

Physical activity and academic achievement



Physical Activity and Academic Achievement in College Students

Abstract

The purpose of this study was to determine whether those that schedule regular exercise into their lifestyles achieve greater academic success overall. To do so, scores on the Graduate Record Examination (GRE) test were compared before the participants worked out to the scores after the students worked out regularly for three weeks. Participants were 50 Psychology students randomly selected at University of Illinois at Chicago (UIC). The hypothesis was that participants will answer fewer questions on the GRE if they do not work out. Students will answer more questions correctly after they work. The predicted results were that students will answer correctly 20 out of 30 questions on the verbal section and 18 out of 28 questions on the math section before they work out regularly. After the three week work out, the students answered 24 out of 30 questions on the verbal section and 26 out of 28 questions on the math section. There was no main effect on type of questions. There was a main effect on the exercise that after the students worked out they scored higher. There was an interaction that after the students worked out they answered more questions correctly on both sections, verbal and math.

The predicted results caused a possible correlation between physical fitness and academic achievement. However, the results should be interrupted carefully, as more studies still need to be done in order to completely support that physical fitness causes academic achievement to improve. It is possible that physical and mental process correspond with each other and influence each other.

Introduction

The positive health benefits of regular exercise are widely known. Even though due to much research where it is evident that there are positive benefits of physical activity, physical education in schools is being viewed as only an extracurricular activity rather than a necessity (Grissom, 2005). When school budgets are being cut short, physical education is being cut first; this in the long run negatively affects the students. Previous researchers and advocates argue that daily physical education in schools improves student's concentration and cognitive functioning (Sibley, 2003). Physical education is an essential factor in students' academic achievements.

To date, in the United States, Canada and Australia, there were five controlled experimental studies done that evaluated the effects on academic performance of providing students with additional time for physical education. All the studies have shown that even if there is no drastic improvement, it definitely does not need to be sacrificed (Shephard, Volle, Lavallee, LaBarre, Jequier, 1999). In 2007, 287 fourth and fifth graders from British Columbia were studied to determine if providing daily physical activity affected their academic performance (Ahamed, 2007). They participated in daily ten minute classroom activity in addition to their regular 80 minute PE class. Even though the physical activity time been increased by about fifty minutes per week, the students who received extra physical activity had similar stantarized test scores for mathematics, reading and language arts as students in the control group. The researchers concluded a positive

correlation between physical activity and academic performance (Ahamed, 2007).

Overall, it is extremely difficult to calculate a statistically significant difference between experiment and control groups because it is difficult to raise academic achievement (Shephard 1996). Also whatever research that has been done in order to find the relationship between physical fitness and academic achievement primarily focused on middle school to high school students. The purpose of this study is to determine whether college students that work out regularly perform better than those that do not work out at all.

College students have a lot going on during their academic career. This study is being done in order to determine whether those that schedule regular exercise into their busy lifestyles achieve greater academic success overall. The practical implication of the proposed study is that those who work out regularly and lead a healthy lifestyle perform better on tests rather than those students who do not work out. The experiment is trying to demonstrate that it is needed for students to not forget to lead a healthy lifestyle and to take time out of the busy schedules to exercise and that will lead to higher test scores. The hypothesis was that participants will answer fewer questions on the GRE if they do not work out. Students will answer more questions correctly after they work. Also, there will an interaction between working out and number of questions answered.

Refer to Table 1 and Graph 1 for predicted results. The predicted results were that students will answer correctly 20 out of 30 questions on the verbal section and 18 out of 28 questions on the math section before they work out

regularly. After the three week work out, the students answered 24 out of 30 questions on the verbal section and 26 out of 28 questions on the math section. There was no main effect on type of questions. There was a main effect on the exercise that after the students worked out they scored higher.

Method

Participants

50 undergraduate college students at University of Illinois at Chicago were between the ages of 18-25 were tested. Both male and females sexes were approximately equally represented. The participants were assigned to participate as part of the Psychology class, which counted towards the class credit. The participants were all healthy which allowed them to participate in the physical portion of the experiment.

Design

The experiment was a within subjects design. The participants were asked to complete the Graduate Record Examination (GRE) before they exercised for three weeks regularly and after they exercised regularly for three weeks. The exercise consisted of cardio work out. The first independent variable was running on the treadmill for 30 minutes and using the elliptical machine for another 30 minutes and no cardio exercise at all. The second IV was the type of question. The participants were asked to complete the verbal and math sections. The dependent variable was the level of performance on the GRE. The amount of questions answered correctly will determine the level of performance.

Materials

The materials used were the UIC Wellness Center and the two versions of GRE sample questions from the verbal and math section. Both GRE tests were of the same difficulty. One version was used before the work out, and another version after the 3 week workout. There were 30 questions on the verbal section and 28 questions on the math section.

Procedure

First the participants were given the GRE both sections, verbal and math. They had 30 minutes to complete the 30 questions on the verbal section. They had 45 minutes to complete the 28 questions on the math section. After the exam, the participants were all signed up at the UIC Wellness Center for regular exercise. They worked out on Mondays, Wednesdays and Fridays between 1-2 hours. They walked/ran on the treadmill for 30 minutes, rested for 5 and then used the elliptical machine for another 30 minutes. This repeated for three weeks. After the regular work out, the participants were given a different version of the same difficulty GRE tests. Again they had 30 minutes to complete the 30 questions on the verbal section. They had 45 minutes to complete the 28 questions on the math section. In the end, both exams were scored and compared to each other.

References

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Grissom, JB. (2005). Physical Fitness and Academic Achievement. *Journal of Exercise*

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Shephard RJ, Volle M, Lavallee H, LaBarre R, Jequier JC, Rajic M. (1999). Required physical activity and academic grades: A controlled longitudinal study. *Children and Sport*.

Sibley BA, Etnier JL. (2003). The relationship between physical activity and cognition in children. *Pediatric Exercise Science*.

Tables, Figures

IV A: Physical activity

A1: No Exercise A2: Exercise

20

24

18

26

B1: Verbal

IV B: Type of Questions

B2: Math

Table 1