



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Alianne M. Steffenson   | <b>Project Number</b><br><br>22456 |
| <b>Project Title</b><br><b>The Gastric Solubility Rate of Acetaminophen when Combined with Various Beverages</b>  |                                    |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>To determine whether the beverage taken with a pain reliever affects the time it takes to dissolve. Also to find out if the coating on a pain reliever affects the time it takes to dissolve.</p> <p><b>Methods/Materials</b><br/>A stomach-like solution will be made using a hydrochloric acid supplement. The solution should represent the pH and action of the stomach. It will be placed in a ziploc bag to simulate the contents of the stomach churning occasionally. Then the pain reliever and beverage will be poured in to represent someone taking medication. Each type of pain reliever will be tested with each beverage.<br/>Pain Relievers: 500mg Acetaminophen tablets, 500mg Acetaminophen caplets, 500mg Acetaminophen gelcaps. Beverages: Nothing, Water, Milk, Orange juice, Soda.</p> <p><b>Results</b><br/>The solubility rate of the pain reliever was affected by the beverage used. Milk acted as a buffer while the rest varied. The coating of a pain reliever also affected the solubility rate. The tablet dissolved the fastest and the caplet and gelcap were slower.</p> <p><b>Conclusions/Discussion</b><br/>The data supports my hypothesis that the solubility rates of pain relievers are affected by the beverage taken with it. The data also shows that the coating of a pain reliever affects the solubility rate.</p> |                                    |
| <b>Summary Statement</b><br>Determining the solubility rates of different pain relievers when tested with various beverages.  |                                    |
| <b>Help Received</b><br>None  |                                    |