Muscle Functions

- Produces movement
- Maintains posture
- Stabilizes joints
- Generates heat

Comparison of Muscle Types

<table>
<thead>
<tr>
<th>Skeletal</th>
<th>Cardiac</th>
<th>Smooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached to bones</td>
<td>Heart</td>
<td>Walls visceral organs</td>
</tr>
<tr>
<td>Cell shape and appearance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single cell</td>
<td>Branched cells</td>
<td>Single cell</td>
</tr>
<tr>
<td>Cylindrical</td>
<td>Striated</td>
<td>Fusiform</td>
</tr>
<tr>
<td>Striated</td>
<td>One nucleus</td>
<td>No striations</td>
</tr>
<tr>
<td>Multinucleate</td>
<td>Intercalated disk</td>
<td>One nucleus</td>
</tr>
<tr>
<td>Voluntary</td>
<td>Involuntary</td>
<td>Involuntary</td>
</tr>
</tbody>
</table>
Muscle Anatomy

A Myofibril

Muscle Contractions — Stages 1 & 2

1. Nerve impulses travel down a motor neuron, which branches.

2. A motor neuron branch terminates at a neuromuscular junction.
Energy for Muscle Contraction

1. Coupled reaction of creatine phosphate and ADP

2. Anaerobic glycolysis and lactic acid formation

3. Aerobic respiration

Contracting Biceps Brachii

tendon
biceps brachii (contracted)
origin
radius
triceps brachii (relaxed)
humerus
ulna
insertion
Muscles of Head and Neck:
- Frontalis
- Orbicularis oculi
- Zygomaticus
- Orbicularis oris
- Buccinator
- Temporalis
- Masseter
- Sternocleidomastoid

Anterior Trunk Muscles:
- Trapezius
- Deltoid
- Pectoralis major
- External oblique
- Rectus abdominis
Posterior Trunk Muscles

- Trapezius
- Deltoid
- Sternocleidomastoid
- Latissimus dorsi

Arm Muscles

- Deltoid
- Biceps brachii
- Triceps brachii
- Flexor carpi ulnaris
- Extensor carpi ulnaris

Leg Muscles

- Gluteus maximus
- Hamstring group
- Gastrocnemius
- Achilles tendon
- Adductor longus
- Sartorius
- Rectus femoris
- Vastus lateralis
- Vastus medialis
- Tibialis anterior
The End