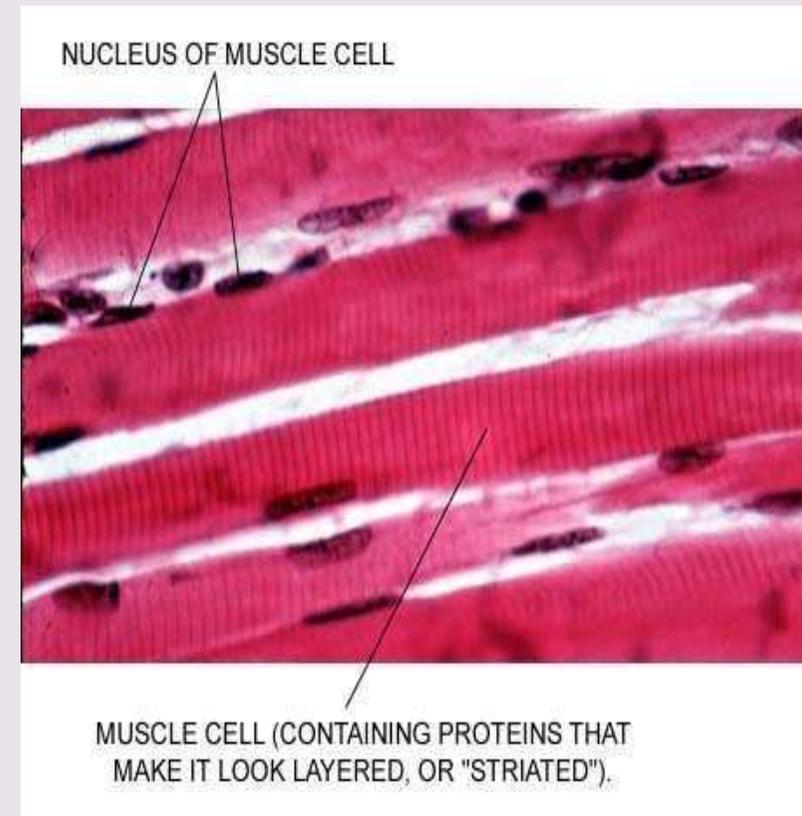
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Skeletal Muscle Tissue

Description: Long striated cells with multiple nuclei.

Function: Contraction for voluntary movements.

Location: In skeletal muscle.





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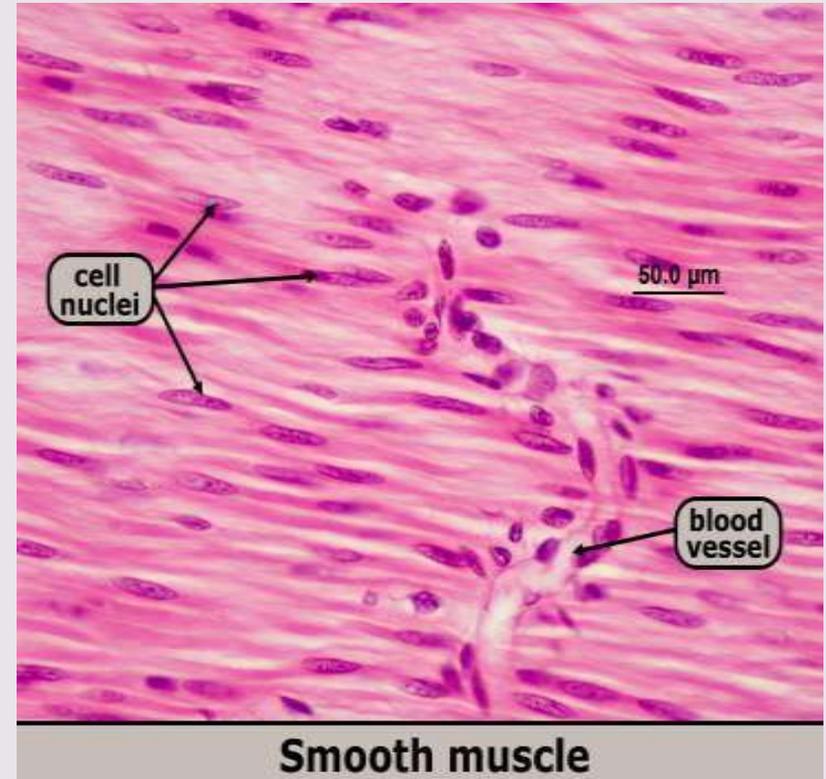
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Smooth Muscle Tissue

Description: Long, spindle-shaped cells, each with a single nucleus.

Function: Propulsion of substances along internal passageways.

Location: In hollow organs (e.g. stomach)





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Cardiac Muscle tissue

Description:

Branching, striated cells fused at plasma membranes.

**Function Pumping of
: blood the circulatory
in
system.**

Location: Wall of heart.

