

# Effect of Aerobic Activities on Promoting Healthy Fitness Standards of Freshman Students

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## Abstract

Obesity is one of the greatest threats to child and adult health in the United States. Adolescents are engaging in sedentary behaviors, and their body fat composition is directly affected by a lack of exercise. Direct instruction was used as the framework to compare the results.



## Problem

Physical inactivity among children and adolescents from ages 12-19 has become a nationwide problem (Terzian & Moore, 2009).

Childhood obesity is a serious medical condition that affects children and adolescents (Gillman, 2008; Pekruhn, 2009; Summerbell et al., 2007). The extra body fat can lead to medical problems or chronic diseases that could extend through adulthood. McGuigan, Tataschiere, Newton, and Pettigrew (2009) stated that the prevalence of obesity in children and adolescents has increased globally in the last decade by 20-25%.

## Purpose

The purpose of the study was to determine if participation in aerobic activities would promote healthy fitness standards for high school freshman students. A quantitative approach was used to capture, describe, and understand the importance of high school students' participation in PA (specifically aerobic activities) and how it affected healthy fitness standards.

## Committee

Dr. Therese Kanai and Dr. Michael Jazzar

## Relevant Literature

### Framework

- Behaviorism, specifically direct instruction, was the theoretical framework from which this study was conducted.

### Research

- Melville and Hammermeiser (2006) noted that the primary goal of the physical education profession is to promote an active, healthy lifestyle for everyone.
- Driscoll, Stimpson, and Miyazaki (2007) documented that on average, students engaged in only about 4.8 minutes of vigorous aerobic Physical Activity and 11.9 minutes of moderate to vigorous aerobic PA per week. In addition, the authors noted that PE programs vary greatly at the state and local level, with allotted time for classes ranging from 30 minutes per week to 150 minutes per week.
- Physical education can serve as a vehicle for helping students to develop the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles (Council of Physical Education for Children, 2011).

## Research Questions

Will participation in the assigned aerobic activities improve the level of cardiovascular endurance/aerobic capacity (VO<sub>2</sub>max) of the subjects?

Will participation in aerobic activities affect the body mass index of the subjects?

Will there be a difference in gender performance within the FitnessGram® HFZ standards for body mass index?

Does participation in aerobic activity significantly affect body weight?

How do the FitnessGram® scores from the study site compare with that of the FitnessGram® HFZ standards?

## Procedures

### Design

- Quantitative, pre-post test design

### Sample

- 86 students from 3 physical education classes
- 1 physical education teacher

### Instrumentation

- FitnessGram® battery physical fitness tests

### Procedure

- The statistical data collected for each student were compared to the HFZ standards set for males and females based on their age. The students ranged in age from 13 to 18. The Statistical Package for the Social Sciences (SPSS 20.0) was used for data entry and analysis purposes.

## Data Analysis

Descriptive statistical information were calculated by using pre and posttest data.

A mean change score from pre to posttest on each of the three components of the FitnessGram® assessment for each subject determined if fitness levels had changed.

A *t* tests were formulated and used to denote the statistical information between pre and posttest scores

## Findings

Findings for this study consisted of the following:

- If students continue to participate in aerobic activities over a period of time, there will be improvements to their overall health (Meyer, Kundt, Lenschow, Schuff-Werner, & Kienast, 2006).
- Regular PA in physical education classes will affect obesity, blood pressure, physical fitness, and body fat rate (Cakmakei & Gezer, 2011).
- Although the results failed to reject the null hypothesis for the study site, there were improvements in specific areas among the participants.

## Limitations

- Socioeconomic characteristics
- Schools with smaller populations
- Results were specific to the data used in this study
- Sample size - random selection
- Physical Activity outside of school

## Conclusions

Students were able to engage in a quality physical education program.

The program offered experiences for students to nurture positive attitudes toward PA.

Student participation in regular PA is associated with a healthier, longer life and with a lower risk of heart disease, high blood pressure, diabetes, obesity, and some cancers.

## Social Change Implications

Use of data to enhance students' physical fitness levels and increase physical activity to their recommended levels.

Provide a foundation and appreciation for physical activity and physical fitness.

Develop an innovative secondary physical education curriculum that will motivate students to become and stay physically active.

Learn to teach the impact of fitness testing so that it will spark motivation for participation.