



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Jessie M. Hagiwara	Project Number J1010
Project Title Blowing Off Carbon Dioxide	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project is to see what type of exercises makes people produce the most carbon dioxide.</p> <p>Methods/Materials Materials: test subjects, liquid measuring cup that reads in mL, several glasses to hold water, several straws of equal length and diameter, microwave timer, tap water, pH testing paper-hydrion lab quality, narrow interval Methods: 1. Measure 240 mL. of tap water and pour into glass-repeat 4 times so you end up with 5 glasses of tap water -having the water ready before makes things easier. 2. Dip a piece of the pH paper in the water and compare to to the color scale-recorded pH. 3. Have the subject blow into the first glass of water through the straw for 30 seconds. 4. Test the pH of the water immediately. Record this as: "pH before exercise." Dump water, set glass aside and replace with fresh glass. 5. Have test subjects run in place for 5 minutes, then quickly repeat steps 3 and 4. 6. Have test subject rest for 2 minutes, then have him/her do 25 sit ups. Quickly repeat steps 3 and 4. 7. Have test subject rest for 2 minutes and then do 10 push ups. Quickly repeat steps 3 and 4. 8. Have test subject rest for 2 minutes and then do 20 military presses. 9. Repeat steps 3 and 4. 10. Repeat experiment with each subject.</p> <p>Results The Military press which uses both leg and arm muscles, and is faced paced. It really increases heart rate and works the muscles.</p> <p>Conclusions/Discussion Exercises that work more than one muscle group and is aerobic will make you give off the most carbon dioxide which means burning more calories. The military press produced the most carbon dioxide. That means this type of exercise will help people lose weight or keep their weight under control. It can also help keep your heart healthy.</p>	
Summary Statement I wanted to find out which type of exercise makes the most carbon dioxide, and requires the most energy.	
Help Received My mom helped me with some of the typing, the paper cutter, and the Excel program.	