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Table of Contents for Physical Education

WILL THE ON GOING PRACTICE OF PHYSICAL ACTIVITY AND EXERCISE HELP STUDENTS TO IMPROVE THEIR FITNESS TESTING SCORES FROM FALL TO SPRING?

by

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B.S. Mankato State University, 1997

A capstone submitted to the Faculty of the Graduate School of Winona State University in partial fulfillment of the requirement for the degree of

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This capstone entitled

Will the On Going Practice of Physical Activity and Exercise Help Students to Improve Their Fitness Testing Scores from Fall to Spring?

written by Tracy Erlandson

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The final copy of the capstone has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

I dedicate this capstone to my husband, Todd

and my son Tate.

Thank you for all your support and encouragement throughout the past two years.

Without you two, I would have never been able to earn my Masters Degree.

Thank you.

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Will the On Going Practice of Physical Activity and Exercise Help Students to Improve Their Fitness Testing Scores from Fall to Spring?

Capstone directed by Dr. Thomas Sherman

Abstract

Children are born motivated to be physically active. However, society has interfered with this inborn trait, and therefore all children may not enjoy physical activity. Students are not motivated to increase their fitness level.

Four fourth grade classrooms were selected for this project. The classes were divided in half according to ability. One was the experimental group – this was the group the tester felt had less natural ability. The other half the control group, the tester selected because of their natural ability. In the fall, all students were given a pre-test on the four areas of the fitness test. The experimental group did circuit training activities, activity homework, and journaling at the end of each week. The control group did no added training to improve their fitness testing scores. In the spring, all students were given a post-test to see if there were improvements in their fitness testing scores.

When comparing the scores between the groups, the control group's scores were better in three of the four areas. When the scores were looked at from an individual improvement, there were 65 out of 66 students who had improved in one or more areas of the fitness test. The test was conducted to compare the group's scores from fall to spring, not by individual improvement. The test shows that students with natural ability on average will tend to improve without added training.

Table of Contents

CHAPTER 1

Introduction

Need for the Study

The evidence is indisputable and growing more convincing than ever! Lifelong participation in physical activity has a significant, positive impact on the health and well being of individuals. People who live physically active lives avoid many major diseases and live healthier, less stressful, and more productive lives than those who are sedentary (American Fitness Alliance (AFA), 2001). Regular physical activity substantially reduces the risk of dying of coronary heart disease, risk of stroke, colon cancer, diabetes, high blood pressure and control weight. Physical activity should be a normal part of growing up for young people. Throughout the early years of life, physical activity plays a key part in young people's physical, social and mental development (Centers for Disease Control and Prevention, 2001). In addition, a physically active lifestyle has direct and indirect health benefits for young people, particularly by: preventing overweight and obesity, helping to build strong bones, healthy joints, and an efficient heart. Also, promoting good mental health and establishing healthy lifestyles that may be continued into adulthood (Children and Young People, 2001).

> Inactivity in American children seems to increase with age. Research shows that kids are most active in 3rd grade, and then steadily lose interest in physical activity through their senior year in high school. Some middle-school students take a mere nine weeks of physical education classes every other year. Forty percent of all U.S. high school students aren't enrolled in any form of physical education, including an astonishing 75% of all seniors. (Condor, 2002). Physical fitness is to the human body what fine-tuning is to an engine. It enables us to perform up to our potential. Fitness can be described as a condition that helps us look, feel and do our best. More specifically, it is the ability to perform daily tasks vigorously and alertly, with

> energy left over for enjoying leisure-time activities and meeting emergency demands. It is the ability to endure, to withstand stress and to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well being (Fitness Fundamentals, 1996).

So the question becomes, how does one assess the importance of physical activity and lifetime fitness? It begins with fitness testing. There are many benefits of fitness testing, the major use is to establish the strengths and weaknesses of each individual and see the areas, which need improvement, and from this training programs can be modified accordingly. This way valuable training time can be used more efficiently. The initial testing session can give the individual an idea of where their fitness levels are at the start of a program, so that future testing can be compared to this and any changes can be noted (Fitness Assessments, 2001). Now, by repeating the fitness tests at regular intervals, one can get an idea of the effectiveness of regular physical activity. It may take a minimum of 2-6 weeks to see a demonstrable change in any aspect of fitness testing. (Fitness Assessment, 2001). The question is how can fitness testing help each individual? By the evaluation of a student's strengths and weaknesses and aiding the student to create a suitable training program that monitors the effectiveness of training and provides short-term fitness goals.

Statement of the Problem

Will the on-going practice of physical activity and exercise help students to improve their fitness testing scores from fall to spring?

Purpose of the Study

The purpose of this study was to examine the effectiveness of continued regular physical activity and exercise (the experimental group) vs. non-regular physical activity and limited exercise (the control group). By giving each group a pre-test, a mid-test and a post-test. The study began with a pre-test for both groups. The test consisted of four activities: The shuttle-run, the mile run, push-ups and sit-ups. The results should define whether regular physical activity and exercise will reflect an increased performance in the fitness test over a period of time. Many articles on physical activity, physical fitness and fitness testing will explain and demonstrate how these components will effectively increase the performance of each individual and now is the time to put those theories and judgments to the test.

Statement of the Hypotheses

Regular physical activity and increased exercise will increase the students overall fitness scores over the group with limited activity.

Definition of Terms

Mile Run- is a test of physical endurance and muscle strength by completing a mile run in the best time possible and comparing the time to previous tests.

Aerobic- growing or thriving only in the presence of oxygen; Requiring the presence of oxygen. Aerobic exercise, for example, requires increased oxygen consumption. Opposite of anaerobic.

Agility- the quality of being agile; the power of moving the limbs quickly and easily; nimbleness; quickness of motion.

Anaerobic- a type of exercise in which short, vigorous bursts of activity requiring little additional oxygen to be performed. Opposite of aerobic.

Balance- biological system that enables individuals to know where their bodies are in the environment and to maintain a desired position; normal balance depends on information from the labyrinth in the inner ear, and from other senses such as sight and touch.

Bone density- bone density is the amount of bone tissue in a certain volume of bone.

Cardio-respiratory Endurance- the ability to deliver oxygen and nutrients to tissues, and to remove wastes, over sustained periods of time. Long runs and swims are among the methods employed in measuring this component.

Cool Down- a minimum of 5-10 minutes of slow walking, low-level exercise, combined with stretching.

Fitness Test- is a way to learn about ones current fitness status; a procedure to assess ones ability or level.

Mid-test- is administered after a training period to determine the success of the training program.

Muscular Endurance- the ability of a muscle, or a group of muscles, to sustain repeated contractions or to continue applying force against a fixed object.

Muscular Strength- the ability of a muscle to exert force for a brief period of time.

Physical Activity- is movement that an individual needs on a daily basis to sustain a healthy life.

Physical Fitness- good physical condition; being in shape or in condition.

Post-test- is administered after a training period to determine the success of the training program.

Pre-test- is a test administered before a training period.

Progression- an increase of the intensity, frequency and/or duration of an activity over a period of time in order to improve.

Push-Up- is an activity to measure upper body strength and endurance.

Sit-Up- is an activity to measure abdominal muscular strength and endurance.

Speed- the ability to cover a distance or perform a movement in a short amount of time.

Warm Up- 5-10 minutes of exercise such as walking, slow jogging, knee lifts, arm circles or trunk rotations. With low intensity movements that simulate movements to be used in a particular activity.

Limitations and Delimitation

There are many factors that could influence the effectiveness of this study.

- Willingness to participate by the students, many students could have individual issues that will affect their participation level.
- Duration of the study if the length of the study is to long or boring, the student may regress.
- The accuracy, validity and reliability of the data results from the pre-test, mid-test and the post-test.
- Summarizing all the data by the pre-test, mid-test, and post-test.
- Environment can affect performance of the test. Where the test takes place. As well as the conditions and surroundings of the environment.
- Each student will progress according to his or her skill levels.

- Lifestyles and heredity of the students.
- Genetic potential and maturation of the students.
- Class size and the amount of interruption.
- Time constraints.
- Norm and criterion referenced standards.
- How well the students adjust to increased physical activity goals.
- The trustworthiness of the students to complete all tasks at a 100% effort level.

In summary, often a listing of limitations and delimitations is required to clarify the proposed study. All studies have inherent limitations and delimitations. Above is a list of possible limitations and delimitations; however, it is the tester's responsibility to understand these constraints and to assure the reader that they have been considered during the formulation of this study.

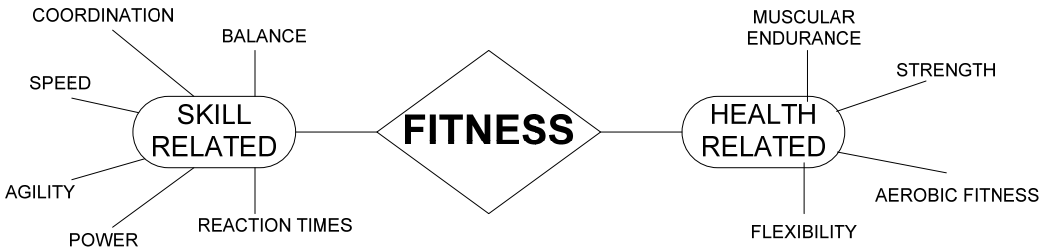
CHAPTER II

Literature Review

What do you think of when you consider the term's physical fitness and exercise? Hard work, sweat, fatigue and self-discipline are words often associated with fitness and exercise. That's not surprising since a pattern of regular exercise requires a certain amount of determination, effort and discipline. If you were to ask someone who has established a successful exercise program the same question, you are just as likely to hear words such as fun, relaxing, and energizing (Improving Physical Fitness, pg. 1, 1990). Studies have shown that developing many fitness components can improve the quality of your life. Physical fitness also enables you to be more active and capable at any age. When it comes to fitness, there are many components that contribute to your overall fitness level. Physical fitness can be split into two sections: health related components of fitness and skill related components of fitness. Health related fitness components consist of muscular endurance strength, aerobic fitness and flexibility. Skill related physical fitness encompasses balance, coordination, speed, agility, power and reaction time.

(See Diagram A) page 10 (McArdle, Katch & Katch, 1995).

(Diagram A)



How does one gauge physical fitness? One way is through fitness testing. Through fitness testing, the factors involving fitness processes, over which there is some control, can be measured and ultimately improved upon. Fitness testing will attempt to measure individual components of performance, with the ultimate aim of studying and maximizing the student's ability in each component of fitness. (Wood, 2004). Of the many benefits of fitness testing, the major use is to establish the strengths and weaknesses of the student. This can be done by comparing test results to previous test results to show the students progression. However, if comparing test results to normative tables, the test must be conducted exactly the same as it was when the original test group was tested, for the comparison to be valid. A test is reliable if the results are consistent and reproducible over time. (Wood, 2004). You should be able to obtain the same or similar results on two separate trials. This can be important if you are looking for small changes. Validity is whether the test actually measures what it is set out to. Tests can be reliable but not valid. Many studies have been completed on the effects of regular physical activity.

> Children in the U.S. today are less fit than they were a generation ago and showing early signs of decreased fitness levels. Inactive children when compared to active children show significant deficiencies in their overall fitness level. The 1987 National Children and Youth Fitness Study indicates that at least half of the youth population does not engage in regular physical activity. A fitness testing program sponsored by the Chrysler Fund Amateur Athletic Union, which tracks fitness among 9.7 million youngsters between the ages of 6 and 17, shows that children's overall fitness components are becoming weaker. Healthy lifestyle training should begin in childhood to promote improved cardiovascular health and fitness in adult life. Here are a few good health practices: regular physical activity, low-fat, low-cholesterol diet after the age of two, smoking prevention, appropriate weight for height and regular pediatric medical checkups (American Heart Association, 2002).

The literature is indisputable, regular physical activity and exercise should increase students overall fitness levels. As a result, all student fitness test scores should increase.

Chapter III

Methods and Procedures

Overview

Prior to the beginning of the study the students were given a pre-test. The pre-test consisted of a mile run, a shuttle run, push-ups and sit-ups. The pre-test results were logged. The study began with the creation of two groups. One group was the control and the other group the experimental. The control group entered class and jumped right into the daily activity. The experimental group utilized the first 10 minutes of class to work on all the areas of the fitness test. The experimental group also received some small home based physical activity assignments. The experimental group completed different circuit-training activities that helped them prepare for the fitness test. At the end of every other week, small data assessments (mid-tests) were taken to see any possible progressions in the student's fitness levels. The mid-test results were logged. During the entire process the students were journaling on a weekly basis on how they felt. The study length consisted of one month, after the month, both groups were re-tested on the four fitness activities and the final results were logged after the post-test. The students were issued the entire log. The log consisted of the pre-test results, the progression (mid-test) results and the final results.

Design

Throughout the year when the students entered class they would start with a warm-up, which usually lasted about three minutes. It involved some running and

stretching exercises. The study tested to see if practice and repetition of the fitness areas, along with increased physical activity would help to improve on the student's fitness test results. The classes typically do not spend any extra time on the fitness areas. Usually the students take a test in the fall and then in the spring, at which time the results are compared and evaluated to assess student improvement. The results also help to show the fitness areas for which the students need improvement.

Selection of Students

The study selected fourth graders as the subject. The school consists of four sections of fourth grade. The four sections were formed into two groups, the control group and the experimental group. The diversity of groups was slightly skewed; the control group was comprised of a higher percentage of athletic students, than the experimental group. The reasoning for the diversity is because it could eliminate performance increases based on pure athletic talent. The experimental group consisted of students that were not as gifted in the areas of physical fitness. The thought here was that the experimental group should show an increased progression of their overall fitness skills and conclude that increased practice, repetition and physical activity are the backbone to improving their fitness skills.

Validity and Reliability Measures

During this study, at the end of each week, the experimental group logged journal entries on how they felt. If there were no boundaries for how the students were to journal, some students may write lengthy entries and other may write short entries just to get it done. To ensure proper reliable responses, each question was reviewed. The tester will perform the data portion of the study. Therefore proper

calculation of the data was charted. The test is reliable to the degree that it is free from error and provides true information about results of the subjects. This will prove to be true if the tests provide repeatable and consistent results. Any factor that reduces result variability will reduce the reliability; therefore careful considerations will be made for the testing environment, conditions and consistency. The validity of the test was consistent, because the results came from the comparisons of the pre-test, weekly data assessments (mid-tests) and the post-test. In that case the test should measure what it was set to. The test consisted of four basic fitness assessments. These assessments are very consistent, when it comes to the actual test process. Also, the increased physical exercise was activity specific towards each of the fitness areas.

Field Procedure

After the selection of the classes was completed the students were put into two groups, the control group and the experimental group. Prior to the beginning of the study the students completed a pre-test, which was used as the baseline data. The pre-test consisted of four fitness areas the mile run, which measures cardio-respiratory endurance, the shuttle run which measures cardio-respiratory capacity, cardio-respiratory endurance, aerobic power, and agility, the push-up which measures muscular strength and endurance, and the sit-up which measures abdominal muscular strength and endurance. The control group entered the class and began the daily activity immediately, no increased exercise. The experimental group entered class and for the first 10 minutes performed circuit-training exercises (fitness specific). The classes were broken down into groups throughout the gymnasium; each group received a circuit-training sheet. Each student in the group completed each task on

the training sheet. Upon completion, the students were given a new training sheet, this process continued for the entire 10 minutes. After which the students participated in the daily activity. The experimental group was also given small homework assignments; these assignments were performed at home and were fitness specific activities. On a weekly basis the students logged in their journals the effects of the increased activities and how they were feeling. Also, every other week the experimental group was given small variation assessments tests (mid-tests). The mid-tests were slightly modified, because of time constraints. However, the important aspect of the mid-test data was to show student progressions. These results were logged as working data. After a month, both groups were given a final test (post-test). The results of the post-test were compared to the pre-test and conclusions were drawn from the comparisons.

Conclusion

In conclusion, there were two groups, the control group and the experimental group. The control group included students who received no added training to help with fitness testing; the student's progression consisted only of daily participation of the activity. The experimental group received increased daily fitness specific activities as well as homework based physical activities and weekly journaling. The results of the pre-test (baseline data), along with weekly progression (mid-test data) and the final test (post-test), were compared. The conclusion information showed the effectiveness of the study and should prove that continued practice of increased physical activity and exercise will help students to improve in physical fitness testing!

Chapter IV

Results and Discussion

Introduction

Due to the cut back requirement of physical education within the every day curriculum students' fitness levels have dropped and obesity has risen. As a result, this study was set up to see if the continued practice of increased physical activity and exercise help students to improve in physical fitness testing.

Procedure

The fourth grade students were given a pre-test in the fall on the following physical fitness tests; mile run, shuttle run, sit-ups, and push-ups (See Appendix A & B). The four sections of fourth graders were split into two groups, an experimental group and a control group. The experimental group came into physical education class everyday for a month and focused the first 5-10 minutes of class on preparing for the physical fitness test. The students performed circuit-training activities that involved all components of the physical fitness test (See Appendix C). The experimental group at the end of each week had to journal about how they were feeling and if they thought they were feeling or getting stronger than the week before (See Appendix D). The experimental group was also given a mid-test every other week on three of the four fitness tests. The mid-tests were charted and then compared to the earlier week to see if there were any improvements taking place (See Appendix E & F). Along with the mid-tests, the students were given homework assignments for each week involving activities that would help with the students' improvement on the fitness test (See Appendix G).

The control group came into physical education class everyday for a month and jumped right into the daily activity. The control group was given no added training to help with their improvement on the fitness test. Both groups were given a post-test on all four areas of the fitness test. The results were charted and compared to the pre-test to see if the students' scores had improved (See Appendix H).

Variables

There are many variables that can affect the results of any test. One variable that may have affected the results of this study was the students' attitude. The post-test was performed toward the end of the year and the students may not have been in school mode anymore.

Another variable that may have affected the results was the day of the week that the post-test was performed. The days of the week were different for the post-test than for the pre-test. Some students perform better on certain days of the week.

The weather was another variable that may have affected the results of the test. When the students performed the pre-test, the weather was hot and windy and for the post-test it was not as windy, but it was much hotter than the pre-test. The weather affects every student differently, especially those students that suffer from breathing conditions.

The final variable, which may have affected the results, was the number of students per test. The number of students in each of the tests varied because some students were missing during the pre-test, post-test or both.

Hypothesis Testing

The hypothesis for the study was that on going practice of physical activity and exercise would help improve students' fitness test scores from fall to spring. The students completed a pre-test in all four areas of the fitness test before the actual study began. The results of the tests were charted. The classes were split into two groups. Each group completed their own training. At the end of the month, the two groups completed a post-test. By comparing the two scores, the results showed if any improvement occurred.

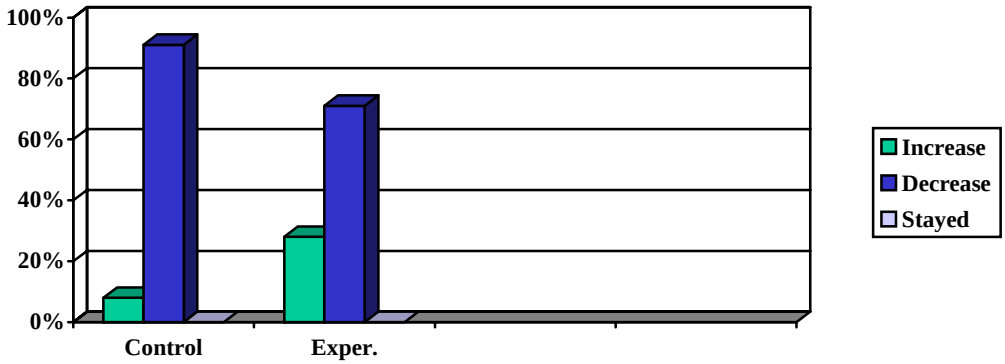
The testing took place in the fall and then again in the spring. The main study occurred for a month. The scores the students earned in the fall were the base scores. The differences between the two scores were calculated. The scores were compared from fall to spring and the results should of indicated that the students' scores had improved due to increased physical activity and exercise, but that was not the result.

Results

Mile Run

The results from the mile run showed that the control group improved more than the experimental group. The control group had a 20% improvement over the experimental group. (See chart on page 17 for results). The scores were compared as a group, but some students had personal improvements. With the mile run, the students' scores should decease, this shows improvement. The number of students tested in the mile run was 35 students.

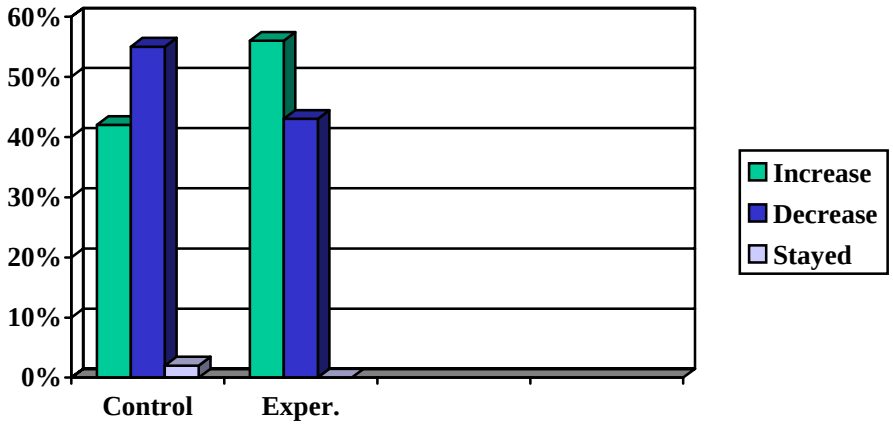
Mile Run Results



Shuttle Run

The results from the shuttle run showed that the control group improved more than the experimental group. The control group had a 12% improvement over the experimental group. (See chart on page 18 for results). The scores were compared as a group, but some students had personal improvements. With the shuttle run, the students' scores should decrease this shows improvement. The number of students varies in this test because of students missing for the pre-test, post-test, or both. The experimental group had 37 students compared to the control group with 38 students. With the number of students varied, this could have had some affect on the results.

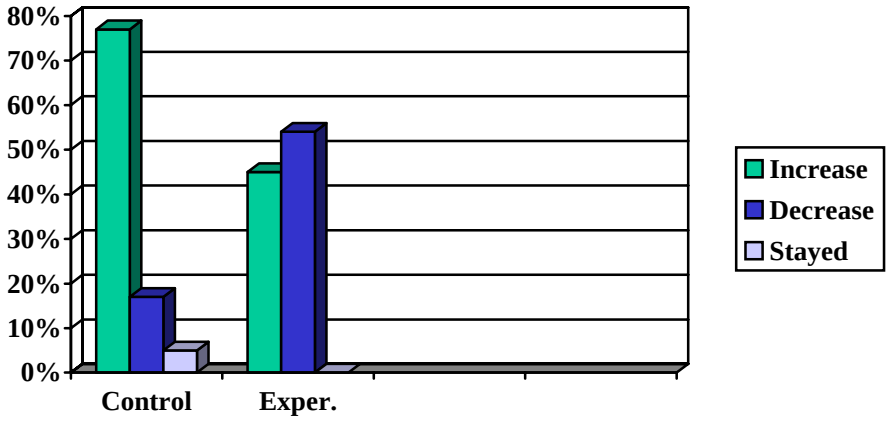
Shuttle Run Results



Sit-Ups

The results from the sit-ups showed that once again the students in the control group improved more than the experimental group. The control group had improved by 32% over the students in the experimental group. (See chart on page 19 for results). The scores were compared as a group, but some students had personal improvements. With the sit-ups, the students' scores should increase this shows improvement. The number of students tested in each group was the same with 35 students.

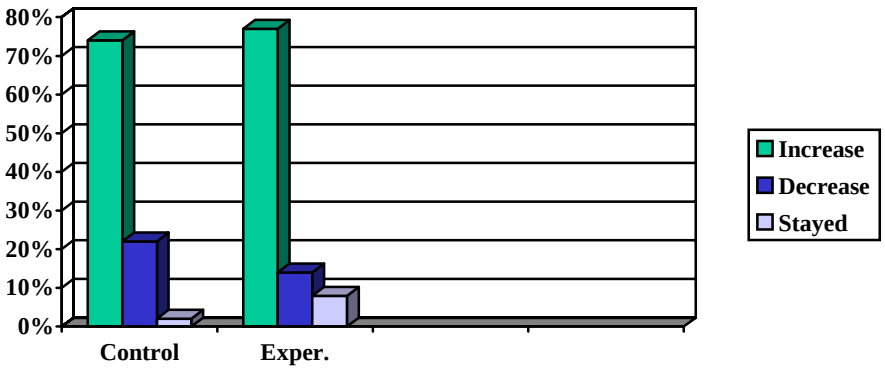
Sit-Up Results



Push-ups

The results from the push-ups showed that the experimental group improved over the control group. The experimental group improved by 3% over the students in the control group. This was the only area of the fitness test where the experimental group improved more than the control group. (See chart below for results). The scores were compared as group, but some students had personal improvements. With push-ups, the students' scores should increase this shows improvement. The number of students tested was the same with 35 students.

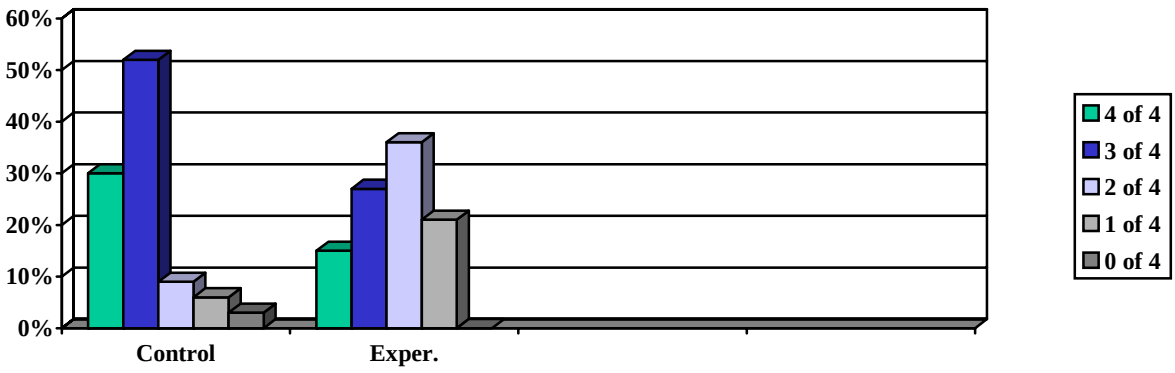
Push-Up Results



Individual Results

The students were also assessed to see if individual improvements had occurred from fall to spring. With the experimental group: five students improved on all four areas, nine students improved on three areas, twelve students improved on two areas, and seven students improved on one area of the fitness test. The control group had ten students improve in all four areas, seventeen students improved on three areas, three students improved on two areas, two students improved on one area and one student didn't improve on any area of the fitness test. (See chart below for results). The results show that the control group had more students improve on an individual basis. The number of students compared was the same for each group with 33 students.

Individual Results



Conclusions

The results indicated that the control group improved in three of the four areas compared to the experimental group, which only improved in one of the four areas.

The tester was surprised by the outcome of the test. With having adding training in all four areas of the fitness test, the results should indicate that the experimental group improved over the control group. However, that was not the outcome of the test. The significance of this test shows that students with natural ability on average will tend to improve without added training.

When the scores were compared by individual improvement the test showed that 65 out of 66 students improved on one or more areas of the fitness test from fall to spring. This means that 98% of the students made individual improvements from fall to spring.

Chapter V

Summary and Conclusion

Introduction

In this study, the students were given physical fitness testing in the fall and spring. The fall test was the pre-test and the students were given no added training for the test. In the spring, the experimental group was given added training for a month to help improve their fitness scores, where as the control group was given no added training for the post-test. The experimental group was also given outside homework to help with fitness improvement. At the end of the month, the post-test was given to both the experimental and control groups in all four areas of the fitness tests. The scores were compared to the fall to see if improvement had happened.

Conclusion

In conclusion the tester believed that the increase of exercise specific activities targeted towards particular fitness areas would increase the fitness test scores of the experimental group more dramatically than those of the control group. As the results showed as a group the control group had produced better scores in three of the four fitness areas tested. These results pose a future question, does the in-born trait of athletic ability interfere with the ability to conclude if increased activity and exercise improve individual fitness levels?

Recommendations

The improvement in individual results has convinced the tester that increased physical activity and exercise should be added to the physical education curriculum.

Even though the outcome of group comparisons was not what the tester had hoped, the individual improvements showed students made gains in their fitness testing.

The tester should once again try splitting the classes into two groups and compare their scores from fall to spring. However, the classes would not be split on athletic ability. The tester would choose the classes randomly and see how the student's scores would compare from fall to spring on all four fitness tests versus splitting the classes by athletic ability. It would be interesting to see if the result gains were larger compared to when the tester split the groups by athletic ability.

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Appendix A

Experimental Group Pre-test

Name	Push-Up	Sit-Up	Shuttle Run	Mile Run
Student # 1	12	39	13.0	12:27
Student # 2	16	27	13.0	12:34
Student # 3	0	23	19.8	20:10
Student # 4	23	36	12.1	17:44
Student # 5	23	36	13.2	9:41
Student # 6	23	36	14.0	16:12
Student # 7	20	14	13.5	15:17
Student # 8	22	36	12.8	10:45
Student # 9	20	41	11.7	8:21
Student # 10	17	23	12.0	11:44
Student # 11	2	12	14.3	16:30
Student # 12	29	26	12.0	14:49
Student # 13	20	22	12.0	10:21
Student # 14	26	22	11.5	10:15
Student # 15	25	39	13.5	10:36
Student # 16	7	31	12.8	14:48
Student # 17	0	13	16.4	13:00
Student # 18	15	29	14.5	13:37
Student # 19	16	5	13.3	15:41
Student # 20	30	36	11.4	12:36
Student # 21	27	32	11.4	12:29
Student # 22	20	30	13.2	15:15
Student # 23	30	37	11.3	11:53
Student # 24	9	31	13.2	13:40
Student # 25	23	23	13.4	12:37
Student # 26	21	32	13.3	11:29
Student # 27	21	40	12.6	11:58
Student # 28	30	33	12.9	12:40
Student # 29	21	19	14.4	16:39
Student # 30	0	3	14.3	17:05
Student # 31	22	18	13.3	14:42
Student # 32	13	10	15.1	13:43
Student # 33	16	48	13.4	17:45

Appendix B

Control Group Pre-test

Name	Push-Up	Sit-Up	Shuttle Run	Mile Run
Student # 1	21	22	14.3	14:00
Student # 2	30	38	12.1	12:28
Student # 3	26	33	13.6	12:33
Student # 4	30	41	11.3	11:14
Student # 5	3	30	17.8	14:48
Student # 6	20	35	14.4	18:45
Student # 7	31	37	13.0	16:02
Student # 8	13	30	14.9	15:02
Student # 9	12	23	13.3	15:41
Student # 10	13	31	12.0	14:39
Student # 11	35	38	12.5	10:59
Student # 12	23	22	12.0	14:49
Student # 13	42	50	10.9	11:15
Student # 14	50	39	11.3	11:25
Student # 15	32	31	12.9	10:59
Student # 16	12	18	17.5	17:36
Student # 17	30	30	10.9	11:00
Student # 18	22	21	12.4	10:53
Student # 19	0	22	15.0	16:31
Student # 20	22	32	12.5	10:17
Student # 21	20	38	10.7	11:18
Student # 22	11	38	13.8	11:10
Student # 23	31	30	12.1	9:41
Student # 24	2	19	12.7	12:09
Student # 25	50	40	12.5	7:26
Student # 26	14	27	15.4	11:01
Student # 27	42	33	12.4	11:23
Student # 28	28	25	14.8	12:09
Student # 29	14	32	11.6	10:19
Student # 30	45	32	11.4	7:24
Student # 31	31	31	11.4	7:45
Student # 32	20	30	14.1	14:48
Student # 33	2	12	15.4	17:57

Appendix C

Circuit Training Sheets

Team Fitness: 1

** Gallop around gym 3 times
** Seal walk from RED line to RED line
** 20 Wall Push-ups
** 20 Jumping Jacks
** 15 Sit-ups
** Skip for Height from BLACK line to BLACK line
** Sprint (run as fast as you can) from RED line to RED line - 4 times

Team Fitness: 2

**4 laps around gym – 2 skipping and 2 jogging
** Bear walk from RED line to RED line
** 20 sit-ups
** Lunge from BLACK line to BLACK line
** 25 Superballs
** 15 Push-ups
** Sprint (run as fast as you can) from RED line to RED line - 4 times

Team Fitness: 3

** Shuffle Step around the gym on the BLACK line two times
** 15 Tuck jumps
** 20 Push-ups
** 20 Windmills
** Run around gym 2 times
** Wall sit for 10 seconds
** Sprint (run as fast as you can) from RED line to RED line - 4 times

Team Fitness: 4

** Seat kicks from RED line to RED line
** Run down and back pedal back from BLACK line
Black line – 2 times
** 15 sit-ups
** 20 elbow to knees
** 2 laps of skipping around gym
** 15 push ups
** Sprint (run as fast as you can) from RED line to RED line – 4 times

Appendix D

Sample of Journal Questions

Journaling for the Week of March 1-5

1. Explain how you are feeling about all the practice you have done this week for the fitness testing?

2. Do you feel yourself becoming stronger/quicker with the practice of the fitness testing?

3. Add additional concerns or comments here.

Appendix E

Experimental Group Mid-test – March 11 and 12

Name	Push-Up	Sit-Up	Shuttle Run
Student # 1	40	56	11.3
Student # 2	0	33	20.3
Student # 3	23	40	12.4
Student # 4	28	61	13.0
Student # 5	15	22	15.5
Student # 6	40	46	11.3
Student # 7	16	21	12.0
Student # 8	29	23	15.4
Student # 9	27	30	12.4
Student # 10	23	46	12.6
Student # 11	24	35	11.6
Student # 12	20	35	13.8
Student # 13	9	29	16.1
Student # 14	34	30	12.9
Student # 15	36	32	12.6
Student # 16	60	50	11.3
Student # 17	33	26	12.0
Student # 18	30	30	14.4
Student # 19	53	41	11.9
Student # 20	20	26	13.3
Student # 21	35	32	14.8
Student # 22	23	30	11.3
Student # 23	23	32	11.8
Student # 24	31	34	11.4
Student # 25	32	29	12.0
Student # 26	10	20	14.0
Student # 27	36	28	13.1
Student # 28	21	34	17.5

Appendix F

Experimental Group Mid-test – March 29 & April 2

Name	Push-Up	Sit-Up	Shuttle Run
Student # 1	30	34	12.7
Student # 2	0	5	21.6
Student # 3	34	48	12.6
Student # 4	41	66	13.4
Student # 5	7	21	16.5
Student # 6	44	62	11.7
Student # 7	33	26	12.7
Student # 8	22	28	15.4
Student # 9	40	28	13.0
Student # 10	32	34	13.5
Student # 11	35	32	12.2
Student # 12	29	41	14.8
Student # 13	0	7	13.5
Student # 14	33	40	14.3
Student # 15	36	51	12.3
Student # 16	41	42	10.7
Student # 17	24	34	11.3
Student # 18	21	31	13.6
Student # 19	51	60	11.6
Student # 20	9	21	13.4
Student # 21	50	28	13.7
Student # 22	27	31	11.5
Student # 23	28	30	12.1
Student # 24	35	30	12.2
Student # 25	38	30	13.5
Student # 26	19	23	15.5
Student # 27	50	31	11.6
Student # 28	27	25	12.9

Appendix G

Sample of Homework for Experimental Group

March 2-5 – 10 Push-ups and 15 Sit-ups

March 8-12 – 15 Jumping Jacks and 12 Push-ups

March 15-19 – 15 Sit-ups and 15 Wall Push-ups

March 22-26 – 20 Jumping Jacks and 15 Sit-ups

March 29-April 2 – 20 Push-ups and 20 Sit-ups

Appendix H

Experimental Group Post-test

Name	Push-Up	Sit-Up	Shuttle Run	Mile Run
Student # 1	24	37	13.2	9:14
Student # 2	21	22	15.1	13:02
Student # 3	1	10	18.5	18:25
Student # 4	31	34	13.5	12:19
Student # 5	39	44	15.8	9:13
Student # 6	21	31	13.8	12:20
Student # 7	18	23	15.2	15:30
Student # 8	25	43	11.7	8:35
Student # 9	27	62	11.1	7:47
Student # 10	26	22	12.1	11:29
Student # 11	20	34	13.7	16:42
Student # 12	31	34	11.6	11:28
Student # 13	27	37	12.5	12:00
Student # 14	22	24	13.1	10:54
Student # 15	29	37	13.1	10:46
Student # 16	7	22	14.7	12:39
Student # 17	0	11	14.3	13:06
Student # 18	34	32	15.3	15:34
Student # 19	27	32	13.6	15:34
Student # 20	40	40	11.2	10:51
Student # 21	27	38	12.6	8:58
Student # 22	27	27	13.6	13:12
Student # 23	34	38	11.8	8:43
Student # 24	20	26	14.2	9:37
Student # 25	32	22	13.8	10:27
Student # 26	26	30	12.3	8:59
Student # 27	30	32	12.1	10:27
Student # 28	28	30	12.0	13:31
Student # 29	27	28	14.8	15:34
Student # 30	20	26	14.8	15:15
Student # 31	33	32	13.6	12:58
Student # 32	16	20	14.0	9:45
Student # 33	20	35	12.1	9:37

Appendix I

Control Group Post-test

Name	Push-Up	Sit-Up	Shuttle Run	Mile Run
Student # 1	34	30	15.5	10:39
Student # 2	23	36	12.2	9:41
Student # 3	28	37	12.9	10:41
Student # 4	38	50	12.5	9:14
Student # 5	0	33	16.3	14:31
Student # 6	12	31	15.0	14:18
Student # 7	0	53	12.3	11:51
Student # 8	29	43	12.6	13:34
Student # 9	15	35	14.1	13:17
Student # 10	16	32	12.1	12:34
Student # 11	42	47	12.6	8:29
Student # 12	39	21	12.1	13:38
Student # 13	43	48	10.4	8:06
Student # 14	54	40	11;6	10:40
Student # 15	31	31	12.8	8:27
Student # 16	17	26	14.9	12:40
Student # 17	42	52	14.0	8:17
Student # 18	35	45	11.9	11:11
Student # 19	1	30	13.5	14:33
Student # 20	35	33	14.1	10:13
Student # 21	22	39	11.3	9:45
Student # 22	25	40	13.5	10:23
Student # 23	38	33	11.9	8:34
Student # 24	2	30	12.6	10:11
Student # 25	48	46	11.4	7:22
Student # 26	11	28	14.4	10:30
Student # 27	17	33	13.0	8:34
Student # 28	11	43	14.8	16:55
Student # 29	28	49	11.2	9:04
Student # 30	51	40	10.7	7:14
Student # 31	43	48	14.1	8:11
Student # 32	37	43	12.9	14:04
Student # 33	7	22	15.5	15:22