

# 2013 臺灣國際科學展覽會 優勝作品專輯(國外作品)

作品編號	090021
參展科別	醫學與健康科學科
作品名稱	Finding a Better Brain Booster
得獎獎項	四等獎

國    家	Canada
就讀學校	Energetic Learning Centre
作者姓名	Kevala Van Volkenburg

# **ABSTRACT OF EXHIBIT**

## **TAIWAN INTERNATIONAL SCIENCE FAIR**

The purpose of my project was to determine which activity improved academic performance the most: 10 minutes of exercise, 10 minutes of Brain Gym (cross-lateral movements), or a combination of 5 minutes exercise and 5 minutes Brain Gym. This project was conducted to find which activity would be a better learning aid in grade 4 students.

There were many steps to conducting this study. First, I located teachers and classes, willing to allow the testing and determined days and times to test. Next, I created consent forms to explain the project and had permission forms from the students and their parents signed. Then I prepared 15 math and reading tests at students' grade level. There were two tests for 15 days- labeled Before Test and After Test.

When I administered the tests for the classes doing the activities, I made sure the tests were given by the classroom teacher, which kept the students motivated. Tests were given every day for 5 days. The Before Test was given at 1:00 pm. Then at 1:30 pm students did 10 minutes of the planned activity for that week. Immediately after the activity, students were given the After Test. This was done every day and was repeated for Exercise, Brain Gym, and Combination week.

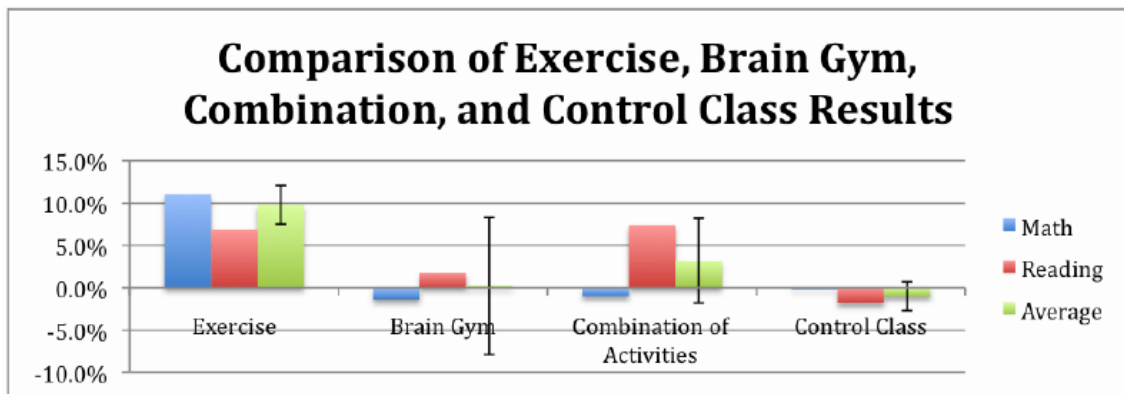
The control class was designed to determine if doing the test for a second time in a day improved the student's performance. The Before Test was given at 1:00 pm and then at 1:30 pm. When the Before Tests were completed, the students continued with their daily work for 10 minutes. Then at 1:40 pm students were given the After Test. This was repeated for Exercise, Brain Gym, and Combination week.

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Students were given 10 minutes to complete the scheduled activity that week; either Exercises, Brain Gym or a combination of the two. During the week of Exercise, Jumping jacks, Skipping, Stride jumps, Burpies, Twisties and Jogging on the spot were completed in the 10 minutes provided.

During the Brain Gym week, there were 26 Brain Gym movements. The lists of movements were rotated each day; so all movements were performed.

The test results of this study were intriguing. (Bar=Standard Deviation)



I concluded that 10 minutes of exercise was the better brain booster. Exercise improved academic performance by 9.8%. Brain Gym improved academic performance by 0.2% and the combination activities increased test scores by an average of 3.2%. The control class test scores decreased on average by 1.0% indicating that writing the tests twice in a day, did not improve students' test scores.

Exercising for 10 minutes improved student's math scores by 11.0% and reading scores by 6.9%. Brain Gym math test scores decreased by 1.4%, and increased in reading by 1.8%. In the combination of the two, the math test scores decreased by 1.0%, reading test scores increased by 7.4%. Overall, the most effective and reliable brain booster was 10 minutes of mild aerobic exercise alone.

## 評語

1. The author found that chitosan from horseshoe crab has much higher viscosity compared to those from shrimp crab and squid.
2. Horse-shoe crab chitosan was used to treat diabetes foot ulcer and excellent results were obtained.
3. However, the “trials” were rather unofficial so they should be much better refined. This project should be expanded and promoted to the society.