Steroids & muscles notes:

3 Types of Muscles:
1.

2.

3.

Muscle group action:
- Synergistic groups:
- Antagonistic groups:

Anterior muscles to know:
Sternocleidomastoid
Deltoid
Pectoralis major
Serratus anterior
Biceps brachii
Rectus abdominus
External obliques
Sartorius
Quadriceps group
Tibialis anterior

Posterior muscles to know:
Deltoid
Trapezius
Triceps brachii
Latissimus dorsi
Gluteus maximus
Hamstring group
Gastrocnemius
Soleus
**Muscle attachments:**
How are skeletal muscles attached to bones?

**Origin:**

**Insertion:**

**Action**

**Muscle Structure:**
Fasicles:

Muscle Fibers (muscle cells):

**Myofibril:**

**Sacromere:**

**Z Line:**

**Actin:**

**Myosin:**

**Nerve Muscle Innervation (neuromuscular junction):**
What’s acetylcholine?

Where is acetylcholine release at the neuromuscular junction?

What happens when acetylcholine binds to receptors on the muscle cell membrane?

The electrical impulse spreads across the muscle down ___________________________

What ion is released due to the electrical impulse spreading through the T tubules?

Where’s the ion released from?

Where does the ion bind?

What does this cause?
What’s the troponin-tropomyosin complex? How does this complex prevent actin and myosin from binding with each other?

Where does ATP bind?

What’s the function of ATP in muscle contraction?

ATP is replenished by:
  •
  •
  •

Isotonic vs Isometric contraction:

Nerve innervation & activity:
What’s a motor unit?

What’s muscle tension?

What’s the “all of none principle”?

Muscle tone:

Recruitment:

Muscle twitch:
What’s a muscle twitch?

Muscle summation?

Muscle tetanus?
**Muscle Fiber Types:**

Hemoglobin vs myoglobin:

Red vs white fibers:

Slow vs fast twitch:

<table>
<thead>
<tr>
<th>Other names</th>
<th>Type I</th>
<th>Type Ila</th>
<th>Type IIb</th>
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<tbody>
<tr>
<td>Twitch type</td>
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<td>Contraction time</td>
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<td>[Myoglobin]</td>
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<td>Activity used for</td>
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<td>Mitochondrial density</td>
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<td>Power produced</td>
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<td>Major storage fuel</td>
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</table>

**Exercise training:**

Strength training:

Aerobic training:

**Comparison of skeletal, cardiac & smooth muscles:**

<table>
<thead>
<tr>
<th>Speed of contraction</th>
<th>How likely to fatigue?</th>
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</thead>
<tbody>
<tr>
<td>Skeletal:</td>
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<tr>
<td>Cardiac:</td>
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<td>Smooth:</td>
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**Muscle diseases and disorders:**
Figure 15.3: Skeletal muscles, posterior view