



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Sara Yusufaly	Project Number S1412
Project Title The Effects of Body Mass Index on Sensory Nerve Conduction	
Abstract Objectives/Goals The objective of this study was to explore and determine the effects of the body mass index on median and nerve conduction velocity, latency and amplitude. My hypothesis stated that having a higher body mass index number would decrease nerve conduction velocity, increase latency, and decrease amplitude. Methods/Materials The hand-held stimulator of the electromyography machine was used to determine the subject's latency and amplitude when the arm of each subject was in the neutral position. By dividing the latency by .08 centimeters (mathematical procedure), the nerve's velocity was determined. This investigation tested a ratio of 1:1 subjects with a body mass index above and below 25. Results Although the data gathered throughout this investigation illustrated a variety of ideas, my hypothesis was, in the majority of instances, supported. The nerve conduction velocity and latency of subjects with a lower body mass index number was higher than that of subjects with a body mass index above 25. However, the data gathered from the amplitude of sensory response expressed a variety of discrepancies and outliers; many factors may have led to these results. Conclusions/Discussion The hypothesis throughout this experiment stated that the nerve conduction velocity and amplitude of sensory response would be lower in subjects who had a higher body mass index number; latency, on the other hand, would be higher in these subjects. The data gathered supports latency and velocity related hypotheses, but slightly rejects the hypothesis that the amplitude of sensory response would be higher in some subjects over others. This may be due to many factors including the electrical interference in the room, and/or the volts with which the machine was used.	
Summary Statement This experiment was an investigation of the effects of body mass index on median and ulnar nerve conduction velocity, latency of sensory response, and amplitude of sensory response.	
Help Received Neurologist monitored the use of the electromyography machine; Parents and brother provided guidance, additionally helping construct the board; Subjects agreed to be tested;	