



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Ally Howe; Siobhan Rickert	Project Number J2219
Project Title Can Swimmers Buy Speed? How the Swimsuit Impacts the Speed of the Swim	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To determine if Speedo's technically advanced swimsuits (LZR Racer; Fastskin FS-Pro) give elite swimmers a greater competitive advantage compared to their conventional swimsuits (Endurance+; Aquablade; Fastskin FSII). We selected Speedo over the next largest competitive swimsuit manufacturers (TYR; Nike) for testing because Speedo offers a much broader range of styles, fabrics, and technologies, allowing us to maintain consistency within a brand.</p> <p>Methods/Materials Five Speedo swimsuits--each with distinct features (see project board for specifics) including design, material, and cost--were used to conduct four separate tests to answer the following questions: -WATER RUN-OFF: How much water does each swimsuit resist? -WEIGHT (DRY/WET): How much does each swimsuit weigh dry and wet? How much water did each swimsuit absorb? -PASSIVE DRAG: How far and in what time does an elite swimmer travel when pushing off the wall and gliding through the pool? -SWIMMING: What distance and times does an elite swimmer travel when swimming one lap of freestyle?</p> <p>Results Speedo's technically advanced swimsuits consistently achieved better results in testing compared to their conventional swimsuits: -Technically advanced swimsuits resist more water than conventional swimsuits -Technically advanced swimsuits weigh less and absorb less water than conventional swimsuits -Elite swimmer traveled greater distance in less time when pushing off wall and gliding through water -Elite swimmer swam the same distance in less time wearing technically advanced swimsuits</p> <p>Conclusions/Discussion Speedo's technically advanced swimsuits offer elite swimmers a greater competitive advantage compared to their conventional swimsuits. Technically advanced swimsuits resist more water, weigh less, absorb less water, and allow elite swimmers to travel a greater distance in less time when gliding than conventional swimsuits. Next time, we would use electronic versus hand timing in passive drag and swimming tests to decrease human error. We'd also conduct tests more than 3-5 times to ensure the most accurate results. In addition, it would be interesting for future research to see if different genders, different body types, non-elite swimmers, and swimming a longer distance would produce similar results.</p>	
Summary Statement Our project is about whether Speedo's technically advanced swimsuits (LZR Racer; Fastskin FS-Pro) offer elite swimmers a significant competitive advantage compared to their conventional swimsuits (Endurance+; Aquablade; Fastskin FSII).	
Help Received Both sets of parents provided timing, measuring, photography, equipment, data analysis, and typing assistance.	