



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>William J. Juri</b>	<b>Project Number</b> <b>J1011</b>
<b>Project Title</b> <b>Can You Make the Grade? Fitness: Body Mass vs. Heart Rate</b>	
<b>Abstract</b> <b>Objectives/Goals</b> There are many news programs and newspaper articles about overweight children. This project measures a twelve year old boy's Body Mass Index to determine if it relates to his physical fitness level as determined by the Harvard Step Test. My prediction is that a twelve year old boy's Body Mass Index rating will not correlate to their Recovery Index "grade" because there is more than height and weight to consider when determining health. <b>Methods/Materials</b> First, consent forms were obtained from twenty twelve year old boys. Each subject's height and weight were measured to determine their Body Mass Index. Each test subject stepped up and down from a bench at thirty times per minute for four minutes. The bench height was determined by each subject's height. One minute after the test, the test subject's heart beats were counted for 30 seconds. Their heart beats were counted three times waiting thirty seconds in between each reading. Recovery Index and Body Mass Index were calculated. Graphs and tables were made to analyze data. <b>Results</b> Body Mass Index doesn't have a direct correlation to physical fitness according to the Harvard Step Test for a twelve year old boy. Test subjects within the normal Body Mass Index range had physical fitness levels that were excellent, good, and fair. Test subjects who were "at risk" and "overweight" had physical fitness levels that were excellent and good. An example of why Body Mass Index and Recovery Index didn't correlate was that two test subjects in the "normal" category had a Body Mass Index difference of only .08. However, they had a recovery index difference of 74.83 with one subject in the fair region and below the other nineteen test subjects, and the other in the excellent region and above all of the other nineteen test subjects. <b>Conclusions/Discussion</b> After analyzing the data, I concluded that my hypothesis was correct. Body Mass Index doesn't have a direct correlation to physical fitness according to the Harvard Step Test for a twelve year old boy. It's important for health professionals to not only look at someone's Body Mass Index to determine their state of health, but to look at their physical fitness level as well. One way to check someone's physical fitness level is to use the Harvard Step Test. Thus, Body Mass Index is not the only test that should be used to check someone's state of health.	
<b>Summary Statement</b> This project determines if a twelve year old boy's Body Mass Index relates to his physical fitness level as determined by the Harvard Step Test.	
<b>Help Received</b> Mother helped supervise for safety precautions; Father helped find a board to step from; Twenty twelve year old boys helped by participating in my test as test subjects.	