



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> Kelly Conrad; Kayla Miles	<b>Project Number</b>  34885
<b>Project Title</b> Let's Wii-Hab: The Comparison of the Nintendo Wii Fit Balance Program to Traditional Balance Training	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this study was to examine the effectiveness of the Wii Fit Balance program, as compared to traditional physical therapy balance training. Our hypothesis was that subjects who train on the Wii Fit program will demonstrate greater improvement in balance scores, as compared to the subjects who have a traditional balance training program. We predicted this outcome because, the Wii Fit balance program provides the biofeedback necessary to make the adjustments in order to maintain balance.</p> <p><b>Methods/Materials</b> In this study we used the following materials: Wii Fit Program, Wii Fit board, Nintendo gaming system, Thera Band, Goniometer, Trampoline, Timer.</p> <p><b>Results</b> When Wii subjects were tested on the floor with eyes closed, the average increased standing time was 20 seconds. For the Non-Wii subjects, the average increased standing time was 11 seconds. When tested on the trampoline with eyes closed, the Wii Fit subjects had an average increased standing time of 7 seconds. The Non-Wii subjects had an increased time of 0.7 seconds. The majority of the Wii and non-Wii subjects were able to maintain their balance, when standing on one leg with eyes open. The majority of subjects in both groups had increased range of motion in both ankles.</p> <p><b>Conclusions/Discussion</b> The results of this study clearly indicate that the technology utilized in the Nintendo Wii Fit program, benefited our subjects. The fact that the Wii subjects had greater improvement on both surfaces with eyes closed, demonstrates that subjects were actually able to increase their awareness of their body in space, without the sense of vision. This can be attributed to the biofeedback component of the games that train subjects to move in and out of their base of support while maintaining balance in order to complete the task. If the rehabilitative industry utilizes the technology of video gaming systems, this could be a revolutionary change in the way medical professionals treat their patients. If training on a program like the Wii Fit decreases likelihood of an individual experiencing a fall or fracture, it should be considered by medical professionals to be a viable option to include as part of a rehabilitative plan of care.</p>	
<b>Summary Statement</b> The effectiveness of the Wii Fit Balance Program when compared to traditional balance training.	
<b>Help Received</b> My mom is a physical therapist and she helped with ankle range of motion measurements. My neighbor is a physical therapist and he gave us good research and background information.	