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LAB 9

MUSCLE PHYSIOLOGY

9-D DEMONSTRATION OF THE ELECTROMYOGRAPH

PURPOSE:

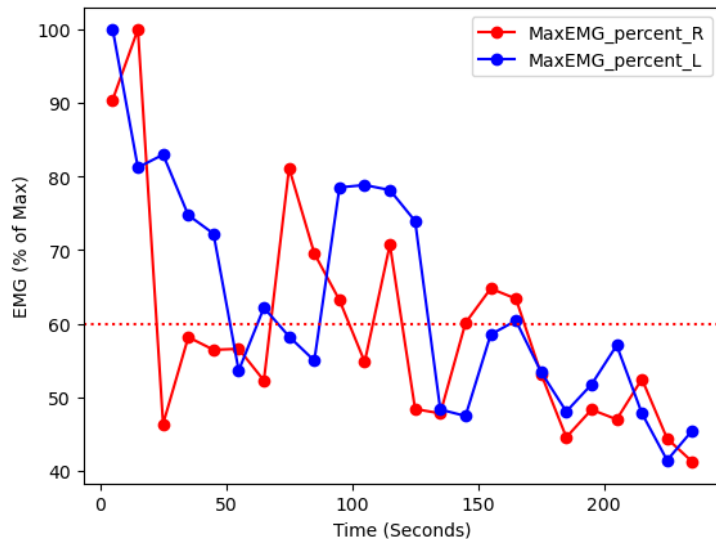
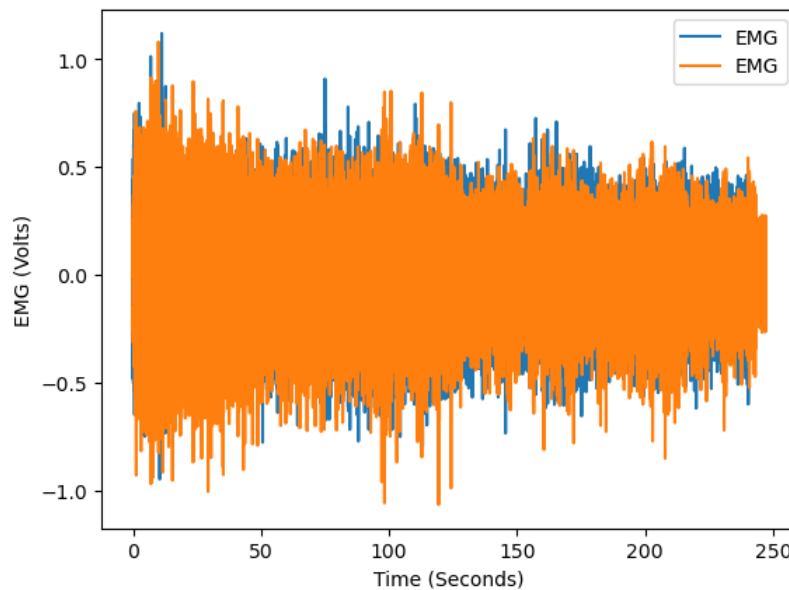
In this exercise will demonstrate agonist, antagonist, and synergist muscles. An agonist, or prime mover, is the muscle primarily responsible for a given movement. We will learn how to properly learn how to use/ operate a EMG.

PROCEDURE:

1. To get started
 - Before you turn anything on, be sure the IWX/214 unit is plugged in, and that the IWX/214 unit is connected to the laptop by the USB cable.
 - Be sure the the C-AAMI-504 cable is inserted into the isolated inputs of channels 1 and 2 of the IWX/214. Be sure that the color-coded lead wires are correctly inserted in the lead pedestal of the C-AAMI-504 EEG cable. Insert the connectors on the electro lead wires into the color-coded, matching sockets on the lead pedestrian of the ECG cable.
 - Once everything is connected first turn on the laptop and allow it to fully boot up before you turn on the IWX/214 unit. Once the Iworx unit is on, the red indicator light on the Iworx unit should light up and you may hear the USB chime from the laptop if the laptop does not default to mute (many are set to default to mute)
2. Open the lab scribe, three program by clicking on the lab scribe, three icon on the desktop. As soon as the program opens, you should see a window pop up that says "hardware found IWX214:2008-1-24," click "OK".
3. In the second from the top row (the row that says "File Edit View Tools Settings Advanced External Device Help), click on the "Settings" tab. About halfway down the drop-down window should be a tab called human muscles. Click on that tab and that she'll leave you to another drop-down list with the second tab from the top called "AntagonisticMuscle", click on that tab and then Close the PDF file that appears you don't need it.
4. Instruct the subject to remove all jewelry from his/ hers, arm and wrist. Use an alcohol swab to clean the regions of the skin on the forearms you are going to use (Fig.9-1). Let the area dry. Remove a disposable electrode from its plastic shield and apply the Electrode to the 6 locations.
5. Play select toys from the proximal to distal on the forearms in the following order: +2,-2 on the posterior and +1,-1 and ground on the interior. (Fig.9-1) Snap the lead wires onto the electrodes as follows:
 - The red "+1" lead is attached to the proximal electrode on the anterior surface.
 - The black "-1" lead is attached to the distal electrode on the anterior forearm
 - The green "C" lead (the ground) attached to the remaining electrodes on the anterior surface.
 - The white "+2" lead is attached to the proximal electrode on the posterior forearm

- The brown “-2” lead is attached to the distal electrode on the posterior surface
6. Record an EMG of the muscle of the forearm illustrated Agonistic and antagonistic muscle activity for each of the exercise is described below. Type the students name and the appropriate letter for the activity in the Mark box to the right of the Mark button. Click the red “REC” button to begin the recording; then press the enter key on the keyboard to mark the beginning of each activity. The recording for exercise “A” should look like figure 9–3. If you do not see anything, try clicking on the auto Skal tab, and or checking the electrode contacts. Repeat these procedures for each of the remaining activities.

RESULTS:



Time at ~60 % of max for right hand: 24.9995 seconds

Time at ~60 % of max for left hand: 54.9995 seconds

DISCUSSION:

The results were exactly what I expected them to be, data shows that left hand takes about 225 seconds to reach fatigue while the right hand takes 125 seconds to reach fatigue. Time at -40% of max for left hand: 224.9995 Second time at -40% of max for left-hand: 224.9995 seconds.

CONCLUSION:

Each person is different when it comes to the time it takes to fatigue, the one thing that we do have in common is agonist and antagonist and synergist muscles. Agonist muscles contract, to provide the main force behind the ability to move our bones in the joints that they are in.