



CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

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| Name(s) Grace J. Davis | Project Number 35371 |
| Project Title Does Age Affect Human Reaction Time? | |
| Objectives/Goals My objective was to determine whether or not age affects human reaction time. My hypothesis was that the age group 12-15 would have the fastest reaction time. I thought this age group will be the fastest because this age group is young and I believe that the older the subject is, the slower the reaction time. I also thought that the reaction time will remain relatively the same for all age groups until the age group 55-70. Abstract Methods/Materials I began by collecting 15 subjects in each of four groups, ages 12-15, 25-40, 40-55, and 55-70. Then I had the subject sit down in a chair. I then held the ruler in front of the subject, with subject's index finger and thumb at the 0 cm mark. After three practice drops, I dropped the ruler five times per subject, having the subject catch the ruler as quickly as he/she can. I then recorded the point at which the subject caught the ruler. I repeated these steps for each subject in each age group. Finally, I analyzed the data to determine whether age affects human reaction time. Results Four of my graphs show the point in which the ruler was caught by each subject. For each subject, five bars are clustered together with each bar representing one out of the five trials. Graphing each trial eliminated the issue of the significant variation in each trial within the same subject. My final and fifth graph shows the average of each age group. The average graph shows that the age group 12-15 had an average reaction time of 16.6, the age group 25-40 had an average of 15.6, the age group 40-55 had an average of 20.1, and the age group 55-70 had an average of 20.4. Conclusions/Discussion My hypothesis appears to be incorrect. I hypothesized that the age group 12-15 would have the fastest reaction time, but according to my data, the age group 25-40 had the best and lowest reaction time average, as measured by the average distance the ruler fell before it was caught (15.9 cm). The second part of my hypothesis, that the older age groups would have reaction times that remained relatively the same, was partially correct because the average distance the ruler fell for the two older age groups was 20.1 cm and 20.4 cm. Although the difference was small, I think this was the result of my experiment because the brain of a human is not fully developed until age 25. The subjects in the age group 25-40 have a fully developed brain and as a result their nervous system is at its greatest potential. | |
| Summary Statement My experiment determines whether age affects human reaction time in various age groups and the importance of this knowledge in our society. | |
| Help Received Many teachers acted as subjects in my experiment. | |