Muscle and EMG

**Medical Physiology - Laboratory seminar**

Home preparation, study materials, and learning objectives

**Learning objectives - what you will be able to do**

* Review of anatomy and physiology of muscles
* Types and Manifestations of muscle activity - muscle work
* Neuromuscular junction
* Familiarize yourself with EMG recording
* Record the electromyogram (EMG) and observe changes during different motor efforts
* Monitor EMG changes in the antagonistic muscle and the phenomenon of coactivation
* Record surface EMG.
* To measure the decline in maximal force during a sustained contraction
* Stimulate nerve-supplying a muscle

**Study materials**

* Lecture on Physiology
* Textbook Constanzo 6th or 7th edition
  + Pages 26-31 neuromuscular transmission
  + Pages 36-45
* Youtube

<https://www.youtube.com/playlist?list=PL1rG930trF29_VC1qF2L6oJuPDWey2wV9>

**Homework**

**1. Draw the neuromuscular junction (skeletal muscle)**

**2. Complete the table of skeletal /smooth /cardiac muscle - differences**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Smooth muscle | Cardiac muscle | Skeletal muscle |
| Sarcomeres |  |  |  |
| Nucleus |  |  |  |
| Speed and Fatigue |  |  |  |
| Ca2+ sensor |  |  |  |
| Excitement |  |  |  |
| Examples |  |  |  |

**3. List the manifestations of muscle activity**

Mechanical :

Electrical :

Structural:

Chemical :

Thermal :