



# CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

<b>Name(s)</b> <b>William J. Theaker</b>	<b>Project Number</b> <b>J1322</b>
<b>Project Title</b> <b>Can Finger Length Predict Running Speed?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> In my experiment I compared the digit ratios of San Carlos School male students (ages 12-13 years old) to their times in a 90 yard dash. I wanted to see if there was a relationship between the digit ratios and their running speeds.</p> <p><b>Methods/Materials</b> Informed consent was obtained from 12-20 volunteer runners, boys ages 12-13 years old. Xeroxed subjects right and left hands. (If hands and lines on them were not clearly visible, I xeroxed them again at a different brightness.) I measured both hands from where the hand connects to the finger, to the tip of the finger, for both the ring and index fingers. I used the 2D:4D ratio and made a chart with the finger length data. For the race I split the runners into two groups for more accurate timing. I wrote down the times of the runners and repeat the process with the second group. I wrote down the data and compared the speed chart with the finger length ratio chart. Materials: pen, pencil, xerox machine, 12-20 male running subjects ages 12-13 yrs. old, a field, tape measure, clip board, timer, notebook, and ruler.</p> <p><b>Results</b> From my data I saw that the second digit to forth digit ratio (2D:4D) measurements did a fairly good job at predicting the runners finishing order. From the data table which predicted the finishing order, at least 5 of the runners finished in the exact predicted order, which means that the 2D:4D ratio correctly predicted one third of all the runners placements. The rest of the runners were only 1-3 spots away from their predicted slots, except for two outliers (one of which having a medical condition.)</p> <p><b>Conclusions/Discussion</b> The results of my experiment mostly agreed with my hypothesis: that finger length may predict running speed. The 2D:4D ratio predicted the outcome of the race in most cases, supporting the claim that there is a relationship between digit ratio and athletic ability (in this case-running a 90 yard dash). The reasoning behind this assumption is the fact that increased testosterone in utero causes growth of the ring finger compared to the index finger, and the resulting 2D:4D digit ratio can be used to predict lots of health and behavioral traits later in life. If I could change this project I would use more people to get a more accurate outcome. I would also recommend to measure the fingers normally without Xeroxing and to use calipers for easier, more accurate measuring.</p>	
<b>Summary Statement</b> My project is how the 2D:4D finger length ratio can predict the outcome of a 90 yard running race.	
<b>Help Received</b> Mother helped time subjects and helped mount my project on the board.	