



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Molly M. Tucker	Project Number 31645
Project Title Fiddles and Phalanges: Will Playing the Violin Make Your Fingers Grow?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The effect of physical impact on bone development has previously been studied in physical activities such as running and other high impact sports. Playing the violin, due to the pressure exerted by the left hand fingers on the fingerboard, can also be considered a "high impact sport." The purpose of this project was to find out if playing the violin had an impact on the left hand finger growth, and if starting at an early age and continuing through puberty increased the effect.</p> <p>Methods/Materials To test my hypothesis, a caliper was used to measure the left and right hand fingers of violinists and those who did not play violin (control group). The data was organized into four groups, which represented the independent variables: that the subject played violin, when the subject started, and if they had undergone puberty. Overall, the subjects who played violin had longer left hand fingers than those who did not play violin.</p> <p>Results The group of the subjects who had started early did not have longer left hand fingers than those who had started later, but the group of subjects that had undergone puberty showed the most effect on the left hand finger growth.</p> <p>Conclusions/Discussion This experiment demonstrated that playing the violin has an impact on finger bone growth, though the starting age did not matter as much as if the subject had or had not undergone puberty. For those who are starting violin, it is important that they start before puberty, if their finger length is to be affected the most.</p>	
Summary Statement The finger bones of the left hand will grow more in length as a result of playing the violin.	
Help Received Father helped glue board; Orchestra conductor allowed time to be taken from rehearsal for subjects to be recruited; Mother reviewed report; Parents provided information on the scientific method.	