CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

DEVELOPMENT OF A HEALTH EDUCATION PROGRAM
ON PHYSICAL FITNESS FOR
COLLEGE STUDENTS

A project submitted in partial satisfaction of the requirements for the degree of Masters in
Public Health
by
Joanne Susan Lockfield

January, 1983
The Project of Joanne Susan Lockfield is approved:

Jack L. Winkel'man, H.S.D.

Pamela Viele, M.P.H.

Michael V. Kline, Dr. P.H.
Committee Chairperson

California State University, Northridge
ACKNOWLEDGEMENTS

I would like to acknowledge Dr. Michael Kline for his enduring guidance and support. His time and efforts are deeply appreciated. In addition, I would like to express my gratitude to Pam Viele for her encouragement and positive reinforcement. I would also like to thank the UCLA Peer Health Counselors for their cooperation and commitment to the development and operation of the FIT Clinic. This project would not have been possible without these enthusiastic student volunteers.

Finally, I would like to give recognition to the special people in my life for their patience, understanding, and faith in me throughout this lengthy endeavor. To my parents, friends, and John, - Thank you.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ix</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Statement of Purpose</td>
<td>4</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>5</td>
</tr>
<tr>
<td>Project Limitations</td>
<td>5</td>
</tr>
<tr>
<td>Exploratory Hypotheses of the Study</td>
<td>6</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>7</td>
</tr>
<tr>
<td>2. REVIEW OF THE LITERATURE</td>
<td>10</td>
</tr>
<tr>
<td>Health Risk Behaviors of College Students</td>
<td>10</td>
</tr>
<tr>
<td>College Fitness Programs</td>
<td>13</td>
</tr>
<tr>
<td>Characteristics of an Effective Health Education Program</td>
<td>22</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>30</td>
</tr>
<tr>
<td>Phase I: Design and Development of the Health Education Program</td>
<td>30</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Needs Assessment of the Target Population</td>
<td>30</td>
</tr>
<tr>
<td>The Study Population</td>
<td>32</td>
</tr>
<tr>
<td>Phase II: Logistical Considerations Relevant to Implementing the Health Education Program</td>
<td>33</td>
</tr>
<tr>
<td>Establishing Administrative Support</td>
<td>33</td>
</tr>
<tr>
<td>Development of the FIT Clinic</td>
<td>34</td>
</tr>
<tr>
<td>Resources and Contributions</td>
<td>34</td>
</tr>
<tr>
<td>Peer Health Counselor Training</td>
<td>36</td>
</tr>
<tr>
<td>Program Promotion</td>
<td>37</td>
</tr>
<tr>
<td>Phase III: Implementation of the Health Education Prescription</td>
<td>38</td>
</tr>
<tr>
<td>Construction of Test Instruments and Forms</td>
<td>38</td>
</tr>
<tr>
<td>Development of the Health Education Prescription</td>
<td>41</td>
</tr>
<tr>
<td>Objectives and Methods to Accomplish the Program Goal</td>
<td>47</td>
</tr>
<tr>
<td>Objectives and Methods to Accomplish the Program Goal</td>
<td>50</td>
</tr>
<tr>
<td>RESULTS AND DISCUSSION</td>
<td>54</td>
</tr>
<tr>
<td>Demographic Characteristics of the Study Population</td>
<td>54</td>
</tr>
</tbody>
</table>
## Table of Contents

**5. CONCLUSIONS AND RECOMMENDATIONS**

**6. SUMMARY**

**REFERENCES**

**APPENDICES**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination of Exploratory Hypotheses</td>
<td>62</td>
</tr>
<tr>
<td>Discussion</td>
<td>74</td>
</tr>
<tr>
<td>5. CONCLUSIONS AND RECOMMENDATIONS</td>
<td>80</td>
</tr>
<tr>
<td>6. SUMMARY</td>
<td>87</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>90</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>95</td>
</tr>
<tr>
<td>A. Needs Assessment</td>
<td>96</td>
</tr>
<tr>
<td>B. Proposal to Establish Advisory Committee</td>
<td>99</td>
</tr>
<tr>
<td>C. FIT Clinic Exercise Testing Procedures</td>
<td>102</td>
</tr>
<tr>
<td>D. Program Participation Protocol</td>
<td>111</td>
</tr>
<tr>
<td>E. Recreation Agreement</td>
<td>115</td>
</tr>
<tr>
<td>F. Peer Health Counselor (PHC) Brochure</td>
<td>118</td>
</tr>
<tr>
<td>G. Training Program Outline</td>
<td>119</td>
</tr>
<tr>
<td>H. Daily Bruin Newspaper Advertisement</td>
<td>123</td>
</tr>
<tr>
<td>I. Daily Bruin Article</td>
<td>125</td>
</tr>
<tr>
<td>J. Promotional Flyer</td>
<td>127</td>
</tr>
<tr>
<td>K. FIT Clinic Questionnaire</td>
<td>129</td>
</tr>
<tr>
<td>L. Exercise Testing and Pre-Evaluation History Form</td>
<td>134</td>
</tr>
<tr>
<td>M. Male/Female Data Sheet Forms</td>
<td>137</td>
</tr>
</tbody>
</table>
N. List of FIT Clinic Informational Handouts .................. 140
O. Sample HEPs ........................................ 142
P. Guidelines for Exercise Prescriptions ..................... 149
Q. Health Education Program Form .......................... 152
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sex of the Participants</td>
<td>55</td>
</tr>
<tr>
<td>2. Age of the Participants</td>
<td>56</td>
</tr>
<tr>
<td>3. Marital Status of the Participants</td>
<td>57</td>
</tr>
<tr>
<td>4. Ethnicity/Race of the Participants</td>
<td>58</td>
</tr>
<tr>
<td>5. Residence of the Participants</td>
<td>59</td>
</tr>
<tr>
<td>6. Class Level of the Participants</td>
<td>60</td>
</tr>
<tr>
<td>7. School/College of the Participants</td>
<td>61</td>
</tr>
<tr>
<td>8. Pre-Test Knowledge Assessment Results</td>
<td>63</td>
</tr>
<tr>
<td>9. Knowledge Assessment Results for Group 1</td>
<td>68</td>
</tr>
<tr>
<td>10. Knowledge Assessment Results for Group 2</td>
<td>69</td>
</tr>
<tr>
<td>11. Post-Test Knowledge Assessment Results for Group 1</td>
<td>71</td>
</tr>
<tr>
<td>12. Post-Test Physical Performance Assessment Results for Group 1</td>
<td>73</td>
</tr>
</tbody>
</table>
ABSTRACT

DEVELOPMENT OF A HEALTH EDUCATION PROGRAM ON PHYSICAL FITNESS FOR COLLEGE STUDENTS

by

Joanne Susan Lockfield

Master of Public Health

( The purpose of this project was to design, implement and evaluate a health education program that would improve the fitness knowledge and behavior of college students. )

The design of this program is not entirely original. However, the use of a peer counselor developed personalized written and oral health education prescription appeared to contribute a new dimension.

An extensive literature review and field observations at the University of California at Los Angeles by the Investigator disclosed that poor health habits are commonly practiced by college students. The review also served to document the positive health benefits associated with regular exercise. The literature
further disclosed that 1) fitness programs are growing in popularity, 2) there is a lack of standardized norms for assessing fitness levels, 3) there has been limited impact evaluations of fitness programs, and 4) most of the programs tend to emphasize fitness without providing an educational component with the purpose of improving fitness knowledge and behavior. In addition, the literature suggested certain behavior change strategies have demonstrated effectiveness when integrated in health education programming.

Participants for this study included students enrolled in two Public Health-18 classes at the University of California, Los Angeles. A questionnaire was designed and administered by the Investigator to gather demographic information and to assess the participants' physical fitness/exercise knowledge and behavior. A comprehensive health education program was developed to assess participants' levels of physical fitness, and to provide individualized Health Education Prescriptions (HEP) designed by trained peer counselors. This educational intervention was also implemented and evaluated.

Students enrolled in one of the Public Health Classes were assigned to one of two groups. Group 1
received an educational intervention designed to improve fitness knowledge and behavior. The questionnaire was administered approximately one month later to both groups as a post-test. A physical performance assessment was given to Group 1 before and after the intervention.

Analysis of the data suggested a trend in increased knowledge regarding physical fitness. Treatment effectiveness was measured statistically by calculating mean physical performance results of five fitness tests and then comparing the differences between the means using Students' t-test. These comparisons strongly suggested that the educational intervention was effective in changing the level of physical fitness in four out of the five tests.

Recommendations for changes in the program plan, implementation, and evaluation are also proposed.
CHAPTER I

INTRODUCTION

"The number one health problem in the Western Hemisphere is heart and blood vessel disease. Nearly one million people die annually in the United States from disease of the cardiovascular system. This accounts for 55 percent of all deaths" (Cooper, 1977). There are costs to the individual, family and society including: loss of productivity, expensive treatment and rehabilitation, and disruption of the family unit.

Many degenerative diseases are associated with years of practicing negative behavior patterns. For years specialists in preventive medicine have proclaimed that the adoption of certain behaviors associated with lifestyles such as exercise, diet, proper weight, controlling blood pressure, and eliminating the use of tobacco, heart disease can be controlled (Cooper, 1977). In 1971, a UCLA research team under Breslow studied the effects of seven good health habits on the overall health and
longevity of a cross-section of the population (approximately 7,000 people). The study suggested that a lifetime of good health practices produces good health and may lengthen the period of relatively "good physical" health status by up to thirty years. Physical activity was one of the health practices which was shown to be influential in determining a person's overall health. Those persons who often engage in recreational activities had better physical health status than those who did not participate. Those who engage in the more aerobic types of physical exercises had an even better physical health status (Belloc and Breslow, 1972).

Exercise has known cardiac benefits, and studies have shown that inactivity is a primary risk factor of coronary heart disease (Cooper, 1977). Regular exercise has positive effects with regard to modifying many of the following risk factors that can be changed and are commonly associated with coronary heart disease: lack of exercise, elevated triglycerides, elevated cholesterol, hypertension, lowered high density lipoproteins, obesity, smoking, stress, and diabetes. Myocardial efficiency is also increased and is attributed to a decreased resting pulse and lowered heart rate at the same workload while engaging in exercise (Fletcher 1977; Payne, 1979).
Simonelli and Eaton cite many studies bearing evidence of the many cardiovascular and metabolic benefits of regular exercise. They suggest that mild to moderate regular exercise can lower morbidity and mortality from coronary disease.

Exercise has long been prescribed in rehabilitation for cardiac patients. The costs to society for rehabilitation as opposed to prevention are significant. The potential for eliminating these costs is greatest when the desired behaviors are established early in life before the onset of degenerative changes. This suggests that the greatest benefits can be derived from an intervention which is prevention-oriented and directed to a population whose behavior is receptive to an educational approach.

A survey was administered by a group of Peer Health Counselors to 125 students in 1980 at various geographical points on the University of California at Los Angeles (UCLA) campus to determine the need and interest in a program addressing physical fitness. The survey demonstrated a high degree of interest in 87 percent of the students questioned. It also revealed that 60 percent do not spend the necessary amount of time exercising to keep fit (a minimum of three times per week) and more
than 80 percent failed to incorporate the range of activities (aerobic, muscle strengthening, and flexibility exercises) needed to maintain fitness.

The Investigator's experience working with this student population as Health Educator at UCLA over a two-year period supported the information obtained from the survey and the literature. In addition, discussions with the chairman and a professor in the Kinesiology Department, an administrator of the Cultural and Recreational Affairs Department, and exercise physiologists on staff at UCLA further indicated the importance and need for such a program.

**Statement of the Problem**

The above sources substantiate the need for a health education program addressing physical fitness. They also indicate that college students are good candidates for preventive intervention. A number of programs dealing with several of the preventive areas identified were already established in 1980 at UCLA. However, there were no health education programs in the area of exercise and physical fitness. This constitutes a definite gap in current services offered to students at UCLA.
There is a need for a program which will provide health education interventions relevant to:

(1) increasing students' knowledge of the component of an optimal exercise program which considers:
   (a) flexibility
   (b) muscle strength
   (c) cardiovascular conditioning
   (d) appropriate levels of intensity, frequency and duration of warming-up, aerobic activity and cooling-down; and,

(2) improving levels of physical fitness measured by tests performed during the initial clinic visit.

Purpose of the Study

The purpose of the project will be to develop, implement, and assess a health education program for students at UCLA which will increase students' knowledge of an optimal exercise program. The intended outcomes are to increase intensity, duration, and frequency of exercise behavior of students not engaging in recommended levels to obtain optimal fitness. Additional objectives are to improve students' baseline fitness levels, develop clinic protocol, and define terms to be used in the program.

Project Limitations

The program is only available to UCLA male and female students under the age of 36 who self-select to
engage in a physical fitness assessment and health education program. These students must receive medical clearance by a nurse practitioner.

Eligibility

Eligibility for participation is determined by a nurse practitioner's physical exam to rule out high risk individuals. Specific medical criteria were established to determine eligibility for participation in the study. Criteria for exclusion include: a heart condition, reading of blood pressure ≥ 140/90, a resting pulse ≥ 90, and other pre-existing medical conditions which place a person at high risk.

This study is aimed at a specific population, college students. Since this investigation was conducted at UCLA, results of this study may not be applicable or generalizable to other settings.

Exploratory Hypotheses of the Study

1) There will be no difference of mean scores of a fitness knowledge assessment when that assessment is used as a pre-test and post-test between Group 1 and Group 2.

2) There will be no difference in the pre-test and post-test physical performance scores of Group 1.
Definition of Terms

1) Cardiovascular Conditioning -

Cardiovascular conditioning is one of the outcomes of regular aerobic exercise performed at the proper intensity, duration, and frequency. Some of these notable changes are a stronger and more efficient heart that can pump more blood per beat which results in the heart beating fewer times per minute, a lower resting pulse rate, increased lung capacity, and a stronger circulatory system.

2) Health Education Prescription (HEP) -

The Health Education Prescription consists of the counselor giving a brief interpretation and explanation of scores achieved by a participant's performance of six tests designed to indicate his/her levels of flexibility, muscle strength, cardiovascular fitness and percent body fat. The counselor develops a personal exercise program aimed at optimizing a participant's levels of physical fitness. The counselor answers questions and provides information relevant to a specific participant.

3) Maximum Heart Rate -

Maximum heart rate is measurement of the heart rate
at the highest intensity when the heart is working to its utmost capacity. The FIT Clinic uses one of the widely accepted formulas, 220-Age.

4) **Optimal Exercise Program** -

An optimal exercise program, according to FIT Clinic standards, is designed to achieve the benefits of muscle strength, flexibility, and most important, cardiovascular conditioning. (The general prescription suggests that one engage in an aerobic activity continuously for a duration of 15-30 minutes, a frequency of 3-4 times per week at the intensity of one's target heart rate, and including a warm-up prior to and cool-down following the exercise activity).

5) **Target Heart Rate** -

Target heart rate is the recommended range of intensity within which to exercise to achieve aerobic conditioning. The FIT Clinic recommends a range of 70-85 percent of one's maximum heart rate.

6) **Warm-Up** -

A warm-up is an important routine to engage in prior to physical activity as it prepares the body for exercise. Warm-up exercises should be done for at least 5-10 minutes and include static stretching, calisthenics, and practicing the activity selected for the actual workout.
at a slow pace and gradually increasing it to the desired intensity.
CHAPTER 2
REVIEW OF THE LITERATURE

The purpose of this chapter is to review the professional literature which has particular relevance to the development and implementation of health education programs designed to improve the fitness knowledge and behavior of college students. Three areas will be examined:

1) health risk behaviors of college students,
2) college health education programs aimed at improving physical fitness knowledge and exercise behavior, and
3) characteristics of an effective health education program.

1) Health Risk Behaviors of College Students

The literature pertaining to the health risk practices of college-age students is limited. However, it does tend to support the conclusion that a high percentage of students engage in behaviors associated
with premature morbidity and mortality. Many of the health surveys currently utilized at colleges are designed to obtain information regarding illness, symptoms, and injuries rather than health habits and behaviors. These studies indicated that females, non-whites, and students under twenty years of age have the most medical problems and conclude that there is a high incidence of psychiatric problems among college students (Kolbe and Iversen, 1978).

The Database Acquisition for Student Health (DASH) questionnaire, for example, emphasized preventive medicine and is utilized to obtain information on health practices and risk factors of incoming students (Dulski, 1978). The use of the DASH and similar questionnaires is becoming more common at college campuses.

The DASH questionnaire was administered to new freshmen at Bowling Green State University. Students were designated as "high risk" if they reported engaging in risk behaviors which decreased life expectancy by at least 3 years. Based on these criteria, 10.5 percent of the respondents were classified as high risk. Although this figure is lower than other studies, these
results still indicate that students have poor health habits.

The Health Risk Appraisal (HRA) is another popular assessment tool for determining risk factors associated with poor health practices. A study using the HRA was conducted at Moorhead State University (Dulski, 1978). Results indicated that 6 percent of the participants had health risks that, if continued, would shorten their average life expectancy. It was recommended that 16 percent of the students establish a program of regular exercise to reach their expected life span. Many other suggestions, such as wearing a seat belt, lowering blood pressure, not smoking, reducing the amount of alcohol consumed, reducing weight, seeking counseling to eliminate depression, and regular breast self-exams were recommended to improve health status (Dulski, 1978).

Field observations and discussions with health professionals conducted at UCLA lend additional support to the conclusion that college students practice less than optimal health behaviors. This information was furnished by counselors in the Student Outreach Programs, staff in Student Health Service, and various other departments. Students could be observed skipping meals,
making poor nutritional choices, and snacking on vending machine food high in sugar and low in nutritive value. Despite their poor nutritional choices, weight control was cited as one of the most common concerns students have. This was further substantiated by the amount of requests for nutrition and weight control programs by various student groups, especially the sororities and dormitories. Many counselors reported that there were numerous female students with serious eating disorders such as anorexia nervosa and bulimarexia.

Results of interviews conducted at UCLA by a professor of kinesiology and an administrator of the Cultural and Recreational Affairs Department, indicated that many students are inactive and are not very aware about what constitutes an exercise program designed to achieve a high level of physical fitness. The most common complaint heard from students for not exercising regularly is lack of time. These two interview sources concurred that a program designed to increase awareness and knowledge about physical fitness would be beneficial to the student population.

2) **College Fitness Programs**

A further review of the literature was conducted to determine the existence of college fitness programs
and the fitness testing standards and norms utilized within these. Four main conclusions were drawn from this review:

(A. Fitness testing programs are growing in popularity.
B. There is a lack of standardized norms for assessing fitness levels.
C. There has been limited impact evaluations of fitness programs, and
D. Most of the programs tend to emphasize fitness testing without providing an educational component designed to improve fitness knowledge and behavior.)

Few studies have evaluated American university students in order to establish norms with regard to fitness testing. Most of these studies used small samples of volunteer or specific non-representative sub-groups such as physical education majors and athletes (Vuori, Heikkinen and Seppala, 1969). The majority of the studies of younger populations were carried out in foreign countries such as Sweden and Finland. However, it should be noted that the fitness standards for these populations were generally higher and therefore not applicable to United States student
populations (Vuori, Heikkinen, and Seppala, 1969; Komi et al., 1970).

A number of other studies have used older and high risk populations for the purpose of developing rehabilitative exercise programs (Simonelli and Eaton, 1978; Fletcher, 1977; Oldridge, 1979). Standards for cardiac patients and older individuals cannot be applied to a healthy young population.

Kansas State University and Ohio State University recognized the problems of (1) using norms from dissimilar populations, (2) utilizing normative data for various tests from different sources and (3) using data from different age groups (Zuti and Corbin, 1977). Both universities performed studies to develop their own norms which could also be applied to similar populations for the evaluation of college students' fitness levels. Kansas State University collected data from more than 3,000 subjects and Ohio State University evaluated 135 male students' cardiovascular fitness on the bicycle ergometer between 1965 and 1967 which were the basis for establishing norms for students (Fox et al., 1973).

It is evident from the studies reviewed that there is a lack of standardized fitness norms which can be
applied to American college students. Although many colleges have fitness testing programs, it is apparent that additional work needs to be conducted in this area.

An overview of college fitness assessment programs that have been developed and implemented will be described in order to demonstrate the basis for developing a program at UCLA.

University of Manitoba

Among the university and college campuses which have developed fitness testing and education programs, the University of Winnepeg stands out as a rare example of a program which has been evaluated (Stovel, Bailey and Cumming, 1970).

A controlled study was conducted with a group of female college students between 19 and 26 years of age for the purpose of determining the effects of a home exercise program. Levels of fitness were evaluated before the exercise program was assigned. The Royal Canadian Air Force 10 BX (exercise 1-9) plan was assigned for daily home practice for a period of six weeks (Stovel, Bailey, and Cumming, 1970). The programs were not tailored to individual interests and needs.
A mandatory meeting was held once a week to motivate and supervise the subjects.

The control group, which did not engage in the assigned exercise program, had no change in fitness levels as measured by physical working capacity and oxygen uptake over a six-week time period. The experimental group which participated in the exercise program showed improvement on test scores. The majority of the females involved in the exercise program developed a general feeling of well-being and also reduced their waistlines. Follow-up evaluation revealed that the majority (nine of thirteen) of experimental subjects immediately discontinued exercise upon completion of the study. This result was attributed to boredom and lack of maturation which are commonly cited as deterrents to home exercise compliance (Stovel, Bailey and Cumming, 1970).

Kansas State University

Several other colleges and universities have implemented programs aimed at influencing exercise behavior. These vary in the degree of emphasis placed on fitness testing, instruction about exercise, and actual participation in an exercise regime. The primary elements of these programs is described
below.

Kansas State University offered a comprehensive program that (1) taught students the importance of exercise through assigned readings, lectures, and discussions (2) taught how to properly exercise within the individual's own threshold of training, and emphasized cardiovascular fitness, strength, flexibility, muscular endurance, body composition, and (3) determined an individual's physical fitness, strength, flexibility, and percent of body fat. The results of these tests are used to develop an individualized exercise program (Corbin and Laurie, 1978).

The purpose of this program was to promote fitness based on individual need rather than create frustrating and unsuccessful experiences for those who are not physically fit. Similar programs that emphasized the why, how, and what of exercise have been implemented at Texas A&M, University of Toledo, Missouri Western, and other junior and senior colleges (Corbin and Laurie, 1978).

Southern Illinois University

Southern Illinois University has adopted a life-styling program aimed at optimizing well-being and life satisfaction in exercise, ecology, nutrition, and
relaxation. The lifestyling exercise component encourages students to engage in an exercise program that will meet his/her needs and interests. Aerobic exercises and stretching are recommended to students to achieve their maximum physical potential (Vierke, 1979). Fitness levels are not measured and individual exercise prescriptions are not developed for students.

University of Turku, Finland

The University of Turku developed a program to investigate the subjects' (1) physical condition by testing levels of fitness, (2) physical activity, (3) living habits, (4) attitudes towards physical fitness and (5) the relationship of these variables to each other and periodic follow-up studies (Vuori, et al., 1969).

Hope College

The Hope-Kellogg Health Dynamics Program offers a five-pronged approach to promoting physical health and fitness, consisting of the following components: (1) Initial Health Screening which included information gathered on their health habits and self image, current health status, health and fitness knowledge, attitudes, values, and priorities. (2) The Academic Component explored exercise, diet, fitness, and health through
lectures and assigned readings. The purpose of this component was to both inform and arouse interest. (3) The Assessment Component consisted of providing exercise tests in the Exercise Biology Laboratory. Tests were performed to measure cardiovascular fitness, pulmonary function, percent of body fat, strength, power, and flexibility. Students recorded behaviors such as diet, physical activity, alcohol and tobacco use, stress perception, rest, and occurrence of illness. (4) The Advising Component consisted of a staff person who met with the individual and developed a Personal Health Action Plan. (5) The Physical Activity Component was the final part of this comprehensive program. The student participated in physical activities agreed upon with the individual's profile and his/her specific goals and objectives in mind.

Oral Roberts University

Oral Roberts University (ORU) sponsored a comprehensive physical fitness program aimed at controlling alterable health risk factors (Bryentson, unpublished paper). The Aerobics Program is coordinated by the Human Performance Laboratory and the Student Health Service. The Student Health Service provided the
medical screening and approved clearance to participate in the program. The Human Performance Laboratory administered exercise tests which include an ECG and skinfold measurements for percent of body fat. A computer printout which summarized the results was given to the student. All students were required to enroll in the Health Fitness I and II courses. Students were graded on their knowledge measured by tests and assignments, physical activity measured by earned aerobic points, cardiorespiratory fitness measured by the length of time taken to complete a one and a half mile run, and percent of body fat measured, not exceeding the maximum limits allowed. All students attending the university were required to earn a minimum amount of aerobic points to ensure students are physically fit throughout their stay at the school.

An evaluation of this program was completed to compare the contribution that ORU and their high school made toward their attitudes and knowledge of physical activity and fitness. The results showed 85 percent stated that ORU had either a very significant or high contribution as compared to 18 percent having the same reaction toward their high school's contribution.

In summary, the areas which should be considered
when developing an effective fitness program are use of a fitness assessment with norms designed specifically for a college population and implementation of a comprehensive program which includes an individualized educational component.

3) Characteristics of an Effective Health Education Program

This section of the literature review provides a summary of behavior change strategies of demonstrated effectiveness in health education programming. Eight approaches commonly utilized to effect change will briefly be described:

1) The method of interpersonal communication which involves both parties interacting with each other fosters a positive learning environment. This type of mutual interaction will generally have more impact on long-term behavior than other methods such as mass media techniques (Roberts, 1973).

2) Behavioral strategies attempt to change specific noncompliant behaviors by utilizing techniques such as reminders, reinforcement, and self monitoring (Haynes,
Taylor, and Sackett, eds., 1979). Unfortunately, individuals tend to discontinue practicing activities that were punished or unrewarded and retained those for which they received praise or reward. Patients who were on preventive regimens may have the poorest record of compliance. Their daily health activities are practiced with no immediate rewards, and possibly the only factor motivating them is the increased probability of avoiding disease or a disability in the future (Haynes, Taylor and Sackett, 1979).

3) Individuals should be active participants in making decisions about their health and lifestyle. The individual must make a personal commitment toward changing health practices and increasing health knowledge.

A condensed list of factors from "Making Health Education Work," that can be used as a guide for affecting health behavior appeared in an article, "The Wellness Resource Center" (Lovett, 1978).
- An individual's present behavior patterns are influenced by past personal and situational experiences.

- The health "learner" must define his own goals and decide how to achieve them within his own values, beliefs and resources.

- How an individual, a group, or a community thinks and behaves toward health depends on past positive and negative experiences.

- Changes in behavior must be self-imposed. Healthful behavior cannot be produced by ordering it. Healthful behavior must be compatible with the individual's life pattern.

- Successful health behavior modification rests on the individual's sense of identity and responsibility.

- The promotion of health behavior should match the existing services and resources. Frustration and failure result from building false expectations.

4) The most effective educational method is one which is tailored to the individual's unique interests and needs. Changes are most likely to occur when interventions are consistent with an individual's values, goals, interests, and lifestyle. This approach attempts to involve the participant in making health behavior changes.

5) Contracting is a method of outlining a set of guidelines regarding specific behaviors and formalizing a
commitment to adhere to them (Haynes, Taylor and Sackett, eds., 1979). Contingency rules can be applied to specify desirable outcomes which will occur if behaviors are practiced and does not occur if the desired behavior is not adopted. The advantages of contingency contracting are (1) involving the individual in the planning of his/her program, (2) having a written outline of expectations, (3) and a formal commitment to follow the plan of action.

6) Educational interventions including multiple strategies as opposed to single method approaches are more effective in promoting change. Educational and organizational interventions in addition to behavioral strategies should be utilized in most educational interventions (Haynes, Taylor, and Sackett, eds., 1979).

In a study conducted at Portland State College, the greatest change in knowledge occurred through provision of a combination of oral and written information. The second greatest increase in knowledge occurred by oral information alone (Roberts, 1973). Printed information is extremely useful to reinforce health instructions.

7) The purpose of health education is not only to provide information to people but, also, to motivate
individuals to take active steps in improving their health and assisting them in learning skills and adopting healthful behaviors (Fogarty, 1976). Behavior changes are more likely when they have information regarding the options available and the outcomes which are likely to occur.

8) Greater compliance with a behavior change intervention occurs if the participant perceives that there are short-term benefits. It is important to point out the immediate or anticipated benefits of a prevention-oriented program. Some of the benefits of an exercise program would be weight control, more attractive appearance, muscle-toned body, and greater endurance for activities.

Although there have been few studies published evaluating fitness programs, some interesting results on compliance were found in one study. A summary of the findings follow.

A study was conducted which tested a model for predictability of compliance to a home exercise program. Approximately half the participants continued to achieve 75 percent of their exercise goal following 32 weeks of participation of those prescribed individualized home exercise programs (Mulder, 1981). This program included
men and women ranging from 19 to 71 years of age and received the exercise prescription from a doctor.

The factors that were assessed to predict compliance were: (1) motivation, (2) the patient's understanding of cardiac disease (if applicable), and the importance in improving emotional and physical health, (3) a history of current alcohol abuse, (4) whether the patient was exercising before the program, (5) scheduling of the exercise activity to fit with the patient's lifestyle routine, (6) the type of activity (dependent on weather or special resources), and (7) reasons for noncompliance (time, illness, and travel). The only statistically significant correlation with compliance was sex. Females demonstrated much greater adherence to the prescribed regimen. The factors of greatest use were responses about alcohol abuse, exercise activity at four weeks, scheduling and type of activity, and reasons for non-compliance at four weeks (Mulder, 1981).

A summary of the strategies most often associated in the literature with behavior changes are:

1) an interaction that involves both parties

2) behavioral strategies such as reminders, reinforcements, and self monitoring.
3) active participation by the learner in decision making
4) tailoring a program to the individual
5) contracting
6) multiple strategies, as opposed to single method approaches
7) voluntary change
8) and perception of short term benefits.

Although the literature pertaining to the health risk practices of college-age students is limited, this review supported the general findings that a high percentage of students engage in behaviors associated with premature morbidity and mortality. In addition, field observations at UCLA by the Investigator substantiated that poor health habits are commonly practiced by college students. The literature further disclosed that 1) fitness testing programs are growing in popularity, 2) there is a lack of standardized norms for assessing fitness levels, 3) there had been limited impact evaluations of fitness programs, and 4) most of the programs tend to emphasize fitness without providing an educational component with the purpose of improving fitness knowledge and behavior. The final section of the literature review provided a summary of effective behavior
change strategies for health education programs. This information provided a general basis for designing a comprehensive program which included fitness testing and an individualized educational component.
CHAPTER 3

METHODOLOGY

This chapter will describe the methods and procedures used in the design, implementation, and evaluation of this health education program. This section is separated into four phases which correspond to the sequence in which the project was conducted. The following methodological considerations will be presented:

Phase I: The design and development of the health education program.

Phase II: Logistical considerations relevant to implementing the health education program.

Phase III: Implementation of the health education program.

Phase IV: Evaluation of the health education program.

Phase I: Design and Development of the Health Education Program

Section 1: Needs Assessment of the Target Population

A needs assessment was developed to determine the
knowledge of students attending UCLA regarding exercise and physical fitness, and the amount and types of physical activities performed. In addition, students were queried as to whether they would be interested in and utilize a service that would evaluate their level of physical fitness, provide information about exercise and physical fitness, plus offer individualized health education prescriptions to promote optimal levels of personal fitness.

The overall purpose of implementing this survey was to identify specific health education needs and interests of a sample of UCLA students who are representative of the target population. The information to be obtained would be used to plan a health education program which would be both effective and highly utilized.

The questionnaire was designed and distributed by a small group of Peer Health Counselors for an assignment in Public Health-19 (Peer Health Counselor training). The survey was administered in May 1980, and although it was brief, it did provide important and useful information which supported the need for a health education program (see Appendix A for the needs assessment).

The questionnaire was administered to a sample of 125 students who represented the target population and
which included men and women of various ages and majors of study who were full time students at UCLA. Questionnaires were distributed to students at various geographical points on campus to facilitate collection of the data from both undergraduate and graduate students with a variety of majors. The results of this needs assessment have been discussed in Chapter 1.

The Peer Health Counselors at UCLA reported their findings and presented the concept of a health education program. The program would offer students a unique opportunity to increase their knowledge and improve their health behavior regarding physical fitness and exercise. More extensive and detailed planning was necessary for the program to be successfully implemented.

Section 2: Population

The population used for this project were students enrolled in two Public Health-18 classes, one of which was assigned to Group 1 and the other to Group 2. This is a general undergraduate health course open to students with any major and class standing. The students in these courses were selected for participation in the study because the composition of each is very similar in terms of age, sex, race, and major. These two course sections were taught by the same instructor, and as instructed
by the Investigator, she did not inform the students that they were part of a study, nor which groups were arbitrarily selected to be in Group 1 or Group 2.

Only two classes were selected for the study as time constraints would not make it possible to pre-test and post-test enough students who self-select to participate in the FIT Clinic.

Phase II: Logistical Considerations Relevant to Implementing the Health Education Program

Section I: Establishing Administrative Support

The first step was to develop a plan to establish procedures necessary to implement and evaluate a program designed to meet the needs of the student population at the University of California, Los Angeles. Before proceeding with the plan, it was crucial to gain the support of the administration of the Student Health Service for developing the program. The importance of gaining organizational support was integrally related to eventually securing funding and professional assistance for program operation.

A letter was written to the Supervisor of the Health Education Department proposing the idea of establishing an Advisory Committee (see Appendix B). Approval was obtained which allowed the Investigator to
proceed with forming an Advisory Committee. A commitment to support the development of the FIT Clinic was also obtained.

Section 2: Development of the FIT Clinic Advisory Committee

1) Inquiries were made relevant to identifying various departments and students on campus for names of faculty and staff who would be willing to participate on the FIT Clinic Planning and Advisory Committee.

2) Various professionals in the fields of health education, physical fitness, kinesiology, sports medicine, and recreation were identified and then invited to serve on this Committee. These representatives were selected for their expertise and the expected content and value of their contribution.

The purpose of this Advisory Committee was to: identify the purpose and goals of the program; identify the roles and responsibilities necessary to carry out the program; establish program credibility; make provisions for expert assistance; ongoing monitoring; and free consultation.

Section 3: Resources and Contributions

The Health Educator of the Student Health Service served as chairperson of the committee. Her
responsibilities and contributions included securing program funding, developing a plan for implementation and evaluation of the program, coordinating FIT Clinic staff training and supervising operation of the FIT Clinic, and acting as a liaison between the program and committee members.

The faculty representative from the Kinesiology Department was responsible for providing the facilities and equipment necessary for testing. He was also responsible for assisting with the development of testing standards and staff training (see Appendix C).

The sports medicine physician assisted with developing the Medical Screening, Program Participation, and Emergency protocols (see Appendix D). In addition, he sponsored Family Practice residents who worked in the clinic during the first five weeks of operation.

An administrator of the Cultural and Recreational Affairs Department provided the Clinic with written materials to be distributed to clinic participants. She also made provisions for granting special recreational privileges to clinic participants (see Appendix E).

An exercise physiologist from the Center for Health Enhancement assisted with establishing guidelines and procedures for exercise testing, health education prescriptions, and training for Clinic staff.
Three kinesiology graduate students assisted with program planning, staff training and supervision, and coordinating clinic operation.

Section 4: Peer Health Counselor Training

Public Health 19 is a course specifically designed to provide training for students who have been selected through a rigorous recruitment and interviewing process to become Peer Health Counselors (see Appendix F for PHC brochure describing the program).

The course is divided into two components; the first half is concerned with providing an overview of all clinical areas and basic skills needed to function in the Hypertension Screening Clinic, Cold Clinic, Information Table Clinic, and Peer Health Counselor Office.

The second half of the course focuses on the development of specialized knowledge and skills required to function in the following clinics: Women's Health Service, Nutrition/Weight Management, Stress Reduction, and Fitness Inventory Testing (FIT). The class meets as a whole the first half of the course, and the second half is divided into four groups according to the specific area selected. Each group participates in a module consisting of five two-hour sessions.

The FIT Clinic training session outlines, which
were distributed to each PHC, are included in Appendix G.

The FIT Clinic Training covered all areas that are essential to ensure accurate fitness testing, familiarity with forms used, complete and appropriate health education exercise prescriptions, and information and skills necessary to answer questions from the participants.

The training was successful in that the PHCs felt adequately prepared to work in the FIT Clinic.

Section 5: Program Promotion

A well planned and varied publicity and promotion campaign was implemented to create an awareness of this new program on campus. The program's popularity and high rate of utilization can be attributed to this campaign.

A professional graphic artist designed the advertisements, flyers, and signs. Advertising in the campus newspaper, The Daily Bruin, is a media which has the potential of reaching the entire student body. This forum for publicity is expensive but an effective means of promotion (see Appendix H). Initially, the program was funded by a campus department which allocated funds for weekly advertisements. This made it possible to continually promote the program. The Daily
Bruin staff were contacted, and a request was made to write an article about this new program. An article was published in the newspaper (see Appendix I). Flyers were posted throughout the campus (see Appendix J).

Announcements about the program were made in various Cultural and Recreational Classes and Public Health Courses. In addition, the Student Health Advocates and Peer Health Counselors referred many students to the FIT Clinic.

**Phase III: Implementation of the Health Education Program**

**Section 1: Construction of Test Instruments and Form**

The questionnaire was designed primarily to assess the participants' knowledge and behavior prior to the educational intervention and following the health education program to determine the program's effectiveness. The first section of this questionnaire requests pertinent demographic information. Section II, the Physical Activity Assessment, was developed for purposes of collecting information regarding the frequency, duration, and types of activities engaged in. This information is gathered to determine the effect of the educational intervention on changing behavior to achieve
optimal benefits of physical fitness. Section III, the Knowledge Assessment, was designed to determine if the educational intervention increases participants' level of knowledge about the seven specific questions asked. These questions were formulated from the goals of the Health Education program. Section IV, Program Participation, was developed to find out how participants learned about the FIT Clinic, to identify barriers likely to interfere with program compliance, and to determine the reasons for participation. Section V, Program Evaluation, was included in the survey to obtain participants' satisfaction rating. The indicators used to measure participant satisfaction included perceived relevancy of the program and utility of information disseminated by the FIT Clinic staff (see Appendix K).

Each section of the questionnaire was pre-tested, using subjects with similar characteristics as the population to be tested. Changes were made to reflect the comments and suggestions given by the pre-test population relevant to increasing readability and comprehension of the questions.

The Exercise Testing Consent and Pre-Evaluation History form was designed to meet certain standards and requirements to officially become part of the student
chart in the Student Health Service. A rough draft of this form was submitted to the Administrator of the Medical Records Department in the Student Health Service and then was revised to meet the required format. It was submitted to the University's legal counsel for approval and then was pre-tested in the FIT Clinic. It was again revised to include more medical history questions and additional criteria to be included in the screening exam (see Appendix L).

This form was developed to:

1) alert the participant to symptoms which indicate that a medical problem may precipitate

2) warn the participant of possible problems which may occur during or after the tests are performed

3) legally protect the Student Health Service (SHS), the program and staff from liability

4) determine the participants' personal and family health history

5) record findings from the physical exam performed by the clinician of duty

6) record eligibility for participation in the fitness assessment and health education program

7) meet requirements to be an official form to be included in students' SHS medical chart.

The Data Sheet was designed for the FIT Clinic Counselor to:
1) record the participants' ID number, name, sex, height, weight and age

2) record the participants' scores achieved from the six tests performed

3) graph the participants' results of the scores into the various fitness level categories

4) provide space for the health education exercise prescription to be recorded

5) allow one copy of this form to be on file at the FIT Clinic and the other copy to be given to the participant (see Appendix M).

Section 2: Development of the Health Education Prescription

The Health Education Prescription (HEP) is the counselor's written and verbal description of the activities the participant selects and the frequency, intensity, and duration recommended for improving or maintaining physical fitness. The entire procedure usually takes approximately 15 to 30 minutes to complete. The length of time may vary according to the participant's level of knowledge, skill and interest. The HEP is a most significant aspect of the participant's experience in the FIT Clinic since it is designed to have the greatest impact on the participant's attitude, knowledge, and behavior toward exercise and physical fitness. This is also the most stimulating and rewarding
component for the Peer Health Counselor as he/she has the opportunity to impart information that may have long term effects on an individual's health and lifestyle. Format and content of the HEP was designed with input from members of the Advisory Committee with expertise in this area to guarantee program quality and effectiveness.

The HEP is based on the scores achieved from the participant's fitness tests and his/her interests and needs. The health education component includes the following elements:

1) **Interpretation of Test Scores**
   The counselor provides a brief interpretation and explanation of scores achieved on six tests. These tests are designed to indicate levels of flexibility, muscle strength, cardiovascular fitness, and percent of body fat.

2) **Intensity of Exercise**
   The counselor provides an explanation and calculation of a participant's Maximum Heart Rate. The counselor then calculates the Target Heart Rate. The participant is informed to exercise within the range of his/her Target Heart Rate to achieve optimal benefits.
3) **Warm-Up**

The counselor explains the importance of a warm-up before each exercise episode. The FIT Clinic standardizes the warm-up to consist of static stretching, calisthenics or other types of muscle conditioning exercises and practice of the aerobic activity at a slow pace (walking, slow jogging, slow swimming, etc.). The warm-up is done for 5-10 minutes and is designed to gradually increase the metabolic rate from the resting level to one which is necessary for conditioning. This procedure prepares the body for exercise and minimizes the occurrence of injury. The counselor may suggest specific exercises to increase flexibility and muscle strength.

4) **Cardiovascular Conditioning**

The most important component of the exercise prescription is the selection and guidelines for engaging in specific aerobic endurance activities (e.g., running, brisk walking, swimming, aerobic dancing, and cycling). The purpose of cardiovascular conditioning is to increase the capacity and efficiency of both the cardiovascular and respiratory systems. The participant decides on the type of
activity he/she would like to do based upon interest and availability of facilities, equipment and time. The counselor emphasizes the importance of (1) the intensity at which the exercise should be performed which is 70-85% of one's Maximum Heart Rate (equals Target Heart Rate); (2) engaging in proper exercise at the frequency of at least 3-4 days per week; (3) the duration at which one should exercise to attain and maintain cardiovascular benefits, which is a minimum of 15-30 minutes of continuous aerobic activity. These guidelines are recommended because they provide one with the minimum requirements necessary to achieve and maintain cardiovascular conditioning.

The counselor also discusses the importance of starting slow if he/she has not been regularly exercising and increasing the frequency, intensity, and duration as fitness and skills improve.

5) Cool-Down
A cool-down is recommended in the HEP following the exercise episode. A cool-down is very similar to a warm-up and should also be continued for 5-10 minutes. The purpose of the cool-down is to allow the body to gradually return to its resting level by reducing the intensity of exercise to a slow pace.
Stretching may also be included to minimize the risk of injury and muscle soreness.

6) **Optimizing an Exercise Program**
Exercises which increase flexibility and muscle strength are incorporated into the HEP. These other types of exercise are recommended to enable a person to engage in a comprehensive exercise program designed to achieve overall physical fitness.

7) **Increasing Compliance**
Motivational barriers and methods of avoiding and/or overcoming them are discussed to increase program compliance. The counselor explores the participant's personal concerns and anticipated problems. Possible solutions to these problems are explored. The counselor encourages the participant to select activities that he/she enjoys and would like to practice.

This exercise regimen is then incorporated into the individual's weekly schedule. The exercise program becomes a regular commitment just as attending classes and attending required meetings are for extracurricular involvements. The counselor emphasizes this aspect because it personalizes the HEP and allows the participant to see the exercise
prescription as one which has realistic and attainable goals. The intention of individualizing the HEP is to increase motivation and compliance.

8) **Participant Involvement**

The counselor and participant develop the HEP together. The participant decides on the activities he/she wishes to include in the program. The counselor offers suggestions and recommends general requirements necessary to achieve overall physical fitness. It is the participant's responsibility to develop the specifics and make a commitment to comply with the program plan.

9) **Resources and Referrals**

Informational handouts are distributed to the participant to supplement and reinforce information disseminated by the counselor. Many of these handouts describe how to begin specific exercise programs correctly and safely. Referrals and information regarding campus and community exercise facilities and programs are given to the participants (see Appendix N for list of FIT Clinic handouts).

10) **Recommendations for Re-Evaluation**

The counselor encourages the participant to return in 6-8 weeks to be re-evaluated. This is intended to
act as a motivator for continued compliance as the most significant effects may be seen in the first 6 to 8 weeks of an exercise program (Lea and Febiger, 1980). The counselor encourages the participant to return with any questions or problems he/she may have encountered and to have their program revised to reflect changing needs, interests, and goals.

Written examples of John and Jane Doe's fitness scores, backgrounds, and sample HEPs are included in Appendix 0.

Section 3: Objectives and Methods to Accomplish the Program Goal

Goal: To develop an individualized exercise program for participants

The following objectives and methods were developed to ensure that a thorough and accurate HEP is designed for the participant. Inclusion of these basic elements will help standardize the information disseminated and still allow the counselor to personalize the participant's exercise program to individual needs, interests, and lifestyle.

The development of these objectives and methods will also serve as a guide for the counselor to provide the participants with an appropriate, complete, and
General Health Education Prescription (HEP)

**Warm-Up**
(5 - 10 MINUTES)
Static Stretching, practice activity slow (e.g., slow jog)

**Cardiovascular Conditioning**
Type of Activity (running, swimming, cycling, brisk walking, aerobics)
Frequency - 3 - 4 days per week
Intensity - Target Heart Rate
Duration - 15 - 30 minutes

**Cool-Down**
(5 - 10 MINUTES)
Practice activity, slow static stretching

Maximum Heart Rate = 220-Age
Target Heart Rate = 70-85% of Maximum Heart Rate
Muscle strengthening exercises
Flexibility increasing exercises
Return for re-evaluation in 6-8 weeks
<table>
<thead>
<tr>
<th>Objective</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Determine what aerobic activities participant enjoys and/or would be willing to engage in on a regular weekly basis.</td>
<td>Peer Health Counselor discusses the importance of regular aerobic exercise and questions the participant about his/her preference of physical activities.</td>
</tr>
<tr>
<td>2) Determine the frequency with which the participant will engage in each selected activity a minimum of three times per week.</td>
<td>Peer Health Counselor discusses the importance of engaging in an aerobic activity at least three times per week and records the selected activities in the HEP.</td>
</tr>
<tr>
<td>3) Determine the duration of time the participant will spend on each selected activity to total a minimum of 15-30 minutes per exercise session.</td>
<td>PHC discusses the importance of engaging in an aerobic activity for a minimum of 15-30 minutes to achieve a cardiovascular training effect. The PHC records in HEP the amount of time participant agrees to exercise.</td>
</tr>
<tr>
<td>4) Determine the intensity at which the participant should exercise.</td>
<td>PHC explains the importance of exercising at a certain intensity throughout the activity to achieve optimal benefits. PHC describes how to calculate Target Heart Rate, 70-85% of the individual's Maximum Heart Rate.</td>
</tr>
<tr>
<td>5) Plan an exercise program into regular weekly schedule.</td>
<td>PHC discusses the importance of scheduling time for exercise and for it to be considered as a high priority.</td>
</tr>
</tbody>
</table>
**Section 4: Objectives and Methods to Accomplish the Program Goal.**

**Goal:** To increase FIT Clinic Participants' knowledge of exercise and physical fitness.

The following objectives and methods were developed to identify the information necessary and relevant to engaging in an exercise program designed to obtain optimal benefits. In addition, these were developed to serve as a guide for the Peer Health Counselors to maximize their effectiveness in developing a complete and high quality exercise program for the participant (see Appendix P for a guide to developing the HEP).

<table>
<thead>
<tr>
<th>Objective</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Ability to identify the recommended time to warm-up prior to engaging in exercise</td>
<td>Peer Health Counselor discusses the importance and techniques of warming up for at least 5 minutes during Health Education Prescription.</td>
</tr>
<tr>
<td>2) Ability to identify the component designed to achieve an optimal level of physical fitness</td>
<td>Peer Health Counselor provides information identifying cardiovascular conditioning as the most...</td>
</tr>
<tr>
<td>Objective</td>
<td>Method</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3) Ability to identify the length of time one must perform an aerobic activity to achieve a cardiovascular training effect.</td>
<td>Peer Health Counselor discusses the importance of engaging in an aerobic activity continuously for a minimum of 15-30 minutes during the HEP.</td>
</tr>
<tr>
<td>4) Ability to identify the number of times per week one needs to engage in an aerobic activity to achieve a cardiovascular training effect.</td>
<td>Peer Health Counselor discusses the importance of engaging in an aerobic activity a minimum of 3-4 times per week.</td>
</tr>
<tr>
<td>5) Ability to identify the recommended amount of time to stretch after exercising.</td>
<td>Peer Health Counselor discusses the importance of stretching a minimum of 5-10 minutes following an exercise episode during HEP.</td>
</tr>
<tr>
<td>6) Ability to identify activities that have the greatest effect on cardiovascular fitness.</td>
<td>Peer Health Counselor discusses the importance of activities such as swimming, running, cycling and brisk walking which have a profound effect on cardiovascular fitness during the HEP.</td>
</tr>
<tr>
<td>7) Ability to identify the percent of maximum heart rate at which one should exercise to achieve a training effect.</td>
<td>Peer Health Counselor discusses the importance of exercising at 70-85% of one's maximum heart rate to achieve training effect during the HEP.</td>
</tr>
</tbody>
</table>

**Phase IV: Evaluation of the Health Education Program**

The research design used to test the health education
intervention is the Pre-test, Post-test Control Group Design (Campbell and Stanley, 1963).

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test</th>
<th>Treatment</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>$T_1$</td>
<td>X</td>
<td>$T_2$</td>
</tr>
<tr>
<td>Group 2</td>
<td>$T_1$</td>
<td></td>
<td>$T_2$</td>
</tr>
</tbody>
</table>

Group 1 participated in the FIT Clinic on two separate occasions. The Pre-test Questionnaire ($T_1$) Fitness Assessment (physical performance on exercise tests) and Health Education Intervention Program ($X$) were administered during the second week of the Spring Quarter. The Post-test Questionnaire ($T_2$) and Fitness Assessment (which are the same as the ones used for the pre-test) were completed during the seventh week of the Spring Quarter. This allowed a period of five weeks to lapse so that improvement could be demonstrated.

Group 2 completed the same Pre-test Questionnaire ($T_1$) during the third week of the Spring Quarter and did not receive the Fitness Assessment and Health Education Intervention Program. During the sixth week of the Spring Quarter, Group 2 participated in the FIT Clinic and received the Post-test Questionnaire ($T_2$), Fitness Assessment, and Health Education Intervention.
Program (X). Group 2 received the educational intervention (X) for ethical reasons. It would not have been in the best interest of students who had a desire to improve their physical fitness to withhold information provided in a health education program.

All of the assessments were coded, administered and collected. The Statistical Analysis Systems (SAS) program was used to obtain the following statistical data necessary to analyze the results: frequencies, means, and percent.

The exploratory hypothesis relevant to knowledge assessment will be assessed by analyzing changes in number and percent scores within and between groups. The effectiveness of the HEP will be measured statistically by calculating mean physical performance results of five fitness tests and then comparing differences between the means using students' t-test.
CHAPTER 4

RESULTS AND DISCUSSION

This chapter presents the results of the study. The demographic characteristics of the subjects and the exploratory hypotheses will be examined. One of the hypotheses was examined by assessing changes in numbers and percent scores between the two study populations while the other was approached with more rigorous statistical analysis.

Demographic Characteristics of the Study Population

Although the populations were not randomly selected, an intensive effort was made by the Investigator to match the groups as closely as possible with regard to demographic characteristics.

Table 1 discloses that Group 1 consisted of less male and more female participants than Group 2 (please see proceeding page).
Table 1

Sex of the Participants

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th></th>
<th>Group 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=29</td>
<td></td>
<td>n=28</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>7%</td>
<td>5</td>
<td>18%</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
<td>93%</td>
<td>23</td>
<td>82%</td>
</tr>
</tbody>
</table>
Table 2
Age of the Participants

<table>
<thead>
<tr>
<th>Age</th>
<th>Group 1 n=29</th>
<th>Group 2 n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>≤ 17</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>18-21</td>
<td>24</td>
<td>83%</td>
</tr>
<tr>
<td>22-25</td>
<td>5</td>
<td>17%</td>
</tr>
<tr>
<td>≥ 26</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

The majority of participants in Group 1 and Group 2 were between the ages of 18 and 21 (83% and 86% respectively). Overall, Table 2 shows that there were few major differences between the two groups in all age categories.
Table 3
Marital Status of the Participants

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Group 1 n=29</th>
<th>Group 2 n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Married</td>
<td>3</td>
<td>10%</td>
</tr>
<tr>
<td>Unmarried</td>
<td>26</td>
<td>90%</td>
</tr>
</tbody>
</table>

The majority of participants in both groups were unmarried. However, there were slightly more married participants in Group 1.
Table 4

Ethnicity/Race of the Participants

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>Group 1 n=29</th>
<th>Group 2 n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Caucasian</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>Chicano/Mexican-American</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4 identified the ethnicity/race of subjects. In Group 1, 94 percent were Caucasian, 3 percent Asian, and 3 percent listed as other. In Group 2, 86 percent were Caucasian, 11 percent Asian, and 3 percent Chicano/Mexican-American. Overall, Group 2 consisted of less Caucasian participants, more Asian participants, and included one Chicano/Mexican-American participant.
## Table 5
Residence of Participants

<table>
<thead>
<tr>
<th>Residence</th>
<th>Group 1 n=29</th>
<th>Group 2 n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td>At home with parents</td>
<td>4 (11%)</td>
<td>6 (22%)</td>
</tr>
<tr>
<td>Apartment or house</td>
<td>11 (38%)</td>
<td>8 (30%)</td>
</tr>
<tr>
<td>Residence Hall</td>
<td>5 (17%)</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>Sorority or Fraternity</td>
<td>10 (35%)</td>
<td>8 (30%)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Table 5 indicates that 12 percent more individuals in Group 2 lived at home with their parents and more individuals in Group 1 lived in an apartment or house. More individuals in Group 1 resided in either an apartment or house or sorority or fraternity than those in Group 2.
Table 6
Class Level of Participants

<table>
<thead>
<tr>
<th>Class Level</th>
<th>Group 1 n=29</th>
<th>Group 2 n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Freshman</td>
<td>6</td>
<td>21%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>6</td>
<td>21%</td>
</tr>
<tr>
<td>Junior</td>
<td>8</td>
<td>27%</td>
</tr>
<tr>
<td>Senior</td>
<td>9</td>
<td>31%</td>
</tr>
<tr>
<td>Graduate</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

The class levels of persons in Group 1 and Group 2 differed. Table 6 discloses that Group 2 had 7 percent less freshmen, 8 percent more sophomores, 13 percent less juniors, and 12 percent more seniors than Group 1.
Table 7
School/College Participants Enrolled In

<table>
<thead>
<tr>
<th>School/College</th>
<th>Group 1 n=29</th>
<th>Group 2 n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Letters and Sciences</td>
<td>27</td>
<td>100%</td>
</tr>
<tr>
<td>Professional School</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 7 indicates that all participants were majors in the College of Letters and Sciences.
Examination of Exploratory Hypotheses

1) **There will be no difference of mean scores of a fitness knowledge assessment when that assessment is used as a pre-test and post-test between Group 1 and Group 2.**

**Pre-Test Scores**

Table 8 presents a comparison of knowledge pre-test scores between Group 1 and Group 2. This comparison was performed to facilitate assessment between these two groups regarding levels of knowledge. Examination of the pre-test scores disclosed no major differences between the groups. However, in several instances, there appeared to be differences as related by each group scoring higher or lower on certain questions. There is a need, then, to examine these specific questions where the responses suggested differences in knowledge between the groups.

**Question #10**

The intent of this question was to ascertain if the individual was aware of the importance of "warming-up" before exercise so as to reduce the occurrence of injuries.

Fifty-nine percent (n=29) of participants in Group 1
Table 8
Pre-Test Knowledge Assessment Results

<table>
<thead>
<tr>
<th>Question #</th>
<th>Group 1 (n=29)</th>
<th>Group 2 (n=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number with Correct Response</td>
<td>Percent Correct</td>
</tr>
<tr>
<td>10</td>
<td>17</td>
<td>59%</td>
</tr>
<tr>
<td>11</td>
<td>29</td>
<td>100%</td>
</tr>
<tr>
<td>12</td>
<td>20</td>
<td>69%</td>
</tr>
<tr>
<td>13</td>
<td>18*</td>
<td>64%</td>
</tr>
<tr>
<td>14</td>
<td>22*</td>
<td>79%</td>
</tr>
<tr>
<td>15</td>
<td>20*</td>
<td>71%</td>
</tr>
<tr>
<td>16</td>
<td>10*</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>Mean Percent Correct Responses 68%</td>
<td>Mean Percent Correct Responses 71%</td>
</tr>
</tbody>
</table>

*Only 28 responses were recorded in Group 1 for these four questions.
and 61 percent (n=28) in Group 2 responded correctly to this question.

**Question #11**

This question dealt with the most important aspect of the HEP. That is, the entire exercise prescription was designed to emphasize the benefits associated with engaging in aerobic activities relevant to obtaining cardiovascular conditioning. This type of exercise has the greatest physiological and psychological benefits, as supported in the literature. In both Groups 1 and 2, all respondents answered this question correctly on the pre-test.

**Question #12**

This question focused on the need to engage in aerobic activities for a minimum duration of 15 minutes to obtain benefits.

In Group 1, 69 percent (n=29) answered correctly and in Group 2, 64 percent (n=28) gave the correct response. These results indicated great similarity between the two groups in their level of knowledge regarding this question.
Question #3

This question attempted to assess whether the respondents knew that one must exercise at least three times per week in order to receive the positive benefits associated with aerobic exercise. In the Investigator's experience with similar projects, she has noted that if a person thinks that he/she can obtain cardiovascular conditioning from exercise less than three times per week, it is likely that he/she will not exercise the appropriate amount. Conversely, if a person thinks that it is necessary to exercise five or more times per week, he/she may decide not to exercise at all if unable to exercise the amount of days necessary to obtain optimal benefits.

In Group 1, 64 percent (n=29) scored correctly and 71 percent (n=28) of Group 2 answered correctly. There was not much response differential between the two groups regarding level of knowledge for this question.

Question #14

This question dealt with the importance of stretching after exercise in order to gradually bring the body back to its normal resting state and to reduce the occurrence of injuries.
Nearly 80 percent of both groups responded correctly on this question.

**Question #15**

Question 15 was concerned with the respondents knowing what types of activities produce significant cardiovascular conditioning benefits.

Table 8 indicates that more people in Group 2 (86%) than Group 1 (71%) scored correctly on the pre-test. This was one of the questions where there was a distinctly large response differential on the knowledge assessment between the two groups.

**Question #16**

This question was designed to assess knowledge regarding the importance of intensity at which one needs to exercise to obtain cardiovascular benefits.

Table 8 reveals that both Group 1 and Group 2 scored low on this question. Only 36 percent of the respondents in Group 1 and 39 percent of the respondents in Group 2 answered correctly.

Although scores on certain questions varied, mean percents for each group were very similar. Table 8 discloses that the mean percent for respondents answering pre-test questions 10-16 correctly was 68 percent (n=29) for Group 1 and 71 percent (n=28) for Group 2.
Examination of Pre-Post-Knowledge Assessment Results

Tables 9 and 10 present the difference in response to pre- and post-knowledge questions within each group. When the results from the pre- and post-knowledge assessments of Group 1 were assessed, a trend in increased knowledge following the educational intervention was observed. Some of the questions invoked striking increases by Group 1 over Group 2. For example, these questions dealt with duration of time one should engage in an aerobic activity, the frequency in which one should engage in aerobic exercise per week, and the types of activities which produce significant cardiovascular benefits.

Group 1's pre-test/post-test mean percent increase for questions 10-16 was 4 percent. Although a small change, this does reflect a 3 percent greater increase in knowledge than Group 2.

Although the mean percent of correct responses on pre- and post-tests for Group 2 were very similar, there were notable differences on some questions. Table 10 depicts a decrease of 14 percent correct responses for question 12 and 11 percent for question 14. Also an increase of 8 percent correct responses for
Table 9
Knowledge Assessment Results for Group 1
(n=29)

<table>
<thead>
<tr>
<th>Question #</th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Answering Correct</td>
<td>Percent Correct</td>
</tr>
<tr>
<td>10</td>
<td>17</td>
<td>59%</td>
</tr>
<tr>
<td>11</td>
<td>29</td>
<td>100%</td>
</tr>
<tr>
<td>12</td>
<td>20</td>
<td>69%</td>
</tr>
<tr>
<td>13</td>
<td>18*</td>
<td>64%</td>
</tr>
<tr>
<td>14</td>
<td>22*</td>
<td>79%</td>
</tr>
<tr>
<td>15</td>
<td>20*</td>
<td>71%</td>
</tr>
<tr>
<td>16</td>
<td>10*</td>
<td>36%</td>
</tr>
</tbody>
</table>

Mean Percent Correct Responses 68%
Mean Percent 72% 4%
Total Increase

* Only 28 responses were recorded for Group 1 for these four questions.
Table 10

Knowledge Assessment Results for Group 2

*(n=28)*

<table>
<thead>
<tr>
<th>Question #</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Percent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Answering Correct</td>
<td>Percent Correct</td>
<td>Number Correct</td>
</tr>
<tr>
<td>10</td>
<td>17</td>
<td>61%</td>
<td>17</td>
</tr>
<tr>
<td>11</td>
<td>28</td>
<td>100%</td>
<td>28</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>64%</td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td>20</td>
<td>71%</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>22</td>
<td>79%</td>
<td>19</td>
</tr>
<tr>
<td>15</td>
<td>24</td>
<td>86%</td>
<td>26</td>
</tr>
<tr>
<td>16</td>
<td>11</td>
<td>39%</td>
<td>15</td>
</tr>
</tbody>
</table>

Mean Percent Correct Response: 71%

Mean Percent Increase: 1%

Total Increase
question 13, a 7 percent increase on question 15, and a 15 percent increase on question 16 were observed. Group 2's pre-test/post-test mean percent increase for questions 10-16 was only 1 percent.

Group 1 and Group 2 show the same mean percent of correct responses (72%) when post-test knowledge results are compared (see Table 11). However, differences in the responses to two questions suggested major differences in post-test knowledge. That is, Group 1 had 29 percent more correct responses than Group 2 on Question 12 which dealt with duration of time one should engage in an aerobic activity to obtain benefits. Group 2 had 18 percent more correct responses than Group 1 on question 16 which dealt with the intensity at which one should exercise to achieve optimal benefits.

Overall, the results reflect a slightly greater increase in knowledge for Group 1 after the educational intervention when compared to pre-test knowledge levels.
Table 11
Post-Test Knowledge Assessment Results

<table>
<thead>
<tr>
<th>Question #</th>
<th>Group 1</th>
<th></th>
<th>Group 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Answering Correct</td>
<td>Percent Correct</td>
<td>Number Correct</td>
<td>Percent Correct</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
<td>55%</td>
<td>17</td>
<td>61%</td>
</tr>
<tr>
<td>11</td>
<td>28</td>
<td>97%</td>
<td>28</td>
<td>100%</td>
</tr>
<tr>
<td>12</td>
<td>23</td>
<td>79%</td>
<td>14</td>
<td>50%</td>
</tr>
<tr>
<td>13</td>
<td>23</td>
<td>79%</td>
<td>22</td>
<td>79%</td>
</tr>
<tr>
<td>14</td>
<td>21</td>
<td>72%</td>
<td>19</td>
<td>68%</td>
</tr>
<tr>
<td>15</td>
<td>26</td>
<td>90%</td>
<td>26</td>
<td>93%</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>36%</td>
<td>15</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>Mean Percent Correct Responses 72%</td>
<td></td>
<td>Mean Percent Correct Responses 72%</td>
<td></td>
</tr>
</tbody>
</table>
2) There will be no difference in the pre-test and post-test physical performance scores of Group 1.

The second exploratory hypothesis was tested by comparing pre- and post-test results of physical performance for Group 1. These measures included: vertical jump, push-ups, flexibility, and the bicycle ergometer test. The increase between the pre- and post-test for these means was significant at the .05 level (t-test). Performance of sit-ups did not indicate a significant difference between the pre- and post-test although an obvious trend in the positive direction was shown for all performance scores.
Table 12
Post-Test Physical Performance Assessment
Results for Group 1

<table>
<thead>
<tr>
<th>Fitness Test</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sit-Ups (number completed per minute)</td>
<td>Mean #</td>
<td>Mean #</td>
<td>5.5</td>
</tr>
<tr>
<td>Vertical Jump (maximum vertical height jumped in inches minus initial baseline reading)</td>
<td>15</td>
<td>16</td>
<td>.03*</td>
</tr>
<tr>
<td>Push-Ups (number completed per minute)</td>
<td>28</td>
<td>21</td>
<td>.01*</td>
</tr>
<tr>
<td>Flexibility (zero score indicates the baseline level where feet are positioned in sit and reach box. Negative numbers indicate flexibility scores beyond 0 and positive numbers below the 0 line indicate less flexibility)</td>
<td>-4.0</td>
<td>-4.6</td>
<td>.01*</td>
</tr>
<tr>
<td>Bicycle Ergometer (milliliters per kilogram body-weight per minute)</td>
<td>39</td>
<td>42</td>
<td>.05*</td>
</tr>
</tbody>
</table>

* p < .05
Discussion

Questions which demonstrated striking differences in the percent of correct responses on the post-tests will now be discussed in more detail.

Amount of Warm-Up Time

Both Group 1 and Group 2 scored below 70 percent on the pre- and post-tests on Question 10. This question dealt with the amount of time one should "warm-up" before engaging in exercise. Although many participants answered incorrectly, most who gave incorrect responses indicated they would warm-up for a longer time period (at least 15 minutes). It should be noted that additional time spent on warming-up would only add to the benefits.

Duration of Exercise Time

On Question 12, Group 1 increased the number of correct responses on the post-test by 10 percent while Group 2 decreased their score by 14 percent. It appears that the educational intervention had a positive effect on Group 1's post-test scores. The minimum amount of time (15-30 minutes) one should engage in an aerobic activity is critically important in order to obtain a
"training effect." Almost all of the incorrect responses for both groups reflected their belief that one need not exercise for that extensive of a time period.

Although all of the participants' responses revealed they knew that it was most beneficial to engage in cardiovascular conditioning exercises, many did not know the necessary duration of time one must practice the activity to achieve the positive benefits. This reinforced the importance of emphasizing the amount of time one should exercise when the counselor develops the participant's exercise program.

Frequency of Exercise

On Question 13, both groups scored 79 percent correct on the post-test. Group 1's score increased about twice as much as Group 2. It is suggested that this is a very positive indication since the number of correct responses were so high for this question. It is of vital importance for one to know the amount of times per week it is necessary to engage in aerobic exercise to obtain fitness benefits.

Appropriate "Cool-Down" Time

On Question 14, both Group 1 and Group 2 had 79 percent correct responses on the pre-test. Group 1 demonstrated a decrease of 7 percent on the post-test.
Group 2 demonstrated a decrease of 11 percent on the post-test. This question may have confused the participants who gave the response, "it is recommended to stretch a few minutes following an exercise period." The term "cool-down" should have been used rather than "stretch." Stretching for a few minutes is an integral part of the cool-down process which should last a total of five to ten minutes. Other responses given included the need to stretch for a minimum of fifteen minutes. This practice would have no negative effects. This notion may discourage people from exercising or cooling-down because it is likely that most people would not cool-down for such a long period of time. If one cools-down for a longer time period than the minimum, it would probably have even greater benefits in terms of reducing the occurrence of injuries.

Exercises Producing the Greatest Cardiovascular Benefits

Question 15 dealt with the respondents' ability to distinguish between which activities listed would have the greatest effect on cardiovascular fitness. Both Groups 1 and 2 increased scores on the post-test. Group 1 showed a 19 percent increase in knowledge while Group 2 demonstrated a 7 percent increase. Knowledge regarding the types of activities which produce cardiovascular
benefits is extremely important. For example, the Investigator observed that if one believes that tennis is an aerobic activity, he/she may engage in that activity three times per week with the misconception that cardiovascular benefits are being obtained.

**Intensity Required to Achieve a "Training Effect"

Group 1 and Group 2 demonstrated a low level of knowledge regarding the intensity at which one should exercise to achieve a "training effect." In order for individuals to accurately assess the percent of maximum heart rate at which he/she is exercising, they must have the correct information about intensity. Thus, counselors need to either spend more time in explaining this or do so with more clarity and/or accuracy.

The needs assessment was not administered to a random sample of the population at UCLA. Therefore, it is stressed that the responses on the needs assessment may not have been representative of the target population.

Change in the project's research design may increase its reliability and validity. It is acknowledged by the Investigator that students in the two Public Health-18 classes who participated in the study may have had different levels of knowledge and different exercise behavior habits than the UCLA population at large. In
addition, the spectrum of the students participating in the study should be expanded to include those with the demographic characteristics similar to the student body at large. Again, it is acknowledged that there are not enough males, older students, graduate students, multiple racial and ethnic groups, and students with academic majors other than in the College of Letters and Sciences.

Not enough counselors were trained to work in the FIT Clinic. Additional counselors were recruited in the middle of the program who did not receive the same quality and quantity of training as their earlier counterparts. This may have caused inconsistency in counselors' knowledge, skills, and style. Peer Health Counselors are only able to volunteer a limited amount of hours. This situation required that many counselors were needed to work the ten hours of clinic operation per week. This definitely has decreased the qualitative reliability of the counselors and has made it difficult to monitor them.

Most of the successful behavior change strategies cited in the literature review are integrated into the health education program. For example, the methods of interpersonal communication, active participation in decision making, tailoring a program to the individual,
and adopting multiple strategies which include both oral and written educational intervention are essential components of the health education program that have been included.

There is a need for further development in the areas of increasing participants' motivation and compliance. However, these are typical problem areas which confront health education/behavior change programs.

Also, an area which affects many of the other problems identified is counselor accountability and consistency. A system which would enable close monitoring of the counselors' content of the HEP is definitely needed.

A Program Evaluation section is included in the Participant Questionnaire. This system only allows for participants who return for re-evaluation to complete these questions. It does not assess individuals' perceptions about the program's utility and program compliance. Therefore, it is difficult to assess problem areas and develop methods for program improvement without this information.

Suggestions to overcome the stated problems and recommendations for program changes in the 1) program plan, 2) program implementation, and 3) program evaluation will be posited in the next chapter.
CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Chapter 5 presents the conclusions and recommendations of this study. Conclusions regarding the utility of the health education program will be discussed and recommendations for changes in the program plan, implementation, and evaluation will also be presented.

Knowledge Assessment

The pre-test knowledge assessment scores disclosed no major differences between Group 1 and Group 2. However, in several instances there appeared to be differences as reflected by each group scoring higher or lower on certain questions. Although scores on certain questions varied, mean percents for each group were very similar. The mean percent for respondents answering pre-test questions 10-16 correctly was 68 percent (n=29) for Group 1 and 71 percent (n=28) for Group 2.

When comparing pre- and post-knowledge assessment results of Group 1, a trend in increased knowledge following the educational intervention was observed.
Group 1's pre-test/post-test mean percent increase on the knowledge assessment was 4 percent. Group 2's pre-test/post-test mean percent increase on the same questionnaire was only one percent. Although a small change, this did reflect a 3 percent greater increase in knowledge for Group 1 over Group 2.

When post-test knowledge results were compared between Group 1 and Group 2, the same mean percent of correct responses (72%) were found. Overall, the results reflect a slightly greater increase in knowledge for Group 1 after the educational intervention when compared to pre-test knowledge scores.

Physical Performance

Treatment effectiveness was measured statistically by calculating mean physical performance results of five fitness tests and then comparing differences between the means using student's t-test. These statistical comparisons strongly suggested that the educational intervention was effective in changing the level of physical fitness in four out of the five tests.

Utility of the Program

The results suggest that there was increased knowledge regarding physical fitness and exercise. In
addition, there were improved physical performance scores for participants who received the educational intervention.

There has been strong support for the program by the Administration of UCLA Student Health Service, staff in various departments on campus, project staff, and students. The success and support of the program has led to its expansion. Additional hours of program operation have been instituted to enable more students to utilize the service. A similar program has been developed for faculty and staff on a fee-for-service basis. Widespread support and demand for the program has contributed to high utilization and expansion.

Program Recommendations

The following recommendations are forwarded in order to improve the health education program design, implementation, and evaluation of the study:

1. The Need to Improve the Needs Assessment

There is a need to design a more detailed needs assessment. In addition, the needs assessment should be distributed to a larger, more representative sample. This would insure a greater scope of information obtained, and would enable the program to be more
specifically tailored to the target population.

2. The Need To Randomly Select Program Participants

An improvement in the research design should be seriously considered. The need to randomly select program participants for an experimental/control group study is strongly recommended. Although it may be difficult and time-consuming to recruit enough willing participants, it would increase the study's reliability and validity. If the proposed study design was implemented, a more representative sample of the University population could be evaluated.

3. The Need To Increase the Number of Counselors

The counselor's training was thorough and prepared them for the practical application of the information. A suggestion would be to continue the same training format but increase the number of counselors being trained. This would provide more counselors with an opportunity to work in the FIT Clinic and enable more students to participate in the program. In addition, this would eliminate the practice of recruiting new counselors in the middle of the program, who do not receive the same quality and quantity of training
initially given. If more counselors are trained at the outset, there would be less likelihood of inconsistency in a counselor's knowledge, skills, and style.

4. The Need To Build In Greater Counseling Consistency

It is recommended that more counselors be trained but a small number of them be utilized to counsel all participants in the proposed controlled study. This would make it less cumbersome to monitor the counselor's work. In addition, it would increase the reliability and consistency of information being disseminated to program participants.

5. The Need To Increase Program Visibility and Utilization

It is recommended that more presentations promoting the FIT Clinic be given. These promotional talks could be given to residents at the various living groups on campus. An attempt to increase utilization of underrepresented ethnic groups could be made by advertising the program in the various special interest group newspapers.

6. The Need To Increase Motivation and Compliance of Participants

It is recommended that methods be developed to
increase motivation and compliance to the prescribed exercise regimen. One suggestion is to design a "Buddy Board." This would afford students the opportunity to finding individual(s) with whom they could engage in exercise activities at locations and times convenient to all parties. This could be implemented by installing a bulletin board in the FIT Clinic on which students could list their name, phone number, residence, activity and available times to exercise. Suggestions of behavioral strategies which attempt to change specific non-compliant behaviors are to encourage participants to return in two weeks. This would enable participants to ask a counselor questions or discuss problems encountered. Another method would be to ask participants to use a self-monitoring technique of keeping a daily activity log.

7. The Need To Improve Counselor Accountability

Counselor accountability should be improved by ensuring greater consistency and thoroughness of performance. A new form should be designed and implemented which would include all of the critical points to be covered in a Health Education Prescription. This would act as reinforcement for the counselor to record all of
necessary and vital information on the HEP (see Appendix Q for a copy of the proposed form).

8. The Need for Periodic Monitoring

Periodic monitoring of the counselors' written HEPs will reveal areas in which further training or supervision is needed. This process can be simplified by reviewing the proposed new HEP form. This responsibility can be assigned to the Clinic Coordinator who supervises the counselors and program operation.

9. The Need To Strengthen the Program Evaluation

A program evaluation should be designed and mailed out to participants between two and three months after program participation. This survey should query individuals regarding their perceptions of the program's utility, user satisfaction, and program compliance. This information could then be utilized to determine the program's strengths and weaknesses and make recommendations for improvement.
The purpose of this project was to design, implement, and evaluate a health education program that would improve the fitness knowledge and behavior of college students.

The design of this program was not entirely original. However, the use of a personalized written and oral health education prescription developed by a peer counselor appeared to contribute a new dimension.

An extensive literature review and field observation at UCLA by the Investigator disclosed that poor health habits are commonly practiced by college students. Also reviewed were findings documenting the positive health benefits associated with regular exercise. The literature further disclosed that 1) fitness programs are growing in popularity, 2) there is a lack of standardized norms for assessing fitness levels, 3) there has been limited impact evaluations of fitness programs, and 4) most of the programs tend to emphasize
fitness without providing an educational component with
the purpose of improving fitness knowledge and behavior.
In addition, the literature suggested certain behavior
change strategies have demonstrated effectiveness when
integrated in health education programming.

Participants for this study included students en­
rrolled in two Public Health-18 classes at UCLA.
A questionnaire was designed and administered by the
Investigator in order to gather demographic information
and assess the participants' physical fitness/exercise
knowledge and behavior. A comprehensive health education
program was developed to assess participants' levels of
physical fitness, and to provide individualized Health
Education Prescriptions designed by trained peer coun­
selors. This educational intervention was also
implemented and evaluated.

Students enrolled in one of the Public Health classes
were assigned to Group 1 and the other class was assigned
to Group 2. Group 1 received an educational intervention
designed to improve fitness knowledge and behavior. The
questionnaire was administered approximately one month
later to both groups as a post-test. A physical per­
formance assessment was given to Group 1 before and
after the intervention.
Analysis of the data suggested a trend in increased knowledge regarding physical fitness. Treatment effectiveness was measured statistically by calculating mean physical performance results of five fitness tests and then comparing the differences between the means using students' t-test. These comparisons indicated that the educational intervention was effective in changing the level of physical fitness in four out of five tests.


APPENDICES
APPENDIX A
APPENDIX A

NEEDS ASSESSMENT

Please complete this questionnaire. The information you provide us with will assist in the planning of a fitness program for UCLA students.

1. Age _______

2. Female _______ Male _______

3. How much time do you devote to physical fitness per week?
   None _______ Less than 1 hour _______
   1-2 hours _______ More than 2 hours _______

4. What activities do you engage in?
   ______________________________________
   ______________________________________
   ______________________________________

5. Do you think your exercise program will keep you physically fit?
   Yes _______ No _______

6. Is there an area in which you would like to improve?
   Yes _______ No _______
APPENDIX A - Continued

7. If there was a program on campus that tested your level of physical fitness and provided guidance in developing a fitness program based on your needs and interests would you attend?

Yes ________

No ________

8. What locations would be the most convenient?

9. What days and times would you be able to attend?

________________________________________

________________________________________
APPENDIX B

Los Angeles Student Health Services

July 30, 1982

TO: Steven Duvall
FROM: Joanne Lockfield
RE: PHC Physical Fitness Inventory Clinic

Planning for the implementation of the new PHC clinic has begun. I have met with Dr. Gerald Finerman, Sports Medicine, regarding the opportunities the Physical Fitness Inventory Clinic could offer students. He reacted very favorably to the program's goals and designs. He provided me with feedback and offered some suggestions. He suggested that Jim Puffer who works in Sports Medicine and Family Practice would be a good person to contact for assistance in developing and implementing this clinic.

Previously, I had spoken with Dr. Judy Smith, Kinesiology Department Chairman, who was very supportive of this project. We encountered a problem of not having facilities to hold the clinic. She was able to secure space Monday, Wednesday and Friday from 8:00 to 10:00 a.m. in Mens' Gym 120 (Kinesiology Lab). I requested that we have someone in her department work with us on the development and implementation of the clinic. She agreed and recommended that her department be very involved in order to establish a high degree of credibility and to ensure appropriate guidelines are established.

I then contacted Dr. Gerald Gardner, who specializes in fitness and is a professor in the Kinesiology Department. He was also very interested in the clinic
and agreed to assist in setting up the program and training the PHCs who will work in the clinic.

Given our interest in developing campus linkages with SHS, I would like to suggest that an advisory committee be formed to plan and oversee the development and implementation of the Fitness Inventory Clinic. I would like to invite Dr. Gerald Gardner from the Kinesiology Department, Dr. Jim Puffer from the Sports Medicine Clinic, Dr. Kleeman or Susan Meyerott from the Center for Health Enhancement, and Jan Gong from the Cultural and Recreational Affairs Office to participate on this committee. I think that given the backgrounds and expertise of these individuals, it would be advantageous for us to work closely with them. I am extremely pleased with the interest and support that I have already received. I am certain that the success of the program will be greatly influenced and enhanced with the guidance and direction of a professional advisory committee.

Steve, please provide me with your feedback so that I can proceed with establishing this committee.

cc:  Al Setton
     Dr. Osborne
     Pam Viele

PV/dp
APPENDIX C
APPENDIX C
FITNESS INVENTORY TESTING CLINIC
EXERCISE TESTING PROCEDURES

WARM-UP

1. Student should be encouraged to engage in flexibility stretching; counselor directs student to self-instruction signs and assists if necessary.

SIT-UPS

1. Counselor explains test procedure and that test measures abdominal strength.

2. Student performs example sit-up prior to test to ensure that the correct procedure is being followed.
   a) student should lie on mat with knees bent at less than a 90 degree angle; bending the knees avoids straining the lower back.
   b) student should cross elbow to opposite knee (left to right and right to left) to utilize all abdominal muscles.
   c) student should recline all the way and touch head to ground before rising to repeat.
   d) remind student to breathe during the test; have the student take a breath for each sit-up.
   e) counselor holds student's feet down over the arches.

3. Counselor should call out the amount of time remaining at 30 seconds and the last 15 seconds. The student has one minute to do as many sit-ups as possible.
APPENDIX C - Continued

4. Counselor counts the total number of sit-ups completed in one minute and subtracts the number of incorrect ones from that figure. Counselor records the number correctly done.

5. Counselor reminds student to stretch out after completion.

VERTICAL JUMP

1. Counselor explains and demonstrates procedure; test measures power of legs.

2. The student has three chances and the best score is recorded.

3. The student stands in front of apparatus and extends arm as high as possible touching red, white, and blue bars. Counselor counts the highest bar touched by the student's fingertips. This is the individual's "zero point."

4. Have the student jump straight up and reach arm as high as possible. Counselor should move aside all bars below and the highest bar moved by the student to increase motivation.

5. Counselor should tell the student to try and touch the end of the bars rather than the middle.

6. The distance between the highest bar moved and the "zero point" is the score.

7. Counselor records the best score out of three attempts.

8. Counselor should instruct students to stretch after test.

SIT AND REACH

1. Counselor explains procedure and that test measures
flexibility in lower back and hind leg muscles.

2. Counselor should demonstrate procedure if necessary.

3. Student sits in front of box and has legs fully extended in front of him/her, with feet against the box.

4. Student places hands above box and extends arms as far as possible over the toes.

5. Counselor should ensure that students does not bounce and that legs remain fully extended.

6. Student has three tries in which to maximize his/her efforts; counselor records the best effort.

PUSH-UPS

1. Counselor explains procedure and that test measures arm strength; counselor should demonstrate procedure if necessary.
   a) student begins with chin touching floor and hands under shoulders.
   b) student must keep backbone aligned; the entire torso must be touching the ground with each push-up.

2. Example push-up must be done by student prior to test to ensure correct procedures are being followed.

3. Women must do push-ups with knees bent and on the ground; the toes must be touching the ground at all times.

4. The student completes as many push-ups as possible in one minute.

5. Counselor must inform student that push-ups done incorrectly won't be counted; every time the student's torso touches the ground and the backbone remains aligned, the counselor counts the push-up.
APPENDIX C - Continued

6. The counselor calls out the amount of time remaining at 30 seconds and the last 15 seconds.

7. The student should be encouraged to take a breath for every push-up.

8. The counselor records the number of push-ups done correctly, and records that score.

BICYCLE ERGOMETER

1. Counselor must check equipment before starting.

2. Adjust the seat so the student can pedal comfortably, and record where the seat is located (how many holes are showing); the counselor should also record the bicycle ergometer being used to ensure consistency when reevaluating the student 6-8 weeks later.

3. The counselor sets the metronome so the student can establish correct rhythm of pedaling; the metronome should be set at 100 beats/minute.

4. The student's leg should extend down for each beat of the metronome.

5. The counselor should engage the student in a graded warm-up for three minutes prior to the actual test.

6. Counselor checks the carotid pulse, measures the heart rate for 10 seconds, and either checks the Parcourse wheel for the corresponding pulse rate/movement or multiples the 10 second rate by 6 to obtain the minute rate.

7. If electronic pulse meters are in use, the counselor should also check the pulse manually this first time to ensure that the meter is correct.

8. Do not press too hard on carotid artery as it may slow pulse.

9. Set the resistance at 900 kpm/minute for men and 600 kpm/min for women; the counselor should ensure constant rhythm is maintained.
APPENDIX C - Continued

10. Take a reading of the pulse after the client has been pedaling at the correct rate and resistance for two minutes, again by multiplying a 10 second rate by 6. If the heart rate is below 120 beat/min., increase the resistance. If the heart rate is above 170 beats/min, decrease the resistance.

11. Take a 10 second pulse rate at 3 and 4 minutes. We are trying to establish a consistent reading so try not to adjust the resistance past the second or third minute unless absolutely necessary (above 170 or below 120).

12. After 5 minutes, take a 30 second pulse rate, multiply by two, and record this rate.

13. Have client slow their pedaling gradually. This is important to keep the bicycles in good condition.

14. This is a good time to teach the client to take his/her own pulse.

This test measures a person's maximum $\dot{V}O_2$.

FITNESS INVENTORY TESTING CLINIC

SHIFT LEADER RESPONSIBILITIES

1. First shift leader of the day will pick up appointment sheet from the PHC office.

2. Confirm PHCs present by logging in PHC book.

3. Make sure handout material is stocked.

4. Open or close the clinic depending on shift time. Make sure all equipment and lights are off and the equipment and clinic are in order.

5. Check clients' names as they arrive and cross out no-shows on the appointment sheet. This is important because it's the only way we know how
APPENDIX C - Continued

many people go through the clinic.

6. Tell any students that drop by without appointments to make an appointment through the office unless there is an opening that day, in which case you can ask the student if he/she wants that open appointment time, or unless you personally have the time to take the student through the clinic.

7. Record problems, questions, and suggestions in the log book.

8. Everyone (including shift leaders) is required to attend mandatory clinic meetings.

9. There won't be any clients for shift leaders during the first two weeks, so that you can assist in "on the job training" for the new PHCs. Additionally there won't be any walk-ins during the first two weeks. These things will change as the clinic gets going.

F.I.T. CLINIC PROTOCOL

Role of F.I.T. Clinic Staff

A. Stations for testing

1. Check-in
   a. greet them and explain purpose of clinic
   b. check for completion of evaluation forms
   c. record height and weight
   d. send to next station (Medical Evaluation by Physician)

2. Sit-ups
   a. count and record the amount performed correctly in one minute while holding feet down.
APPENDIX C - Continued

3. Vertical Jump (muscle strength)
   a. record the best of three scores

4. Push-up (muscle strength)
   a. count and record the amount done correctly in one minute.

5. Explain how to use Sit and Reach (flexibility) apparatus and record the best of three scores.

6. Bicycle Ergometer (cardiovascular work capacity)
   a. explain use, take pulse periodically and determine predicted maximum VO₂ work capacity.

7. Underwater Weighing (percent of body fat), optional test.
   a. explain how to do test and record results.

8. Exercise Prescription
   a. observe in the beginning and eventually will do on own.
   b. at start, general prescriptions will be given.
   c. explain fundamentals of exercising - before beginning specific activities (e.g., tennis) their basic level of fitness may need to be improved to an adequate level.
   d. explain why they need to work on specific areas.
   e. counsel how to fit a regular exercise program in their schedule.
   f. provide referrals and resources on physical fitness exercise programs and facilities available.
APPENDIX C - Continued

g. encourage compliance and to return for re-evaluation of fitness.

h. encourage individuals to ask questions and return if any questions or problems develop.
UCLA

Fitness Inventory Testing Clinic

I Population: UCLA students age 17-35

II Criteria: Male and female students seeking exercise testing, underwater body fat determination and appropriate exercise prescriptions.

III Goals: 1. To identify persons with significant cardio-vascular or other risk factors from participation in the clinic.
2. To supervise exercise testing administered by trained Peer Health Counselors.
3. To provide counseling and referrals to Student Health Service for abnormalities found during pre-participation medical history and physical examinations.
4. To provide emergency medical attention

IV Staff 1. R.N. - on site at all times while exercise testing is in progress.
2. M.D. - available by telephone contact during clinic hours.
3. UCLA EMT X 35
4. Peer Health Counselors
V  Process  1. Medical History/Connect persons with known or suspected history of heart disease, chronic illness, or other limiting conditions will be referred for physicians evaluation prior to exercise testing or will be excluded from testing.

2. Physical examinations

2.1 Height and weight

2.2 Blood pressure - persons with readings in excess of 140/90 will not be tested and will be either requested to return for repeat measurement or referred for medical evaluation.

2.3 Pulse rate - persons with readings in excess of 90 will not be tested and will be asked to return for repeat measurement.

2.4 Heart and Lung

2.4.1 Persons with an abnormal cardiac exam will be referred for medical evaluation before testing.

2.4.2 Persons with abnormal breath sounds will be referred for medical evaluation before testing.

3. Exercise testing

3.1 Clothing - bathing suits, shorts, sweats, and short sleeved shirts are recommended. Shoes should be rubber soled and flat.

3.2 No eating/smoking recommended for 3 hours prior to testing.
3.3 Sequence of testing

3.3.1 Sit ups

3.3.2 Vertical jump

3.3.3 Push ups

3.3.4 Sit-reach flexibility

3.3.5 Bicycle ergometer. Provide one to two minute resting periods between exercises. Pulse rate must be less than 100 before bicycle ergometer testing.

3.3.6 Underwater body fat determinations

VI Emergency Procedure

1. Fitness Inventory clinic staff will observe all students for symptoms of $O_2$ insufficiency (i.e. irregular heart rate, dizziness, light headedness, pallor, confusion, nausea) and if noted stop testing, assist student to lie down with feet elevated and notify R.N.

2. R.N. will monitor vital signs and administer $O_2$ (unless hyperventilating) if indicated.

3. Benadryl 50 mg. I.M. Epinephrine 1:1000 to be available in case of allergic reaction to exercise

4. EMT (x35)/Paramedics will be summoned for assistance if vital signs do not stabilize.
CONGRATULATIONS: You are now ready to begin your exercise and fitness program, and to assist you, The Department of Cultural and Recreational Affairs offers a variety of services and programs. Our newspaper, The Recreation Release is published quarterly and is your best source of comprehensive information. Below are just a few opportunities that may interest you. All are available to you free of charge, just by having a current registration card.

1. There are numerous athletic facilities to accommodate your new activities. These include fields and jogging trails, pools, weight rooms, tennis, racquetball and squash courts, saunas and gymnasium. Scheduling information detailing when and where you can use these facilities is contained in the Informal Recreation Activity Schedule, in the Recreation Release.

2. Depending on which week of the quarter you have participated in the Fitness Inventory Clinic, you may still be able to enroll in a non-credit, recreation class. Several fitness courses are offered quarterly and because you'll meet regularly with an instructor, a class may make it easier for you to stick with your exercise prescription. Some of these classes are slim n trim, swim fitness, aerobic dance, and weight training. If it's too late for you to enroll in a class, call us anyway and on a limited basis we'll make arrangements for a fitness instructor to work with you individually.

3. The Sunset Canyon Recreation Center offers you a beautiful place to swim everyday in pools of varying distances. Locker rooms and showers, as well as lots of grassy space for stretching and relaxing can complete your workout.

4. Our intramural and club programs can also fit into your prescription. Check out their relevant offerings in the Recreation Release.

Whatever programs or services you choose, the staff at any of the recreation offices will be happy to help and encourage you. Please call us.

Information on:

Recreation Facilities: 825-4549 Gate 1, Pauley Pavilion
Classes: 825-4546 Gate 1, Pauley Pavilion

Sunset Canyon Recreation Center: 825-3671

Intramural Sports: 825-3360 Men's Gym 118
Clubs: 825-3703 Kerckhoff Hall 600
Public Health - 19, Spring 1982

FIT CLINIC MODULE

Session I

Module I
May 4
Joanne Lockfield and Bob Rich

Module II
May 20

Joanne
I. FIT Clinic Overview
   A. Purpose of Program
   B. Goals of Program
   C. Description of Clinic
   D. Patterns of Utilization
   E. Clinic Location

Bob
II. Clinic Tests
   A. Description of each test
   B. Purpose and significance of each test

III. Proper Sport Clothes
   A. Proper shoes and attire

IV. Injury Prevention
   A. Specific stretching exercises
   B. Description of common injuries
   C. Avoiding injuries
   D. Treatment of injuries

Session II

Module I
May 6
Sheila King, Exercise Physiologist (C.H.E.)

Module II
May 25

I. Explanation of Baseline Fitness Levels
   A. Difference in Males vs. Females
   B. What scores mean
   C. How do they relate to designing exercise prescription
II. Important Factors in the Design of an Individualized Program
   A. Schedule
   B. Variation of activities
   C. Develop around person's interests and what activities they enjoy
   D. Accessibility to facilities and equipment necessary for activities

III. Motivation
   A. Importance of motivation
   B. Techniques of motivation

IV. Compliance
   A. Factors affecting compliance
   B. How to encourage compliance
   C. Barriers to compliance

V. Exercise Prescription
   A. Design and discuss sample programs (elaborate on specific examples)

VI. Discussion/Questions

VII. Pass out forms to be filled out and brought to the FIT Clinic practice session

Session III

Module I
May 11

Module II
May 27

I. Demonstration of testing techniques (10:00 - 10:15)
   A. Sit Ups
   B. Push Ups
   C. Sit & Reach Flexibility
   D. Vertical Jump
   E. Bicycle Engometer

II. Clinic Participation (10:15 - 11:50)
   A. (Group 1) Half of the PHCs pair up and take each other through the clinic with supervision from experienced PHCs
   B. (Group 2) The other half of the PHCs are trained to do under water weighing. (10:00 - 11:00 ½ of Group 2
      11:00 - 12:00 other ½ of Group 2)
Session IV

Module I
May 13

Module II
June 1

I. Clinic Participation (10:00 - 11:50)
   A. Group 2 pairs up and take each other through clinic with supervision from experienced PHCs
   B. Group 1 are trained to do under water weighing. (10:00 - 11:00 ½ of Group 1
       11:00 - 12:00 ½ other ½ of Group 1)

Session V

Module I
May 18
Module II
June 3

Role Play

Students pair up and role play developing an exercise prescription and counseling mock situations. Experienced PHCs supervise and provide feedback. (10:00 - 11:30)

Questions/Discussion (11:30 - 11:50)
APPENDIX H
Fitness Inventory Testing Clinic

The F.I.T. clinic offers free cardiovascular, strength, and flexibility testing to determine level of fitness. Individual exercise prescriptions are offered to maximize fitness.

Every Tuesday, Wednesday, Friday
8 a.m. - 9:30 a.m.
Men's Gym 102

Wear exercise clothes. Registration card and photo I.D. required for participation.

For more information, call the Peer Health Counselor Office at 825-8462

A cooperative effort of:
Peer Health Counselor Program, Student Health Service, Kinesiology Department, Cultural and Recreational Affairs, UCLA Family Practice, and the Student Welfare Commission.
APPENDIX I
Health counselors offer fitness plans

By Jill Farhi

If too much partying and too many all-night study sessions are taking their toll on your body, the student health peer counselors may have an exercise program that is right for you.

Student health peer counselors, working with members of the UCLA kinesiology department and the Center for Health Sciences, began Monday a program designed to measure students' cardiovascular, upper body and leg strength. A student's performance on a series of five exercises is recorded and evaluated by a peer health counselor who then prescribes an exercise routine to strengthen the weak areas.

"The primary goal (of the program) is to educate more people about physical fitness and help them improve," fitness program Student Coordinator Charles Fisher said.

"What we want ideally is for the student to come back six to eight weeks later (after following the prescribed regimen) and we'll check their improvement on the tests," Fisher added.

Kinesiology professor Gerald Gardner said a similar test and exercise prescription program off campus would cost at least $100. The UCLA program is free to all registered UCLA students.

Before beginning the test exercises — sit-ups, push-ups, and toe reaching — a student must fill out a medical history and undergo a cursory physical examination, Gardner said.

According to Dr. Peter Chopivsky, who administers the exam, medical problems which would preclude a student from participating in the fitness testing would include a heart murmur or hypertension. Health problems like these would require a more thorough evaluation before an exercise program could be specially designed for the student, Chopivsky said.

The exercise program also affords kinesiology students "hands-on" experience administering and prescribing exercises, Gardner said.

The physical fitness evaluation is offered Monday, Wednesday and Friday from 8 to 10 a.m. in Room 102 of the Men's Gym. Gardner said, however, that if a large number of people respond to the program it may be moved to the gymnasium on the second floor of the building.
Fitness Inventory Testing Clinic

DO YOU WONDER...
How Physically Fit You Are?
What Areas Of Your Fitness Could Be Improved?
How To Plan A Fitness Program Around Your Schedule?

THE F.I.T. CLINIC OFFERS:
Bicycle Ergometer Test—Measures Cardiovascular Fitness
Muscle Strength Evaluation Tests
Flexibility Tests
Underwater Body Weight—Determines Percent of Body Fat
Free Medical Fitness Evaluation
Individual Exercise Prescriptions
Referrals, Resources, and Information

TIME: Tuesday, Wednesday, and Friday
8:00 A.M.–9:30 A.M.

LOCATION: Men’s Gym 102

Wear exercise clothes. Registration card and photo I.D. required for participation.

For more information, please call the Peer Health Counselor office at 825-8462.

A Cooperative Effort Of: Peer Health Counselor Program, Student Health Service, Kinesiology Department, Cultural and Recreational Affairs, UCLA Family Practice, and the Center for Health Enhancement.
APPENDIX K
FITNESS INVENTORY TESTING CLINIC

Questionnaire

PLEASE ENTER THE NUMBER ASSOCIATED WITH YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED TO THE RIGHT.

A. STUDENT DEMOGRAPHICS

1. Sex: 1- Male
   2- Female
   ENTER NUMBER

2. Age: 1- 17 years and younger
   2- 18-21 years
   3- 22-25 years
   4- 26-29 years
   5- 30-33 years
   6- 34 years and older
   ENTER NUMBER

3. Marital Status: 1- Married
   2- Unmarried
   ENTER NUMBER

4. Race: 1- American Indian
   2- Asian
   3- Black
   4- Caucasian
   5- Chicano/Mexican American
   6- Other
   ENTER NUMBER

5. Residence: 1- At home with parents
   2- Apartment or house
   3- Residence Hall
   4- Sorority or Fraternity
   5- Cooperative
   6- Married Student Housing
   7- Other
   ENTER NUMBER

6. Class Level: 1- Freshman
   2- Sophomore
   3- Junior
   4- Senior
   5- Graduate
   6- Post Graduate
   ENTER NUMBER

7. School/College: 1- Fine Arts
   2- Letters and Sciences
   3- Medical/Dental/Nursing
   4- Professional School
   5- Other
   ENTER NUMBER
8. Major:  
1- Language  
2- English, History  
3- Art/Theater Arts  
4- Social Sciences  
5- Math/Physical Sciences  
6- Life Sciences  
7- Law/Management  
8- Pre-or Nursing, Medicine, Dentistry, or Public Health

B. PHYSICAL ACTIVITY ASSESSMENT

9. Check the appropriate spaces best describing your typical weekly activities. Two checks are required for each line on which you respond. The first indicates the frequency you perform the activity each week. The second indicates the length of time spent performing the activity each time.

<table>
<thead>
<tr>
<th>FREQUENCY (per week)</th>
<th>DURATION (each time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a week</td>
<td></td>
</tr>
<tr>
<td>2 Times a week</td>
<td></td>
</tr>
<tr>
<td>3 Times a week</td>
<td></td>
</tr>
<tr>
<td>4 Times a week</td>
<td></td>
</tr>
<tr>
<td>5 Times a week</td>
<td></td>
</tr>
<tr>
<td>6 Times a week</td>
<td></td>
</tr>
<tr>
<td>7 Times a week</td>
<td></td>
</tr>
<tr>
<td>Less than 15 min.</td>
<td></td>
</tr>
<tr>
<td>15-30 Minutes</td>
<td></td>
</tr>
<tr>
<td>31-45 Minutes</td>
<td></td>
</tr>
<tr>
<td>46-60 Minutes</td>
<td></td>
</tr>
<tr>
<td>More than 60 min.</td>
<td></td>
</tr>
</tbody>
</table>

EXAMPLE: For instance if you jog for 15 minutes 2 times per week, check the following boxes:

<table>
<thead>
<tr>
<th>Jogging</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
<tr>
<td>Less than 15 min.</td>
</tr>
</tbody>
</table>
10. Before engaging in exercise it is recommended to "warm-up"
   1- only if one has not exercised for a few days
   2- less than 5 minutes
   3- at least 5 minutes
   4- at least 15 minutes

11. The most important component of an exercise program designed to achieve an optimal level of physical fitness is:
   1- cardiovascular conditioning
   2- muscle strength conditioning
   3- flexibility conditioning
   4- agility conditioning

12. When trying to achieve a cardiovascular "training effect" during each exercise episode one should engage in an aerobic activity for a minimum of:
   1- 5-10 minutes
   2- 15-30 minutes
   3- 35-40 minutes
   4- 45-60 minutes

13. When trying to achieve a cardiovascular "training effect" one needs to engage in an aerobic activity a minimum of:
   1- 1-2 times per week
   2- 3-4 times per week
   3- 5-6 times per week
   4- everyday

14. It is recommended to "cool down" after exercising a minimum of:
   1- a few minutes
   2- 5-10 minutes
   3- 15 minutes
   4- 20 minutes

15. Which pair of the following activities are most likely to have the greatest effect on cardiovascular fitness?
   1- basketball, tennis
   2- weight-lifting, calisthenics
   3- racquetball, football
   4- swimming, cycling

16. When trying to achieve a "training effect" one should exercise at what percent of maximum heart rate?
   1- 20-35%
   2- 45-60%
   3- 70-85%
   4- 90-100%
17. How did you hear about the F.I.T. Clinic? (Enter a maximum of 3 answers)
   1- Daily Bruin advertisement
   2- Daily Bruin article
   3- Flyer
   4- Brochure
   5- Friend
   6- Peer Health Counselor
   7- Class
   8- SHS Referral
   9- Other

18. Which one of these reasons would be most likely to interfere with your exercising on a regular basis?
   1- do not enjoy exercising
   2- nobody with whom to exercise
   3- do not have time
   4- it is not a high priority
   5- self consciousness at skill deficiencies
   6- other (specify)

19. I am participating in this program to: (Enter a maximum of 3 answers, based on what you think is most significant)
   1- improve my appearance
   2- have medical evaluation
   3- learn how to keep fit
   4- achieve self discipline and maintain a commitment to an exercise program
   5- increase my energy and stamina level
   6- lose weight
   7- improve my self image
   8- reduce my stress and tension
   9- increase my self confidence
   10- prevent heart disease
   11- improve the quality of my sleep
   12- have some enjoyment and recreation
   13- decrease illness
   14- find out my current level of fitness
   15- other (specify)
APPENDIX L
CONSENT TO EXERCISE TESTING:

In order to determine an appropriate plan for an individual exercise program, you will engage in an exercise test to determine the state of your heart and circulation. The information thus obtained will help to aid the Fitness Inventory Testing Clinic Staff in advising you as to the activities in which you may engage.

Before you undergo the test, you will be interviewed and examined by a licensed clinician, medical doctor or nurse practitioner, to determine if you have any condition which would indicate that you should not engage in the test.

The test will be performed on a bicycle ergometer with the amount of effort increasing gradually. This increase in effort will continue until symptoms such as fatigue, shortness of breath, or chest discomfort may appear, that would indicate to you to stop.

During the test, a licensed clinician or trained observer will keep you under surveillance; your pulse, blood pressure, and oxygen intake may be measured; and other tests may be performed.

There exists the possibility of certain changes occurring during the test. They include abnormal blood pressure; fainting; disorders of the heart beat, including too rapid, too slow or ineffective beat; and, in very rare instances, heart attack. The preliminary examination and test surveillance will serve as precautionary measures to minimize these occurrences, and trained personnel will be available to deal with unusual situations which may arise.

The information collected about you will be confidential and will not be released to any person without your expressed written authorization or as may be required by law. This information may be used by the Fitness Inventory Testing Clinic Staff for statistical or scientific purposes, in which case your identity will not be disclosed.

I have carefully read the information contained above, have had an opportunity to ask questions and have them answered to my satisfaction, and I hereby consent to undergo the exercise test. I understand that I may receive a copy of this consent upon my request.

Date ___________________ Participant's Signature __________________________

Clinician Supervising Testing ________________________________

SHS 005
FITNESS INVENTORY TESTING CLINIC
PRE-EVALUATION HISTORY

PLEASE ANSWER ALL QUESTIONS

Date ____________________

1. Are you currently under the care of a physician for any medical condition(s)?
   If yes, please list condition(s).

   NO YES

2. Have you ever been told by a physician that you have any of the following conditions?

   Asthma
   Congenital Heart Disease
   Diabetes
   Heart Block
   Heart Murmur
   High Blood Pressure
   High Cholesterol
   Kidney Disease
   Palpitations
   Rheumatic Fever

   NO YES

3. Do you have any of the following problems?
   Back Problems
   Chronic Headaches
   Fainting or Dizziness
   Musculoskeletal Problems which would prevent you from performing the bicycle
   ergometer test

   NO YES

4. Do you have a family history of heart attack, high blood pressure or high cholesterol at an early age?
   If yes, please list relation and age diagnosed.

   NO YES

5. Do you currently smoke cigarettes? If yes, please state the number of packages
   per day.

   NO YES

6. Have you recently had a febrile illness (flu, cold, pneumonia, etc.)?
   If yes, please explain.

   NO YES

Participant's Signature ____________________

PRELIMINARY PHYSICAL EXAMINATION

Height: ________ Weight: ________ B.P.: ________ P.: ________

Lungs:

Heart:

Musculoskeletal:

Clinician's Signature ____________________
<table>
<thead>
<tr>
<th>TEST</th>
<th>MINIMAL FITNESS</th>
<th>LOW-LEVEL ACCEPTABLE FITNESS</th>
<th>GOOD FITNESS</th>
<th>OPTIMAL FITNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sit-ups (Abdominal Muscles)</td>
<td>00-17</td>
<td>18-27</td>
<td>28-36</td>
<td>37-46</td>
</tr>
<tr>
<td>Vertical Jump (Quad. and Calf Muscles)</td>
<td>00-15</td>
<td>16-10</td>
<td>19-21</td>
<td>22-25</td>
</tr>
<tr>
<td>Push-ups (modified) (Arm Strength)</td>
<td>00-09</td>
<td>10-15</td>
<td>20-30</td>
<td>31-41</td>
</tr>
<tr>
<td>Sit Reach (Flexibility)</td>
<td>≥+05</td>
<td>+4-+2</td>
<td>+1-+1</td>
<td>-2-+4</td>
</tr>
<tr>
<td>Bicycle Ergometer (Heart Rate and Volume)</td>
<td>00-39</td>
<td>40-44</td>
<td>45-50</td>
<td>51-55</td>
</tr>
<tr>
<td>Underwater Weight (PerCent Body Fat)</td>
<td>≥-25</td>
<td>20-24</td>
<td>16-19</td>
<td>11-15</td>
</tr>
</tbody>
</table>

**EXERCISE PRESCRIPTION:**

Counselor ___________________________
Circle fitness range and enter number of times completed for each test.

<table>
<thead>
<tr>
<th>TEST</th>
<th>MINIMAL FITNESS</th>
<th>LOW-LEVEL FITNESS</th>
<th>ACCEPTABLE FITNESS</th>
<th>GOOD FITNESS</th>
<th>OPTIMAL FITNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sit-ups (Abdominal Muscles)</td>
<td>09-11</td>
<td>12-18</td>
<td>19-26</td>
<td>27-34</td>
<td>≥ 35</td>
</tr>
<tr>
<td>Vertical Jump (Quad. and Calf Muscles)</td>
<td>00-08</td>
<td>09-11</td>
<td>12-15</td>
<td>16-19</td>
<td>≥ 20</td>
</tr>
<tr>
<td>Push-ups (Arm Strength)</td>
<td>00-12</td>
<td>13-20</td>
<td>21-28</td>
<td>29-35</td>
<td>≥ 36</td>
</tr>
<tr>
<td>Sit Reach (Flexibility)</td>
<td>≥ +04</td>
<td>+03-00</td>
<td>-10--03</td>
<td>-04--06</td>
<td>≤ -07</td>
</tr>
<tr>
<td>Bicycle Ergometer (Heart Rate and Volume)</td>
<td>≤ 28</td>
<td>29-36</td>
<td>37-42</td>
<td>43-47</td>
<td>≥ 48</td>
</tr>
<tr>
<td>Underwater Weight (Percent Body Fat)</td>
<td>≥ 28</td>
<td>23-27</td>
<td>19-22</td>
<td>14-18</td>
<td>≤ 13</td>
</tr>
</tbody>
</table>

EXERCISE PRESCRIPTION:

Counselor ________________________________
APPENDIX N
APPENDIX N

F.I.T. CLINIC HANDOUTS

UCLA Recreation Release
PHC Pamphlets
Weight Training for Fitness
Jogging
Warm-up & Calisthenics
Endurance Swimming
Effects of Exercise on the Body
Exercise in Water
General Info
Cross Country Trails
Stretching Sheets
Aerobic Point Value Chart
## Circle Fitness Range and Enter Number of Times Completed for Each Test

<table>
<thead>
<tr>
<th>TEST</th>
<th>MINIMAL FITNESS</th>
<th>LOW-LEVEL ACCEPTABLE FITNESS</th>
<th>GOOD FITNESS</th>
<th>OPTIMAL FITNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sit-ups (Abdominal Muscles)</td>
<td>00-17</td>
<td>18-27</td>
<td>28-36</td>
<td>37-46</td>
</tr>
<tr>
<td>Vertical Jump (Quad. and Calf Muscles)</td>
<td>00-15</td>
<td>16-10</td>
<td>19-21</td>
<td>22-25</td>
</tr>
<tr>
<td>Push-ups (modified) (Arm Strength)</td>
<td>00-09</td>
<td>10-19</td>
<td>20-30</td>
<td>31-41</td>
</tr>
<tr>
<td>Sit Reach (Flexibility)</td>
<td>≥ 05</td>
<td>+4-12</td>
<td>+1-1</td>
<td>-2-4</td>
</tr>
<tr>
<td>Bicycle Ergometer (Heart Rate and Volume)</td>
<td>00-39</td>
<td>40-44</td>
<td>45-50</td>
<td>51-55</td>
</tr>
<tr>
<td>Underwater Weight (Percent Body Fat)</td>
<td>≥ -25</td>
<td>20-24</td>
<td>16-19</td>
<td>11-15</td>
</tr>
</tbody>
</table>

## Exercise Prescription:

1) Cycle to school 2 days/wk (total 10 mile round trip)
   - 5 min warm-up
   - Variable time of THR, depending on fitness (THR 118-138 bpm or 20-23 beats/10 sec)
   - Cool down 5 min (while walking bike to storage area)
2) Continue daily calisthenics. Correct curl up posture as handout describes
3) Play basketball as study break on Sunday afternoon at park, as well as pickup games during week at Pauley.

Goal: Add 1 more cycle daily/week
Reward: More fun!

Counselor: Karen King
EXERCISE PRESCRIPTION FOR JOHN DOE

Looking at John Doe's test results and questionnaire, you learn the following information:

- John is a 23 year old male graduate student in the physical sciences (physics)
- He lives is an apartment approximately 5 miles from campus with 2 other graduate students, and drives his car to school
- John's test results indicate good fitness in the tests of muscular strength; average flexibility; and average endurance and % body fat.

Current and past exercise history

- John noted on the questionnaire that he walks briskly 5 days/wk for 15-30 min, which represents walking on campus. He also noted calisthenics 6 days/wk for 20 min. John has kept up a routine of situps, pushups and some weight lifting that he has done for years. This is easy for him to do in his apartment.
- John also noted tennis, basketball and racquetball 1x/wk for 30 min each. In talking with him, you discover that these are sports he enjoys, but plays only rarely. He was on the basketball team of his high school, and played pickup games throughout his undergraduate years. He feels relaxed after a good game, but rarely seems to have the time now that his studies have increased so much. He also enjoys tennis and racquetball 'but it's so hard to find a partner who's free, and to get up at 6AM to reserve a court'. John often feels sore after the games he does play.
- He is emphatic that he hates jogging.
- The reason John states in the questionnaire that he wants to participate in the clinic is to have some enjoyment and recreation. His studies seem to be taking too much of his life, which wasn't true before.

Areas to concentrate on:

- John has positive experiences and interest in exercise. He has even kept up his calisthenics, but time and pressure seem to be his main stumbling blocks. John needs to balance all his activities, not just exercise.
- Because he may be prone to heart disease, and because he needs stamina and endurance to enjoy sports, John needs a basic, consistent exercise program. One area to explore would be cycling to UCLA several days/week instead of driving.
- John needs planning/priority setting to decrease tension and increase participation in the sports he enjoys. One way is to decrease the stumbling blocks he perceives that stop him; i.e. talk to students who may want to play tennis when the courts are empty, since his schedule is flexible. Is there a basketball court close to his apartment? How can he make time for what he enjoys without feeling guilty? There are excellent stress management courses for students offered on campus. Is there a new sport he'd like to take up with a group?

Karen King 1981
John Doe Exercise Prescription (cont)

Outcome Exercise Prescription:

John decided that biking to school would save money as well as give him exercise, but he was only willing to commit to 2 days/wk initially. His goal will be to decrease his time, and also to fit in 1 more day/wk cycling. Thus:

1. 2 days/wk cycle 10 miles/day round trip with:
   - 5 min warmup
   - endurance time depending on fitness level for fixed distance
   - cooldown while walking bike to locked area

2. Continue daily calisthenics. However, change situp to bent knee without feet hooked under chair (he had been doing it improperly).

3. Make time on Sunday afternoon each week for basketball game at court near his apartment as study break. Look for pickup games at Pauley during week.
**Fitness Inventory Testing Clinic**

**Name:** Jane Doe  
**Sex:** F  
**Wt:** 135  
**Ht:** 5'7"  
**Age:** 20  
**Clearance:** 10  

**Appendix O Data Sheet**

<table>
<thead>
<tr>
<th>Test</th>
<th>Minimal Fitness</th>
<th>Low-Level Fitness</th>
<th>Acceptable Fitness</th>
<th>Good Fitness</th>
<th>Optimal Fitness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sit-ups (Abdominal Muscles)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Completed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Jump (Quad. and Calf Muscles)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Completed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Push-ups (Arm Strength)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Completed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sit Reach (Flexibility)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Completed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle Ergometer (Heart Rate and Volume)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Completed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underwater Weight (Percent Body Fat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Exercise Prescription:**

- Walk/jog 4 days/week for 45 minutes/day
- 10 min stretching; abdominal curls (start abdominal curls 7 x in 2 sets and work up)
- 5-10 minutes slow walk as warm-up
- 25-30 minutes at endurance phase (THR 120-140 bpm, or 20-33 beats/10 seconds)
- 5 min cool down

Look into rec dept. aerobic dance class; walk MWF(4-5); Sun PM w/Susan

Reward: 1 month x

Counselor: Karen King
EXERCISE PRESCRIPTION FOR JANE DOE

Looking at Jane Doe's test results and questionnaire, you learn the following information:

- She has no medical problems, except intermittent back pain
- She lives in the residence halls, and is a social science major
- Her test results fall in the low to acceptable fitness ranges, being particularly low in arm and abdominal strength. She has a higher than average % body fat (27% compared to 18-23% acceptable for women her age), and can probably lose weight on an exercise program.

Current and past exercise history:

- Jane checked swimming 1x/wk for 15-30 minutes on her questionnaire. In talking to her, you find this is at a very slow pace, on the weekends at Sunset Rec pool, and only in good weather. She is self-conscious about her appearance and swimming ability.
- She also checked brisk walking 5x/wk for 30-45 minutes. You find this is walking to classes during the week, in short spurts no longer than 10 min. each. She may have overestimated the time.
- Basically, Jane has a minimal exercise program...
- Jane checked that she does not enjoy exercise as her main reason for not participating. In questioning her further, you find that she has had few positive experiences in the past, and no one of her ability to exercise with. All her friends are either very active, or don't want to do much.
- Last summer, Jane began a jogging program by herself over the summer vacation. It was painful - she got shin splints running around the block in her tennis shoes - but she came to feel better about herself because of it. When she came back to school, however, it got lost in the rush.

Areas to concentrate on:

- Jane has a history of back pain, and minimal flexibility and abdominal strength. She could use some hamstring stretches and abdominal curls worked into her program.
- If she continues walk/jog, she should invest in a good pair of athletic shoes, or she'll hate it or incur real injuries.
- Jane may do better with an organized exercise class, or some dependable exercise partners. Exercise time scheduled into her day may be helpful. Review with her the recreation dept. offerings. Explore the possibility of recruiting 1 or 2 friends for a scheduled walking time. Give her routes on campus. Review her day's schedule to see when this is possible, and the advantages and disadvantages of time selected.
- Talk to her of tips to remain involved: Set goals (ie 2 weeks walking as she agreed, or 5 lb. weight loss), and reward she'd like to give herself then. Talk about the one minute principle - when you don't want to exercise, make a contract to put on your shoes and walk for one minute. If you want to stop then, you can without feeling guilty.

Karen King 1981
Jane Doe Exercise Prescription (cont)

Outcome Exercise Prescription:

Jane wanted to try an aerobic dance class at the rec dept., but it won't start for a month. In the meantime, she decided to recruit a friend, Susan, to walk with her.

- Total time 4 days/week for 45 minutes
  - 10 min stretching and abdominal curls (starting with 7 curls in 2 sets and working up weekly)
  - 5-10 minutes comfortable walking as warmup
  - 25-30 minutes fast walk (she will gradually do short periods of jogging)
  - 5 min cooldown - slow walking and some calf stretches

-She will walk Mon, Wed, Fri at 4 - 5pm, and Sunday afternoon. This will help decrease her appetite and are usually wasted time for her in which she snacks.

Reward: After keeping this up for a month, she will buy a record set she's been wanting.
APPENDIX P
Guidelines for Exercise Prescriptions

1) Explain the results of the fitness tests to the clinic participant.
   a) Explain the differences between men and women in scoring of the various tests. For example, the average percent body fat for men is lower than it is for women (15% vs. 23%). Women naturally store more fat due to estrogen effects. However, both men and women who are physically active usually have less fat than the average male or female who is inactive. Furthermore, women do not tend to build as much muscle mass as men do because women have less testosterone which is the anabolic steroid that is responsible for increasing protein synthesis in the muscles. Women can improve their strength considerably by engaging in regular strength training exercise but do not have to fear that their muscles will gain as much bulk as a male who works out with weights.
   b) If the participant's scores all lie in the "acceptable-optimal" fitness categories you may reassure them that their training program seems to be working. Question them as to what their current program includes and whether they have trouble staying active during busy and stressful times of the quarter. Offer advice on motivational techniques and answer questions.
   c) If the participant's scores show room for improvement, point out the areas they might want to work to increase their score. Question them to determine what type of exercise (if any) they are performing on a regular basis. If it is clear that this person is not exercising properly then you will want to spend some time formulating a detailed exercise prescription with them.

2) Formulating an exercise prescription.
   a) Exercise prescriptions should be given on an individual basis keeping in mind the fitness level of the person at this point in time and the habits and general interests of a particular individual. As a counselor you can provide general guidelines and information for each person, but basically you'll act as a sounding board for each person to write their own exercise prescription.
   b) If a person is seeking specific advice regarding their exercise program be sure to address those issues at some point in the prescription. Do not become so involved in giving the information you feel is necessary for them to hear that you fail to provide the participant with information that is particularly relevant to their situation.
   c) One method of approaching a prescription is to have a person write down two or three specific goals he/she hopes to achieve from their exercise program. In this manner you can quickly assess what this person's needs are and can then gear your prescription accordingly.

SK/May, 1982
3) Components of a balanced exercise program:

a) Stretching
   - explain the importance of stretching
     1) to improve flexibility
     2) to prevent muscle/tendon injuries
     3) to relieve muscle soreness and fatigue
     4) to help relax tense muscles (can be used as a form of physical and mental relaxation during times of stress)
     5) to prepare the muscles for more vigorous activity; "the more you stretch before you exercise, the better you'll feel during the exercise"
     6) stretching after exercise can help you to gain flexibility since the muscles are "warm" and more compliant

   - explain how to stretch
     1) stretching should never hurt
     2) relax as you get into the position of stretch
     3) stretch all of the major muscle groups each day
     4) if pressed for time, at least stretch those muscles that are primarily involved in the activity you'll be performing (ie. stretch the arms if swimming, legs if running)
     5) hold each stretch for 15-20 seconds or longer if the muscle is particularly tight
     6) never bounce when you stretch; you can tear muscles and injure tendons as well as tighten the muscle instead of relaxing and stretching it
     7) you should never feel burning, quivering or tearing

b) Strengthening
   - explain the importance of strengthening key muscle groups
     1) abdominal muscles should be strong to help prevent low back pain
     2) arm muscles should be strong to help you perform daily activities without straining back muscles
     3) muscles that are used in regular activity such as sports should be strengthened to help prevent injuries and improve performance
     4) emphasis should be given to the fact that exercises that increase strength are usually anaerobic and do not improve cardiovascular fitness to any great extent. Furthermore, exercises such as these (high intensity, short duration) do not use fat as a source of energy and therefore should not be used as a primary method of decreasing fat weight.

c) Aerobic or Cardiovascular Exercise
   - ideally everyone should engage in some form of aerobic exercise. This includes exercise of low to moderate intensity, long duration (longer than 15-20 minutes) using large muscle groups in a rhythmic pattern. Such exercises include walking, jogging, running, swimming, cycling, cross country skiing etc.
APPENDIX Q
NAME: ___________________________ DATE: ______________________

1. Warm-Up:
   A. Metabolic --
   B. Flexibility --
   C. Practice Activity --

2. Exercise: F.I.T.
   A. Frequency -- Minimum 3-4 days per week.
   B. Intensity -- 70-85% of maximum predicted heart rate.
      \[ \frac{220}{ \text{age} } \times 0.70 \] to \[ \frac{220}{ \text{age} } \times 0.85 \]
      - maximum predicted heart rate
      Exercise heart rate should be between ___ and ___ beats per minute.
   C. Time -- Minimum 15-30 minutes of continuous aerobic activity.

Goals:

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Cool-Down:
   A. Continue activity at a light intensity for a few minutes.
   B. Stretching exercises --

4. Additional Comments:

5. Rewards for Goals Achieved:

Counselor's Signature: ___________________________