



CALIFORNIA STATE SCIENCE FAIR 2016 PROJECT SUMMARY

Name(s) Eva M. Eleftheriadis	Project Number 36523
Project Title Can You Breathe as Deeply as Me? Comparing the Inspiratory Vital Lung Capacity of Athletes	
Abstract Objectives/Goals The objective of this study is to determine which one of the three groups of athletes participating in the study (synchronized swimmers, soccer players, or tennis players), with an athletic routine of five or more hours per week for at least one year, has the largest inspiratory vital lung capacity. Methods/Materials An incentive spirometer, which measures the volume of inspired air in milliliters (ml), was used for each girl to measure her inspiratory vital lung capacity. A total of thirty girls, ages twelve to fifteen, and without any respiratory problems were tested. They were divided into three groups of ten athletes from each sport (synchronized swimming, soccer, and tennis). Each girl inhaled to her maximum ability on her own incentive spirometer three times. The data was then calculated to determine the average measurement of the athletes for each of the three sports. Results The synchronized swimmers average inspiratory vital lung capacity was 2875 ml. The soccer players average inspiratory vital lung capacity was 3006.6 ml. The tennis players average inspiratory vital lung capacity was 2163 ml. The soccer players had the greatest average inspiratory vital lung capacity and the tennis players had the least average inspiratory vital lung capacity. Conclusions/Discussion This study concluded that the soccer players had the greatest average inspiratory vital lung capacity of the three groups of athletes. Although the scientist anticipated that the synchronized swimmers would have the greatest inspiratory vital lung capacity, the results could have been affected by the fact that the soccer players average height and age/physical maturity were both greater than that of the other two groups. The scientist would like to conduct a follow up study with athletes with narrower height and age ranges.	
Summary Statement My study determined that the soccer players had the greatest inspiratory vital lung capacity compared to synchronized swimmers and tennis players.	
Help Received My science teacher, Mr. Semple, provided feedback throughout the project and proofread my science paper. My father, Ioannis Eleftheriadis, MD and my mother Anne Kounis Eleftheriadis, RN helped me comprehend the scientific vocabulary in my advanced scientific research materials.	