



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jeanette M. Fong</b>	<b>Project Number</b> <b>S0504</b>
<b>Project Title</b> <b>Dissolution Rates of Different Brands of Ibuprofen in Varying pH Solutions</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this experiment was to compare the dissolution of different brands of ibuprofen tablets in 15-minute time periods, using varying pH solutions. Ibuprofen is a widely-used non-narcotic pain reliever (Ibuprofen, 2006). The hypothesis, the different types of ibuprofen would dissolve at the same rate, was disproved.</p> <p><b>Methods/Materials</b> In order to conduct this experiment different brands of ibuprofen, Pharma TRUST generic ibuprofen, Advil tablets, Nuprin caplets, and Motrin tablets, were used. The tablets and individual coffee filters were weighed and the tablets were tested in three pH solutions. After 15 minutes the buffer and the tablet remnants were poured into a coffee filter, left to dry, and weighed.</p> <p><b>Results</b> The results indicate that these tablets would dissolve the fastest in the stomach, resulting in faster absorption rate (Pharmacology, 2002) and thus bringing faster pain relief.</p> <p><b>Conclusions/Discussion</b> Pharma Trust generic ibuprofen cost 2.5 cents per tablet, Motrin tablets cost 19.5 cents per tablet, Nuprin caplets cost 13.7 cents per caplet, and Advil costs 16.7 cents per tablet. If one wanted the fastest pain relief, they would take Pharma TRUST ibuprofen over name-brand ibuprofen because it dissolved the fastest. Coincidentally, Pharma TRUST is also the cheapest brand of ibuprofen by 11.2 cents. However, if one was desperate for fast pain relief at any cost, taking either Pharma TRUST ibuprofen, Motrin, or Nuprin caplets, would have close to the same effect because the average percentages dissolved after 15 minutes were within 5% of each other. Meanwhile, Advil, the #leading# name-brand pain reliever, did not perform as well as advertised. Generic Pharma TRUST ibuprofen is 6.68 times cheaper than Advil and dissolves 19.729% better. These results correspond with the results found in previous research (McKee, 2005).</p>	
<b>Summary Statement</b> I compared the dissolution rates of different brands of ibuprofen by comparing weight change to determine whether name brand ibuprofen is justified in its cost.	
<b>Help Received</b> Eva Stamper, used equipment under her supervision; Mother and Father, monetary support	