



# CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

Name(s)

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Project Number

33587

Project Title

**The Race to Relief: Which Aleve Pill Dissolves the Fastest?**

## Abstract

### Objectives/Goals

This experiment was performed to determine which type of pill dissolves in the stomach and reaches the bloodstream the fastest. The hypothesis was that the caplets and tablets would have the same rate of dissolution.

### Methods/Materials

The pills used were Aleve Caplets, Aleve Tablets, Aleve Gel Caps, and, Aleve Liquid Gels. It was verified by simulating the stomach acid and comparing each pills rate of dissolution. Stomach acid was simulated by boiling off the water in fresh-squeezed lemon juice. The acidity of the modified lemon juice increased to have a pH between one and two. The pill was dissolved in the solution and the amount of time taken for complete dissolution was recorded. This was repeated for each of the pills separately. The experiment was repeated five times for a total of five trials per pill.

### Results

The pills with the lowest dissolving rate were the gel cap pills, dissolving at an average of 3,508 seconds while the pills with the highest dissolving rate were liquid gel pills, dissolving at an average of 971 seconds.

### Conclusions/Discussion

This suggests that the liquid gel pills have the fastest rate of dissolution in the stomach. It could be inferred that the medicine from the liquid gel pills would reach the bloodstream the fastest.

### Summary Statement

My project is about the dissolution rate of the various types of Aleve pills in a simulated pH of the stomach acid.

### Help Received

My mother supervised me while I conducted my experiment. My teacher, Selena Khan, advised on how to improve and perfect my project. She also proofread it before I printed the final copy.