



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

|   |                                       |
|---|---------------------------------------|
| <b>Name(s)</b><br><b>Lisa M. Tachiki</b>  | <b>Project Number</b><br><b>J1723</b> |
| <b>Project Title</b><br><b>The Cell Phone Gotcha! The Effect of Cell Phones on Young Teenagers</b>  |                                       |
| <b>Abstract</b><br><b>Objectives/Goals</b><br>My objective was to learn if magnetic field effects, produced by cell phones, causes stressful disturbances in young teenagers.<br><b>Methods/Materials</b><br>The materials are a Samsung R225m cell phone, Omron HEM-712c Automatic Inflation Blood Pressure Monitor, a questionnaire to gather facts, and 35 females and 27 males test subjects between the ages of 10-15.<br>Blood pressure of the males and females was measured, then five minutes and ten minutes after exposure to a cell phone. 30 females and 20 males were tested with a cell phone on, and 10 females and 10 males were tested with a cell phone off. Each baseline blood pressure was the control for each individual.<br><b>Results</b><br>Blood pressure was analyzed by increases or decreases for each individual by using the Fisher's Exact Test. With the cell phone on, the two-tailed P value showed an extremely significant increase with female test subjects ( $P=0.0007$ in the systolic and $P<0.0001$ in the diastolic) and an extremely significant decrease in the male test subjects ( $P=0.0004$ in the systolic and $P<0.0001$ in the diastolic). With the cell phone off, decreases in blood pressure occurred in both the male and females. This decrease was extremely significant in the females ( $P=0.0011$ in the systolic and $P<0.0001$ in the diastolic), but not with the males ( $P=0.0230$ in the systolic and $P=0.6563$ in the diastolic).<br><b>Conclusions/Discussion</b><br>My hypothesis was supported by the female test subjects. My data concludes that stressful disturbances occur in young female teenagers when exposed to cell phones, as measured by an increase in blood pressure. |                                       |
| <b>Summary Statement</b><br>My project is about the effect of cell phones on young teenagers, which interestingly resulted in finding that stressful disturbances occurred in young females.  |                                       |
| <b>Help Received</b><br>Mr. Hobbs, my teacher, taught me how to analyze statistical tests. My mom drove me all around Orange County to test subjects.   |                                       |