

THE EFFECT OF THE FITNESSGRAM ON PARENTS' OPINION,  
KNOWLEDGE, AND BEHAVIOR REGARDING THEIR  
CHILD'S PHYSICAL FITNESS

A DISSERTATION

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## DEDICATION

This dissertation is dedicated to the memory of my parents, Bill and Frances Dean, who advised me at an early age to "Go on up there and do what you want, brat."

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Never one thing and seldom one person can make for a success. It takes a number of them merging into one perfect whole.

--Marie Dressler

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## CHAPTER I

### INTRODUCTION

#### Rationale for the Study

Physical fitness is recognized as a viable component of total health, or wellness. The late President John F. Kennedy (1969) recognized its importance in his statement: "Physical fitness is not only one of the most important keys to a healthy body, it is also the basis of dynamic and creative ability" (p. 15). Furthermore, it has been suggested that improvement in the status of physical fitness will have a positive effect on other elements of health. According to Conrad (1981), "As the physical condition improves, (people) seem to develop increased concern about other aspects of their health and behavior. Thus, our enthusiasm for exercise may be the catalyst for wholesale improvements in the way we live" (p. 202).

It is noted in the Surgeon General's Report on Health and Disease Prevention (1979) that physical fitness activities affect general health. In the report, it is stated that:

People who exercise regularly report that they feel better, have more energy, often require less sleep. Regular exercisers often lose excess weight as well

as improve muscular strength and flexibility. Many also experience psychological benefits including enhanced self-esteem, greater self-reliance, decreased anxiety, and relief from mild depression. Moreover, many adopt a more healthy lifestyle--abandoning smoking, excessive drinking, and poor nutritional habits. (p. 133)

An awareness of one's current level of physical fitness is important if one is to become concerned about achieving and maintaining a high level of physical efficiency. Knowledge about the components of fitness and strategies for improving each is essential to the process of becoming fit. A positive opinion about the importance of being physically fit will help provide the motivation to participate in a regular exercise program. All of these components--awareness, knowledge, opinion, and behavior--are interdependent, necessary conditions of a fitness testing program designed to improve the fitness levels of American youth.

A fitness testing program, co-sponsored by the President's Council on Physical Fitness and Sports, the Institute for Aerobics Research, the American Alliance for Health, Physical Education, Recreation and Dance, and Campbell Soup Company, was implemented in selected metropolitan Tulsa Public Schools, Tulsa, Oklahoma, during the 1982-83 academic year. In 1983-84, it will be offered to schools throughout the state of Oklahoma and will involve

approximately 270,000 students. An evaluation of the state-wide program will then be conducted. It is expected that the program will become a national project in 1984, with more than 3 million youngsters being tested.

This program is the first organized effort to evaluate national youth fitness in more than ten years. According to Conrad (1982), it ". . . is a revolutionary concept aimed at getting American youth back into shape. The Council believes it will help make all Americans aware of the importance of youth fitness" (p. 5).

The program involves the use of a computerized fitness report card, FITNESSGRAM, which provides the student, teacher, and parents with a physical fitness profile of each student participating. The FITNESSGRAM is designed to help the parents become more knowledgeable about fitness components and more conscious of their child's fitness level, based on national norms. The anticipated result of this awareness is action by the parents to improve those fitness areas in which their children have been identified as deficient.

The FITNESSGRAM project is considered to be a response to the goals for 1990 identified in the document Promoting Health/Preventing Disease: Objectives for the Nation, published by the U.S. Department of Health and Human

Services. For example, it provides the opportunity to systematically assess the physical fitness level of school-age children and adolescents, which is one of the priority goals. The stated goal of assessing 70 percent of the American youth can be realized as the result of the projected three-year project. With the information available on the report card, physical education and/or health classes can be adapted in an attempt to satisfy the other objectives, particularly those dealing with school health, physical education, and physical fitness programs.

Furthermore, the objectives relating to adult fitness can have a direct effect on the level of fitness of children and adolescents. It is expected that an increased awareness of the importance of fitness among adults will subsequently affect the fitness levels of youth. Cooper (1982) has suggested that "The right way to motivate kids, from what I've seen among the families that have a balanced exercise relationship, is for the parents to serve as models for the kids, without trying to promote the exercise idea too strongly" (p. 202). He suggests that the primary goal for the parents should be to help the youngsters find an aerobic activity they enjoy and to encourage participation. The FITNESSGRAM can be a valuable piece of information for parents in determining the activity needs of their

children. It may also help them to realize more fully the vital importance of physical fitness and physical activity for both children and adults.

#### Purpose of the Study

The purpose of the investigation was to determine the effectiveness of the FITNESSGRAM as a strategy for altering parental opinion, knowledge and behavior regarding their child's physical fitness.

#### Statement of the Problem

The problem was to ascertain the impact of the FITNESSGRAM on the opinion, knowledge and behavior of parents regarding the physical fitness of their children in selected Tulsa Public Schools. These children were students enrolled in the schools identified to participate in a 1982-83 computerized fitness testing pilot project. The AAHPERD Youth Fitness Test was the instrument used to evaluate the fitness levels of students in the project. A survey instrument was distributed to assess the effectiveness of the FITNESSGRAM as a method of intervention among the students' parents. The survey instrument was designed to examine two issues: (1) Did the FITNESSGRAM have an effect on parents of children involved in the project when compared to those who were not involved? (2) Were parents'

responses and reactions to the FITNESSGRAM affected by the grade level of their child: elementary school, junior high school, senior high school?

### Procedure

The test results from the AAHPERD Youth Fitness Test were recorded by physical education teachers on individual student data cards. All cards were sent to the Institute for Aerobics Research in Dallas, Texas, for computer analysis. All teachers received a print-out of the individual and group scores and norms for students in each of their classes. In addition, a personalized fitness report card, FITNESSGRAM, was sent home with each child, providing parents with a fitness profile on their child (Appendix A).

Data for this study were gathered by a survey instrument designed for the purpose of determining parents' opinions, knowledge and behavior as they relate to physical fitness (Appendix B). A quasi-experimental pretest, post-test design was used, with hypotheses being tested by multiple classification analysis of covariance.

### Hypotheses

H<sub>01</sub> The FITNESSGRAM will have no effect on the opinions of parents regarding the physical fitness of their children participating in the 1982-83 computerized fitness testing project.

- H<sub>02</sub> There is no difference among the mean scores of parents' opinions about physical fitness for the three grade levels involved in the 1982-83 FITNESSGRAM project.
- H<sub>03</sub> There is no interaction between group and grade level as it relates to parents' opinions about physical fitness.
- H<sub>04</sub> The FITNESSGRAM will have no effect on the physical fitness knowledge of the parents of children participating in the 1982-83 computerized fitness testing project.
- H<sub>05</sub> There is no difference among the mean scores of parents' knowledge about physical fitness for the three grade levels involved in the 1982-83 FITNESSGRAM project.
- H<sub>06</sub> There is no interaction between group and grade level as it relates to parents' knowledge about physical fitness.

#### Delimitations of the Study

The study was subject to the following delimitations:

1. the 450 students selected for the study.
2. the parents who responded to both survey instruments.

3. the six schools selected to participate in the study.
4. the list of opinion questions designed to reflect parents' belief statements about physical fitness.
5. the knowledge questions written to relate to cognitive information found on the printed FITNESSGRAM.
6. the list of action statements written to elicit information concerning action taken as the result of the FITNESSGRAM.

#### Limitations of the Study

The study was limited by:

1. the validity and reliability of the survey instrument.
2. the honesty of the responses given by the subjects.
3. the selection of parents to complete the survey.
4. the realization that parents with more than one child could have different opinions from those parents with only one child.

#### Assumptions

The basic assumptions accepted in this study were:

1. the same adult completed both the pretest instrument and the posttest instrument.

2. the subjects answered the questions with integrity.
3. equal consideration was given to all parental responses, without regard for racial, ethnic, economic, or social differences.
4. teachers in the schools selected for the study followed directions for distribution and collection of the instrument.

#### Definitions and/or Explanations of Terms

For the purpose of clarification, the following definitions and/or explanations of terms have been accepted for this study.

1. AAHPERD Youth Fitness Test.

The AAHPERD Youth Fitness Test is a battery of six test items designed to give a measure of physical fitness for both boys and girls in grades 5-12. The tests were selected to evaluate specific aspects of physical status which, taken together, give an over-all picture of the young person's general fitness.  
(AAHPERD, 1976, p. 9)

2. FITNESSGRAM. The FITNESSGRAM is a computerized fitness report card designed to provide parents with a fitness profile on their child and an "exercise prescription" to help improve fitness.
3. Opinion. "In popular usage, a belief, judgment, idea, impression, sentiment, or notion that has

not been conclusively proved and lacks the weight of carefully reasoned judgment or certainty of conviction" (Good, 1973, p. 399).

4. Physical Fitness. "The ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies" (Clarke, 1976, p. 12).

## CHAPTER II

### REVIEW OF THE LITERATURE

A survey of related literature revealed that this study was not a duplication of work done by other researchers. An ERIC search produced no evidence that there have been efforts to develop an intervention instrument such as the FITNESSGRAM to involve parents of school-age children in fitness development on a national level. Isolated cases of computerized fitness report cards have been reported, but none has been produced that is comparable to the FITNESSGRAM.

An effort was made to locate a survey instrument designed to determine parents' opinions of their child's level of physical fitness. Further, fitness knowledge tests were examined to find an evaluative tool geared to parents of school age children and adolescents. It was not possible to locate either an opinion survey or a knowledge test related specifically to the information found on the FITNESSGRAM.

The following review of literature provided background material regarding: (1) Health Related Aspects of Physical Fitness; (2) Fitness Testing; and (3) Computerization of Fitness Test Scores.

### Health Related Aspects of Physical Fitness

In 1979, the Surgeon General's Report on Health Promotion and Disease Prevention, Healthy People, was published. The purpose of the report was to review the health status of Americans and to make recommendations for improvement. Fifteen priority areas were identified with health promotion goals for the next decade. One of those priority areas for Americans of all ages was physical fitness and exercise.

The Department of Health and Human Services, Public Health Service, published its Promoting Health/Preventing Disease in Fall, 1980, as a follow-up to the Surgeon General's Report. The purpose of this document was to specify objectives necessary to attain the general goals identified in the report. Each of the fifteen areas, including physical fitness and exercise, was addressed as follows: (1) Nature and Extent of the Problem, (2) Prevention/Promotion Measures, (3) Specific Objectives for 1990, (4) Principal Assumptions, and (5) Data Sources. Items of particular significance in this study were:

1. Nature and Extent of Problem:

- a. generous estimates place the proportion of regularly exercising adults ages 18 to 65 at something over 35 percent.
- b. approximately one third of the children and adolescents ages 10 to 17 are estimated to

participate in daily school physical education, and the number is declining.

- c. many high school programs focus on competitive sports that involve a relatively small proportion of students.

2. Prevention/Promotion Measures:

- a. providing information in school and college-based programs.
- b. providing physical fitness and exercise programs to school children, and ensuring that those programs emphasize activities for all children rather than just competitive sports for relatively few.
- c. increasing the number of school-mandated physical education programs that focus on health-related physical fitness.

3. Specific Objectives for 1990:

- a. by 1990, the proportion of children and adolescents ages 10 to 17 participating regularly in appropriate physical activities, particularly cardiorespiratory fitness programs which can be carried into adulthood, should be greater than 90 percent.
- b. by 1990, the proportion of children and adolescents ages 10 to 17 participating in daily school physical education programs should be greater than 60 percent.
- c. by 1990, the proportion of adults who can accurately identify the variety and duration of exercise thought to promote most effectively cardiovascular fitness should be greater than 70 percent.
- d. by 1990, a methodology for systematically assessing the physical fitness of children should be established, with at least 70 percent of children and adolescents ages 10 to 17 participating in such an assessment.

#### 4. Principal Assumptions:

- a. personal commitment to enhance health will become a prominent factor promoting increased participation in exercise activities in the United States.
- b. there will be a reversal of the trend in reductions of school-based programs aimed at promoting physical fitness.
- c. new school-based programs will embrace activities which expand beyond competitive sports. (pp. 79-81)

An examination of the physical fitness objectives for 1990 indicates that there is considerable concern about the level of fitness of American children and adolescents. To correct the situation it will be necessary to improve physical fitness and exercise programs in the nation's schools. A recommended first step in this process is a determination of the status quo. By identifying areas of weakness it will be possible to appropriately design programs to develop general fitness. Enhancing adult awareness of the importance of physical fitness is also cited as a means of improving youth fitness.

The important role of parents in the improvement of fitness levels of children and adolescents is further supported by Renwick (1983) who encourages parents to become exemplary role models for children. He suggests that children will "react more to what you do than what you say" (p. 3). Further, he emphasizes the importance of

parents actively promoting social, physical and mental well-being among their children. Suggestions are offered for achieving this goal at home as well as school. Concerning the latter, parents are encouraged to become involved in the development of a holistic physical fitness program throughout their child's educational career. The design of the program should include "competencies in skill, knowledge and attitudes which are fundamental to lifelong health and fitness" (p. 3).

Wilmore (1982) summarizes the essence of the U.S. Department of Health and Human Services document of objectives in his recent article. He has offered a challenge to professionals in the areas of health and physical education to join the national effort to reach the objectives. He suggests that a proper knowledge and understanding of the importance of physical fitness is essential if the objectives are to be realized.

#### Fitness Testing

Fitness testing on a large scale is not a new phenomenon. It is recognized that the first step in improving fitness levels is a determination of baseline data gathered by testing. In the Physical Fitness Research Digest (1975), the President's Council on Physical Fitness and Sports has recommended the following process:

1. identify boys and girls who are deficient in basic physical fitness components.
2. for those with such deficiencies, provide appropriate exercise.
3. conduct maintenance checks periodically to determine physical fitness status so that individual program adjustments may be made when indicated. (p. 2)

Late in 1953, the American public was shocked by the results of the Kraus-Weber Test of Minimal Fitness. The test revealed that United States children were considerably less fit than their European counterparts, as reported by Kraus and Hirschland (1954). One of the effects of this realization was the formation of the Council on Youth Fitness and a concomitant emphasis on fitness activities in the schools.

The belief that the Kraus-Weber Test was not a true measure of physical fitness led to the appointment of a special committee of the American Association for Health, Physical Education and Recreation in 1956. The charge given to this committee was to develop the battery of tests known as the AAHPER Youth Fitness Test. The seven-item test was administered to boys and girls in grades 5 through 12, with national norms being established and published in September, 1958. Test data were collected and analyzed by computers at the University of Michigan.

The results of the 1957-58 survey confirmed the fact that American boys and girls were not physically fit. As a result of this first national fitness survey, programs of school health, physical education and recreation were strengthened. Additionally, the President's Council on Physical Fitness was established by President Eisenhower to give federal encouragement to programs designed to improve the physical fitness of American youth. The work of the Council has been continued and expanded by each succeeding President; its present title is the President's Council of Physical Fitness and Sports, and its major concern is the status of physical fitness in Americans.

The Youth Fitness Test was revised in 1965 when a second national survey of youth fitness in America was conducted. Data were collected during the school years 1963-64 and 1964-65, and new norms were established. It was encouraging at that time to note that boys and girls, age 10 to 17, were generally more fit than those tested in 1958.

A third national fitness survey was done in 1975 by the United States Office of Education. Once again, changes were made in the test battery, and new norms were established. Results of the survey, reported by Hunsicker and Reiff (1977) indicated that ". . . since 1965, however,

girls scored only slightly better while the boys' performance either declined or remained the same overall.

Neither sex revealed any startling overall gains, but more girls than boys showed some improvement in the 1975 study" (p. 31).

Results of the surveys revealed that:

1. While significant gains in almost all cases were made in the period between 1958 and 1965, between 1965 and 1975 there were no gains among the 40 comparisons on the boys' data. The only significant difference was a lower score in the long jump for the 14-year-old boys.
2. The girls' data revealed significant gains in only seven out of 40 comparisons: the 600-yard run by 13, 14, 15, and 17 year olds; the long jump by 13 and 14 year olds; and the flexed-arm hang by 14 year olds. Ten year old girls scored lower than a decade ago in the 600-yard run.
3. Fourteen year old girls made the best showing in 1975, with significant improvement in three of five items--600-yard run, long jump, flexed-arm hang.
4. In contrast to the most recent decade, girls in the 1958-1965 comparisons made significantly higher scores in 39 out of 48 comparisons; boys' scores were greater in 54 out of 56 comparisons during the same time span.
5. In endurance events, girls did not improve much by age; ten year olds performed about as well as 17 year olds. (pp. 32-33)

An important component of a school fitness testing program is communication of results to parents of students.

It has been suggested that

Parents who are informed that their child has failed or done poorly on a physical fitness screening test

may react in a variety of ways. At one extreme they may dismiss the report as merely an indication that the child is not 'athletic.' On the other hand, they may become unduly alarmed, perceiving the report to be an indication of some irremediable defect. (Conrad, 1978, p. 8)

In establishing a reporting process, Conrad recommends that parents should be made aware of the purpose of fitness testing and that they should not be alarmed if their child fails one or more test items. He further recommends that strengths as well as weaknesses be identified. The parent should be made aware that the problem(s) can usually be corrected through appropriate exercises.

Few parents fully understand the subtle relationship between physical fitness and personal health, performance, and appearance, or the role that exercise plays in healthy growth and development. Fewer still are accustomed to thinking of a fitness test as an instrument for identifying problems that can seriously affect their child's future. Proper application of the test and careful interpretation of the results can help plug this serious gap in our approach to physical fitness and preventive health care. (Conrad, 1978, p. 8)

The Canada Fitness Survey, initiated by Fitness Canada in 1981, is an example of a national concern for fitness. The survey was conducted to establish baseline levels for monitoring fitness trends and to provide data on physical activity and lifestyle. The primary intent of the study was to help improve the implementation of fitness programs.

Data in the survey were gathered from 13,000 households (approximately 30,000 individuals) throughout Canada, including both urban and rural areas. Testers, working in teams of two, went into the sample households to collect the data. The "Standardized Test of Fitness" was administered to family members between the ages of 7 and 69. In addition, an 11-page questionnaire was completed by everyone in the test households who was 11 or more years old.

Results of the survey indicated that 56% of Canadians age 10 and over are physically active in their leisure time. Further, it was revealed that the main reason Canadians are active is to gain a sense of physical and mental well-being. The survey report relates activity level to age, sex, social status, education, occupation, and other variables.

There appears to be little difference between activity levels of men and women in Canada, with 57% of the men and 55% of the women surveyed classifying themselves as "active." Among both males and females, young Canadians (age 19 and younger) are more active than the older adults, middle-aged, or elderly. Western Canadians have a higher activity level than eastern Canadians, and single persons are more active than marrieds. Activity level is also

correlated with education and occupation. As education increases, so does involvement in physical recreation. Citizens, age 15 and older, with an elementary grade school education are less likely to be physically active than those who have earned a university degree. Only 41% of the former considered themselves to be active while 63% of the latter classified themselves as such. A similar difference is apparent when occupations of the employed Canadians was considered: 60% of the manager/professional classification are listed as active, as compared to 48% of the blue collar workers.

It is the intent of the Canadian surveyers to repeat the process at intervals to assess changes in population fitness. In addition, inactive groups in the population have been identified, making it possible to direct fitness development programs toward them. Health risk areas have been determined as the result of the survey; thus, health promotion efforts can be adapted as needed.

#### Computerization of Fitness Scores

In an article by Bob Christenson (1978), the computerization of the AAHPER Youth Fitness Test is described. In a project implemented in the Ridgewood, New Jersey, school system, all eligible students are tested twice each year, using the 1976 AAHPER Youth Fitness Test. Test scores,

with appropriate demographic data, are processed by the Ridgewood Computer Center. A fitness report card is produced which includes the test scores, percentile ranks, and an explanation of the six test items. Christenson considers that the project has been a benefit to both the physical education teacher and to the parents who receive the fitness report card. He cites the following as examples of benefits derived from the program: conservation of teachers' time, means of communication with parents, permanent record medium, means of monitoring student progress, and identification of students requiring developmental activities.

A similar program has been developed in the Lincoln, Nebraska, public school system. According to Austin (1980), the project began in 1975 and has been refined each year to eliminate technical problems. Austin states that the report card to the parents has done much to improve physical education-community relations. He has observed that parents have become more concerned about their children's physical fitness and the physical education program in general. Not only do the parents discuss fitness with their children and their teacher, but the discussion also extends to neighbors and opinion leaders in the community.

Austin notes the following advantages of the computerized fitness testing program:

1. less staff time and energy required to record and report fitness test scores
2. more information provided for teachers
3. increased accuracy of fitness reports
4. more readily available records comparing physical development
5. increased interest and participation in fitness testing
6. improved visibility for physical education programs
7. positive feedback from parents.

The FITNESSGRAM report card is an elaboration and sophistication of the programs reported in New Jersey and Nebraska. Designed to measure and help improve youth fitness, it has the potential to positively affect all children, adolescents and adults in the United States. It is described as an opportunity to assess student progress and motivate them toward higher personal performance, but should also serve as an aid to parents, teachers, and school administrators in developing better programs.

Sterling (Note 1) reports that the FITNESSGRAM was conceived and developed in 1981 by concerned representatives from the Institute for Aerobics Research; the American Alliance for Health, Physical Education,

Recreation and Dance; the President's Council on Physical Fitness and Sports; and Campbell's Institute for Health and Fitness. Recognizing that it had been several years since a national fitness evaluation had been conducted in this country, it was determined that such an effort was necessary to assess the current fitness status. It was further established that the program should extend beyond the evaluation alone and should also incorporate a strategy for promoting and monitoring improvement. It was felt that the parents of the children being tested should be made aware of their child's fitness test scores in the same way they are apprised of academic coursework scores. By informing the parents of their child's fitness status, it was hoped that the parents would become more concerned and involved in the development and maintenance of their youngster's optimum level of fitness.

Operating on these assumptions, the representatives from the agencies set out to develop a mechanism that would: (1) make it possible to administer a fitness test to all school-age children in the country; (2) provide a data base of scores for the purpose of establishing new norms and for making comparisons; (3) serve as a procedure for monitoring students' progress throughout their school years; and (4) communicate immediate and cumulative results to parents.

Funding for the project was made available by Campbell's Soup Company, making it possible for the Institute for Aerobics Research in Dallas, Texas, to provide its computer center as the data collection site. The report card was then designed which included personal information, test scores, a histogram with percentile ranks, an exercise prescription, and a letter to the parents from the physical education teacher. The strategy for implementing the FITNESSGRAM project included: (1) a pilot test in a single school system; (2) expansion on a state-wide level; and (3) national participation.

Support for the project is offered by Cooper (1982) in his book entitled The Aerobics Program For Total Well-Being. He predicts that the project will result in major changes in school physical education programs and, eventually, in the level of health and fitness of all Americans. Further, he encourages parents to become involved by working with the school's parent-teacher association, physical education teacher, administration, and school board to promote fitness activities.

## CHAPTER III

### PROCEDURES FOR COLLECTING DATA

The purpose of this study was to determine the effectiveness of the FITNESSGRAM in modifying parents' opinions, knowledge and behavior regarding their child's physical fitness. This chapter presents the methodology used in the development of the study. For the purpose of clarity, the chapter is organized, as follows: (1) Development of the FITNESSGRAM Project; (2) Design of the Study; (3) Selection of the Subjects; (4) Development of the Instrument; (5) Administration of the Instrument; (6) Collection and Organization of the Data; and (7) Analysis of the Data.

#### Development of the FITNESSGRAM Project

The Tulsa Public School System, Tulsa, Oklahoma, was selected as the pilot system for the FITNESSGRAM project designed by the President's Council on Physical Fitness and Sports; the Institute for Aerobics Research; the American Alliance for Health, Physical Education, Recreation, and Dance; and the Campbell Soup Company. The selection of Tulsa as the system to participate in this project was based on several criteria, namely: (1) its

close proximity to the Institute for Aerobics Research in Dallas, Texas; (2) its population; (3) its public school enrollment; (4) its comprehensive elementary-secondary physical education program; and (5) the willingness of its administration to be involved. A total of 37 schools were identified for participation, including 24 elementary schools, six junior high schools, and seven senior high schools. Approximately 9,000 students, grades 5 through 12, and 65 physical education teachers were involved in the testing project.

The AAHPERD Youth Fitness Test was administered to students in the pilot schools in October, 1982, and again in April, 1983. Their test scores were sent to the Institute for Aerobics Research, Dallas, Texas, for computer analysis. Individual scores, with percentile ranks, and a histogram were generated and recorded on the computerized report card (FITNESSGRAM) issued after each testing period. The card also featured basic fitness information, suggestions for the participant to help improve areas of weakness, and a letter to the parent from the physical education teacher. A copy of the FITNESSGRAM is included in Appendix A.

The FITNESSGRAM was distributed to students by their regular physical education teacher. Students were advised

to take the card home to their parents and to discuss the results with them. Parents were encouraged to discuss the report with their child's teacher after they had had an opportunity to examine the scores and to contact the sponsoring agencies for fitness information.

### Design of the Study

The present study was quasi-experimental in nature and examined the effect the FITNESSGRAM had on the opinion, knowledge, and behavior regarding fitness of those parents who received the report card. A randomized control-experimental design with a pretest and posttest was used for this study. An elementary, junior high school, and senior high school involved in the FITNESSGRAM project were identified as the experimental group. Comparable schools not using the FITNESSGRAM served as the control group.

A survey instrument was designed to determine the parents' opinion and knowledge levels concerning physical fitness and fitness testing (Appendix B). The survey was completed for both the control and the experimental groups before and after the FITNESSGRAM was received by parents in the experimental group. Their responses on the pretest instrument and the posttest instrument were subjected to statistical analysis as a means of determining the effectiveness of the FITNESSGRAM. Demographic data were

collected from all respondents on the pretest; action statements were completed by parents receiving the computerized report card (Appendix C and D).

### Selection of the Subjects

The subjects were parents of elementary, junior high, and senior high school physical education students in selected Tulsa Public Schools, Tulsa, Oklahoma. A FITNESSGRAM school at each of the three levels was selected by the school system's administrative staff to serve as the experimental group. They were asked to identify one senior high school, one junior high school, and one elementary school from the 37 schools participating in the pilot project. It was requested that consideration be given to a cross-section of socio-economic levels in an attempt to secure more unbiased responses.

The physical education supervisors for the system examined all the schools in the FITNESSGRAM project and selected three for this study, based on the following criteria, in order of significance: (1) one from each grade level requested (K-6, 7-9, 9-12); (2) willingness of the principal and the physical education teacher(s) to participate; and (3) socio-economic level (one high, one middle, and one low). When the experimental schools had been established, the supervisors identified control group

schools with matching demographic characteristics. The result of the combined considerations was the selection of the following: two senior high schools (grades 9-12) from a low socio-economic area; two junior high schools (grades 7-9) from a middle socio-economic area; and two elementary schools (grades K-6) from a high socio-economic area. An official from the central administrative office sent a letter to each building principal to apprise him of the project and to secure his agreement to participate before confirming the selections.

Using the Table for Determining Sample Size from a Given Population (Krejcie & Morgan, 1970), it was determined that the appropriate sample size should be at least 384. For this study, 450 students (225 in the experimental group and 225 in the control group) were selected. Permission to involve students in the selected schools was granted by the Tulsa Public Schools Research Review Committee. The confirming letter is located in Appendix E.

The investigator held a meeting with each principal and physical education teacher from the selected schools to explain the process. Teachers were asked to randomly select students from their classes to serve as subjects. Each agreed to draw the names by lot from the pool of students in all classes. A number was assigned to each

subject selected and was recorded on the survey instrument given to that student. At no time was the name of the student, or the student's parents, identified in the study.

### Development of the Instrument

Through a review of the literature, it was determined that there was no standardized instrument available dealing with parents' perspectives of their child's physical fitness. It was necessary, therefore, to develop a survey instrument that would elicit responses from the parents concerning: (1) the importance of physical fitness and fitness testing; (2) the role of the school in providing a fitness program for children and adolescents; (3) parents' knowledge about components of fitness; and (4) action taken by parents after receiving the FITNESSGRAM.

To help determine the content of the instrument, selected parents of school-age children in the Tulsa, Oklahoma, area, not involved in this study, were asked to respond to a list of questions about physical fitness. Their answers, combined with information found in the literature review, served as the bases for the construction of the physical fitness survey.

A list of statements was compiled which reflected the concerns and beliefs identified from the above sources. This list was submitted to eight faculty members in the

College of Education at the University of Tulsa, Tulsa, Oklahoma, for review. Included among the reviewers were six health, physical education and recreation professionals, one professor from the graduate research and evaluation department, and one counseling and guidance professor. Based on their suggestions concerning content and structure, the first draft of the instrument was constructed. A panel of five experts, selected from professionals in the fields of research, physical education, and physical fitness, critiqued the amended version of the instrument. Individuals with demonstrated expertise in the areas of physical fitness, survey research, writing and publication, and interest in the FITNESSGRAM project were asked to serve on the panel. A list of the experts, with their respective affiliations, is located in Appendix F. Twenty-nine opinion statements and nine knowledge statements were written, based on the recommendations of the panel of experts. The preliminary survey instrument was administered to 35 parents of Tulsa Public School students, not included in the study, for their evaluation regarding its readability and appropriateness of content.

The proposed instrument was then submitted to the Dissertation Advisory Committee for review and approval. Another revision was made, incorporating their suggestions,

before the completed document was prepared. The final copy of the survey included 19 opinion statements and five cognitive statements. The opinion portion of the instrument was designed to determine how parents felt about the importance of physical fitness in general, their child's physical fitness level, and the role of the school's physical education program in developing and maintaining fitness. The knowledge questions focused only on information found on the FITNESSGRAM. The intention was to determine if the parents read and comprehended the fitness-related cognitive material that appeared on the report card.

Appropriate demographic information for each family was requested with the pretest. In addition, five "Action Statements" were attached to the experimental group's posttest instrument to determine reaction to the FITNESSGRAM. They were designed to evaluate whether the parents actually did anything about their child's physical fitness after having received the FITNESSGRAM.

Opinion statements were worded so the respondent could reply "Yes," "No," or "No Opinion." Based on recommendations made by the panel of experts, statements were categorized as "positive" or "negative" as they related to opinions about physical fitness. A numerical score of three was assigned to each positive response; a score of

one to a negative response; and a two for the neutral "No Opinion." A total of 57 was possible for the opinion portion of the instrument.

The cognitive statements related to information found on the FITNESSGRAM rather than to physical fitness information in general. Thus, parents who received the fitness report card had the answers readily available. The statements were written so the respondent could answer "Yes" or "No" to indicate if the sentence was true or false. Each correct answer was given a score of one; incorrect answers received a score of zero. A total score of five was possible.

The "Action Statements" were designed to solicit information from experimental group parents after they had received the FITNESSGRAM. An opportunity was provided for them to explain any action they had taken after reviewing the report card. Their responses and comments were summarized as a means of demonstrating the effect of the FITNESSGRAM.

The Tulsa Public Schools' administrative staff and Research Review Committee examined and approved the material, as submitted, for distribution to its patrons. Copies of the adopted survey, the demographic information sheet, and the "Action Statements" can be found in Appendix B, C, and D.

### Administration of the Instrument

All parents of the 450 students selected for the study received identical pretest instruments. Only the experimental group received the additional "Action Statements" as a part of the posttest. A letter, written by the investigator, was enclosed with the pretest to explain the purpose of the survey. A follow-up letter from the investigator was enclosed with the posttest. Both letters are included in Appendix G and H.

The material for the pretest was coded and copies were placed in individual envelopes for each participant. An orientation meeting, conducted by the investigator, was held with each principal and physical education teacher participating in the study, at which time the contents of the envelopes were explained. Each administrator and teacher agreed to cooperate in the distribution and collection of the pretest and posttest instruments.

Packets containing 75 pretest envelopes were delivered to each of the six physical education teachers by the investigator. On the designated date, the teacher gave the envelopes to the selected students to be taken home to their parents. The same procedure was used to deliver the posttests. Only those students who returned the pretest instrument were given envelopes containing the posttest

instrument. The same parent who completed the pretest was asked to fill out the posttest instrument.

#### Collection and Organization of the Data

The completed forms were returned by the students to the physical education teachers three days after distribution. Each teacher encouraged the students to ask their parents to complete and return the instrument, but no penalty was assessed if they did not bring them back. On predetermined pretest and posttest dates, the envelopes were collected from the physical education teachers by the investigator.

After all the envelopes had been collected, the data were organized and coded for computer analysis. An identification number was assigned to each of the eligible participants, with a designation of either control or experimental group (Group 1 or Group 2). Further classification identified elementary, junior high school, or senior high school (Level 1, Level 2, or Level 3). The opinion pretest and posttest scores and the cognitive pretest and posttest scores were recorded as tabulated on the individual survey forms. The actions taken by the parents, as identified in the "Action Statements" responses, were tallied, summarized, and discussed. Demographic data were coded and recorded for analysis and

discussion. The variables identified for computer analysis included the following:

1. Identification Number
2. Group Number (Group 1-Control; Group 2-Experimental)
3. Level (Level 1- Elementary School; Level 2- Junior High School; Level 3-Senior High School)
4. Opinion Pretest Score
5. Opinion Posttest Score
6. Cognitive Pretest Score
7. Cognitive Posttest Score
8. Relationship
9. Age
10. Total Number of Children in Family
11. Highest Level of Education of Respondent
12. Net Family Income
13. Frequency of Physical Fitness Activity

#### Analysis of the Data

The data were analyzed using statistical methods available in the Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The coded information was keypunched and subjected to statistical treatment at the University of Tulsa Computer Center, Tulsa, Oklahoma.

A multiple classification analysis of covariance statistical design was used to study the effect of the FITNESSGRAM on the fitness opinions and knowledge of parents of students at each grade level. According to Campbell and Stanley (1970), this is the recommended procedure for comparing experimental and control groups, with the pretest scores used as the covariate. By comparing the adjusted means it was possible to determine whether the application of the treatment, i.e., the FITNESSGRAM, was associated with a change favoring the experimental group over the control group. For all statistics, a .05 level of significance was employed.

Demographic data were collated by the computer and summarized by the investigator. With this information it was possible to compare the members of the experimental group and the control group to determine if they represented similar populations.

Action statement responses were tallied and summarized by the investigator. They were not considered in the statistical analysis of data; rather, were utilized in the discussion concerning the impact of the FITNESSGRAM on parents' behavior.

## CHAPTER IV

### ANALYSIS OF THE DATA

The purpose of this study was to examine the effect of the FITNESSGRAM on parental opinions, knowledge and behavior regarding their child's physical fitness. This chapter presents the analysis of the data collected using the methodology described in Chapter III. The chapter is divided into four parts: (1) Survey Responses; (2) Demographic Information About the Subjects; (3) Statistical Analysis Applied to the Hypotheses; and (4) Summary of Action Statement Responses.

#### Survey Responses

Table 1 indicates that a total of 325 (72%) of the pretest surveys were returned, representing 170 (76%) from the experimental group and 155 (69%) from the control group. Table 2 reveals that 164 (50%) of the 325 who returned the pretest also completed and returned the post-test. This included 99 (58%) from the experimental group and 65 (42%) from the control group. Thus, the analysis of data included information from 164 respondents.

Table 1  
 Number and Percentage of Pretest Responses  
 by Groups and Grade Levels

Group	Number Solicited	Number of Responses	Percentage of Responses
Experimental	225	170	76%
Elementary	75	62	83%
Jr. High	75	70	93%
Sr. High	75	38	51%
Control	225	155	69%
Elementary	75	57	76%
Jr. High	75	55	73%
Sr. High	75	43	57%
Total	450	325	72%

Table 2  
 Number and Percentage of Posttest Responses  
 by Groups and Grade Levels

Group	Number Solicited	Number of Responses	Percentage of Responses
Experimental	170	99	58%
Elementary	62	28	45%
Jr. High	70	56	80%
Sr. High	38	15	40%
Control	155	65	42%
Elementary	57	25	44%
Jr. High	55	22	40%
Sr. High	43	18	42%
Total	325	164	50%

### Demographic Information About the Subjects

All subjects selected for the study were asked to provide information about their family on a form entitled "Personal." Questions on the personal information data sheet included: (1) relationship of respondent to the child; (2) age of the respondent; (3) total number of children in the family; (4) highest level of education of the respondent; (5) approximate annual net family income; and (6) frequency of respondent's exercise participation. By comparing the responses of the experimental group with those of the control group, it was possible to determine commonalities between the two groups. The demographic information was compiled by using the SPSS programs (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1974) Frequencies and Crosstabs.

Demographic data were also organized by grade level: elementary, junior high school, and senior high school. This comparison can be found in Appendix I.

### Relationship of Respondent

The figures in Table 3 represent the relationship of the person returning the survey instrument to the child selected for the study. Respondents were asked to circle the number on the demographic data form which indicated their relationship to the child as either mother, father,

or other adult. By examining this table, it can be determined that 48 of the control group instruments were completed by the mothers of children in the study. This figure represents 73.8% of the control group respondents. Sixteen (24.6%) of the respondents were fathers, and one survey was completed by some other adult.

Table 3  
Relationship of Respondent to Child

	Control Group		Experimental Group		Total	
	No.	%	No.	%	No.	%
Mother	48	73.8	59	59.6	107	65.2
Father	16	24.6	37	37.4	53	32.3
Other Adult	1	1.5	2	2.0	3	1.8
No Response	0	0	1	1.0	1	.6
Total	65	39.6	99	60.4	164	100.0

Similarly, 59 experimental group mothers completed the survey instrument, representing 59.6% of this group. In contrast, 37 (37.4%) fathers in the experimental group completed the instrument. Two (2.0%) 'other adults' were identified in the experimental group, and one (1.0%) respondent did not indicate a relationship.

Collectively, 107 (65.2%) of the respondents were mothers of students participating in the FITNESSGRAM study. A total of 53 fathers responded, representing 32.3% of the entire sample. Some other adult completed three instruments, and the relationship of one respondent could not be determined.

#### Age of the Respondent

Table 4 depicts the age groups of the respondents returning the survey instrument. Three respondents did not report their age; thus, the  $n$  was 161 rather than 164. It can be seen that a majority of both the control and the experimental groups were between the ages of 30 and 41, with 70.9% of the control group and 68.7% of the experimental group falling within this age range. Almost one-half (44.1%) of the respondents were between 36 and 41 years of age. Conversely, 14 respondents were 48 years or older, representing six control group and eight experimental group members.

Table 4  
Age of the Respondent

	Control Group		Experimental Group		Total	
	No.	%	No.	%	No.	%
30-35 Years	17	27.3	24	24.2	41	25.4
36-41 Years	27	43.6	44	44.5	71	44.1
42-47 Years	12	19.4	23	23.1	35	21.7
48-53 Years	5	8.0	5	5.0	10	6.1
54-59 Years	1	1.6	3	3.0	4	2.4
Total	62	99.9	99	99.8	161	99.7

#### Number of Children in Family

The total number of children in the household is reflected in Table 5. All members of both the control and the experimental groups responded; thus, there were no missing observations. It was revealed that 89% of the total group had four or fewer children, including 83.1% of the control group and 93% of the experimental group. This grouping included 84 families (51.2%) with either one or two children. Conversely, only five families (3.1%) of the entire sample reported having seven or more children.

Table 5  
Number of Children in Family

	Control Group		Experimental Group		Total	
	No.	%	No.	%	No.	%
1-2 Children	31	47.7	53	53.6	84	51.2
3-4 Children	23	35.4	39	39.4	62	37.8
5-6 Children	7	10.7	6	6.1	13	7.9
7 or more Children	4	6.2	1	1.0	5	3.1
Total	65	39.6	99	60.4	164	100.0

#### Highest Level of Education

Table 6 reflects data relating to the level of education of respondents. Seven of the adults (4.3%) indicated they had no diploma or degree, while 17 (10.4%) had completed a graduate degree. A majority of the entire sample (83 respondents) noted that they had completed at least some college work. This included 32.3% of the control group and 30.3% of the experimental group who reported that they had attended college, plus the 15.4% of the control group and 22.2% of the experimental group who had earned a degree. All respondents completed the question; thus, the percentages were based on an n of 164.

Table 6  
Highest Level of Education of Respondent

	Control Group		Experimental Group		Total	
	No.	%	No.	%	No.	%
No degree or diploma	4	6.2	3	3.0	7	4.3
High school diploma	19	29.2	21	21.2	40	24.4
Some college	21	32.3	30	30.3	51	31.1
College degree	10	15.4	22	22.2	32	19.5
Some graduate work	7	10.8	10	10.1	17	10.4
Graduate degree	4	6.2	13	13.1	17	10.4
Total	65	39.6	99	60.4	164	100.0

#### Approximate Net Income

The respondents' approximate net family income is indicated in Table 7. Twenty individuals did not complete the question; therefore, the n was 144. An annual income of \$29,000.00 or more was reported by 92 (63.9%) of those completing the survey. The category with the greatest number of respondents was \$50,000.00 and over, with 36 (25.0%) of the parents reporting that amount. Fifty percent

of the control group reported incomes of \$29,000.00 or more, with 22.4% of those earning \$50,000.00 or more. This compared with 78.2% of the experimental group in the \$29,000.00 or more category and 26.7% reporting \$50,000.00 or more. Fewer than 5% of the total group indicated that they earned less than \$8,000.00 annually.

Table 7  
Net Family Income of Respondent

	Control Group		Experimental Group		Total	
	No.	%	No.	%	No.	%
Less than \$8,000.00	6	10.3	1	1.2	7	4.9
\$8,000-14,999	7	12.1	5	5.8	12	8.3
\$15,000-21,999	8	13.8	10	11.6	18	12.5
\$22,000-28,999	8	13.8	7	8.1	15	10.4
\$29,000-35,999	7	12.1	21	29.4	28	19.4
\$36,000-42,999	8	13.8	12	14.0	20	13.9
\$43,000-49,999	1	1.7	7	8.1	8	5.6
\$50,000 and over	13	22.4	23	26.7	36	25.0
Total	58	40.1	86	59.9	144	100.0

### Frequency of Exercise

Table 8 indicates the number of times per week the respondents participate in some sort of physical activity. With one person failing to answer the question, the n in Table 8 was 163. Over three-fourths (78.5%) of the entire group reported that they participated 2-3 times per week or less. Almost one-half of the total group (42.9%) indicated that they exercised less than one time per week: 45.3% of the control group and 41.4% of the experimental group, respectively. Less than 10% indicated they exercised approximately once each day.

Table 8  
Frequency of Exercise of Respondent

	Control Group		Experimental Group		Total	
	No.	%	No.	%	No.	%
Less than 1/wk	29	45.3	41	41.4	70	42.9
2-3 times/wk	21	32.8	37	37.4	58	35.6
4-5 times/wk	7	10.9	13	13.1	20	12.3
6-7 times/wk	6	9.4	8	8.1	14	8.6
No response	1	1.6	0	0.0	1	.6
Total	64	39.3	99	60.7	163	100.0

### Statistical Analysis Applied to the Hypotheses

A summary of the results of the opinion pretest and posttest are presented in Table 9. The total score for the parents on the pretest was greater than their scores on the posttest. The parents in the control group, who did not receive the FITNESSGRAM, scored 83 points lower on the posttest than on the pretest. The mean score for the control group decreased from 48.06 on the pretest to 46.78 on the posttest; a decline of 1.28 points.

Conversely, the parents in the experimental group improved their total score from 4776 to 4856 after receiving the FITNESSGRAM. Their mean score improved by .81 points, with an increase from 48.24 on the pretest to 49.05 on the posttest.

Parents of the children in each grade level in the experimental group showed some improvement in their opinions about physical fitness between the pretest and posttest. In the control group, however, the junior high scores and means improved slightly while the posttest elementary and senior high scores were lower than their pretest scores.

The posttest mean scores were analyzed by a multiple classification analysis of covariance to determine if:

(1) the difference in the mean scores between the

Table 9

## Opinion Pretest-Posttest Scores

	Total		Mean		Std. Dev.		Variance		<u>n</u>	
Group	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test	Pre Test	Post Test
Sample	7900	7897	48.17	48.15	5.79	5.88	33.49	34.57	164	164
Control	3124	3041	48.06	46.78	5.59	5.73	31.28	32.80	65	65
Elem.	1191	1163	47.64	46.52	6.28	6.68	39.40	44.68	25	25
Jr. Hi.	1076	1078	48.91	49.00	4.41	4.22	19.42	17.81	22	22
Sr. Hi.	857	800	47.61	44.44	6.06	5.11	36.72	26.14	18	18
Experimental	4776	4856	48.24	49.05	5.94	5.83	35.27	32.01	99	99
Elem.	1343	1382	47.97	49.36	5.08	4.63	25.81	21.42	28	28
Jr. Hi.	2687	2700	47.98	48.21	6.51	6.28	42.38	39.44	56	56
Sr. Hi.	746	774	49.73	51.60	5.27	5.65	27.78	31.97	15	15

control group and the experimental group was statistically significant; (2) the difference in the mean scores of the three grade levels was statistically significant; and (3) there was significant interaction between group and grade level. To accomplish this objective, it was necessary to first convert the actual posttest mean scores to adjusted mean scores. Adjustments were made in means representing all independent variable groups to compensate for initial control variable difference between the groups. This was done by using a constant score value (the overall sample mean) and predicting the criterion mean scores for each group by using each group's regression line. The resulting values were used in performing the analysis of variance, yielding the usual  $F$  ratio to test for amount of variation resulting from differences between the groups. The procedure used in making the conversion can be found in tables located in Appendix J.

The adjusted posttest means for each group and grade level are displayed in Table 10, in addition to the adjusted means of combined groups and combined levels. By examining the table it can be seen that, in each case, the Control Group means decreased while the Experimental Group means increased as the result of the adjustment. This is explained by comparing the Control Group and Experimental

Table 10

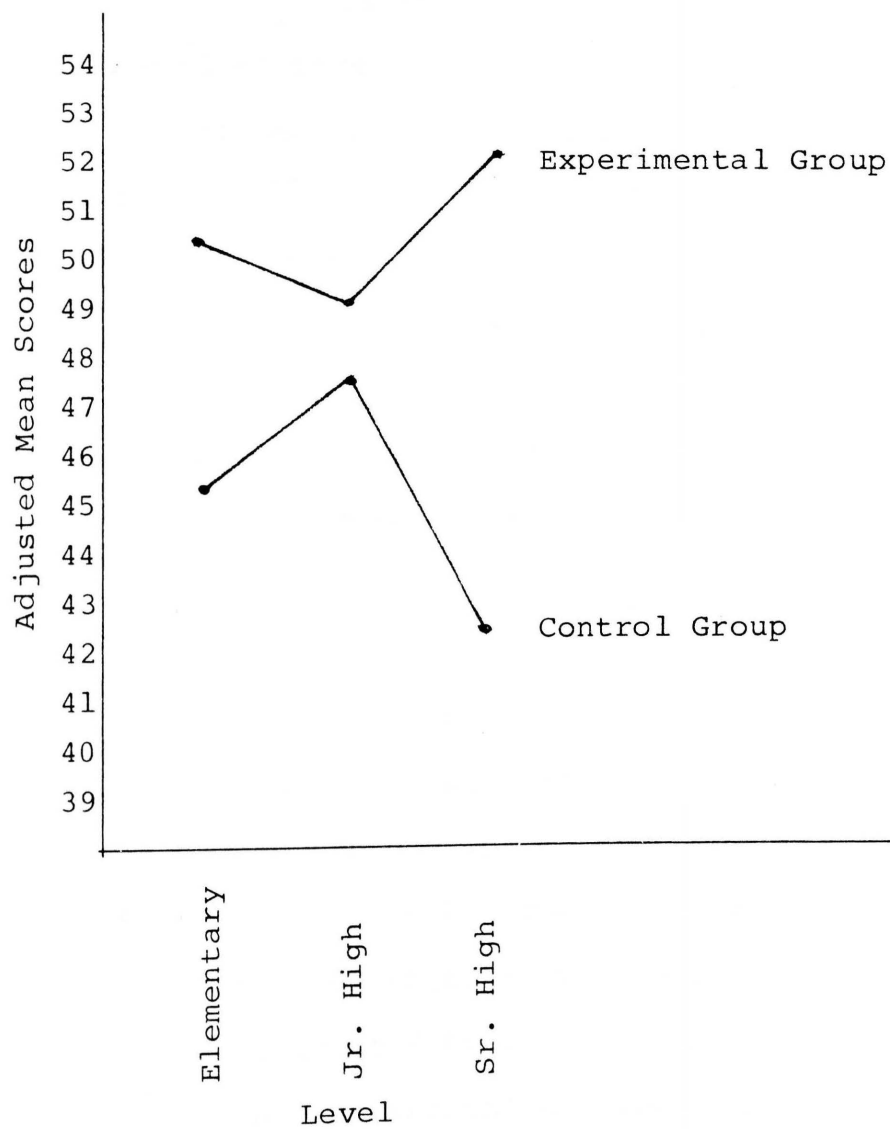
## Adjusted Means of Opinion Posttest Scores

	Elementary Level			Jr. Hi. Level			Sr. Hi. Level			Adj. Mean
Group	$\bar{X}$	Adj. $\bar{X}$	SD	$\bar{X}$	Adj. $\bar{X}$	SD	$\bar{X}$	Adj. $\bar{X}$	SD	
Control	46.52	45.47	6.7	49.00	47.71	4.2	44.44	42.77	5.1	46.86
Experimental	49.36	50.45	4.6	48.21	49.06	6.3	51.60	52.07	5.7	49.00
Adj. Mean	48.39			48.15			47.77			

Group pretest mean scores with their posttest mean scores. The Control Group, as well as two of the three levels within the group, scored higher on the pretest than on the posttest. The Experimental Group, and the respective levels, showed improvement between pretest and posttest scores. These changes are reflected in the adjustment of scores as the groups and levels are equalized by way of the regression equation.

As shown in Table 10 and verified in Graph 1, there was a significant difference between adjusted mean scores of the experimental group and the control group. This is interpreted to mean that the FITNESSGRAM did affect parental opinions concerning physical fitness. Further, it can be seen that the greatest difference existed at the senior high level and the least difference at the junior high level.

The Analysis of Covariance Summary is displayed in Table 11. It was determined that there was a significant difference between the control and experimental groups' posttest opinions about physical fitness. With a calculated  $F$  of 8.16 and a tabled value of 3.91, the difference was significant at the .05 level. This indicated that the experimental group, the group which received the FITNESSGRAM, had more favorable opinions about fitness than the control group.



Graph 1. Adjusted Opinion Posttest Means (Control and Experimental Groups)

Table 11  
Analysis of Covariance Summary Table  
of the Opinion Posttest

Source	df	SS	MS	<u>F</u>	Sig. of <u>F</u>
Group	1	169.5	169.5	8.16	*
Level	2	7.9	3.9	.19	
Interaction	2	208.4	104.2	5.02	*
Residual	157	3259.9	20.8		
Total	163	5635.2	34.6		

\*p < .05.

An analysis of the data was performed to determine if the grade level of the student was related to the parents' opinions about physical fitness. The calculated F was .19 and the tabled F was 3.06; thus, it was determined that there was not a significant difference in the posttest mean scores of the sample parents' opinions about physical fitness for the three grade levels involved. However, a comparison of the interaction calculated F of 5.02 with the tabled F of 3.06 indicated a statistical significance at the .05 level. This is interpreted to mean that the grade level of students was a factor when a comparison of posttest opinion scores was made between the control and the experimental groups in each level.

A summary of cognitive scores, means, standard deviations, and variances by group and grade level is presented in Table 12. In comparing the pretest and posttest scores, the control group showed some improvement, but there was marginal evidence of change in the experimental group. Collectively, the control group improved their mean scores from 3.22 on the pretest to 3.71 on the posttest. This is compared to the experimental group means of 3.62 on the pretest and 3.82 on the posttest. The mean scores of the sample, as a whole, changed from 3.47 on the pretest to 3.78 on the posttest; however, the change was not significant.

A multiple classification analysis of covariance was used to determine if the changes in the mean scores on the knowledge test were statistically significant. As with the opinion data presentation, it was necessary to adjust the means of the groups and levels before subjecting them to statistical analysis. The steps followed in making this conversion can be seen in tables located in Appendix K.

Table 13 depicts the posttest means and the adjusted posttest means for the experimental group and control group at each grade level. These scores were used to prepare the Analysis of Covariance Summary Table depicted in Table 14.

Table 12

## Cognitive Pretest-Posttest Scores

	Total	Mean	Std. Dev.	Variance	<u>n</u>
Group	Pre Test Post Test	Pre Test Post Test	Pre Test Post Test	Pre Test Post Test	Pre Test Post Test
Sample	558 597	3.47 3.78	1.19 .96	1.43 .93	161 158
Control	203 234	3.22 3.71	1.24 .91	1.53 .82	63 63
Elem.	75 79	3.13 3.43	1.23 .99	1.51 .98	24 23
Jr. Hi.	70 89	3.33 4.05	1.35 .65	1.83 .43	21 22
Sr. Hi.	58 66	3.22 3.67	1.17 .97	1.36 .94	18 18
Experimental	355 363	3.62 3.82	1.14 1.00	1.31 1.00	98 95
Elem.	109 106	3.89 3.92	.99 .96	.99 .92	28 27
Jr. Hi.	191 202	3.47 3.81	1.25 .96	1.55 .93	55 53
Sr. Hi.	55 55	3.67 3.67	.97 1.23	.95 1.52	15 15

Table 13

## Adjusted Means of Cognitive Posttest Scores

Group	Elementary Level			Jr. Hi. Level			Sr. Hi. Level			Adj. Mean
	$\bar{X}$	Adj. $\bar{X}$	SD	$\bar{X}$	Adj. $\bar{X}$	SD	$\bar{X}$	Adj. $\bar{X}$	SD	
Control	3.43	3.42	.9	4.05	4.23	.7	3.67	3.62	.9	3.86
Experimental	3.93	3.81	.9	3.81	3.88	.9	3.67	3.51	1.2	3.75
Adj. Mean		3.71			3.90			3.67		

An examination of Table 14 reveals that there was not a significant difference in the mean scores as related to knowledge about physical fitness. Further, the data in the table indicate that there was no difference in the parental knowledge about physical fitness among the three grade levels identified in this study. There was also no interaction between group and grade level as it related to parental knowledge concerning physical fitness. When the calculated  $F$  values of .52, 1.12, and .85 were compared to the tabled  $F$  values of 3.91, 3.06, and 3.06, respectively, it was determined that no statistical significance existed. The FITNESSGRAM did not change the knowledge level of either the control group or the experimental group at any of the three grade levels.

Table 14  
Analysis of Covariance Summary Table  
of the Cognitive Posttest

	df	SS	MS	$F$	Sig. of $F$
Group	1	.4	.4	.52	
Level	2	1.7	.8	1.12	
Interaction	2	1.3	.6	.85	
Residual	148	112.3	.8		
Total	154	141.4	.9		

\* $p < .05$

### Summary of Action Statement Responses

Parents in the experimental group were asked to respond to five questions as a means of determining if they took any specific action relating to the FITNESSGRAM. A total of 99 survey instruments, which included the completed "Action Statements" form, were returned by the experimental group.

Table 15 is designed to depict a frequency distribution of responses to each "Action Statement." An abbreviated version of the five questions is included, with the responses of parents of elementary school, junior high school, and senior high school students shown for each grade level. Additionally, the total number of responses, with percentages, can be observed.

Over four-fifths (89%) of the parents reported that their child had brought the FITNESSGRAM home. Of that group, 83% indicated that they discussed the results of the fitness test with their child. However, none of the parents discussed the report card with their child's physical education teacher.

The four organizations developing and/or sponsoring the FITNESSGRAM project are identified on the back of the report card. Parents were invited to contact the cooperating agencies for additional information about

Table 15  
Parents' Responses to Action Statements

		Elem. School	Jr. Hi. School	Sr. Hi. School	Total	
		No.	No.	No.	No.	%
Did child bring a FITNESSGRAM home?	Yes	23	51	14	88	89.0
	No	5	5	1	11	11.0
	Total	28	56	15	99	100.0
Did you discuss FITNESSGRAM with child?	Yes	21	45	7	73	83.0
	No	2	6	7	15	17.0
	Total	23	51	14	88	100.0
Did you discuss FITNESSGRAM with PE teacher?	Yes	0	0	0	0	0.0
	No	23	51	14	88	100.0
	Total	23	51	14	88	100.0
Have you con- tacted FITNESS- GRAM agencies?	Yes	0	2	0	2	2.2
	No	23	49	14	86	97.8
	Total	23	51	14	88	100.0
Have you taken action to correct weaknesses?	Yes	3	11	1	15	17.1
	No	17	34	13	64	72.7
	N.A.	3	6	0	9	10.2
	Total	23	51	14	88	100.0

physical fitness or about the services they provide. Only two of the 88 parents who saw their child's FITNESSGRAM reported that they had contacted any of the organizations listed.

In question 5, parents were asked if they had taken any action to correct their child's weaknesses, if any were identified. A majority (72.7%) indicated that they had done nothing; 17.1% replied that steps were being taken to correct deficiencies; and 10.2% stated that no action was necessary since their child had done well on all test items.

Those parents who stated that they had done something to attempt to correct their child's weaknesses identified a variety of actions that had been taken. Written responses ranged from general encouragement, to work on areas of weakness, to specific steps taken for correcting problems. Examples of action taken included: (1) enrolled child in a health club; (2) increased daily walking, running, and exercise program; (3) increased child's home activity (e.g., soccer and basketball and nightly walks with parents); (4) asked him to work on dashes at track practice; (5) began running with father; and (6) purchased a gym set for summer fitness.

## CHAPTER V

### SUMMARY, FINDINGS, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

This chapter contains a summary of the study designed to evaluate the effectiveness of the pilot FITNESSGRAM project. Specifically, the following areas are included: (1) Summary of the Study; (2) Findings; (3) Discussion; (4) Conclusions; and (5) Recommendations for Further Study.

#### Summary of the Study

The FITNESSGRAM, a computerized physical fitness report card, was sent to selected parents whose children were participating in a 1982-83 pilot study conducted in the Tulsa Public School System, Tulsa, Oklahoma. A survey instrument was distributed to a randomly selected group of parents to determine if the report card had an effect on their opinions, knowledge, and behavior regarding fitness. Specifically, the study was designed to examine two basic issues: (1) Did the FITNESSGRAM have an effect on parents of children involved in the project when compared to those who were not involved? (2) Were parents' responses and reactions to the FITNESSGRAM affected by the grade level

of their child: elementary school, junior high school, senior high school?

The Institute for Aerobics Research; American Alliance for Health, Physical Education, Recreation and Dance; President's Council on Physical Fitness and Sports; and Campbell's Soup Company collaborated to initiate a physical fitness testing project in 1982. According to the literature, studies have been conducted periodically in the past which have compared the fitness of American school children with those from other countries. The 1982-83 project was unique, however, in that parents of students participating in the testing process received a computerized report of the results. This study was designed to evaluate the effect of the report card (FITNESSGRAM) on selected parents' opinions, knowledge, and behavior regarding physical fitness.

A survey instrument was developed to examine the three components: opinion, knowledge, and behavior. The initial document was evaluated by educators and parents not involved in the study before being sent to a panel of experts to be critiqued. The final copy of the survey instrument was reviewed and approved by the investigator's Dissertation Committee and the Tulsa Public Schools' administrative staff and Research Review Committee.

A quasi-experimental pretest, posttest design was used for this study, using a control and an experimental group. Randomly selected parents of students involved in the FITNESSGRAM project were identified as the experimental group and were given the instrument before and after they received their child's report card. A comparable group of parents of students not participating in the pilot program (the control group) also completed the survey forms. Each grade level (elementary school, junior high school, and senior high school) was represented in the study. A total of 450 parents (225 in the control group and 225 in the experimental group) received the pretest; 164 of them were sent the posttest.

Responses were coded to provide a nominal scale for the purpose of analysis. A multiple classification analysis of covariance statistical design was used to analyze the data, with .05 established as the level of significance. Demographic data and behavioral responses were tabulated and reported.

### Findings

#### Demographic Data

Parents receiving the pretest were asked to complete a one-page personal information form as a means of determining commonalities between the control and experimental

groups. Questions on the demographic data sheet included: (1) relationship of respondent to the child; (2) age of the respondent; (3) total number of children in the family; (4) highest level of education of the respondent; (5) approximate net family income; and (6) frequency of respondent's exercise participation.

The responses were compiled by using the Statistical Package for the Social Sciences (SPSS) Frequencies and Crosstabs programs. From the information presented, it was determined that the control and experimental groups were comparable in all six categories identified. In both groups, more mothers (107) than fathers (53) completed the survey instrument; the majority of respondents were between 30 and 41 years of age (69.5%) and had attended college (71.4%); fifty-one percent of the families had one to two children; a majority (63.9%) had an annual net income in excess of \$29,000.00; and almost half (42.9%) of the parents exercised less than one time per week.

### Hypotheses Testing

A multiple classification analysis of covariance statistical design was used to test all six hypotheses. The .05 level of significance was established for this procedure. Using statistical methods available in the Statistical Package for the Social Sciences (SPSS), the

data were analyzed. The coded information was keypunched and subjected to statistical treatment at the University of Tulsa Computer Center, Tulsa, Oklahoma.

An analysis of the six hypotheses resulted in the following:

- H<sub>01</sub> The FITNESSGRAM will have no effect on the opinions of parents regarding the physical fitness of their children participating in the 1982-83 computerized fitness testing project. Rejected.
- H<sub>02</sub> There is no difference among the mean scores of parents' opinions about physical fitness for the three grade levels involved in the 1982-83 FITNESSGRAM project. Accepted.
- H<sub>03</sub> There is no interaction between group and grade level as it relates to parents' opinions about physical fitness. Rejected.
- H<sub>04</sub> The FITNESSGRAM will have no effect on the physical fitness knowledge of the parents of children participating in the 1982-83 computerized fitness testing project. Accepted.
- H<sub>05</sub> There is no difference among the mean scores of parents' knowledge about physical fitness for the three grade levels involved in the 1982-83 FITNESSGRAM project. Accepted.

H<sub>06</sub> There is no interaction between group and grade level as it relates to parents' knowledge about physical fitness. Accepted.

#### Action Statement Responses

A majority (83%) of the parents indicated that their child had brought the FITNESSGRAM home and that they had discussed the report card. None of them contacted their child's physical education teacher about the results; only 2.2% of them contacted one of the sponsoring agencies. A small percentage (17.1%) indicated that they were taking some action to correct their child's physical fitness deficiencies identified by the test.

#### Discussion

The FITNESSGRAM appears to be an effective means of enhancing some parents' opinions about their child's level of physical fitness. The scores on the opinionnaires of the group receiving the computerized fitness report card were significantly higher than those whose children were not involved in the project. An examination of their responses indicated that the opinion mean score of the control group decreased from 48.06 on the pretest to 46.78 on the posttest. Conversely, the experimental group's score on the opinionnaire went from 48.24 on the pretest to 49.05 on the posttest.

Some posttest gains were evident at each of the three grade levels, but the greatest difference occurred among senior high school students' parents and the least among junior high school students' parents. This could be explained by the fact that a much larger percentage of junior high students' parents responded to the survey instrument than parents of either elementary or senior high school students. Specifically, 93% of the junior high experimental group returned the pretest while 83% of the elementary school parents and only 51% of the senior high parents completed the instrument. The posttest was returned by 80% of the junior high experimental group compared to only 45% of the elementary and 40% of the senior high parents. It could be inferred that there was a higher level of interest and/or concern among the parents of junior high school students, thus less room for improvement.

Only 15 of the original 75 parents of senior high students in the experimental group and 18 of the 75 in the control group returned the survey instrument. Thus, individual scores had a more profound effect on the results than was evidenced among the elementary and junior high groups who had a higher percentage of returns. It is conjectured that the parents with the greatest interest in fitness returned the instrument; thus, their responses were more positive.

The results of the cognitive test indicated that the FITNESSGRAM was ineffective as a means of increasing one's knowledge about physical fitness. Despite the fact that some information pertaining to fitness and to fitness testing appeared on the card, there was little difference in the cognitive mean scores between the experimental and the control groups. This would suggest that the facts and figures contained therein are common knowledge since both pre and posttest scores were relatively high. Therefore, the FITNESSGRAM should not be promoted as a piece of print media designed to enhance parents' knowledge about physical fitness.

An examination of the characteristics of the groups represented in the study revealed some interesting findings which could have affected the results. For example, a majority of the respondents were well-educated mothers from a moderate to high socio-economic family with two or fewer children in the home. Even though the parents in the experimental group had significantly more positive opinions about physical fitness, they took little action as the result of having received their child's FITNESSGRAM. Only 17.1% indicated that they had done something to correct their child's weakness(es). Perhaps the finding can be correlated with the fact that a majority of the parents

apparently participate in very little physical activity. A substantial number of the parents (41.4% of the experimental group) indicated that they participate in some sort of physical activity less than one time per week. As a contrast, only 8.1% of the group reported daily physical activity.

It was interesting to note that a large percentage of the parents (89.0%) reported that their child had brought the FITNESSGRAM home. Further, it was encouraging to observe that a majority of those parents receiving the report card (83.0%) spent time discussing it with their child. Not unexpectedly, perhaps, only one-half (50%) of the senior high school parents talked with their child about the FITNESSGRAM. For some reason, none of the parents who reported that they had received the information chose to discuss the card or their child's fitness level with the physical education teacher in the school. Only a very small percentage (2.2%) indicated they had contacted one of the sponsoring agencies to obtain additional information about physical fitness.

### Conclusions

Based on the data collected in this study, the following conclusions were drawn: (1) The FITNESSGRAM was an effective intervention instrument for changing parental

opinions about physical fitness; (2) the FITNESSGRAM had the greatest impact on parents of senior high school students and the least on parents of junior high school students; (3) The cognitive information found on the FITNESSGRAM was not sufficient to improve parents' knowledge about physical fitness; (4) The FITNESSGRAM did not appear to influence parents to alter their child's activity to improve their fitness level.

#### Recommendations for Further Study

Recommendations offered as suggestions for further study and research dealing with the effect of the FITNESSGRAM include: (1) replicate the study using a larger sample; (2) replicate the study comparing urban and rural environments; (3) replicate the study comparing private and public schools; (4) replicate the study comparing students from different geographical locations; (5) relate parents' opinions of fitness to their child's fitness test scores; (6) design a procedure to better communicate the importance of fitness, and the FITNESSGRAM, to parents.

APPENDIX A

FITNESSGRAM



The Institute for Aerobics Research  
Dallas, Texas  
presents



# FITNESSGRAM<sup>®</sup>

A Part of the National Youth Fitness Program

PRESIDENT'S COUNCIL ON PHYSICAL FITNESS AND SPORTS

In cooperation with



President's  
Council on Physical  
Fitness & Sports

*Campbell Soup Company*



The FITNESSGRAM program is designed to monitor the fitness levels of children. The program was developed through the cooperation of the agencies listed below and implemented with the assistance of your local school. The purpose of the program is to inform students of their fitness levels and motivate all students to work for higher levels.

## FOR MORE INFORMATION

**AMERICAN ALLIANCE FOR HEALTH, PHYSICAL EDUCATION, RECREATION AND DANCE (AAHPERD):** The alliance is a non-profit professional association of educators which specializes in health, physical education, fitness, sports, and related areas. For more information about the Presidential Physical Fitness Award and its services, write Youth Fitness, AAHPERD, 1900 Association Drive, Reston, Virginia 22091.

**INSTITUTE FOR AEROBICS RESEARCH:** The Institute is a non-profit research organization which studies the effects of exercise as a preventive tool. It also provides educational programs and consults with corporations, agencies, and schools. For more information about its services, write Youth Fitness, Institute for Aerobics Research, 12220 Preston Road, Dallas, Texas 75230.

**CAMPBELL SOUP COMPANY:** The company is committed to providing meaningful programs, educational materials, products, and information pertinent to better living through exercise, nutrition, and diet. For more information, write Campbell Soup Company, Campbell Place, Camden, New Jersey 08101.

**THE PRESIDENT'S COUNCIL ON PHYSICAL FITNESS AND SPORTS:** The President's Council is the principle federal organization for physical fitness and sports. It was established by an Executive Order to serve the President in promoting national physical fitness and sports programs. For more information about its services and programs for all ages, write Youth Fitness, The President's Council on Physical Fitness and Sports, Washington, D.C. 20201.

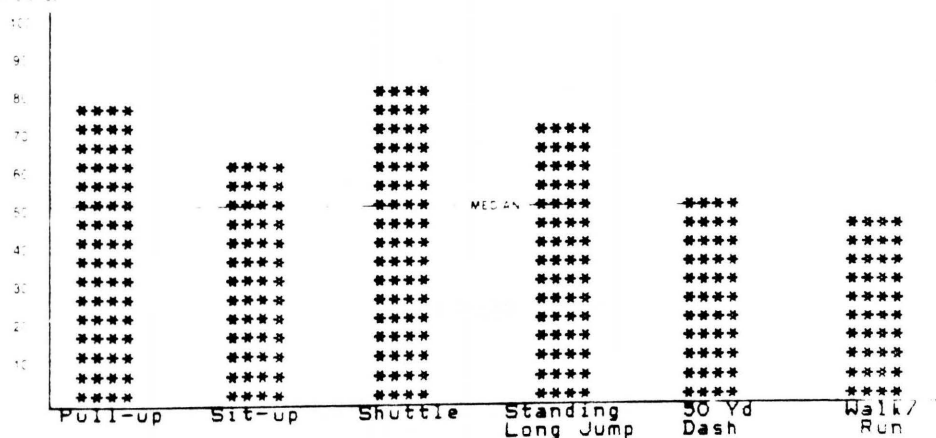
# FITNESSGRAM

NAME **John Smith**  
SCHOOL **South West Junior High**

GRADE **08** SECTION **03**  
INSTRUCTOR **Johnson**

Pull-up		Sit-up		Shuttle		Standing Long Jump		50 Yard Dash		Walk / Run		
no.	RANK	no.	% RANK	sec	% RANK	ft-in	% RANK	sec	% RANK	MIN SEC OR YARDS	RANK	* TYPE
4	65	37	45	9.8	80	6-05	80	7.6	40	12:24	30	1.5
5	75	41	60	9.8	80	6-02	70	7.5	50	11:42	45	1.5

PROFILE FOR **John Smith** Spring 83



**TOTAL PHYSICAL FITNESS SCORE**  
EXCELLENT 293 +  
ABOVE AVERAGE 264-292  
AVERAGE 239-263  
BELOW AVERAGE 209-238  
WELL BELOW AVERAGE 0-208

DATE	HEIGHT	WEIGHT	TOTAL FITNESS SCORE
SEM	FT IN	LBS	
Fa 82	5-06	115	250
Sp 83	5-06	117	265

**These activities are recommended**

**To improve your cardio-respiratory endurance: Jogging, swimming and rope jumping.**

\* WALK/RUN TYPE  
60' = 600 YARDS MIN SEC  
1 = 1 MILE MIN SEC  
15 = 15 MILES MIN SEC  
9 = 9 MINUTES YARDS  
12 = 12 MINUTES YARDS

Dear Parent,

We are pleased to send you this FITNESSGRAM to provide information on your child's level of physical fitness. It provides results from his/her performance in the AAHPERD Youth Fitness Test, developed by the American Alliance for Health, Physical Education, Recreation and Dance, which was administered recently in our school.

Your child participates in the Test in the fall and spring. The FITNESSGRAM will show you any progress in his/her growth and development over the school years.

The FITNESSGRAM provides the following information:

1. A total physical fitness score for your child based on assessments of:
  - upper body strength and endurance--measured by flexed-arm hang or pull-up test.
  - abdominal strength and endurance--1 minute sit-up test.
  - speed with change of direction--shuttle run.
  - explosive power--standing long jump test.
  - speed--50 yard dash.
  - cardiovascular fitness--600 yard 1-mile, 1.5+ mile 9-minute or 12-minute walk/run.
2. A percentile rank (%) score for each test item is computed based on a national norm developed over the last 20 years. You can see both your child's score and the national average (50%) of all students of his/her age who have taken the test.
3. An exciting feature of the FITNESSGRAM is the recommendation for activities which can help improve your child's individual scores.
4. The Fitnessgram reflects past performances which will allow the monitoring OF IMPROVEMENT FROM TEST DATE TO TEST DATE.

We hope you will find the FITNESSGRAM a useful tool to assess your child's fitness level, height and weight development--and to encourage your entire family to enjoy the benefits of an active lifestyle.

**Mr. Edward R. Johnson**  
Physical Education Instructor  
South West Elementary

## APPENDIX B

### PHYSICAL FITNESS SURVEY

No. \_\_\_\_\_

☐ Mother

☐ Father

☐ Other

### PHYSICAL FITNESS SURVEY

#### OPINIONNAIRE

Please indicate your opinion about physical fitness in each of the statements below. Fill in the box (Yes, No, or No Opinion) which best reflects your opinion. It is requested that only one adult complete the survey.

	Fill in one box		
	Yes	No	No Opinion
1. I think the importance of physical fitness is over-rated in America today.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Americans should do some kind of physical fitness activity at least three times per week.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. It is equally as important for adults to be physically fit as children.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I think that exercise is of little importance in maintaining good health.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I think that the need for a high level of physical fitness should be more widely publicized.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. My first choice of a physical activity would be one primarily designed to develop physical fitness.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The time people spend exercising could be better spent in other ways.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Most jobs provide all the physical activity a person needs.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. In general, people participate in physical fitness activities for social reasons rather than for health reasons.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fill in one box

	Yes	No	No Opinion
10. Being physically fit is important for people of all ages.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I think the majority of my child's physical education time should be spent on physical fitness activities.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. My child has more important things to do with his/her leisure time than participate in physical fitness activities.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I think daily physical education in school is necessary to develop and maintain my child's physical fitness.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I do not see any reason to encourage my child to increase his/her physical fitness activities.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. In my opinion, physical fitness tests should be administered in physical education classes each year.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. It is important for my child to score in the "Excellent" category of the total physical fitness score.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. School personnel should be responsible for keeping me informed about my child's level of physical fitness.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. If my child were weak in some area of physical fitness, I might enroll him/her in an exercise program.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I think that vigorous daily exercise is necessary to maintain my child's general health.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

INFORMATION

Please respond to the following statements by filling in one box -  
Yes or No.

	Fill in one box	
	Yes	No
20. Abdominal strength can be measured by the 1-minute sit-up test.....	<input type="checkbox"/>	<input type="checkbox"/>
21. Cardiorespiratory (heart-lung) fitness is best measured by dashes of 200 yards or less.....	<input type="checkbox"/>	<input type="checkbox"/>
22. An individual performing below his/her potential on the flexed-arm hang should do exercises to improve upper body strength and endurance.....	<input type="checkbox"/>	<input type="checkbox"/>
23. The standing long jump is designed to test explosive power.....	<input type="checkbox"/>	<input type="checkbox"/>
24. Performance on the 50-yard dash is an appropriate measure of speed.....	<input type="checkbox"/>	<input type="checkbox"/>

Child's School \_\_\_\_\_

## APPENDIX C

### DEMOGRAPHIC DATA

PERSONAL

Your relationship to the child bringing home this survey:  
(Circle number)

1. Mother
2. Father
3. Other (Please specify) \_\_\_\_\_

Your present age: \_\_\_\_\_ years

Number of children you have in each age group:  
(If none, write 0)

- \_\_\_\_\_ Under 5 years of age  
\_\_\_\_\_ 5 to 13  
\_\_\_\_\_ 14 to 18  
\_\_\_\_\_ 19 to 24  
\_\_\_\_\_ 25 and over

What is the highest level of education you have completed?  
(Circle number)

1. No diploma or degree
2. High school diploma
3. Some college
4. College degree
5. Some graduate work
6. Graduate degree

What was the approximate net family income from all sources  
in 1981? (Circle number)

1. Less than \$8,000.00
2. \$8,000.00 to \$14,999.00
3. \$15,000.00 to \$21,999.00
4. \$22,000.00 to \$28,999.00
5. \$29,000.00 to \$35,999.00
6. \$36,000.00 to \$42,999.00
7. \$43,000.00 to \$49,999.00
8. \$50,000.00 and over

How often do you participate in some sort of physical fitness activity? (Circle number)

1. Less than one time per week
2. 2 to 3 times per week
3. 4 to 5 times per week
4. 6 to 7 times per week

Name of child's school sending this survey: \_\_\_\_\_

APPENDIX D

ACTION STATEMENTS

## ACTION STATEMENTS

This year your child has been participating in a fitness testing project in the Tulsa Public School physical education program. Please answer the following questions to help determine the effectiveness of this project.

(Circle one)

- YES      NO      1. Did your child bring a FITNESSGRAM home?
- If no, do not answer questions 2, 3, 4, and 5 and return the survey instrument.
- YES      NO      2. Did you discuss the test scores on the FITNESSGRAM with your child?
- YES      NO      3. Did you discuss the test scores on the FITNESSGRAM with your child's physical education teacher?
- YES      NO      4. Have you contacted any of the FITNESSGRAM cooperating agencies to request additional information about physical fitness?
- If yes, which one(s)?
- YES      NO      5. If your child had a low score in one or more of the fitness areas, have you taken any action other than the above to help him/her correct the weakness?
- If yes, please describe:

Your comments about the FITNESSGRAM are encouraged. Feel free to express your opinions about its impact and effectiveness in the space below.

APPENDIX E

LETTER FROM TULSA PUBLIC SCHOOLS  
RESEARCH REVIEW COMMITTEE



**Tulsa  
Public  
Schools**

Division for Instructional Support Services

3027 S. New Haven P.O. Box 45298 Tulsa, Oklahoma 74145 (918) 733-3381

August 23, 1982

Ms. Karen King, Chairperson  
Department of Health, Physical Education and Recreation  
The University of Tulsa  
600 South College  
Tulsa, OK 74104

Dear Ms. King:

The Research Review Committee has approved your proposal for research on the Aerobics Institute project, subject to the following stipulations:

1. Mr. Lacy and I must see and approve the questionnaire before it is distributed.
2. Participation by any principal or teacher is strictly voluntary.
3. Students will be assigned numbers so that names will not be associated with scores.

Please work with Mr. Lacy on the details of school selection and data collection.

Good luck with your research. I would like to see a copy of the results when you have finished.

Sincerely,

*Jerry Roger*

Jerry Roger, Administrative Assistant  
Instructional Support Services

JR:bjb

cc: Research Review Committee  
Mr. Ed Lacy  
Ms. Barbara Marshall

## APPENDIX F

### PANEL OF EXPERTS

## PANEL OF EXPERTS

Dr. Steve Blair, Professor  
Department of Health Education  
University of South Carolina  
Columbia, South Carolina

Dr. Tom Collingwood, Director  
Community Education  
Institute for Aerobics Research  
Dallas, Texas

Dr. M. William Davis, Associate Dean  
College of Education  
University of Tulsa  
Tulsa, Oklahoma

Dr. Ash Hayes  
President's Council on Physical  
Fitness and Sports  
Washington, D.C.

Dr. Charles Sterling  
Executive Director  
Institute for Aerobics Research  
Dallas, Texas

APPENDIX G

LETTER FROM INVESTIGATOR TO PARENTS  
ACCOMPANYING PRETEST

The University of Tulsa  
600 South College Ave.  
Tulsa, Oklahoma 74104  
(918) 592-6000

Division of Health, Physical Education  
and Recreation

December 6, 1982

Dear Parent:

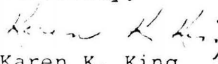
Your child is involved in a physical education class in the Tulsa Public School system that is dedicated to providing an optimum physical fitness opportunity for all students. In an effort for program planners to more fully understand the influence of parents on their child's activities, your responses are sought to the items on the enclosed survey instrument. By completing and returning this instrument, you will play an important role in the school system's planning of future physical education curricula. It is requested that only one adult complete the survey instrument and that your child return it to his/her school by December 9, 1982.

You may be assured of complete confidentiality, so you are encouraged to answer each question frankly. The instrument has an identification number for recording purposes only. Neither your name nor your child's will ever be placed on the survey instrument.

I would be happy to answer any questions you might have. Please feel free to call or write. The telephone number is 592-6000, extension 2247.

Thank you for your assistance.

Sincerely,

  
Karen K. King  
Division of HPER

Please note: The results of this study will be made available to school personnel and exercise specialists involved in physical fitness programs. You may receive a summary of the results by writing "copy of results requested" ON THE BACK OF THE RETURN ENVELOPE.

APPENDIX H

LETTER FROM INVESTIGATOR TO PARENTS  
ACCOMPANYING POSTTEST

The University of Tulsa  
600 South College Ave.  
Tulsa, Oklahoma 74104  
(918) 592-6000

Division of Health, Physical Education  
and Recreation

May 16, 1983

Dear Parent:

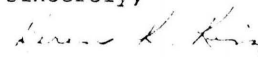
In December, 1982, you completed a survey instrument that dealt with your child's physical fitness program. The information gathered from the survey has been used as a basis of information in the evaluation of fitness in Tulsa Public School students. In order to complete the study, you are asked to once again respond to the questions on the attached form.

It is important that the individual who filled out the December instrument also complete this one. That person is identified at the top of page one of the Physical Fitness Survey. As before, confidentiality of results is assured, so you may feel free to respond to each item frankly.

Please return the instrument to your child's physical education teacher in the enclosed envelope by Thursday, May 19, 1983. When the study has been completed, a summary of results will be sent to those parents who had requested them.

Thank you for your cooperation.

Sincerely,



Karen K. King  
Division of HPER

## APPENDIX I

### DEMOGRAPHIC DATA ORGANIZED BY GRADE LEVEL

## Relationship of Respondent to Child

	Elementary		Jr. High		Sr. High		Total	
	No.	%	No.	%	No.	%	No.	%
Mother	33	20.1	47	28.7	27	16.5	107	65.2
Father	20	12.2	28	17.1	5	3.0	53	32.3
Other Adult	0	0.0	2	1.2	1	.6	3	1.8
No Response	0	0.0	1	.6	0	0.0	1	.6
Total	53	32.2	78	47.6	33	20.1	164	100.0

## Age of the Respondent

	Elementary		Jr. High		Sr. High		Total	
	No.	%	No.	%	No.	%	No.	%
30-35 yrs.	14	8.7	17	10.5	10	6.2	41	25.4
36-41 yrs.	23	14.2	36	22.4	12	7.6	71	44.2
42-47 yrs.	13	8.0	16	9.9	6	3.7	35	21.6
48-53 yrs.	2	1.2	6	3.6	2	1.2	10	6.0
54-59 yrs.	0	0.0	3	1.8	1	.6	4	2.4
Total	52	32.1	78	48.2	31	19.3	161	99.6

## Number of Children in Family

	Elementary		Jr. High		Sr. High		Total	
	No.	%	No.	%	No.	%	No.	%
1-2 Children	32	19.5	38	23.2	14	8.6	84	51.2
3-4 Children	15	9.1	36	21.9	11	6.7	62	37.8
5-6 Children	5	3.0	2	1.2	6	3.6	13	7.9
7 or more	1	.6	2	1.2	2	1.2	5	3.0
Total	53	32.2	78	47.5	33	20.1	164	99.9

## Highest Level of Education of Respondent

	Elementary		Jr. High		Sr. High		Total	
	No.	%	No.	%	No.	%	No.	%
No degree or diploma	0	0.0	1	.6	6	3.7	7	4.3
High school diploma	6	3.7	20	12.2	14	8.5	40	24.4
Some college	15	9.1	28	17.1	8	4.9	51	31.1
College degree	19	11.6	12	7.3	1	.6	32	19.5
Some graduate work	8	4.9	6	3.7	3	1.8	17	10.4
Graduate degree	5	3.0	11	6.7	1	.6	17	10.4
Total	53	32.3	78	47.6	33	20.1	164	100.0

## Net Family Income of Respondent

	Elementary		Jr. High		Sr. High		Total	
	No.	%	No.	%	No.	%	No.	%
Less than \$8,000.00	0	0.0	1	.7	6	4.2	7	4.9
\$8,000-14,999	2	1.4	5	3.5	5	3.5	12	8.3
\$15,000-21,999	0	0.0	10	6.9	8	5.6	18	12.5
\$22,000-28-999	2	1.4	9	6.3	4	2.8	15	10.4
\$29,000-35,999	5	3.5	17	11.8	6	4.2	28	19.4
\$36,000-42,999	8	5.6	11	7.6	1	.7	20	13.9
\$43,000-49,999	3	21.	5	3.5	0	0.0	8	5.6
\$50,000 & over	22	15.3	13	9.0	1	.7	36	25.0
Total	42	29.2	71	49.3	31	21.5	144	100.0

## Frequency of Exercise of Respondent

	Elementary		Jr. High		Sr. High		Total	
	No.	%	No.	%	No.	%	No.	%
Less than 1/wk	22	13.5	32	19.6	16	9.8	70	42.9
2-3 times/wk	16	9.8	33	20.2	9	5.5	58	35.6
4-5 times/wk	8	4.9	8	4.9	4	2.5	20	12.3
6-7 times/wk	6	3.7	5	3.1	3	1.8	14	8.6
No response	1	.6	0	0.0	0	0.0	1	.6
Total	53	32.5	78	47.9	32	19.6	163	100.

## APPENDIX J

### OPINION POSTTEST CONVERSION OF MEAN SCORES

## Adjusted Means of Opinion Posttest Scores

Group	Mean	Group Adj.	Level Adj.	Adj. Mean
Control				
Elem.	46.52	-1.29	+.24	45.47
Jr. High	49.00	-1.29	+.00	47.71
Sr. High	44.44	-1.29	-.38	42.77
Experimental				
Elem.	49.36	+ .85	+.24	50.45
Jr. High	48.21	+ .85	+.00	49.06
Sr. High	51.60	+ .85	-.38	52.07

## Opinion Posttest Grand Mean Adjustment

Group	Grand Mean	Adj. for Independents & Covariates Dev'n	Adjusted Mean
Control	48.15	-1.29	46.86
Experimental	48.15	+ .85	49.00
Elementary	48.15	+ .24	48.39
Jr. High	48.15	+ .00	48.15
Sr. High	48.15	- .38	47.77

## APPENDIX K

### COGNITIVE POSTTEST CONVERSION OF MEAN SCORES

## Adjusted Means of Cognitive Posttest Scores

Group	Mean	Group Adj.	Level Adj.	Adj. Mean
Control				
Elementary	3.43	+.07	-.08	3.42
Jr. High	4.05	+.07	+.11	4.23
Sr. High	3.67	+.07	-.12	3.62
Experimental				
Elementary	3.93	-.04	-.08	3.81
Jr. High	3.81	-.04	+.11	3.88
Sr. High	3.67	-.04	-.12	3.51

## Cognitive Posttest Grand Mean Adjustment

Group	Grand Mean	Adj. for Independents & Covariates Dev'n	Adjusted Mean
Control	3.79	+.07	3.86
Experimental	3.79	-.04	3.75
Elementary	3.79	-.08	3.71
Jr. High	3.79	+.11	3.90
Sr. High	3.79	-.12	3.67

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