CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)	Project Number
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	35848

Project Title

The Speed of Salty Swimmers: The Effects of Salt Water vs. Chlorine Water in Competitive Swimming

Abstract

Objectives/Goals

The objective of this experiment is to test what kind of swimming pool is best for competitive swimmers.

Methods/Materials

A fan was placed on one side of a box, which was filled with chlorine water. A tennis ball was set in the box on the same side as the fan. The fan was turned on and the time the tennis ball took to go from one end to the other was recorded. These steps were repeated to record times for salt water. Twenty trials were recorded for each type of water. The buoyancy of the tennis ball in each type of water was also recorded by measuring how deep the ball sat in the water. The temperature of the water was also noted. Afterwards, a data study of recorded event times from the 2014 swim season was conducted to compare the times of human subjects on a local competitive swim team in salt water and chlorine water pools.

Results

The data showed that there was a small, but measurable, difference between the speed the tennis ball traveled in salt water and in chlorine water. The tennis ball traveled faster in the salt water. The examination of data from human subjects also showed that competitive swimmers swim faster in salt water versus chlorine water.

Conclusions/Discussion

The data supports the original hypothesis in that the tennis ball traveled faster in the salt water, which is denser than chlorine water. As predicted, increased density was linked with increased buoyancy in the salt water. In addition, the 2014 swim season data examined from a local competitive swim team supports the original hypothesis and the results of the tennis ball experiment.

Summary Statement

My project tested the speed of movement through water in two water treatments (salt and chlorine).

Help Received

Dr. Laosheng Wu, UCR Professor and CE Specialist, assisted as a project mentor for regional science fair