



Academic Achievement in Relation to Improved Physical Activity

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Abstract

INTRODUCTION: According to the Center for Disease Control and Prevention, children and adolescents require 60 minutes or more of physical activity per day. In 2006, only 3.8 percent of elementary schools, 7.9 percent of middle schools, and 2.1 percent of high schools offered students daily physical education or its equivalent for the entire school year. Research shows that keeping physical education programs does not have an adverse effect on academics. This research study was conducted to see how adding the recommended daily physical activity would affect academic achievement.

PURPOSE: The purpose of this study was to determine whether improved physical activity had an adverse effect on academic achievement.

METHODS: 14 subjects began the study and only 13 subject completed post testing. Four women (16 yrs) and nine men (16 yrs) were high school students at Burton Adventist Academy and volunteered to participate in this study. Each subject participated in a 3 month physical education class. At the beginning of the class each subject performed the exercise testing included in the fitnessgram (push up test, curl up test, 2 site skinfold, and sit and reach). Each subject also then took an academic test, which was taken from a sample SAT prep booklet. At the end of the class each subject performed another fitnessgram and took another academic test.

RESULTS: There was a statistically significant difference in the push up test (pretest, 35.08 ± 10.54 ; posttest, 40.92 ± 9.93 ; $P= 0.02$), curl up test (pretest, 34.8 ± 6.71 ; posttest, 41.69 ± 8.65 ; $P= 0.04$), and in the sit and reach (pretest, 21.15 ± 6.93 ; posttest, 24.85 ± 5.96 ; $P= 0.01$). In terms of the 2 site skinfold (pretest arm, 15.31 ± 5.61 ; posttest arm, 15.41 ± 4.34 ; pretest thigh, 22.54 ± 8.8 ; posttest thigh, 23.08 ± 5.46 ; $P>0.05$) and academic test (pretest, 27.23 ± 6.98 ; posttest, 30.00 ± 8 ; $P>0.05$) no significant difference was observed.

CONCLUSION: The results from this study indicate that with improved physical fitness there was no adverse effect on academic achievement.

Purpose

The purpose of this study was to determine whether improved physical activity had an adverse effect on academic achievement

Methods

Participants

13 high school aged children signed up for a physical fitness class at Burton Adventist Academy

- Age- All subjects were 16
- Gender- Male: 9 Female: 4
- Class Year- Ranging from Freshman to Sophomore

Procedure

- At the beginning of the class the subjects participated in a fitnessgram, which consisted of: sit and reach, 2 site skinfold, push up test and a curl up test
- The sit and reach was performed 2 times and the average of the 2 scores was taken.
- The 2 sites of the skin fold were the arm and the thigh. Each was measured twice and the average was taken
- The push up and curl up test were performed till exhaustion or until they reached 75 push ups or curl ups
- Also at the beginning of the class, the subjects took a test to measure their academic achievement. This test was taken from a sample SAT prep test booklet.
- The subjects then participated in a 3 month long exercise program, which met 3 times a week for 50 min.
- At the end of the 3 months, the subjects participated in another fitnessgram and also another test to measure their academic achievement

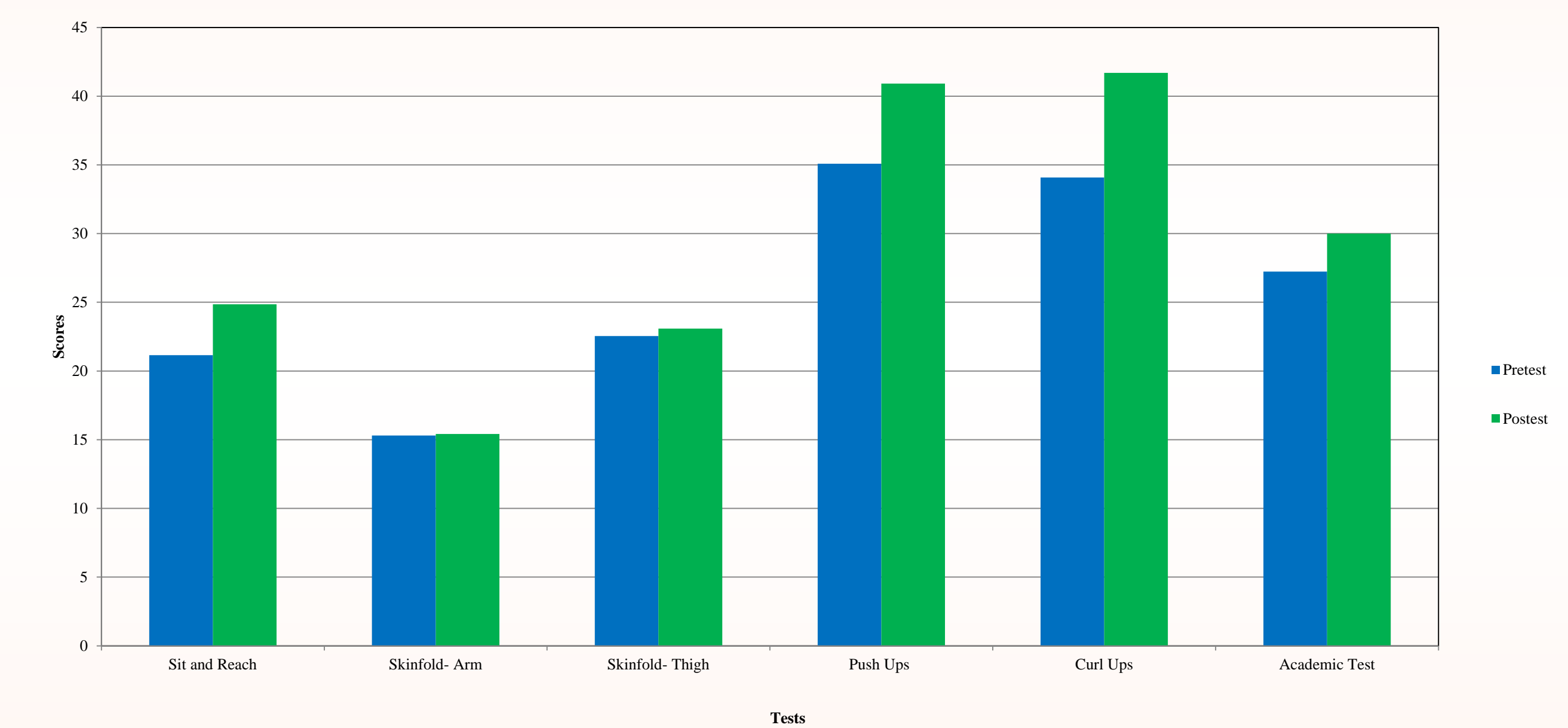
Instrumentation

- Lange skinfold caliper
- Finger Finder Flex Tester



Results

Tests	Pretest Mean	Pretest \pm SD	Posttest Mean	Posttest \pm SD
Sit and Reach	21.15	6.93	24.85	5.96
Skinfold- Arm	15.31	5.61	15.41	4.34
Skinfold- Thigh	22.54	8.8	23.08	5.46
Push Ups	35.08	10.54	40.92	9.93
Curl Ups	34.08	6.71	41.69	8.65
Academic Test	27.23	6.98	30.00	8.00



Therefore the sit and reach, push ups, and curl ups all showed that there was a significant difference in pre and post testing. While the 2 site skinfold and academic test showed no significant difference

Conclusions

- The results indicated that with improved physical fitness there is no adverse effect on academic achievement
- It is recommended that this study be replicated to examine the effect of different forms of exercise, such as aerobic versus anaerobic
- Also a study to examine the influence of sociocultural variables and poverty on fitness and cognition levels should be performed.