



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Olivia R. Cooper	Project Number J1206
Project Title Jump to the Beat: Heart Rate Recovery with Various Post-Exercise Activities	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my science fair project, Jump to the Beat, was to discover the fastest way to decrease heart rate after cardio physical activity. I compared sitting, standing, lying down, and walking at an unhurried pace after jumping rope. After researching, I hypothesized that the fastest way to decrease heart rate would be lying down, followed by sitting, then walking, then standing. Based on my research, this would be because of liquid pressure; if the volunteer was lying down, there would be less pressure on the blood, so the heart didn't have to work as hard, while standing would put more liquid pressure on the blood. Since sitting is in between standing and lying down, I hypothesized it would take more time than lying down and less time than standing. Also, I thought walking would take less time than standing because the muscle movement might help the heart push the blood through the vessels.</p> <p>Methods/Materials To test my hypothesis, I recorded data from the volunteer and the environment. Next, I took the Resting Heart Rate (RHR) of the volunteer, and had the volunteer jump rope for 2 minutes. Immediately after jumping, I took the volunteer's increased heart rate, and had the volunteer either sit, stand, walk, or lie down. While the volunteer was doing the activity, I timed until their heart rate was back down and matched the previous RHR. This time is the Recovery Rate (RR). I repeated the test four times for each volunteer so they had completed each activity after jumping (sit, stand, walk, lie down).</p> <p>Results Lying down had the quickest average RR at 1.42 minutes; sitting followed with an average RR of 1.64 minutes; walking came next at 1.94 minutes; standing took the most time and averaged 2.03 minutes. I achieved my objective by discovering the fastest way to decrease heart rate after physical cardio activity: lying down.</p> <p>Conclusions/Discussion My results did support my hypothesis. Lying down had the fastest average RR, followed by sitting, then walking, then standing. In the process of my project I learned about heart rate and the relationship with liquid pressure. In a future experiment I would like to see how other variables such as weather conditions, dehydration and regular intensity of physical activity affect the heart rate of my volunteers.</p>	
Summary Statement Your post-exercise activities do affect your rate of return to your resting heart rate.	
Help Received Mother helped me realize the best way to display my data on a graph	