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Physiology 125

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Muscle Physiology

Purpose

The purpose of the experiment is to be able to identify the phases of a typical skeletal muscle twitch and to see the waveforms of the skeletal muscle exercises. It is also to be able to distinguish the EMG of a contracted muscle from a fully contracted muscle. Lastly, to see what fatigued muscle looks like on the EMG.

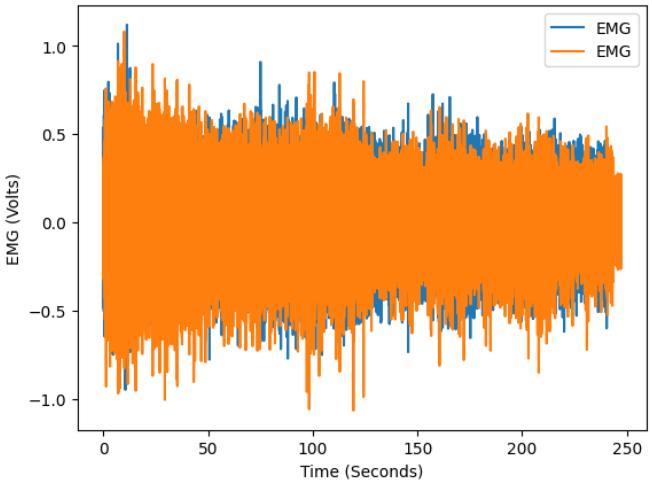
Procedures

In this experiment (9-D), it was made sure that before turning anything on the IWX/214 unit is plugged in and connected to the laptop by USB cable. After everything was plugged in into the right places the Labscribe3 icon was clicked. Before starting the experiment, it was made sure that all the jewelry was removed. The disposable electrode was applied and also the electrode to six locations. The red “+1” was attached to the proximal electrode on the anterior surface, the black “-1” one was attached to the distal electrode on the anterior forearm, the green “C” was attached to the remaining electrode on the anterior surface. The white “+2” was attached to the proximal electrode on the posterior forearm and lastly, the brown “-2” was attached to the distal electrode on the posterior surface.

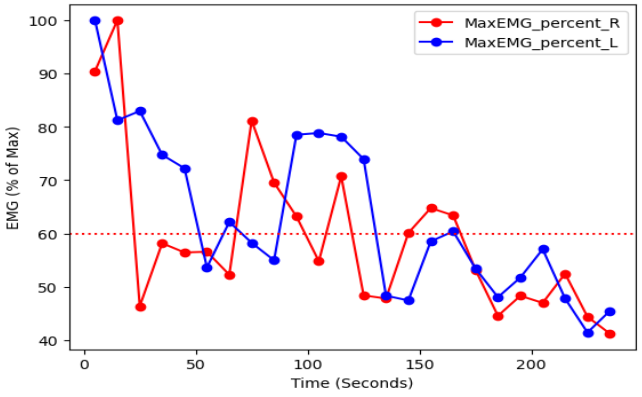
In the experiment (9-E), a tennis ball was firmly squeezed as rapidly as possible with the non-dominant hand until the subject could no longer squeeze the ball. The squeezing exercise was repeated but with the dominant arm. The time duration of the effort was recorded.

Results

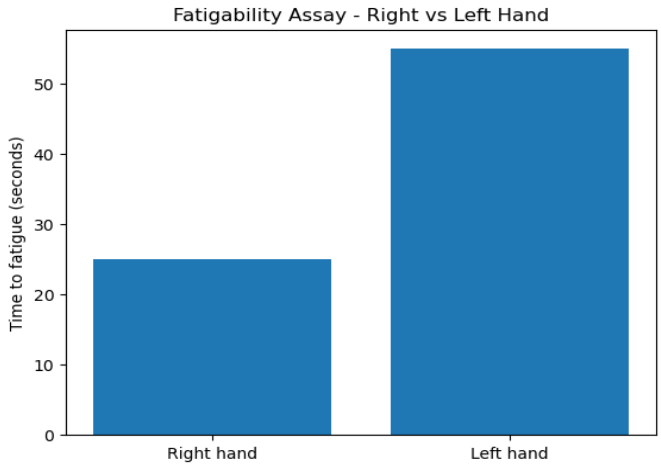
These are the gathered results by the subject. These results show the fatigability of the right and left of the subject.



This data was set into the window size of 6 and step size of 6 as well. We can clearly see how in the graph; the lines are decreasing over time.



In this graph, we can see the difference between the right and the left hand in terms of fatigability. The threshold was set to 60 in this graph.



In this bar graph, we can see the fatigability assay of the right versus the left hand clearly. The right hand reached a peak of 25 secs while the left hand reached a peak of 50 secs.

Discussion

In this experiment, the subject tried to use both their right hand and left hand for the fatigability test. In this test, the subject's dominant hand is their right hand and got very interesting results. You would assume that the subject's dominant hand, which is their right hand, will have longer stamina than their non-dominant hand, which is their left hand. We can see that this was not the case for this experiment. Based on the bar graph, the right hand reached its fatigability at around 25 seconds while the left hand reached 50 seconds.

Conclusion

In conclusion, based on the data given above the dominant hand has a lower stamina and will easily get fatigued than the non-dominant hand. Since the subject has a right dominant hand, this may only be true for those people who are right dominant handed.