



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Rachel L. Rabinowitz	Project Number J1317
Project Title Swimmers vs. Singers Pulmonary Functions	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective and goals of my project is to see if swimmers or singers would have higher pulmonary functions by testing their resting heart rate, their forced vital compacity (FVC), and their forced expiratory volume per second (FEV1). I wanted my project to show that if you exercise then your health will be greater than someone who doesn't exercise.</p> <p>Methods/Materials To measure the swimmers and singers FVC and FEV1 I used a spirometer that my mentor, Dr Richard Belkin, supplied me with and trained me on. To measure the swimmers and singers resting heart rate I had them find their pulse on their wrist or their neck.</p> <p>Results I tested 20 swimmers and 20 singers pulmonary functions to see which group would have greater pulmonary functions. In the end the swimmers had much greater forced vital compacitys and forced expiratory volume per second, but the singing groups resting heart rates were slightly lower than the swimming groups resting heart rates.</p> <p>Conclusions/Discussion When testing singers and swimmers pulmonary functions in the end it showed that the athletes (swimmers) had greater pulmonary functions than the non athletes (singers). Overall in the end I leard that if you do exercise more then others your heath will be grater than someone who doesn't exercise as much.</p>	
Summary Statement In this project I tested swimmers pulmonary functions (resting heart rate, FVC and FEV1) and compared the results to singers pulmonary functions, and I found that the swimmers had greater pulmonary functions than the singers.	
Help Received Dr Belkin was my mentor who supplied me with all of my materials and trained me on how to use the materials. Dr Belkin also helped me analyze my data after I collected all of it. I did the rest of the work all by myself.	