FACTORS RELATED TO URBAN ADULT FEMALE PARTICIPATION IN PHYSICAL ACTIVITY PROGRAMS

by

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ABSTRACT

FACTORS RELATED TO URBAN ADULT FEMALE PARTICIPATION IN PHYSICAL ACTIVITY PROGRAMS

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Major factors supporting or inhibiting the initiation and maintenance of physical activity programs were identified through a questionnaire-survey of a random sample (N = 700) of nonstudent and nonretiree females, over 18 years of age, residing in 10 urban centers of Michigan. Experience in physical education classes and co-curricular sports programs during formal education, childhood play habits, as well as previous parental and current familial influences were determined. Program components, perceived improvements, reasons for participation and injuries sustained also were examined. Respondents (mean age = 45.1 $\pm$ 12.0 years) were categorized as physically active (N = 136) or inactive (N = 341) according to recommended activity-need standards published by the American College of Sports Medicine.

The proportion of active versus inactive respondents differed significantly ($P < .05$) for several variables. Early sports experiences, particularly in elementary and junior high or middle school physical education classes and instruction in leisure-time sports and dance were important supportive factors. Attitudes toward high school physical education classes likely have the greatest impact on future

physical activity habits since there is little carry-over in terms of activity preferences.

Less than 30 percent of all respondents participated in co-curricular sports during their formal education. The main reasons for nonparticipation varied, with the active women citing lack of school or community-sponsored programs and the inactive women citing lack of interest. There was agreement on reasons for pursuing intramurals, agency-sponsored sports and interscholastic athletics. Major reasons included appealing activities, involvement of friends, opportunities to learn new sports and enjoyment of participation.

A greater proportion of active women than inactive women received encouragement to be physically active during childhood from their fathers, siblings and friends. They now regularly participate in exercise with their immediate families, frequently in fitness-type activities.

Seventy percent of the active women participate in unsupervised physical activity programs, while 30 percent are supervised in programs provided by commercial and community agencies. Significant differences ($P < .05$) are that a greater proportion of unsupervised women than supervised women prefer to jog and that unsupervised women prefer to workout in the morning, while supervised women prefer evenings for their workout time.

Older women are dependent upon exercise leaders to provide technical assistance. Awareness of the aging process influences women to initiate programs, and health-related factors motivate them to continue.

The active women experienced some minimal pain and stress in their lower extremities at the beginning of training but these discomforts rapidly diminished. They believed they had improved in selected psychological, sociological and physiological parameters as a result of regular physical activity.

Many (50 percent) inactive women would be interested in initiating physical activity programs (three times per week, 30 minutes per session) if time permitted. Self-appraisal of their current physical fitness serves as the primary stimulus for this interest. Their activity choices are the same as those practiced by active women, namely jogging, calisthenics, swimming and tennis.

Program directors, exercise leaders and physical educators must consider previous and current motivational factors during the development and implementation of physical activity programs for female participants. If adequate attention is paid to both supportive and inhibitory factors that condition the motivational status of women at any given age, the important indices of physical activity habits, namely compliance, adherence and maintenance, should be dramatically improved.

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CHAPTER I

THE PROBLEM

A professional challenge has been presented to physical educators by George Leonard. He writes, "We may well discover that sports and physical education, reformed and refurbished, may provide the best possible path to personal enlightenment and social transformation in this age" (Leonard, 1974, p. 76). This statement implies that revisions of current physical education programs are essential if these programs are to provide the activities and leadership necessary for men and women to experience personal enlightenment and social transformation.

Some current trends in society that must be considered during efforts to make appropriate curricular revisions are the trends toward an increase in non-work time, rising levels of formal education, growing confidence in learning ability and the pervasive impact of change, all of which have made lifelong learning an important condition for lifelong living. The situations provided by these gathering forces have important implications for the instruction of children and youth as well as for the continuing education of adults (McClusky, 1974).

A current societal trend that merits thoughtful consideration by those interested in restructuring the contemporary professional curricula in physical education is the greatly increased number of adults who have begun to exercise. One of the reasons for the increased interest in physical activity is the gradual recognition that our automated society is causing serious health-related problems that might be corrected by frequent participation in physically demanding recreational activities. These problems are not limited to the male population since the labor force is currently attracting increasing numbers of females. Among the problems experienced by these individuals are low back pain, chronic fatigue and heart attacks. For example, Nachemson (1971) reported that 70-80 percent of the population between 20 and 55 years of age have experienced low back pain and that exercise therapy is often used to relieve it. Lamb (1978) suggests previous research has demonstrated that regular exercise helps to prevent the early onset of coronary heart disease.

Kasch (1974), a noted exercise physiologist, believes that the school must become the primary agent in the prevention of coronary heart disease. That is, the school can be expected to help supply the vigorous activity required for the students' physiological development. However, Kasch also believes there is scientific proof that most American school sports are too low in their cardiovascular demands

to develop the heart and circulatory system. If most American sports do not lead to the development of physical fitness, various techniques to develop fitness must be assessed and, after optimum techniques are determined, they must be incorporated into physical education curricula.

Wescott (1978) also proclaims that activities which are most useful for improving endurance fitness are seldom included in secondary school physical education programs. Since participation in physical fitness activities can add quality to life, and since one out of every two Americans discontinues sports activity after leaving school, it is of key importance that curriculum specialists devote a substantial amount of time and effort to evaluating programs in terms of their potential influence on the lifelong activity habits of students.

Motor skill development, knowledge of various activities and a favorable attitude toward play provide the best assurance that a student will continue a lifelong pattern of physical activity. It follows that to better prepare people for such continued involvement requires that they be sensitized to their future needs and be provided an opportunity to develop requisite personal factors at an early age. An effective school physical education program should recognize and provide for the needs of all students by selecting objectives of value and determining how these objectives can be attained through the physical education

instructional program, intramurals and interscholastic athletics. These programs provide valuable opportunities for the development of knowledge and skills and the concomitant evaluation and solidification of attitudes regarding the merits of being physically active.

Dobbs and Steponovich (1972) advocate a contemporary, continuing, lifelong physical education program based on an adult-oriented, recreational foundation. They believe that many physical education activities of the past inadequately serve contemporary adult needs. Current adult physical education programs should provide health knowledges, group and individual activity experiences and acquisition of skills which will contribute to the development and education of American adults.

McClusky (1974) states that we are at a time in societal development when the growing domain of lifelong learning promises to transform both the character and dimension of the entire educational enterprise. A substantial proportion of the non-work time of adults will be devoted to learning activities, especially when these activities are effectively related to the basic interests of adults and adapted to their needs for occupational advancement and/or survival. Physical education should fall within this domain of lifelong learning.

Even though physical education programs have promoted the development of carry-over skills and activities for adult

life, there has been relatively little serious attempt by the profession to meet new challenges of today's adults (Doherty, 1975). For example, community programs, regardless of sponsorship, are needed to provide a second chance for women who currently lack the knowledge and skills to participate in beneficial carry-over activities. Many of these women did not have the desire or opportunity to participate in physical education, athletic or intramural programs while meeting formal educational requirements. It is necessary therefore that educators determine the needs of adult learners and get them involved in the planning process. Adult learners who get involved in program planning often express more positive attitudes about their education experiences than those who do not help determine priorities and program content.

In addition to the importance of defining appropriate activities, special consideration must be given to the preparation of individuals who will be responsible for the development and implementation of optimal physical education programs for both youth and adults. Physical educators and program leaders must be sensitive to the limitations, individual differences and attitudes of the participants, and must be aware of the activities which will best enhance the attainment and maintenance of desirable levels of physical fitness and enthusiasm for continued participation in physical activity.

Need for the Study

This investigation focuses on the current physical activity or exercise habits of women over 18 years of age who reside in urban centers in the State of Michigan. An exhaustive review of the literature reveals a lack of research directly related to the needs and interests of women in regard to adult physical education programs. Weick (1975) reports that many studies have been conducted to determine the activity needs of children and high school students, but there is an obvious void in the literature with regard to the activity needs of adults.

Since planning programs of physical education according to student needs is an important facet of curriculum development, it is only logical to investigate the activity needs of any special population. McElreath (1976) and Doherty (1975) believe that the effectiveness of adult education will be determined in part by the availability of accurate information relating to the needs of the target population. Information is needed regarding activity preferences, leadership roles, reasons for participation and non-participation, health concepts, perceived enjoyment from participation, previous sports experiences and other factors which motivate compliance and adherence to exercise regimens.

Many habits and living patterns which continue into adult life are acquired during school years; therefore, it is necessary to provide experiences that students find reinforcing in terms of personal enjoyment and physiological improvement. There is some evidence that this is not being done, but the reasons for the omissions are somewhat elusive. Thus, it is deemed necessary to gather information about previous physical education and athletic experiences of the selected respondents to gain insight into the trends in physical education curriculum innovations over the past few years and to determine whether or not learning experiences such as sports participation, perceived enjoyment and instructional emphasis had a meaningful impact on the current physical activity habits of the respondents.

It is intuitively clear that specific teacher education programs are needed to develop instructors who can provide successful, continuing adult education programs. The expansion of teacher education programs should include the teaching of skills and knowledges necessary to conduct physical education programs for adults. "If more physical education departments move toward adult programs, the profession may find itself flourishing in a new area and making a significant contribution against hypokinetic ailments" (West, 1979, p. 55). Rhodes (1974) suggests that research on the educational programs for teachers of adult education is needed in order to prepare teachers to develop appropriate

teaching materials and methods and to maintain a positive working relationship with the students. Directors of various adult physical fitness programs have stressed the importance of exercise leaders who possess scientific knowledge as well as the ability to motivate people to exercise and to follow prescribed exercise regimens (Wilmore, 1974; Stoedefalke, 1974).

Based on the literature previously cited as well as a revealing study by Kelley and Lindsay (1977), there seems to be a definite need to pursue curriculum research and program implementation in the field of adult physical education. Results of a study of the performance of a group of physical educators in Pennsylvania show these teachers are in need of professional updating. "The knowledge area in which obsolescence is most pronounced is defined by curriculum" (Kelley and Lindsay, 1977, p. 470). We must realize that only one state is represented in the study, but it is reasonable to assume that there are other states in which the same problem exists.

A final consideration which supports a need for physical education curriculum research is expressed by Montoye and Cunningham (1969). They report that there has been little research in the area of professional preparation of physical educators or few changes in the patterns and programs of physical education over the last few years.

In review, there is need for intelligent curricular changes in physical education which are based on research studies that are both valid and directly related to contemporary society. There is a trend toward an enhanced popular awareness that lifelong participation in physical activity is essential to the quality of adult life, but adequate levels of knowledge, skill, confidence or motivation to maintain or self-initiate appropriate physical activity programs are not prevalent. This emphasizes an urgent need to redefine the objectives to be attained in school physical education programs and to promote programs of lifelong participation and learning for adults.

Purpose of the Study

If physical education and physical fitness programs are to be successful, it is necessary for teachers and exercise leaders to possess knowledge, skills and abilities which can be applied to provide optimal learning environments for the students and clients. Accurate information about the interests and needs of special populations is necessary, in addition to information relating to appropriate activities, materials and teaching strategies which will enhance program success. Professional development programs must adequately prepare physical educators to meet the challenge of educating students for a physically active life and also to assist adults in their initiation

or continuation of personal exercise programs.

The purpose of this study is to identify the major factors that support or inhibit the initiation and maintenance of physical activity programs of women who reside in densely populated urban areas of the State of Michigan. Among the factors to be studied are the influence of previous experiences in elementary and secondary school physical education classes, co-curricular sports and childhood play habits. Closely related factors to be studied include the specific activities or sports engaged in, the instructional and program emphasis in these activities and the perceived enjoyment from these physical education activities, organized athletics, intramural programs or agency-sponsored sports. Other questions will determine the amount of play engaged in during youth and whether encouragement to be physically active was provided by parents and others. The results of this study should contribute to the elimination of past mistakes and to the implementation of a new and improved professional development curriculum in physical education.

This study also will expand the knowledge base in the area of physical education needs of adult females and will contribute to the identification of apparent personal and environmental factors that inhibit their participation. Analysis of the current motivational factors, such as activity and program preference, perceived benefits as a

result of participation and reasons for participation will aid in the development of appropriate physical activity programs to better meet the needs of adult females in contemporary society.

Research Questions

Two main research questions are presented in this study, each consisting of several sub-questions. The first research question centers on the influence of selected previous sports-related experiences on the current physical activity habits of the respondents, while the second research question considers the influence of current factors on their physical activity habits. Prior to answering the two main research questions, it was necessary to collect descriptive data on the respondents both in general and by subclass according to the frequency of their current involvement in physical activity.

> Research Question 1. What influences do participation in physical education classes and co-curricular sports programs during elementary and secondary school, childhood play habits and parental encouragement of childhood play have on the current physical activity habits of the respondents?

The following questions are viewed as the major concerns directly related to the first research question. Is there a difference between active and inactive women and also active women according to sub-class, supervised vs. unsupervised, in relation to the following variables:

1. Perceived enjoyment of participation in physical education classes and co-curricular sports programs at all educational levels.

2. Reasons for participation or refraining from participation in co-curricular sports programs.

3. Educational levels during which the respondents participated in physical education classes and co-curricular sports programs.

4. Instructional or program emphasis during physical education classes and co-curricular sports programs.

5. Number of hours per day the respondent spent in play during childhood.

6. Amount of encouragement to be physically active during childhood received from family and others.

7. Number of times per week the respondent engaged in play activities with at least one parent during childhood.

8. Participation in physical education classes and co-curricular sports programs during school.

9. Types of sports participated in during physical education classes and agency-sponsored and intramural sports programs.

10. Specific activities engaged in during interscholastic sports participation, if any.

Research Question 2. What currently operating factors influence the respondents to comply and adhere to a regimen of regular physical activity?

The following questions are viewed as the major concerns directly related to the second research question. Is there a difference between the active women in supervised or unsupervised physical activity programs in relation to the following variables:

1. Reasons for being physically active or inactive.
2. Factors which influenced the active women to initiate physical activity programs.
3. Sports in which the active women currently participate.
4. Length of time spent by active women in current physical activity programs.
5. Levels of stress or discomfort encountered by active women.
6. Kinds of stress or discomfort encountered by active women.
7. Motivation of active women to continue or discontinue a workout.
8. Perceived progression rate of active women.
9. Current familial play habits of active and inactive women.

Additional sub-questions focus on the responses of active women according to specified age groups (18-25, 26-35, 36-50, over 50 years). Is there a difference between the active women in the age groups in relation to the following variables:

1. Reasons for participation in a supervised program.
2. Feelings toward the importance of and the role of the exercise leader in supervised programs.
3. Facilities used.
4. Sources of information to develop an unsupervised workout program.

Research Plan

A questionnaire was mailed to 700 randomly selected nonstudent and nonretiree women, 18 years of age and older, who reside in 10 Standard Metropolitan Statistical Areas in

the State of Michigan. City directories were used as sources of names. Any women whose occupation was listed as student or retiree was eliminated from the sample selection.

The instrument requested demographic data of the respondents as well as information regarding their current physical activity habits. Descriptions of the current physical activity patterns and programs of the respondents allowed for insights into many supportive or inhibitory constructs that primarily relate to the programs.

Other areas of scrutiny made possible by the questionnaire were the previous physical education and co-curricular sports programs pursued by the respondents during their formal education, childhood play habits, parental encouragement to be physically active during childhood and current physical activity practices with the immediate family.

The influence of physical education experiences was identified by examining the types of activities or sports pursued, perceived enjoyment and instructional emphasis used by physical education teachers. The physical education programs were described by educational level and organizational structure. Elementary, junior high or middle school and high school were the three categories used to describe educational levels. It was determined also whether the physical education classes at each educational level

were coeducational or segregated by sex and whether they were required or elective.

The co-curricular sports programs included competition in interscholastic athletics and/or participation in after-school sports programs (intramurals) sponsored by the school or in agency-sponsored sports programs at community centers, the local YMCA-YWCAs, the AAU or other organizations. The types of activities pursued, perceived enjoyment, program emphasis and reasons for the women's participation or non-participation in these co-curricular sports programs were examined.

Childhood play habits were determined by reviewing the amount of time spent per week in play activities as a child. The amount of encouragement to be physically active during childhood given to the respondent by family members and others, such as friends and teachers, was determined. In addition, similar questions were asked regarding the time currently spent by the respondents in physical activity with their immediate families and the types of activities pursued.

Current factors which motivate women to engage in or refrain from physical activity were determined by studying responses to questions pertaining to issues such as frequency of workouts, reasons influencing their decisions regarding physical activity, types of programs and activities

pursued, perceived benefits derived from active participation and the role of exercise leaders.

The data for the study were obtained by means of a specially designed, self-administered questionnaire. The respondents were categorized as being physically active or inactive according to criteria identified by the American College of Sports Medicine (1978) for attaining and maintaining physical fitness in healthy adults. These two activity sub-classes were used for a majority of the data analyses. Also, a division of the active women into sub-classes, supervised vs. unsupervised, was used for comparative purposes. Age categories (18-25, 26-35, 36-50, and over 50 years) according to sub-classes, supervised or unsupervised, were used.

The research questions and accompanying sub-questions were answered by determining whether significant differences exist between the proportion of sub-classes, such as active and inactive women, who respond to a particular question or by determining the significance of the ratio of sub-classes to total respondents concerning the selection categories of a particular question. Comparisons of this nature are necessary for such a survey to have education implications.

A chi-square test of homogeniety for equal proportions was used to test the hypothesis that the probability distribution of each of the populations was identical or

homogeneous. Descriptive statistics and measures of central tendency were used to characterize the responses and certain measures which did not lend themselves to a comparative analysis. A .05 level of rejection was pre-established to be used for all chi-square tests of significance.

Assumptions Related to the Research Plan

The major assumptions made are as follows:

1. The respondents were able to recall accurately previous experiences or to indicate their inability to recall them by responding, as instructed, to an alternative choice, "I can't recall."
2. The person completing the form was the individual for whom it was intended.
3. The individuals actually surveyed constitute a representative sample of the population.
4. The instrument is valid based on a content appraisal by a panel of experts.

Scope of the Study

The study is limited to current physical activity or exercise habits of the female respondents and to selected past or current factors which motivate or inhibit the pursuit of these activity patterns. Females listed as students or retirees in the city directories from which the sample was drawn were excluded due to the potential difficulty which might arise in locating them and because both the

students and the retirees might be atypical groups in regard to adult participation in sport and physical education programs.

Limitations

The limitations are primarily related to the survey sample selected. The inclusion of only women living in the urban areas of Michigan excludes generalizations to the residents of rural communities as well as to other geographic areas throughout the United States. The conclusions will be limited to nonstudent and nonretiree women, 18 years of age and older, residing in urban communities of Michigan within 10 Standard Metropolitan Statistical Areas.

Definitions

For the purpose of the current investigation, the following terms are defined:

A respondent is a woman who returned a completed questionnaire before or after the final call-back procedures.

A response is a completed questionnaire returned to the investigator.

A nonresponse is a " . . . failure to obtain observations (responses, measurements) on some elements selected and designated for the sample" (Kisch, 1976, p. 532).

The nonresponses are categorized as:

1. "Unobtainables," which refers to unanswered forms returned due to address error, no forwarding address or knowledge of the death of a respondent.

2. "Not-at-homes" (NAHs), which refers to unanswered forms due to the inability of the investigator to reach the respondent during call-back procedures or to the respondent choosing not to reply for reasons unknown to the investigator.

3. "Definite refusals," which refers to cases where the individual did not desire to reply and made this known through either verbal or written communication.

A physically active woman (Active) is one who is engaged in a regular exercise program designed to develop and maintain physical fitness in healthy adults. Criteria for such activity programs have been established by the American College of Sports Medicine (1978), i.e., a frequency of three to five days per week, 15 to 60 minutes of continuous aerobic activity, and any activity which uses large muscle groups that can be maintained continuously and rhythmically. Intensity of training was not considered to be an appropriate factor here since it is highly unlikely that the women who meet the above criteria also measure heart rate during activity or are knowledgeable about their individual intensity rates. The selected criteria are relevant to endurance (aerobic or cardiorespiratory) training.

A physically inactive woman (Inactive) is one who is not involved in an exercise regimen as described for an active woman. She is either sedentary or engages in a lesser program of physical activity.

The term exercise, which refers to any and all muscle activity, may be used in place of physical activity within the context of this report but only under the criteria previously mentioned.

Standard Metropolitan Statistical Area (SMSA) is a unit that includes one or more counties that are economically and socially linked to a central city having a population of at least 50,000 inhabitants (Sommers, 1977, p. 65).

Curriculum is a series of guided experiences with some order of priority (progression) which are directed toward the achievement of certain objectives (Cowell and France, 1969, p. 146).

Physical education is defined as that phase of the total process of education which is concerned with the development and utilization of the individual's movement potential and related responses and with the modifications of stable behavior changes in the individual which result from these responses (Nixon and Jewett, 1969, p. 56).

Intramural sports is that phase of the school physical education program which is geared to the abilities and skills of a majority of students and consists of voluntary participation in games and sports on either an organized or informal basis (Bucher, Koenig and Barnhard, 1961, p. 144).

Agency-sponsored sports are those programs sponsored and conducted by community, private, voluntary or commercial agencies, such as community recreation centers, the YMCA-YWCA or the AAU. These programs include recreation, instruction and/or competition in a variety of sports geared to individuals' skills and interests.

Interscholastic athletics is that phase of the school physical education program which is geared to provide competitive sports participation for boys and girls who possess a high degree of skill in various activities (Bucher, Koenig, and Barnhard, 1961, p. 144).

Co-curricular sports program is a term that is used to encompass agency-sponsored and intramural sports programs and interscholastic athletics.

A supervised physical activity program is a program sponsored by an agency such as a community center, a school or medical personnel and characterized by providing leadership and planned individualized or group exercise regimens.

An unsupervised physical activity program is a program in which the individual is "on her own" without the benefits of professional leadership or prescribed training workouts.

CHAPTER II

REVIEW OF LITERATURE

A movement is underway that can transform our attitudes toward sports, physical education and the human body. It is exemplified by the increased number of joggers, hikers and cyclists who are becoming more knowledgeable about the benefits and long-term joys of cardiovascular conditioning. There is also an increase in the number of educators who are creating new games for group participation. There appears to be a new, holistic approach to medicine that views the conventional definition of health (absence of disease) as merely the starting point to good health (Leonard, 1975).

It is important for physical educators to be aware of the important contributions they have made to the resurgence of interest, knowledge and participation in physical activity. This information will enable exercise scientists to build a foundation upon which to expand programs and activities to satisfy all people.

One of the foci of the current investigation is the impact of previous physical education and athletic experi-

ences upon the current physical activity habits of adult women living in urban Michigan. Unfortunately, the literature related to the influence of such experiences on physical activity habits is limited. Many studies have been conducted to determine attitudes toward physical activity or physical education and the benefits derived from participation, but few investigators have actually linked previous experiences and attitudes with present levels of physical activity.

This review of literature is divided into four parts. Part 1 presents an overview of the studies which have been conducted during the last fifty years to determine the attitudes of women toward physical education. Part 2 discusses physical education curricula and interscholastic, intramural and agency sponsored sports participation. Part 3 presents research findings on the role of parents and others in determining the physical activity habits of youngsters. Part 4 examines current factors such as programs, injuries, reasons for activity, parameters and the benefits derived from regular exercise which effect the present day physical activity habits of adult females.

Since the age range of the respondents is 18 years and older, a somewhat historical overview of these topics is warranted. Changes in educational philosophies and the place of physical education in the total educational process will be determined. This discussion will provide for a

better understanding of the types of programs and opportunities afforded the women throughout the years. It is on the basis of the information presented in this chapter that decisions were made in regard to delimiting the topic and selecting the research design.

Attitudes Toward Physical Education

Numerous studies (Smoll, Schutz and Keeney, 1976; Broer, 1955; Campbell, 1968) have established that attitudes motivate a student to learn, and that attitudes also influence the use of skills and knowledges which have been learned. Attitudes play an important role in learning because they determine an individual's willingness to learn. Psychologists have suggested that attitudes are acquired as a result of long exposure to cumulative experiences, or as a result of traumatic experiences involving pain or pleasure (Campbell, 1968). Success represents one of the primary forces influencing attitudes as does personal satisfaction related to tasks performed (Kenyon, 1968).

Although the current investigation is not a study of attitudes, per se, it is necessary to examine these feelings to determine whether or not a general positive or negative attitude toward physical education exists or has existed over several decades. These findings will help one to understand the factors which influence today's physical activity habits. Steps should be taken to strengthen the

favorable attitudes and factors responsible for making physical education a pleasurable experience. Furthermore, steps also should be taken to remove the obstacles which are responsible for creating unfavorable feelings toward physical education and physical activity.

Examination of Attitudes

For decades physical educators have conducted studies to determine the attitudes of different groups of students toward physical education. The early studies involved college women and the use of questionnaires, interviews and inventories developed by the investigators. Special instruments have been developed by Wear (1951), Kenyon (1968) and Simon and Smoll (1974) to examine attitudes and the factors which may influence these attitudes. More recently some attention has been given to elementary and secondary school children and their feelings toward physical education.

From 1932 to 1934, an experiment was conducted by Graybeal (1936) in the Women's Physical Education Department at the University of Minnesota. The freshmen women were divided into an experimental group, consisting of those women who had participated in the required physical education classes for freshmen and sophomores, and a control group, consisting of those women who were not allowed for medical reasons to participate in any of the required physical education classes. The hypothesis was that the students

who participated in a considerable amount of physical activity should demonstrate superiority in attitude, knowledge and motor ability over the students who participated in little physical activity. It was found that the students who did not take physical education courses acquired an increasingly unfavorable attitude toward health and physical activity during the first two years of college.

Broer, Fox and Way (1955) administered the Wear Attitude Inventory to 1,149 freshmen and sophomore women in physical education classes at the University of Washington. A great majority of the women expressed a very favorable attitude toward physical education. At the University of Michigan, Bell and Walters (1955) conducted a questionnaire study of all freshmen women enrolled in the required physical education program and all seniors who previously had taken required physical education. Freshmen who had taken physical education in high school had a better attitude toward it as an activity course than freshmen who had not taken physical education in high school. The college seniors who had taken physical education in high school displayed a less favorable attitude toward physical activity than the college freshmen who had not taken physical education in high school.

High school girls also have been respondents in several investigations. For example, as early as 1934 a questionnaire was administered by Anderson (1934) to 800

Des Moines, Iowa high school girls who participated in physical education. She concluded that a large percentage of the girls did not like to practice skills. If the girls felt the need for practice, they enjoyed working on the skills, otherwise they preferred to play the games. The most popular activities were large-muscle sports and co-recreational games. Also, it was found that both the academically and non-academically oriented individuals preferred a progressive program in physical education.

The results of a questionnaire survey of 1,150 girls and women from 15 to 25 years of age indicated that specific habits of activity are modified as girls mature. Baker (1940) found these changes to be both social and physical in nature. She found that a greater menarchial age prolonged participation while participation decreased with greater chronological age. Psychophysical factors exerted little influence on participation in an activity. Attitudes or feelings concerning participation did not regulate participation as much as they reflected the influence of other causes which did.

Carr (1945), in a study of high school freshmen girls, found the factors affecting success in physical education to be motor abilities, attitudes and intelligence. Since motor ability and intelligence are somewhat inherent qualities, the author reasoned that teachers should try to

improve students' attitudes to enhance success in physical education.

Zimmerman (1954) added another dimension to the study of attitudes. She stated that it is necessary to know which activities appeal to students, the extent of participation and the type of situation in which the activity occurs. This information enables educators to provide opportunities for students to receive instruction in activities which are of interest to them, to schedule classes at times most conducive to student participation and to provide the leadership and facilities necessary to conduct appealing programs. She concluded that physical education classes provide the greatest part of the physical activity experiences for freshmen college women during their high school years.

Knowing whether or not a favorable or an unfavorable attitude exists is of little value unless the reasons which cause these feelings are ascertained. Efforts have been made to determine the reasons for the negative and positive feelings toward physical education which have been expressed by students.

Factors Influencing Attitudes Toward Physical Education

Several factors have been identified which influence an unfavorable attitude toward participation in college physical education classes. Lack of ability, late class scheduling and the requirement of physical education participation

were reasons for disliking physical education found in a study by Bullock and Alden (1933). Lack of success, inconvenience of dressing, insufficient time for dressing with resultant feelings of untidiness, large classes and short physical education class periods also have been expressed by college women as reasons for disliking physical education (Alden, 1932; Broer and Holland, 1954). Significant findings of these studies suggest that attention be given to scheduling classes and to providing smaller classes which would enable each student to receive individual attention and assistance in setting her own standards so that she might achieve to her expectations and abilities.

Junior and senior high school students stated that a lack of cleanliness, inadequate facilities and problems involving the personality of the teacher and other students were specific annoyances related to physical education classes (Nemson, 1949).

Students also have expressed the benefits of physical activity and their levels of enjoyment derived from participation in physical activity. There is a positive and significant relationship between attitude and the extent to which students enjoy physical education as well as a positive correlation between the degree of interest that the instructor has in the pupils as individuals and the extent to which they engage in physical education classes (Bell and Walters, 1953). Exercise and the joy of participation were the most

important benefits the students derived from the broad and well-organized sports program at the University of Illinois (Craig, 1939). The investigator concluded that the average student, if given the opportunity, would select activities high in carry-over value and that they would enjoy these activities.

Expressed attitudes toward physical education and suggestions for program improvement were determined by Moyer (1966). She conducted a study using a Modified Wear Attitude Inventory to determine the attitude of freshmen and junior women toward the required physical education program at Northern Illinois University and to evaluate the physical education offerings in terms of student need. The findings indicated a preference for individual sports, a highly favorable attitude toward physical education and a need to re-evaluate the objectives and the methodology used in teaching the required program.

Surveys conducted by Waggoner (1935), Toogood (1939), Broer, Fox and Way (1955), Bell and Walters (1953) and Lemen (1962) also have shown that college women favor physical education classes consisting of individual sports as opposed to team sports. Favorable attitudes toward a requirement in physical education were confirmed by Marshall (1934), Weideman and Howe (1937) and Foss (1960). Over three-fourths of the women surveyed by each of these investigators believed physical education should be required in college, while only

25 percent of the college women interviewed by Kane and Hodgson (1939) favored such a requirement.

A study of particular interest to the current investigation was conducted by Mista (1968). An attempt was made to determine what background factors contribute to the development of attitudes toward physical education. Comparisons of the attitudes toward physical education held by college women (N = 1,126) enrolled in private colleges in Iowa were made on the basis of contrasting 14 experiences in high school backgrounds. Significant differences in attitudes toward physical education existed between those women earning interscholastic athletic letters in high school and those who did not earn a letter. Letter-winners displayed a more favorable attitude. The females who participated in organized extra-school physical activity programs had a more favorable attitude than the non-participants, and those who enjoyed high school physical education had a more positive attitude than those who did not enjoy high school physical education. No differences in attitudes were shown between those who had high school physical education and those who did not, those who came from small communities and those who came from cities, and those who took physical fitness tests and those who did not.

Physical Education and Co-Curricular Sports Programs

The objectives, program content and program emphasis of physical education, interscholastic athletics, intramural sports and agency sponsored sports programs are discussed in the following pages.

Physical Education Curricula

> The major objective of physical education is the development and maintenance of (1) physical fitness and motor skills, (2) social efficiency, (3) culture, (4) recreational competency, and (5) intellectual competency (Willgoose, 1974, p. 32).

Physical educators have assumed the responsibility of developing and implementing educational programs which enhance the students' attainment of these objectives. Instructional methodology and the content suitable for the various age groups, skill levels and interest levels of the students are the prime concern. If these objectives are met, one can assume that individuals will possess the skills and knowledges necessary to pursue physical activity on their own and will have a basic understanding of the importance of continued participation in regular physical exercise.

A review of selected physical education textbooks and articles in the professional journals which discuss curriculum development in the elementary and secondary

schools was conducted by the investigator. The purpose of this review was to see if curriculum specialists have advocated any changes in the physical education curricula during the last several years. This would enable the investigator to determine the philosophy of physical educators toward physical activity during these years and to see if the wishes of the students were considered.

Elementary School Physical Education.--In 1940, Georgiady and Savage (1940) reported on the status of physical education in elementary schools throughout the United States and the District of Columbia. Ninety-three elementary schools in 43 states were included in the survey. Most schools had a daily physical education requirement, separate activities for boys and girls and rewarded students for participation and excellence of performance. Intramural and interclass activities were considered a vital part of physical education; in fact, the terms were often interchanged. Softball, games of low organization, volleyball, touch football and basketball were the most popular activities. It also was reported that more than 50 percent of the schools correlated their physical education programs with other school subjects such as health or social studies. If this study is an accurate representation of elementary school programs around 1940, one would expect the older respondents in the present study to have been exposed to a team sport approach during elementary school.

In 1958, Halsey and Porter (1958) advocated an elementary school (primary grades) physical education program with an emphasis on games, 15 percent; movement exploration, 25 percent; dance, 10 percent; and self-testing, 50 percent. The percentages represent the time allotment for each type of activity. These forms of physical education were designed to assist children to develop socially and physically as well as to help them understand how the body moves.

Students in grades 4, 5 and 6 were encouraged to participate in the same types of physical activity as the primary grade youngsters, but the percentage of time devoted to the activities was changed. Games and self-testing were to consume 70 percent of the time; dance, 20 percent; and movement exploration, 10 percent. Group experiences and an emphasis on team spirit were important factors when selecting games at this age level. Boys and girls usually were separated at this time due to physical differences and interests.

Five years later in 1963, Vannier and Foster (1963) suggested a balanced physical education program with a wide range of activities. They also recommended percentages of time to be devoted to each area. For example, in grades 1, 2 and 3 rhythmic activities were to consume 25 percent of the time; fundamental play skills, 20 percent; and relays, 10 percent. Mimetics and story plays were to decrease from 25 to 10 percent as the children get older, and athletic

team games were to be introduced at grade 3. In the upper elementary grades, 30 percent of the time was to be spent in rhythmic and movement exploration activities; 15 percent in fundamental play skills; and 15 percent in aquatics and apparatus. Lead-up athletic team games were to increase from 15 to 30 percent and relays were to decrease from 15 to 5 percent as the students near grade 6. Emphasis in primary grades was placed on joyful activity; during upper elementary grades, the emphasis was on skill development.

In the 1960s a new approach or a new way of providing learning experiences, with emphasis on the individual child, began receiving attention. The concept of child-centered education, the emphasis on the development of the whole child, was being promoted and gave impetus to Movement Education. Movement Education is defined as an

> . . . individualized approach or system of teaching children to become aware of their physical abilities and to use them effectively in their daily activities involving play, work, and creative expression (Kirchner, Cunningham and Warrell, 1970, p. 4).

In essence, the students learn the capabilities and limitations of their bodies and function accordingly. The underlying principle of Movement Education is that children progress according to their own ability and at their own rate. It should be noted that Movement Education is not a substitute for physical education but rather an approach to the

learning process which is intended to complement the total physical education program. Proponents of Movement Education suggest that movement exploration and basic movement skills should consume the greatest percentage of the total time used for physical education during grades 1 and 2. As the children progress through elementary school, more time and practice should be spent on specific sports skills and later on the application of these skills to sports, dance or gymnastics.

In 1968, Dauer (1968) suggested movement experiences, rhythmic activities, games and apparatus for grades 1 and 2 with the addition of sports skills at grade 3. During the intermediate grades, movement experiences should be replaced by specialized physical fitness activities and fitness testing. Teaching skills and playing modified versions of the more complex team sports also should be an important part of the physical education program at this age. During the intermediate grades the physical education teacher should stimulate the student to assume the responsibility for attaining and maintaining a high level of physical fitness and skill.

Program planners have provided teachers with information to assist them in providing maximum learning opportunities for the students. A study by Baker (1962) reveals that many of the elementary physical education programs were not meeting minimum state standards. Questionnaires were sent to the State Departments of Education throughout the

United States to study the administration of physical education in the public schools. At the elementary level, less than one-half of the states responding reported that 50 percent of their schools used recommended standards for time allotment, space allotment, balanced and progressive programs and personnel. However, a majority of the teachers indicated a need for the clarification and implementation of recommended standards.

In the seventies, elementary school physical education is portrayed as a program of mimetics, movement exploration, rhythms, games, self-testing, apparatus and physical conditioning (Daughtrey, 1973). The emphasis on basic sports skills increases as the children approach grade 6 while the emphasis on movement exploration begins to decrease at grade 4.

As one can readily see, the recommended curricula for the elementary grades has not changed noticeably during the last two decades. A problem exists, however, in knowing whether or not these recommended programs are carried out or whether facilities, budget, personnel and/or school philosophies are deterrents to providing quality programs.

Secondary School Physical Education.--Stiles (1967) writes that sympathetic understanding and guidance are needed if the child's natural enjoyment of physical activity is to be directed into permanently useful channels. The

critical period for sports participation probably comes in the transition from youth to adult years; efforts should be made to encourage people at this age to participate in inexpensive but rewarding forms of physical activity. Harris (1970) and Brunner (1969) also believe that a positive attitude toward physical activity is formed early in life and becomes a meaningful part of one's lifestyle. At the secondary school level students begin to develop specialized interests. During this time teachers should continue to provide instruction in physical activity which appeals to the students and gives them a chance for success. Also, teachers should continue to instill in the students a positive attitude toward physical activity so that a lifetime of learning and active participation in physical activities will occur (Darst, 1978).

In the early forties, Irwin and Reavis (1940) conducted a survey to determine the status of secondary school physical education in the United States. Seventy secondary schools provided the data for their study. Over 50 percent of the secondary school physical education programs focused on team sports such as volleyball, basketball and softball. Group games and formal calisthenics completed the activities. Grades 8 through 12 were the same in regard to activity; grade 7 included folk dancing. In general, physical education was required two times per week and health instruction was incorporated into physical education. Interscholastic

athletics were popular, and over one-half of the schools reported allowing students to substitute interscholastic athletics for physical education.

Support for these findings was given by Beise (1940). A survey of freshmen women at the University of Michigan revealed that softball, basketball and volleyball were the activities which were offered most often during junior and senior high school. Folk dancing was the only rhythmic activity offered, and the only individual sport offered in the junior high school was gymnastics and tumbling. She noted that the students came from all parts of the United States and that, over a five-year period, the responses to the questionnaire remained the same. The women had participated in swimming, tennis, social dance and hiking on their own during high school as these were the activities the girls preferred. It was suggested that agencies such as the Girl Scouts and the YMCA-YWCA were contributing to the leisure-time needs of the students and had more appealing programs than the schools. Therefore, Beise (1940) recommended the use of the backgrounds, interests and desires of college women as a tool for curriculum development in college physical education programs.

Other investigators have attempted to determine the activity preferences of people in retrospect. The information received through this approach enables physical education program planners to provide secondary school students

with the types of activities they desire plus those activities which can be used in the future.

A survey of 16,000 parents conducted by Daughtrey (1973) showed that, in 1958, men and women respondents who had participated in team sports in high school were promoting a curriculum of leisure-sports in their local schools. Golf, swimming, bowling, tennis and dance were the preferred activities. Fox (1957) questioned college graduates on activities they wished they had learned in high school, and the results were the same. Golf, tennis, bowling, swimming and social dance were the activities most frequently named.

Factors conducive to voluntary participation in active play were the focus of a 1953 research project conducted by VanWhy as reported by Daughtrey (1973). Students showed more interest in golf, swimming, tennis and bowling than in softball, basketball and volleyball. A significant finding in his report was that the type of physical education program in high school and college is a determining factor in voluntary participation in later life, especially with reference to individual activities. The students would have elected activities having a high degree of carry-over value if they would have had the opportunity to do so.

In spite of the apparent pleas by adults for an emphasis on skill and knowledge in leisure sports, a variety of other activities in secondary schools are promoted by

curriculum specialists. There appears to be equal emphasis for girls (according to time allocation) on team sports, individual sports and rhythmic activities, and less emphasis on gymnastics and tumbling. It is interesting to note the absence of an identified goal of physical fitness. The underlying assumption may be that physical fitness will be attained through participation in the other program activities; and, therefore, there is no need to place a special emphasis on it. On the other hand, educators may believe that physical fitness is not important and does not belong in physical education curricula at the high school level. It may be necessary to heed the advice of those who have been through the programs, as well as the professional curriculum developers in physical education, so that physical education curricula can be developed to serve both the interests and needs of the participants.

New Concepts.--In the past 20 years, several new educational concepts and events have surfaced which have had an impact on physical education. For example, these recent innovations include the establishment of governmental agencies to promote physical fitness for all ages, curriculum changes which include new outdoor activities, personalized instruction by teachers who consider each student as an individual with feelings and concerns and equality of opportunities for both men and women.

It can be assumed that many of the women in the current study were not influenced by these innovations. Many of the respondents probably graduated from school prior to the implementation of these new activities and the instructional emphases resulting from the innovations. On the other hand, part of the respondents who attended school in the 1960s and 1970s may have experienced the new physical education. Unfortunately, some of the students from this era may have had physical education teachers who did not subscribe to the new ideas and methodologies and did not practice them.

In 1961, President Eisenhower created the President's Council on Youth Fitness which provided impetus for focusing public and professional attention on the need for physical fitness. The public was alerted to the need for sound physical education programs. Several years later the name was changed to the President's Council on Physical Fitness and Sports. The Council took the position that physical education should not end when a person completes school but should continue throughout life. It is the responsibility of physical educators to guide students through an effective program during the school years and thus to motivate them to continue their physical education throughout life (Daughtrey, 1973). Therefore, it became important to develop physical education programs that emphasize not only physical fitness but sports skills as well.

Also during this time the Lifetime Sports Foundation was organized to promote physical fitness through increased interest and participation in life-time sports. Professional development programs were organized and the Foundation offered its services to help teachers improve their teaching skills in leisure sports. Thus there was an interest in physical fitness for all citizens rather than the previously limited emphasis on youth fitness.

Outdoor education appears to be another significant development in the American public schools in recent years (Hammerman and Hammerman, 1968). Outdoor education programs are designed to help students identify their recreation and leisure interests, to help them understand their ability to function in the out-of-doors and to prepare them to function in a natural environment. The Outdoor Resources Review Commission studied outdoor recreation in America and found that recreation pursuits in the out-of-doors have increased in a dramatic fashion (Mand, 1976). However, other researchers report that participation in sports and outdoor recreation activities still represents a relatively minor expenditure of our total free time. Outdoor recreation activity consumes less than one percent of our free time while active sports consumes three percent of the free time for employed males, two percent for employed women and one percent for housewives (Robinson and Godkey, 1978). Instead of a continued emphasis on team sports, physical

education classes should devote time to instruction and participation in skills indigenous to outdoor activities. Among these activities are fishing, canoeing, archery, hiking and camping.

Although many activities associated with outdoor education are individual in nature, a recent innovation utilizes group activities or games. The philosophy behind the "New Games" concept* is one of competing because competition is fun, not because the participants are primarily concerned with winning. Enjoyment and group participation are the major objectives of these activities; they give people an opportunity to release tension instead of building more as a result of their striving to win.

The preceding paragraphs have referred mainly to the selection of course content to prepare people to pursue physical activity during their leisure time for the purposes of attaining and maintaining desired levels of physical fitness and for the enjoyment derived through participation. Another area which has received considerable attention recently is humanistic or affective education. The underlying purpose of humanistic education is the personal integration of each student. The student is committed to growth and development, has a sense of identity, is open and sensitive to the needs of others and has a

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*New Games Foundation, 1978.

unity of consciousness (Miller, 1976). "Humanistic instruction is premised upon an explicit system of teacher belief and personal commitment which holds the basic nature of the individual to be good and the capacity of the individuals for significant change and growth to be great" (Locke, 1976, p. 34). Perhaps the most distinguishing feature of this approach, as compared to the "traditional" approach, is the emphasis on student involvement in the selection of content and methods. Stress is placed on participation and immediate personal experience, rather than on passive learning experiences.

The acquisition of individual leisure skills and knowledges must begin early so that physical activity can be incorporated into one's lifestyle. Physical educators must consider the transfer of ideals, attitudes, knowledges and principles when developing and teaching a lesson. According to Seagoe (1961), Drowatzky (1975) and Singer (1972), transfer of learning is more likely to occur when the original learning is complete and accurate, when the materials are meaningful and structured and when a favorable attitude exists toward learning both the original and transferred materials. Transfer of learning is the result of conscious effort, of conscious generalization and application while learning. The transfer of learning is necessary if future generations are to be knowledgeable and practicing fitness enthusiasts.

The advent of Title IX of the Education Amendment Act of 1972 has had great impact on physical education and athletic programs during the latter part of the 1970s. In July 1978, the public schools were mandated by law to provide equal opportunities for boys and girls to participate in school sports programs. College and university programs also are covered by this law. This means that policies governing boys and girls sports participation have to apply equally to both sexes. Physical educators have to be aware of techniques for classifying students for instruction or competition in order to insure student safety. Selection of activities has to reflect the needs and interests of both sexes, and the selection of teaching methods must be such that both sexes will benefit.

The investigator has chosen not to discuss Title IX and its implications because it is highly probable that few respondents in the current study have engaged in coeducational physical education classes imposed by the Federal Government. A future study may reveal the impact of this legislation on physical education programs and their subsequent influence on continued sports involvement of the students.

Intramural Sports

Intramural sports are an important extension of the physical education programs which give youngsters an

opportunity to enjoy additional instruction and practice, informal recreation and supervised competition. Programs of intramurals create an environment within which the skills developed in physical education and other classes may be tested, practiced and further extended.

Fundamentally the activities of an intramural program are the logical outgrowth of the instructional program in physical education. The opportunities available through intramurals to engage in recreational physical activity should serve as the basis for the development of leisure-time interests. Intramural activities should offer an opportunity for every student to participate in forms of activity in which they are already interested, to establish new interests and to engage in activities with various groups. Programs should include a variety of recreational activities of both a competitive and a non-competitive nature and should provide for participation in groups organized for social purposes as well as for the primary purpose of athletic activity.

The original emancipation of women in sports participation came during the 1920s. Physical education became a requirement in 30 states, intramural programs were developed and sports organizations flourished, especially those associated with industry. Amateur women athletes participated under the leadership of schools, churches, social institutions, industry and municipal and national

governmental agencies. However, leadership was considered to be of poor quality and the image portrayed by the female athlete was less than desirable. Public attitude was unfavorable toward the "masculinization of women" through sports.

The next decade of sports for women was one which brought more competent leaders, further concern for desirable feminine behavior and the fear of exploiting the sportswoman. Badminton, softball, soccer and skiing were the most popular sports. During this time, the Women's Athletics section of the American Association for Health, Physical Education and Recreation (AAHPER) was reorganized, and state committees were established to promote standards for girls' play (Coffey, 1965).

The most popular secondary school intramural sports programs for girls were known as Girls' Athletic Associations (GAAs). These organizations were sanctioned by the AAHPER, and were responsible for determining standards and establishing guidelines by which the GAAs functioned. Competition was promoted on the premise that it was educationally and recreationally sound; quality leadership was a key factor in the organization of the GAA programs.

In 1930, Larsen (1931) surveyed the state organizations for High School Girls' Athletic Associations for the purpose of identifying types, purposes and plans of organization. Stimulation of interest in girls' athletics,

standardization and promotion of health and the advancement of good sportsmanship were the stated purposes of the GAAs. Several state GAA constitutions prohibited interscholastic athletic activity for girls, while others stated that no efforts should be made to promote interscholastic athletic competition for girls.

Additional information regarding intramural programs for girls was obtained by Wagner (1931) and Leavitt and Duncan (1937). A study of 47 colleges and universities revealed that the purpose of intramural activity was to help women establish habits of physical recreation and to give them opportunities to become acquainted with other women on campus. With the exception of basketball, the most popular sport, team and individual sports were of equal popularity. There was some debate as to whether or not there should be special coaching or teaching provided for intramurals. It was determined that if competition was involved, a physical education faculty member should provide the coaching expertise (Wagner, 1931). Zimmerman (1954) conducted a survey of college women and found that the most popular extra-class activities were basketball, volleyball and softball. Approximately three-fourths of the women reported none or less than one season of participation in any individual or dual sport in their extra-class programs.

The 1940s was the period of the largest growth of intramural programs. Previously the participation had been

within the school, with a periodic outing to a neighboring school to participate in a play day. Sportsdays received impetus during this time. The main difference between the two events was the way in which the teams were formed. Play day teams were composed of girls from various schools, while sportsday teams often represented their particular school. Regardless, the competition was for enjoyment and no championships were awarded.

Recognition for participation in GAA and other similar intramural programs usually was based on a point system. Points were awarded for participation in scheduled activities, additional involvement in sports, place of finish or other similar criteria. After the required number of points was earned, a girl would receive an award to acknowledge her involvement in the program.

Intramural participation in secondary schools peaked in the 1940s and 1950s, and the number of participants at this level has been slowly declining ever since. This decline has been brought about by a lack of facilities, equipment, money and leadership and by student indifference (Mason, 1978). Additional problems may be due to the activity selections available to the students and to the lack of good public relations to establish the importance of an intramural program as part of the educational process.

Some educators (Maas, 1978) have expressed a concern that the downfall of intramural activities for all students

is a result of excessive support for an intercollegiate or interscholastic athletic program for the skilled few. Maas (1978) reports the results of surveys of high school intramural programs in Ohio, Pennsylvania and Iowa. Two-thirds of the responding schools in Iowa and Ohio did not sponsor intramural programs, and the major reasons cited for not sponsoring them were all related to conflicts with interscholastic athletics. Intramural programs were conducted in many of the Pennsylvania schools, but the only activities offered were those which would not conflict with interscholastic sports in season or which could be conducted off of the high school campus.

Contrary to the opinion expressed by Mason (1978) and Maas (1978) that participation in intramurals is on the decline, Baca (1975) showed that in 1975 over one-half of 427 junior high and middle schools surveyed sponsored interscholastic athletics for girls, and 84 percent of them sponsored intramural programs. Basketball and softball were the sports offered most often. Less than 20 percent of the schools offered individual sports. Unfortunately, the percentage of girls participating was not disclosed. This data would be more meaningful than the percentage of schools sponsoring the activities.

One focus of the current investigation is to determine whether or not the women participated in intramurals, the reasons for their participation or non-participation and

whether or not these experiences have influenced current patterns of physical activity.

A study of significance to the present investigation was conducted by Solley (1961) at the University of Florida. Freshmen (N = 859) responded to a questionnaire designed to determine the nature and the extent of the students' participation in high school and elementary school sports and the nature and extent of their play in extra-class sports (intramurals, activity clubs and unsupervised play) during their freshmen year at the University of Florida. The purpose of the study was to determine the relationships between various levels of participation in interschool sports participated in elementary and secondary school physical education, and the types of extra-class play engaged in during the first year of college. The author wanted to investigate: (a) differences in the characteristics of play among freshmen who had engaged in different sports which were sponsored by the Florida High School Activities Association; and (b) differences in the characteristics of play between participants in high school varsity sports and athletes who had earned exceptional honors in these varsity sports. The results showed that: (a) students who had participated in interschool sports in high school engaged in physical activity during their college freshmen year significantly more than did students with no such experience in interschool sports; (b) students with no previous athletic

experience devoted a greater proportion of their play time to unsupervised play; (c) students with interschool sports experience in high school and elementary school devoted a greater proportion of their extra-class play time to intramural sports rather than to unsupervised play or club activities; and (d) previous experience in athletics was not a significant factor in the proportion of the total extra-class play time devoted to club activity.

VanWhy (1953) found a relationship between college students who participated in intramurals in school and those students who participate on a voluntary basis after leaving school. Fun and enjoyment, desire for competition and physical benefits derived from exercise were the primary reasons expressed by the students for continued participation in sports.

Agency-Sponsored Sports Programs

The roles of the various individual agencies which sponsor sports programs are too comprehensive to be included in this review. It is the writer's purpose simply to acquaint the reader with the overall objectives of these agencies and to establish which agencies existed during the times the current respondents were in their youth. Access to these programs has always been dependent largely on the availability of facilities in the various locales and on the individual's ability to pay for the services rendered,

especially in the programs sponsored by commercial agencies.

Recreational facilities, activities and programs are provided by a multitude of agencies, many of which have been created to meet the demands for various types of leisure time opportunities. These agencies are categorized as governmental, voluntary, private or commercial. The home also is considered to be a major recreation center for families.

The agencies usually offer instruction in a variety of activities for people of all ages and abilities. The sports programs often provide competition on a city league basis. The leagues usually are organized according to sex, skill level and age. They provide a chance for the participants to enjoy competition during post-school years and to socialize with like-minded individuals. Another service provided by these agencies is the provision of equipment, facilities and supervision for people to enjoy physical activity on an informal or "drop-in" basis.

The popularity and success of these numerous programs has been the result of meeting public demands and filling the voids caused by the restricted sports programs at the local schools or other agencies. For example, Gates (1932) wrote that adult agencies found it necessary to teach the games best adapted to the needs of older girls because the schools had not given adequate training and skills in a

sufficient variety of activities that carry-over into later life. Play nights and social recreation were used to bring competitive games to more girls. Weekend play days, local camps and amateur league play were the most popular events sponsored by the agencies.

Another early study (Edgren, 1937) stimulated program planners to provide out-of-school recreational activities for junior and senior high school boys and girls based on their interests and needs. These programs were conducted at the YMCA-YWCAs, parks, playgrounds and settlement houses. The girls appeared to be more interested in secondary involvement and passive activity but ranked swimming, tennis and social dance on the list of activities they liked. The girls indicated a definite interest in physical activity but tended to participate in less strenuous activity. The amount of participation experienced was not commensurate with the amount of interest.

Community groups, churches and 4-H clubs were the most frequently named agencies sponsoring out-of-school sports programs for college women. Zimmerman (1954) determined that the major emphasis in these programs was on recreation, and very little time was devoted to instruction. Swimming was the most popular sport enjoyed by these women.

Historically, the 1920s was a period of rapid growth in recreational facilities. More recreational opportunities

were provided for females, and the promotion of play in the home was included in the services of many agency programs. During the depression, there was a rapid expansion in municipal sports programs which served an increasing number of people. Budget restrictions led to volunteer leadership and programs. Adults took a more active part in city recreational programs between 1930 and 1940 than during the previous decades. Sports programs were enlarged to include a greater emphasis on co-recreational activities for youth and a greater variety of activities for everyone.

Athletic programs were curtailed during the 1940s due to the war effort, but activity programs for children were given an increased impetus. The recreation movement was revived in the fifties. The White House Conference on Children and Youth was held to draw attention to the needs and leisure interests of youngsters. The President's Council on Youth Fitness supported the importance of youth fitness, but ironically at the same time many education authorities were eliminating physical education as a school curriculum requirement. This movement resulted in agencies conducting more extensive sports programs which provided opportunities for students to learn and practice sports skills, and to compete in activities no longer offered in the physical education and athletic programs of the local schools (Butler, 1976).

Sports programs and exercise classes are conducted by many agencies. Several commercial agencies have assumed a health-spa role and provide customers with an assortment of machines, equipment and other devices to assist in developing physical fitness. Other commercial agencies have combined a health-spa approach with a sports club program. They provide exercise equipment, sports facilities and programs for their clients. Many of these agencies, such as Vic Tanny International and Sports Illustrated, provide an extensive instructional program to teach people the proper way to establish an individual exercise program as well as to teach them to play games which will enhance their fitness levels. Racquetball and tennis appear to be the most popular sports engaged in at these agencies.* Swimming is also a favorite activity.

Perhaps the agency which has contributed the most to exercise and fitness programs is the YMCA-YWCA. This agency has established fitness programs to incorporate strength, flexibility and endurance which are major components of physical fitness (Stoedefalke, 1977). The instructional and competitive programs also have been extended to include sports for all age groups and skill abilities.

The strength of agency-sponsored sports programs is documented in a recent comprehensive survey of youth sports

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*Information received from a personal conversation with an executive of Vic Tanny International.

programs in Michigan (Universities Study Commission 1976). Most of the competitive sports programs are conducted under the auspices of various local and governmental agencies such as city recreation departments. The most popular sports for both boys and girls are softball, baseball, basketball, swimming and bowling with over 300,000 youths participating in each activity. Results show that girls begin their competitive activities later than boys and are more likely to drop out prior to the end of the season than boys. A decline in participation for both sexes in team sports and several individual and dual sports begins at age 12 or 13 years. Causes for the decline after the peak age of involvement may be related to broader interests in non-sport activities, interest in specializing in a particular sport or lack of programs for older youths.

The investigation also revealed that children from urban areas were more involved in activity than their counterparts residing in rural areas. Sports that require greater financial commitment are most popular in the suburban areas.

Interscholastic Athletics

Interscholastic athletic competition for females has gained popularity with the advent of Title IX. It can be assumed that a majority of the women in the current study did not compete in interscholastic athletics as they are

known today. Their experiences in competition between schools probably came through sportsdays organized under the direction of GAAs in their local schools.

Interscholastic athletic programs give athletically gifted students a chance to compete against students of similar ability from other schools. The students can develop their sports skills to a higher degree in interscholastic athletic programs than in physical education programs because the athletes have an opportunity to practice many hours under coaches with expertise in a particular sport. This concentrated effort to excel in a sport is difficult to master in a physical education class due to the size of the class and the varying abilities of the students within the class.

Educators have been cognizant of the possible detrimental effects of interscholastic athletic competition for women and, over the years, have published guidelines and established standards to protect the health and welfare of female athletes (Montgomery, 1942). Competition itself does not automatically result in undesirable outcomes, but the adoption of sound principles and practices was deemed necessary to help reduce the potential for these possible consequences. The increased interest throughout the United States in developing interscholastic athletic programs for high school girls prompted the Division of Girls and Women's Sports of the AAHPER in 1963 to establish minimal

guidelines for competitive sports programs. The same group established guidelines for competitive programs involving junior high school girls and issued a statement on competition for girls and women (Division of Girls and Women's Sports, 1963, 1965, 1966). These guidelines were operational during the 1960s and into the early 1970s.

Concern for potential undesirable effects of interscholastic and intercollegiate competition for females began as early as the 1930s. The stand taken by physical educators at that time is expressed in a report published in 1930. Noted historian Mabel Lee (1931) conducted a survey to study the pros and cons of intercollegiate athletics for women. Respondents to the survey represented 98 colleges and universities throughout the United States. In reading the report, the investigator momentarily disregarded the date of publication and realized that the arguments and concerns of fifty years ago were really no different than those expressed by professionals today. For example, approval of a program of intercollegiate athletics for women was deemed to be warranted if it actually were conducted as amateur sports should be conducted, but not as men's intercollegiate athletics often have been conducted. Other physical education directors were concerned about the emphasis on a skilled few as opposed to the majority of unskilled who find pleasure in intramural participation. It was their belief that when 90 percent of the

females were in a sports program then intercollegiate athletics could be promoted. Among the benefits of participation listed were the opportunity for the skilled players to maintain high levels of skill and physical fitness, to compete on a higher level than in intramurals and to gain experiences which would train them for situations later in life.

In 1937, a position was taken by the American Physical Education Association on standards in athletics for girls and women. Several guiding principles were issued which still are valid today.

> If during her experience in games and sports, she has had fun, has played with others, has excelled in some particular sport, has had the satisfaction of exercising leadership, she will probably not only continue to play, but actively and enthusiastically support a good athletic program for herself, her family and for her community (American Physical Education Association, 1937, p. 28).

Harris (1968) used a questionnaire and an attitude inventory to determine the attitudes of 300 undergraduate students toward women's athletic competition. The women were favorable in their attitudes toward athletic competition for females, and the women who had played varsity athletics had the most favorable attitudes. Brumback and Cross (1965) found that male athletes have a better attitude than non-athletes toward physical activity. Additional

support of intensive athletic competition for high school girls was given by administrators, teachers and parents in Illinois and Iowa (McGee, 1956). Data revealed a majority of the population was favorable in attitude toward athletic competition for high school girls with parents and coaches being the most favorable and administrators and other school personnel being the least favorable.

Sherriff (1971) determined the reasons for high school girls not competing in athletics to be: lack of participation by friends, pressure of studies, non-participation in physical education, feeling of inadequacy and older students becoming more interested in a greater diversity of activities. These reasons are very similar to those expressed by students who do not pursue recreational activities.

Influence of Parents and Others

The critical period for continued sports participation probably comes during the transition from youth to adult years; therefore, efforts should be made to encourage participation in rewarding forms of physical activity during this period (Stiles, 1967). One would speculate that early participation in sports may influence one's attitude toward future participation, the types of activities one enjoys, and also one's desire to engage in individual or family-oriented activities.

Games have an important place in the socialization of children and teenagers. Games stimulate and accelerate psychomotor and mental growth; contribute to orienting, influencing and modeling toward the adult world; and relate to a great range of real-life human activity (Ciuciu, 1974). Children's socialization through games has as its goal the social, cultural, educational and scientific integration of the child into his society (Ciuciu, 1974).

Recent studies have been conducted to give insight into the role which parents and others, such as peers, coaches and teachers, play in determining the physical activity habits of youngsters. Orlick (1971) and Ruffer (1968) have identified parents as instrumental in their son's participation in organized sports. Boys who were active participants in sports had parents who were similarly involved. It was suggested that parents functioned as role models for the child and that the family reinforced the son's participation in sports activities. Ruffer (1968) surveyed 100 junior and senior high school boys and matched them according to levels of physical activity. The amount of parental encouragement for the boys to participate in vigorous physical activities was determined. The parents of highly active boys either enthusiastically urged their sons to participate or urged them with reservations (e.g., there should be no tackle football, or participation should be limited if it negatively influenced academic grades).

The parents of inactive boys generally had an apathetic attitude toward participation.

Little Athletic Programs in Austrialia for boys and girls aged nine to twelve years were studied by Watson (1975). The results showed that boys identified with fathers and peers while girls identified with mothers and coaches. Contrary to these findings, a study by Greendorfer and Lewko (1978) indicated that fathers, peers and teachers are significant factors in boys' sports involvement; whereas, only fathers and peers influence girls' sports participation. Parents appeared to be more significant socializing agents than siblings for both sexes. The father, however, was the most significant family member influencing sports involvement of both boys and girls. One can speculate that the reasons for the difference between the influence of the mothers and fathers is that of "cultural stigma." It may reflect the indifferent attitude of the adult female toward physical activity in general or her lack of knowledge and skills in sports due to limited opportunities for sports participation during her youth. This idea is supported by Bucher (1974) who found that 60 percent of the women he interviewed had never participated in a team sport.

Pudelkiewicz (1970) indicated that the initial stimulus to become interested in sports is received from involved peers. This stimulus is stronger when received in a home environment that considers sport to be an important

facet of life. Malumphy (1970) also supports the notion that the family is of prime importance in explaining sport participation. Recent evidence suggests that the parental influence on adolescent attitudes and behavior has decreased or not increased as much as the influence of peers, and that adolescents who feel more alienated from their parents are more likely to be non-conformists or delinquents (Duncan, 1978).

Correlates of sport participation among adolescent girls were examined by Snyder and Spreitzer (1976). They reported positive relationships between parental interest, coaches encouragement and sport participation. They concluded that sport socialization began in childhood and continued into adolescence and that encouragement from others was of great importance. Synder and Spreitzer (1973) also found that like-sexed parents had greater influence on respondents' behavior than did opposite-sexed parents.

Greendorfer (1977) questioned 585 female participants in Wisconsin Women's Intercollegiate Athletic Conference and reported that peers are the major influence in the involvement in sports throughout each life cycle. The family serves as a strong socializing agent during childhood but has no significant effect during adolescence and is even less influential during adulthood. The finding that teachers and coaches serve as significant socializing agents during adolescence has relevance to physical education since

social systems other than the school are primarily responsible for attracting women into sport. The school appears to play a role in the sport socialization process after women have been initiated into sport. Thus the school reinforces a process which has been initiated elsewhere.

Factors Affecting Current Participation in Physical Activity

According to Bucher (1974), 49 million adult Americans do not engage in any form of exercise for physical fitness and, of those who do, many participate only moderately in such activities as leisurely walking, riding a bicycle, swimming or doing calisthenics. Generally, these people participate for such short periods of time that they barely increase their heart and breathing rates. Only three out of every 100 Americans participate in organized fitness programs, and only 15 percent own any exercise equipment. In spite of the recent interest in jogging and personal physical fitness, Americans apparently are still a nation of spectators rather than participants.

The U.S. National Office for Health Statistics (1977), however, describes a more positive situation relating to the physical activity habits of non-institutionalized adults living in the civilian population of the United States. A 1975 study revealed that 48.6 percent of the men and women were engaged in some form of physical activity.

Nearly 55 percent of the females aged 20-44 years, 45 percent aged 45-65 years and 38 percent over 65 years were involved in physical activity.

Reasons for Physical Activity

Several investigators have reported factors which influence adult women to become involved in physical activity programs. Women have a desire to exercise in order to lose weight, stay slim, or maintain their figures. Health-related factors, such as exercise being good for the cardiorespiratory system, are secondary reasons for women's interest in physical activity. (Men rate health-related factors as the prime concern for their involvement in physical activity.) Another popular factor which influences activity is the enjoyment a person receives as a result of participation in activity either alone or with friends (Gerland, 1960, Phillips, 1966; Bucher, 1974).

Stiles (1967) reported that the primary motives for initiating a physical activity program were a fear of incapacitation and a desire for buoyant health. The competitive drive was always present as a reason for being active, either as a primary or a contributory factor, and multiple motivating factors were nearly always reported. Stiles believes that people continue sports participation for several reasons: the enjoyment and thrill of playing, feelings of well being, the challenge of a difficult technique and

satisfaction in its mastery, the competitive drive to excel, congenial companionship with like-minded individuals and the maintenance of health and youthful vigor.

Elderly volunteers in a progressive endurance program conducted by Sidney and Shephard (1976) stated that their perceived motivation to exercise was to improve fitness or health. These senior citizens (mean age of 66 years for men and 65 years for women) placed value on physical activity as an esthetic experience and as a means to health and fitness. Other reported reasons for joining exercise classes were a desire to assist research and an anticipation of increased vigor and alertness.

American and Swedish middle-aged males were surveyed in an effort to determine factors which motivated them to begin a physical training program. The results showed that the Swedes needed encouragement to begin. This encouragement was an invitation from the medical personnel at Sahlgrenska Hospital to participate in a supervised physical training program. The Americans, however, became involved in a supervised training program as a result of personal concern about their health, predominantly their cardiovascular health (Foss, 1976, 1978).

Havighurst tends to disagree with the concept that people exercise for health purposes. He has stated that "people do not engage in recreational activities because

they are convinced that such will be good for them" (Havighurst, 1957, p. 160).

Factors other than health which seem to influence participation in sports are social and physical in origin. Baker (1940) found that girls and women have specific habits of activity, and these habits are modified as the girls mature. The sports tend to become less strenuous and more mechanized with the emphasis on the role of the spectator as the girls grow older. Academic environment, menarchial age, chronological age, deviation from menarchial age, length of experience with the activity, and to some extent the degree of skill all were found to be influential factors in determining participation in sports.

Women also have expressed their reasons for not participating in sports or physical activity programs. Moore (1941) and Foss (1960) determined that insufficient time due to the demands of studying was the most common reason for the lack of participation in physical activity among college women. The absence of companions and the presence of outside interests were other important factors. Lack of adequate facilities, insufficient personnel, poor communications, conflict of interests, lack of previous experience and need for skill instruction also influenced participation. Similar findings were reported by Phillips (1966). The extent of participation in sports was limited

for female graduate students due to study interference, and lack of time, interest and companions.

Activity Preferences

In order to design successful programs of physical activity, planners must be able to incorporate activities which support and focus on characteristics described as critical by current or potential program participants. Activities, facilities and leadership are important parts of an "activity package" which merit consideration.

Kratz (1958) conducted a comprehensive study of middle-class married women's participation in sports. According to the evidence presented in the study, women prefer sports that are considered to be feminine, sports they believe men would think most appropriate for them, and sports they think would be most appropriate for their daughters. She concludes that women's sport involvement is related to society's acceptance of sport as an appropriate activity for women.

Cycling, walking and swimming appear to be the most popular choices of physical activities among various age groups. Walking was the form of exercise reported most frequently by the women respondents in the Health Interview Survey conducted by the U.S. National Office for Health Statistics (1977). Walking is especially common among the elderly who are less likely to engage in other forms of exercise. Men, especially young men, were more likely than

women to have several forms of exercise. Jogging and weightlifting were reported more often for men than women while the percentages of respondents bicycling and doing calisthenics were approximately the same (less than 20 percent).

According to Bucher (1974), Americans who have participated in physical education programs in school prefer to walk, cycle, swim or do calisthenics for their present day exercise. He found that respondents who took physical education in school are more likely to engage in non-competitive sports now than those who did not take physical education. Bowling and swimming are the most popular sports for post-school year activity.

Zaichkowsky (1975) studied attitudinal differences in two types of physical education programs: a foundations course which consisted mainly of jogging and a life-time sports curriculum which offered sports such as bowling, badminton, swimming, skating and skiing. The women who jogged viewed the foundations program as strenuous and painful. Women in the life-time sports course seemed to pursue physical activity because of knowledge of subject matter and for the end result of a healthier and more physically fit body. Clearly, the types of physical education programs that one participates in during school years may have an effect on how a person perceives physical activity and subsequently engages in it.

Similar findings were reported in 1933 by Driftmier (1933). High school girls were surveyed to determine their interests in sports and to compare the results with physical traits (stature and motor ability) and I.Q. Marked differences in the interests of these girls in physical education activities were found rather than unanimity of interest shown in regard to any one activity. However, most girls expressed an interest in rhythmic activities.

Female graduate students at Michigan State University preferred badminton, bowling, hiking, ice skating, softball, tennis and swimming for leisure-time activities (Phillips, 1966). These activities were predominant both in childhood and at the time of the survey. Swimming was the most popular family participation sport, while football, basketball and baseball were the most popular family spectator sports. Very little carry-over was found between high school physical education involvement and current sports participation.

Swimming, dancing and boating/canoeing were the favorite warm weather activities, while dancing, bowling and ice skating were the favorite winter sports of Michigan State University females enrolled in a Foundation of Physical Education course (Rohrs, 1962).

Graduates of Stephens College were questioned by Haynes (1931) in an effort to determine whether or not their experiences in physical education at the college level had

prepared them for physical/recreational activities after graduation. Golf, tennis, walking and swimming were the activities enjoyed most after college, but only swimming was a part of the physical education program while they were enrolled.

Many women prefer to workout in a supervised program where individual exercise prescriptions are formulated and the programs are carefully monitored to insure an appropriate rate of progress toward predetermined goals. For example, the senior citizens in the program directed by Sidney and Shephard (1976) expressed a desire for physical facilities and a program of instruction on how to exercise safely, establish regular patterns of physical activity and periodically assess their physical fitness levels.

A careful survey of the literature (Oja, et al., 1974; Mann, et al., 1969; Hanson and Nedde, 1974) shows that most of the supervised physical exercise programs offer warm-up and cool-down calisthenics, walking-jogging-running for conditioning and sports such as volleyball or group games for enjoyment and socialization. The use of sports, per se, for conditioning purposes is almost nonexistent. This probably can be explained by the fact that it is difficult to quantify the amount of work performed during sports participation and by the fact that most sports require a degree of skill which the individuals may or may not possess. Since there may not be adequate time or

personnel to teach the skills or enough practice time to develop proficiency, it is more expedient to include some less skill-oriented activities.

Injuries

One of the major factors contributing to withdrawal from a physical training program is injury, discomfort or stress incurred during training. Several investigators have reported high drop-out rates due to injuries suffered during training. Other investigators have offered suggestions for eliminating many of these injuries thus enhancing the adherence rate of the participants. The reader must recognize that the problems discussed in the following paragraphs involve male participants. However, Franklin (1976) discussed injury potential in an exercise program designed for obese and non-obese women, and many of these injuries are the same as those encountered by men in similar exercise programs. Franklin stressed the use of warm-up and cool-down periods to eliminate wrenched muscles, torn ligaments, sore muscles and other injuries which can occur if the body is thrust into fast action without first limbering up.

Mann and associates (1969) reported that 50 percent of the men who dropped out of their training program had experienced physical impairments caused by the training. New injuries as well as the reoccurrence of "old athletic" injuries were reported. Kilbom, et al. (1969) stated that

48 percent of the participants in their physical training program experienced troublesome complications from training during at least one week of the training period with most problems occurring during the first two or three weeks of training. The most common injuries reported were sore ankles, knees, Achilles tendons and legs.

Pollock, et al. (1977) noticed a decrease in orthopedic problems of the legs and knees when their clients were walking as opposed to jogging. Therefore, these investigators recommended the inclusion of walking during the initial stages of a physical training program. Oja and associates (1974) believe that the key to injury reduction may be the inclusion of activities that are controlled in intensity and movement, such as cycling and bench-stepping.

Fifteen of 20 male volunteers from the University of Indiana faculty (aged 44 to 66 years) remained in a vigorous physical training program of tennis, swimming, handball and other sports for six months with few absences. Most of these absences occurred during the initial sessions. The men complained of sore ankles, knees and Achilles tendons, but all returned to the program (Tzankoff, 1972).

Work, illness and dissatisfaction were the reasons given by the men who dropped out of a program of physical training directed by Kavanagh, et al. (1970). Several members of the exercise group experienced knee and ankle soreness as a result of running, and stiffness and leg aches

were experienced by all of the participants in the exercise group.

Stoedefalke (1974) also recognizes that foot, ankle, knee and back pains are problems encountered by people beginning an exercise program but that they can be minimized if the introduction to the program is gradual. For example, the training regimens designed for adult populations should include walking during the initial stages.

Benefits Derived from Participation in Regular Physical Exercise

Evidence has been presented by numerous researchers and scientists to document the benefits that can be derived from regular physical exercise. Data have been collected on both men and women engaged in various types of physical training programs at different levels of intensity and duration.

Four groups of volunteers with similar activity backgrounds were used to compare the effects of training on $\dot{V}_{02}max$ in girls and young women. The girls (mean age of 12.7 years) and the women (mean age of 19.6 years) were divided into control and experimental groups. The training program consisted of warm-up activities of flexibility and strength exercises and endurance activities of jogging and bench-stepping. They worked out for 30 minutes, three days per week for 14 weeks. Both experimental groups (those

in training) showed significant improvement in $\dot{V}_{O2}$max after training. The investigators concluded that, within the age range of 12 to 21 years, the effect of training is independent of age (Eisenman and Golding, 1975).

Eight sedentary women (mean age of 28 years) were randomly selected to participate in a long-term exercise program of calisthenics and endurance type activities of which running was the most predominant activity. The purpose of this study was to evaluate changes in physical work capacity and other selected variables to determine the training effect of an eight-month exercise program on the health of sedentary women. The results of this investigation showed that regular participation in planned physical conditioning produced significant physiological and psychological alterations in women. The results suggested that women can receive the same benefits from training as men (Hanson and Nedde, 1974).

Adams and deVries (1973) designed a study to evaluate the trainability of older women by examining selected physiological variables. The experimental group consisted of 17 healthy women (mean age of 65.9 years). They volunteered for the study and were not randomly assigned to groups. The supervised program consisted of calisthenics, walking-jogging and static stretching. A control group of six subjects was asked to continue their normal activity, and neither group was to alter their diets. Older women were

found to be "trainable," and their capacity for training does not differ greatly from that of younger people if relative changes are considered. A comparison of the results of this study with those from previous studies on older men showed that both sexes can improve significantly in physical work capacity.

A statement by C. Carson Conrad, Executive Director of the President's Council on Physical Fitness and Sports, is testimony to the physical fitness of older persons (National Association for Human Development, 1975).

> Regular exercise can significantly delay the aging process by inhibiting the losses of vital capacity, muscular strength, and joint flexibility, which are characteristic of middle and later years. It is a fundamental law of physiology that functional efficiency of an organ or system improves with use and regresses with disuse. Regular exercise may deter the onset of degenerative diseases, which are among today's major killers, and it may improve the ability to survive and recover from heart attack by promoting the development of collateral circulation in the heart muscle. A state of physical fitness enhances the quality of life for the elderly by increasing their independence. The ability to go places and do things without being dependent on others provides a strong psychological lift that is conducive to good mental health (National Association for Human Development, 1975, p. 101).

The expression "feel better" often is used to indicate the benefits one derives from being physically active. Morgan, et al. (1970) comment that psychometric tools do

not exist for an objective assessment of the expression "feeling better." This being the case, it may be adequate to simply accept the expression as a positive outcome of participation in physical activity.

Several investigators have worked to identify the psychological, as well as the physiological, effects of long-term training. Among these are Hansen and Nedde (1974) who reported improvements of self-concept in previously sedentary females who had volunteered to participate in a long-term program of calisthenics and endurance-type activities; Kilbom (1971) who reported less perception of fatigue as a result of physical training by women; and Massie and Shephard (1971) who reported favorable alterations of mood, personality and attitude as a result of long-term physical conditioning programs. Holmes (1971) investigated changes in the chronic health complaints of middle-aged men participating or not participating in long-term physical training programs. He also studied the relationship between health complaints and anthropometric measures, motor fitness and organic efficiency tests and age. Participation in physical training programs by a select group of 51 males improved their health as evidenced by a reduction in health complaints.

The significance of these comments focus on women being able to perceive improvements in muscle tone, self-image or general overall "better feeling" as a result of

physical exercise. Testing for actual improvement is not feasible for a majority of women, and, therefore, they can only think about the progress they are making.

Summary

A major responsibility of schools has been (and still is) to prepare students for lifelong living and learning. Since physical education and co-curricular sports programs are an integral component of the total education system, physical educators must assume the responsibility and challenge of providing educational experiences which will enable people to pursue physical activity after completion of their formal education. The key factors supporting continued participation are knowledges and skills related to specific carry-over sports of interest and a desire to continue or initiate physical activity during adult years.

Females have expressed a generally favorable attitude toward physical education over the last five decades. The main factors contributing to this favorable response are enjoyment from participation and the benefits to be obtained from actual performance of exercise. Negative feelings toward physical education appear to reflect programmatic problems such as scheduling, class size and the activities taught, as well as lack of skill and interest on the part of the participants. The likes and dislikes of high school girls toward physical education are well established

and tend to persist throughout their college years. Thus, it is important that physical educators at all educational levels, but especially teachers in secondary schools, promote physical activity programs which are appealing, rewarding and enjoyable. This will enhance the probability that students will develop favorable attitudes toward physical activity so it becomes a meaningful part of their lifestyles.

The stated objectives of physical education programs normally include the development and maintenance of physical fitness, motor skill and recreational competency. This literature review indicates that physical educators have attempted to accomplish these objectives and others by developing and implementing programs which include instruction in a variety of sports and activities appropriate to the needs, interests and abilities of boys and girls at various grade and educational levels. Physical educators also have promulgated the view that teaching the "hows" and "whys" of physical activity is important to the current and future needs of students and should accompany the practical application of basic skills to more advanced games or sports as children mature. The concepts of "carry-over" and transfer of learning must be made apparent to students and must be reinforced by teachers during all physical education experiences.

Physical education curriculum specialists have recommended progressive programs at all educational levels with specific goals, objectives and students in mind. It is reasonable to assume that if these recommended programs were logically developed and implemented as intended, then recipients of planned curricula and instruction should possess the necessary preparation to voluntarily pursue physical activity during their post-school years.

Intramural programs and interscholastic athletics have been an important extension of physical education for many years. Intramural programs provide students with opportunities to engage in sports during after-school hours on an instructional, a recreational or a competitive basis. The main purpose of intramural programs is to give students an opportunity to practice previously learned sport skills and thus experience the concept of "carry-over." Intramurals also provides an opportunity for schools to offer sports which are not feasible to include in regularly scheduled physical education class periods. Interscholastic athletics are conducted to further physical fitness and motor development, to provide high-level competition and to instill a desire for continued sports participation in the athletes.

Intramural programs are deemed just as important to the overall educational system today as they were in the past, but they are not as numerous due to financial and

leadership problems and student apathy. On the other hand, interscholastic athletics for females, which have not been extensive in the past, recently have received impetus as a result of federal legislation mandating equal opportunities for males and females.

Commercial and civic agencies have established recreational sports programs for people of all ages and interests. Major contributions of these agencies have been to provide physical activities for people where the schools and other groups have failed to provide programs and to complement existing programs. Although stated objectives of these co-curricular programs focus on providing additional opportunities for continued participation in sports, little evidence is available to determine if these programs have actually influenced post-school involvement in sports.

Another variable which might affect future habits and attitudes toward physical activity is the influence that parents and others exert on the establishment of childhood play patterns. The role of family members and others on the play habits of children is somewhat inconsistent. Encouragement to be physically active during various developmental stages appears to be provided by different individuals. For example, fathers appear to provide the greatest influence during childhood, while peers are the most influential during adolescence. It also seems evident that active children have parents who engage regularly in physical

activity.

In addition to previous experiences which may influence exercise habits, there are numerous current factors which can have an impact on physical activity patterns. Researchers have stated that the most influential positive elements affecting participation in physical activity are related to health, appearance and enjoyment; whereas, the most common negative factors are lack of time, interest and companionship.

Studies have shown that women prefer to walk-jog, cycle, play tennis, swim and do calisthenics under the auspices of exercise specialists or in unsupervised settings. Injuries or related feelings of stress and discomfort are frequently responsible for temporary curtailment or withdrawal from participation in exercise training. A factor supporting continued participation in physical activity is the presence of actual or perceived improvements in performance measures or characteristics such as "feeling better" or self-image. Knowledge of gains toward achieving predefined goals also is a catalyst for continued participation. Program components such as frequency and duration of individual workout sessions, facilities and time of day for workouts also are important considerations supporting the success of long-term physical activity programs.

There is little information in the professional literature which relates directly to the needs of adult

females in terms of specially designed physical activity programs. Recognition of inhibitory and supportive factors influencing participation in regular physical activity is important. This information can serve as the foundation for the development and implementation of optimal physical activity programs for adult females, i.e., programs that assure continued involvement by large numbers of women.

This literature review indicates that a multitude of factors can motivate or inhibit people to initiate or continue a lifelong physical activity program. It is clear that physical education experiences must be made rewarding and enjoyable so a positive attitude is formed early in life and physical activity becomes a meaningful part of one's future lifestyle. It also is clear that numerous athletic experiences should be provided through physical education, intramural and interscholastic athletic programs. Students then can learn skills and knowledges which provide the foundation for interpreting the concept that being "physically educated" contributes to the quality of life. The possibility also exists that an individual's long-term pursuit of physical activity is influenced by the availability of other co-curricular programs such as those provided by civic and community agencies as well as the influential role played by family members, peers and others. Other important influencing factors can be related to the individuals' aspirations and motivations, to students'

activity preferences, and to the organizational constructs of activity programs.

It is reasonable to assume that many of the supportive and inhibitory factors identified in this review were operating during the lifetime of the women currently living in Michigan. For example, factors related to curriculum, programs, interpersonal influences, individual activity preferences and logistical considerations all appear to be important.

CHAPTER III

PROCEDURES

This survey study was designed to identify the major factors that support or inhibit the initiation and maintenance of physical activity programs of women who reside in Michigan's urban areas. The influences of previous experiences in elementary and secondary school physical education classes and co-curricular sports, childhood play habits and parental encouragement on these present-day physical activity habits were determined. A second purpose was to determine the factors operating currently which have motivated active women to adhere to physical activity regimens.

Sampling Procedures

Sample Size

The subjects who were initially selected for this study were a group of 700 married or unmarried women, 18 years of age and older living in ten Standard Metropolitan Statistical Areas (SMSAs) of Michigan; namely: Ann Arbor, Bay City, Detroit, Flint, Grand Rapids, Jackson, Kalamazoo, Lansing, Muskegon-Muskegon Heights and Saginaw. A SMSA is

a unit that includes one or more counties which are economically and socially linked to a central city having a population of at least 50,000 inhabitants (Sommers, 1977, p. 65).

The names of the subjects were drawn randomly from the most recently published city directories of the respective SMSAs. Females listed as students or retirees in the city directories were excluded due to the potential difficulty which might arise in locating them and because both the students and the retirees might be atypical groups in regard to adult participation in sport and physical education programs.

A sample size of 700 was selected because it would yield an acceptable margin of error at the 95 percent level of confidence and because it represented a number which was feasible in terms of cost, data management and time.

The first consideration in determining a sample size is that of maintaining an acceptable sampling error. Formulas for measuring sampling error are based on the number in the sample, not the number in the universe. The standard error of a percentage was calculated according to Parten (1960, p. 308). This procedure yielded a standard error of $\pm$ 1.8 percent for the current investigation.

According to experts in the Sampling Section of the Institute for Social Research (ISR) at The University of Michigan, an investigator can expect to realize approximately 20 percent nonresponse caused by problems such as address or mailing errors; another 15 to 20 percent nonresponse due to refusals; and thus an approximate 60-65 percent return of the total number. It also was advised that one should accept a 60-65 percent response as an adequate representation of the population. The sample size chosen should be large enough to give reliable measures of the smallest important breakdowns. A reasonable base for computing percentages should contain no less than 30 cases as the size of the base effects the reliability (Parten, 1960, p. 298).

For the current study, the consultants at ISR recommended that major sub-classes be maintained at approximately 175-200 respondents. This would allow the investigator to create further sub-classes and be within the minimum recommended number to enhance the reliability. For example, a sample size of 700 with a 60 percent return would yield 420 respondents. Sub-classes of active and inactive women where 40 percent of the women were active and 60 percent inactive would allow for data analysis of

groups of 168 and 252 respondents, respectively. When these sub-groups are divided into four age levels, there would be 40 women per level, which is above the minimum number of 30 suggested.

Additional support for a sample of 700 subjects was derived by using a table displaying the sample sizes necessary to maintain sampling errors within prescribed limits at three levels of confidence. The sample size needed for an error no more than of 3.5 percent at the 95 percent level of confidence with the percentage of sub-groups at 60-40 was 752. The sample size required to yield no more than a four percent error was 576 respondents. Thus, a sample of 700 was estimated to be sufficient to limit the sampling error at ± 1.8 percent at the 95 percent level of confidence (Parten, 1960, p. 317).

The two major sub-classes for data analysis were based on the extent of the current involvement of the respondents in exercise regimens. For the purpose of this study, it was assumed that a minimum 40 percent of the women in Michigan are involved in regular exercise while 60 percent are physically inactive. No data are available to precisely identify these percentages, but previous surveys suggest the assumed percentages are reasonable. A recent Harris Poll (Brody, 1979) revealed that 59 percent of American men and women who are 18 years of age or older surveyed engage in some form of physical activity. However,

only 15 percent are active enough to achieve physical fitness. Approximately 54 percent of the women interviewed by Bucher (1974) in 1974 said they believed they got enough exercise, but the amount of exercise was not quantified in the study. The U.S. National Office for Health Statistics (1977) disclosed results from a 1975 study which found that 48.6 percent of American adults engage in some form of physical activity. Based on these figures, it was reasonable to assume that approximately 40 percent of the women in Michigan engage in physical exercise.

Identification of Population

Since a representative sample was drawn, an accurate description of the population was deemed necessary to characterize the similarities and differences of the women within the SMSAs. Table 1 displays population statistics of the SMSAs obtained from the 1970 U.S. Bureau of the Census (1973).

These numbers may be slightly in error due to the fact that recently corrected figures were not incorporated into the published charts. For example, the current population of Ann Arbor is reported to be 100,035 as opposed to the 99,797 listed in the table.

A more descriptive and detailed characterization of the women in the 10 SMSAs is shown in Tables 2 and 3 (U.S. Bureau of the Census, 1973). In reviewing the educational levels of the women over 25 years of age within the

TABLE 1

POPULATION STATISTICS, COUNTIES AND CENTRAL CITIES OF TEN SMSAs IN MICHIGAN

SMSA	County	SMSA Population	Central City	Population Central City	Percent Urban
Ann Arbor	Washtenaw	234,103	Ann Arbor	99,797	78.2
Bay City	Bay	117,339	Bay City	49,449	66.8
Detroit	Wayne Oakland Macomb	4,199,931	Detroit	1,514,063	98.2
Flint	Lapeer Genessee	496,658	Flint	193,317	77.3
Grand Rapids	Kent Ottawa	539.225	Grand Rapids	197,649	83.3
Jackson	Jackson	143,274	Jackson	45,484	54.8
Kalamazoo	Kalamazoo	210,550	Kalamazoo	85,555	75.5
Lansing	Clinton Eaton Ingham	387,423	Lansing	131,403	85.7
Muskegon-Muskegon Hts.	Muskegon	157,426	Muskegon	61,935	69.1
Saginaw	Saginaw	219,743	Saginaw	91,841	69.7

TABLE 2

NUMBER AND PERCENTAGE OF MICHIGAN WOMEN OVER 25 YEARS OF AGE IN THREE CATEGORIES OF EDUCATION AND THE MEDIAN NUMBER OF YEARS OF SCHOOL ATTENDANCE FOR EACH SMSA

SMSA		Education										Median Number of Years of School Attendance*
		Elementary Grades					High School		College			
		0	1-4	5-6	7	8	1-3	4	1-3	4	5	
Ann Arbor	N	347	711	1,284	1,288	5,021	8,693	17,073	8,092	5,915	6,325	12.6
	%	0.6	1.3	2.3	2.3	9.2	15.9	31.2	14.8	10.8	11.6	
Bay City	N	305	784	1,093	1,313	5,780	6,543	10,990	2,615	903	598	11.8
	%	0.9	2.5	3.5	4.2	18.7	21.3	35.6	8.5	2.9	1.9	
Detroit	N	17,518	33,797	53,753	40,621	130,986	269,045	436,267	99,019	50,548	30,197	12.1
	%	1.5	2.9	4.6	3.5	11.2	23.2	37.6	8.5	4.4	2.6	
Flint	N	1,181	2,341	3,907	4,224	14,534	31,522	49,929	11,461	4,792	2,339	12.1
	%	0.9	1.9	3.1	3.3	11.5	25.0	39.6	9.1	3.8	1.8	
Grand Rapids	N	1,212	1,703	4,006	4,393	21,318	31,082	53,114	16,408	7,662	3,280	12.2
	%	0.8	1.2	2.7	3.0	14.8	21.6	36.8	11.5	5.3	2.3	
Jackson	N	246	529	1,003	1,229	4,380	9,938	14,579	4,009	1,468	789	12.1
	%	0.6	1.4	2.6	3.3	11.5	26.0	38.2	10.5	3.8	2.1	
Kalamazoo	N	345	594	1,281	1,308	5,876	10,253	19,379	6,734	3,821	2,380	12.3
	%	0.7	1.1	2.5	2.5	11.3	19.7	37.3	12.9	7.4	4.6	
Lansing	N	547	983	1,896	2,176	9,639	16,978	37,294	11,474	6,343	4,252	12.4
	%	0.6	1.1	2.1	2.4	10.5	18.5	40.7	12.5	6.9	4.7	
Muskegon-Muskegon Heights	N	355	854	1,500	1,367	6,270	11,403	14,258	3,664	1,754	762	11.8
	%	0.8	2.0	3.6	3.2	14.9	27.0	33.8	8.7	4.2	1.8	
Saginaw	N	597	1,303	1,889	1,812	8,066	13,132	22,173	4,632	2,280	987	12.1
	%	1.0	2.3	3.3	3.2	14.3	23.1	39.0	8.1	4.0	1.7	

*State average = 12.1 years.

TABLE 3

PERCENTAGE OF WOMEN IN THE LABOR FORCE BY AGE GROUP AND FAMILY INCOME OF THOSE LIVING WITHIN EACH SMSA

SMSA	% of Total Women in Labor Force by Age						% Married Workers with Children		Income		
	20-21	22-24	25-34	35-44	45-64	65+	Under 6 years of Age	Over 6 years of Age	Median	% Less than Poverty	% Over $15,000
Ann Arbor	56.0	65.6	50.3	53.2	51.8	12.8	30.9	31.1	$12,294	5.1	34.8
Bay City	58.9	46.3	35.4	45.8	40.7	7.4	23.1	30.6	10,408	6.6	20.9
Detroit	59.3	54.5	40.6	45.0	44.1	8.2	22.5	27.5	12,117	6.5	33.0
Flint	53.7	49.4	40.3	47.8	41.8	6.7	27.0	31.3	11,172	6.9	26.5
Grand Rapids	62.4	58.1	42.2	50.0	49.0	9.3	26.9	29.7	10,630	6.1	21.9
Jackson	61.2	55.2	39.6	53.0	47.9	8.4	27.2	27.0	10,726	6.6	23.5
Kalamazoo	55.1	57.9	44.0	52.8	50.1	9.5	29.1	28.0	11,037	5.8	25.6
Lansing	55.1	58.0	45.9	53.2	50.8	8.9	29.6	31.0	11,213	6.1	27.0
Muskegon-Muskegon Heights	54.9	53.7	43.1	49.9	47.4	6.5	29.1	27.7	9,757	7.8	17.1
Saginaw	57.7	49.1	37.7	44.9	39.5	8.6	24.1	31.2	10,878	7.7	24.0

designated SMSAs, it is evident that with the exception of two areas, Bay City and Muskegon-Muskegon Heights, the women either equal or surpass the general Michigan population in terms of the median number of school years completed (12.1 years). Ann Arbor, Kalamazoo and Lansing have the greatest percentages of women who have completed 1-5 years of college while Bay City has the lowest percentage. The higher percentages probably can be explained by the fact that the cities of these three SMSAs house three major Michigan universities: The University of Michigan, Western Michigan University and Michigan State University, respectively.

Similarities exist in the labor forces of Ann Arbor, Kalamazoo, Lansing and Muskegon-Muskegon Heights in that 29.1 to 30.9 percent of the married women who are working have children under six years of age. Although not displayed in the table, the percentage of married women in the labor force ranges from a high of 45.8 percent in Ann Arbor to a low of 33.9 percent in Bay City. Economic statistics show that 34.8 percent of the families in Ann Arbor earn over $15,000 per year while only 17.1 percent of the families earn the same amount in Muskegon-Muskegon Heights. The types of positions held by employed persons are described in three categories: manufacturing industry, while collar, or government. A preponderance of employed persons in Ann Arbor (87.1 percent) and Lansing (77.9 percent) are involved

in white collar or government jobs; whereas, nearly 80 percent of the employed persons in the remaining eight SMSAs are in industry or white collar positions. The greatest percentage of industrial workers (45.8 percent) is in Flint.

It is necessary to caution the reader that these figures are based on the 1970 census data and may have lost some of their precision. However, the trends are likely to be unchanged, and these trends are of prime concern for the present investigation. Additional research shows that the counties represented in the SMSAs (excluding Wayne County) showed an average population increase of 5.9 percent between 1970 and 1975. Wayne County showed a 5.0 percent loss, Lapeer County in the Flint SMSA showed the largest gain (18.5 percent) and Kalamazoo County showed the smallest gain (0.8 percent).

Rationale for Sample Selection from SMSAs

The rationale for the selection of SMSAs from which to draw the random sample was based on several factors. According to the U.S. Bureau of the Census (1973) and the Michigan Atlas 1977 (Sommers, 1977), nearly 74 percent of the total population of Michigan lives in urban areas, and 77 percent of this urban population resides within the ten selected SMSAs. Statistics also reveal that 75 percent of Michigan's total population resides in 17 of the 83 counties, 14 of which are represented in the SMSAs: Washtenaw, Bay,

Oakland, Wayne, Genessee, Kent, Ottawa, Jackson, Kalamazoo, Clinton, Eaton, Ingham, Muskegon and Saginaw. These counties are located in the southern portion of lower Michigan, especially in the southeastern portion of the State. Other counties represented in the SMSAs which were not among the 17 are Lapeer and Macomb.

The percentage of the total populations in these counties which are characterized as being urban range from a low of 54.8 percent in Jackson County to a high of 98.2 percent in Wayne County. An eleventh SMSA, Toledo, Ohio-Michigan, was eliminated because the Michigan county (Monroe) located within the SMSA is characterized as being only 35 percent urban, and thus is classified as a rural community.

Sample Selection Procedures

R. L. Polk and Company, Taylor, Michigan, is a nationally recognized publishing firm which specializes in printing city directories for clients throughout the United States. Information for these directories is collected by a door-to-door canvas whenever new directories are desired or previous publications require updating, usually every two years. Each directory consists of a business and professional listing, a numerical telephone directory, a street guide, a list of general abbreviations and abbreviations of given names and a list of all persons 18 years of age and

older residing or working within the canvas area. The latter list contains information such as name, wife's name, address, occupation (including student or retiree), and employer. For example, an actual listing in the 1978 Ann Arbor City Directory reads:

> Foss, Merle L. & Peggy; Assoc Prof U of M h 1733 Covington Drive (Polk, 1978, p. 147).

All city directories published by R. L. Polk and Company are shelved in the library at 431 Howard Street in Detroit, Michigan, while local directories are on file at the public libraries in the respective communities.

The actual random sampling was conducted using the city directories of the central cities and other municipalities within ten SMSAs. The investigator believed a more representative sample could be drawn using this source rather than telephone directories or voter registration lists which automatically eliminate those residents who do not have telephones or prefer to have their telephone numbers unlisted, or those residents who have not registered to vote. A greater proportion of the population is listed in the city directories, resulting in a better chance for individuals to be randomly selected.

The sample size of females drawn from each SMSA was proportional to the total female population represented in each area. Table 4 shows the number and proportion of women

TABLE 4

FEMALE POPULATION OVER 18 YEARS OF AGE AND NUMBER OF WOMEN SELECTED ACCORDING TO SMSA

SMSA	Female Population	Proportion of Females	Number in Sample
Ann Arbor	64,348	4.2	29
Bay City	25,537	1.7	12
Detroit	970,009	63.0	441
Flint	112,558	7.3	51
Grand Rapids	115,713	7.5	54
Jackson	28,888	1.9	13
Kalamazoo	49,981	3.2	22
Lansing	92,581	6.0	42
Muskegon-Muskegon Hts.	33,815	2.2	15
Saginaw	46,287	3.0	21
Total	1,539,717	100.0	700

in each SMSA, as well as the number of subjects randomly selected from each area. The proportions were obtained by dividing the total female population 18 years of age and older in each SMSA by the grand total of 1,539,717.

The actual sampling was conducted by using a table of random numbers to select the page numbers of the city directory from which the sample was drawn. The potential respondent's name also was selected according to the table of random numbers. If only a male name was listed at the selection point, another name was selected. Likewise,

females listed as students and retirees were excluded from the sampling. Thus, the next qualified female was chosen according to a new random number. For a female to qualify as a respondent, she had to be listed as a homemaker or as being employed.

Precautions were taken to exclude students and retirees since it was believed that their inclusion could significantly bias the results. The students have ready access to sports facilities, programs and instruction which could affect the data. Also, at the time the questionnaires were distributed, some of the students may have returned to their homes for summer vacation. This could create a problem in trying to locate them and disproportionately contribute to nonresponses. It is reasonable to assume that not all present students were listed as students, since some may be only part-time students or may have started classes after publication of the directory. To guard against erroneous listings, questionnaires received from students or retirees will be rejected from the sample. The rejected questionnaires, if any, will be given special recognition in the final analysis as having been received but not usable within the limits of the study.

Retirees also may be difficult to locate due to the mobility often associated with retirement. There is also a higher incidence of physical ailments and problems associated with aging and, therefore, a disproportionate number of retirees may be unable to participate in regular physical

activity as defined in this study. Thus, they may tend to bias the overall response in the reverse direction of the students. A future investigation of these groups is warranted.

Since there was no feasible way in this particular study to determine age prior to selection, the disqualification of names followed by the abbreviations "studt" and "retd" played a major role in the elimination of subjects between the ages of 18 and 21 years as well as those approximately 65 years and older.

After each name was selected, a roster was prepared which included all pertinent address information. This roster served as a guide for coding questionnaires, recording distribution data and follow-up procedures and tallying "call-backs" if they were required.

Kisch (1976) discusses the problems which can be encountered if city directories are used in sampling procedures. One foreseeable problem is the omission of dwellings because of new construction since the last directory was published or because part of the city was not within the original canvas area. Other possible problems are that a directory may list the address of a vacant dwelling, fail to list multiple families living within a dwelling, or list a commercial or non-residential address. A final area of concern is the existence of two dwellings at one listing. These difficulties appeared to be more serious if an

investigator is interested in surveying households or sampling blocks rather than drawing a random sample of individuals listed in the directory. The primary concerns in this study were incorrect addresses and the omission of names of city residents. Proper mailing procedures, such as the use of first-class mail and a cross-check of addresses in the local telephone directory where feasible, helped to eliminate potential errors. In case of discrepancy between the city directory and the telephone directory listings, the address in the telephone book was used as it was likely to be more recent and accurate.

Instrumentation

In 1976, a questionnaire was developed by Foss (1976) in collaboration with seven American exercise physiologists and Swedish physicians and researchers. These scientists were experienced in conducting research on the impact of various types of physical training on selected cardiorespiratory measures. They also were experts in survey research techniques as they are used in health-related fields.

The instrument was designed to obtain demographic data from the respondents and their families and to provide information about physical activity preferences, injuries, perceived improvement and other matters which could give insight into factors which motivate people to become physically active, to stay active and to want to continue participating

in physical activity. The target population for which the instrument originally was intended was comprised of previously sedentary middle-aged Swedish and American men who were engaged in supervised physical training programs.

Twenty-two middle-aged American men participating in a physical training program at The University of Michigan in Ann Arbor responded to the initial draft of the questionnaire. Their responses were scrutinized and their comments were evaluated to detect major problems with their interpretations of the questions or with the appropriateness of the general format. A revised draft of the questionnaire was prepared after careful consideration was given to the suggestions made by the Michigan respondents.

The next steps in the development of the instrument were a critique by the Swedish scientists and translation into Swedish. These experts judged the content of the instrument to be valid. Approval was given for the distribution of the questionnaire to the 61 Swedish males included in the survey.

The English version of the questionnaire was mailed to cardiologists and exercise physiologists in California and Pennsylvania for their comments regarding content validity. They approved the instrument as received and proceeded to survey American males in several physical training programs.

A scrutiny of the results of both studies showed that factors influencing compliance and adherence to physical training programs and the desired maintenance programs could be determined. The results were compatible with the current literature on factors motivating males to exercise. A descriptive analysis of the data was conducted because the respondents were an available sample, not a random sample. Further examination of the results of these studies suggested the importance of such factors as previous sports experiences, parental influence and parental physical activity habits or patterns.

A revised version of the questionnaire was used in the current investigation. Its approval by a group of consultants, both Swedish and American, was the major reason for its use in this study. The expansion of questions soliciting more accurate data pertaining to past experiences in physical education and sports, as well as to family background and parental influence on sports participation, added strength to the instrument.

Zimmerman (1954) suggested obtaining a comprehensive description of the learning situations experienced by respondents. For example, the types of instruction, activity preferences and the sponsoring group (school or agency) should be determined.

Sport sociologists have conducted numerous investigations to determine the role parents play in their children's

participation in sports. Greendorfer and Lewko (1978), Snyder and Spreitzer (1973, 1976), and Greendorfer (1977) all support family encouragement and participation in sports by family members as factors determining female sports involvement. Also, explicit parental encouragement concerning sports makes a substantial contribution to sports involvement of adult women. Thus, expansion of questions to elicit information pertaining to this aspect of participation was warranted.

Once the revisions and modifications of the original instrument were made, six specialists in physical education curriculum development were asked to evaluate the use of the questionnaire for identifying critical issues in curriculum and professional preparation. The comments and suggestions of these authorities were incorporated into a final draft and a representative group of 20 women, who were not a part of the actual study, were asked to complete the questionnaire. Analysis of the results identified problem areas, such as misinterpretations and ambiguities, and provided an overall reaction of adult female subjects to the instrument. Since only minor problems were encountered and a favorable response was given, a final draft was prepared for distribution.

The instrument is divided into three sections. Section A solicits information regarding the current physical activity habits of the respondents. Frequency of

participation, activity preference, reasons for participation or nonparticipation, type of program, perceived improvement as a result of exercise and sustained injuries are among the areas surveyed. This section determines the current factors which influence adherence and compliance to a regular exercise program.

Section B relates directly to the previous physical education, athletic, intramural and agency-sponsored sports programs encountered by the respondents during elementary and secondary school. Activity preference, perceived enjoyment and instructional and program emphasis were the main topics of inquiry. Reasons for engaging in or refraining from participation in co-curricular sports were determined. The last part of Section B relates to the childhood play habits of the respondents and to the amount of encouragement given to them by family members and others to be physically active during leisure time in childhood. Similar information was obtained regarding the respondent's concern in regard to her current family's participation in sports.

Demographic data were collected in Section C. Only a limited amount of data was requested since the investigator was aware of the increased potential for nonresponsiveness because of invasion of privacy. Age, marital status, sex and number of children by age group (under 6 years, 6-12, 13-18, and over 18 years), highest educational level

attained and occupation were deemed important factors to describe the respondents.

The questions were ordered according to importance and questions similar in content were placed together. The use of upper- and lower-case letters were used to distinguish the questions from the answer categories. Lower case was used for questions; upper case was used for answer categories. The respondents were asked to circle the number(s) which best represented their answers. The answer categories followed a consistent pattern. When negative and positive responses were listed, the negative responses were displayed first. For example, categories of enjoyment began with definitely not enjoyable and ended with very enjoyable. The respondents were given the option of replying "I can't recall" to questions which necessitated their recalling past experiences.

The response categories and numbers representing them were arranged in a vertical line to eliminate inadvertent omission which otherwise might have occurred when a respondent read across the page. However, in several instances the lack of space dictated the use of two columns as opposed to a single one.

Decisions regarding the final preparation and printing of the questionnaire were based on the recommendations of Dillman (1978). A letter of transmittal and a self-addressed stamped envelope accompanied each form. The

questionnaire was professionally printed as a booklet. This was made possible by typing each page of the questionnaire in a 7" by 9½" space on a sheet of regular 8½" by 11" paper. Each page was photographically reduced to 79 percent of the original size. The booklet was reproduced on white 20 pound paper. A Michigan State University logo was placed on the cover page. (The questionnaire is displayed in Appendix A.)

A letter of transmittal was typed on letterhead stationery from the Department of Health, Physical Education and Recreation of Michigan State University. The letter explained the purpose of the study, the importance of the respondents' replies, a promise of confidentiality, the usefulness of the study and assistance was offered if questions arose regarding completion of the form. The investigator wrote each salutation and signed each letter personally (see Appendix B).

The investigator's name and home address were printed on mailing labels which were affixed to 4" by 9" return envelopes. This size envelope fit into a larger mailing envelope and was large enough to contain the questionnaire folded in half for its return. A 15-cent stamp was placed on each return envelope.

The subjects' names and addresses were typed individually on each mailing envelope. These 4¼" by 9½" envelopes were large enough to hold the return envelope, questionnaire and letter of transmittal. Postage for the

initial mailing was 28 cents per letter.

The follow-up post card was printed professionally. It served as a friendly reminder for those who had not replied and also as a thank you for those who had already responded. Again, each address was typed on the card, and the card was signed by the investigator (see Appendix C).

The second follow-up letter was written to all of the women who had not responded after a two-week interval. This letter emphasized the subject's importance to the study and again solicited her cooperation. The original procedure regarding envelope preparation and mailing was used. Each follow-up letter was accompanied by a duplicate questionnaire (see Appendix D).

Data Collection Procedures

All questionnaires were mailed on April 29, 1979, by first-class mail. This insured delivery and added prestige to the project. It also insured the return of undeliverable mail which was an important factor in determining the character of the non-responses. Bulk mail would have tended to give a negative appearance and might have lessened the importance of the project in the eyes of the respondents. It was necessary to code each instrument so follow-ups or "call-backs" could be conducted and so a certain degree of anonymity could be assured for the respondent. The code number included a SMSA number as well as a subject number.

For example, the code number 3-301 was interpreted by the investigator as respondent number 301 in the Detroit SMSA. The SMSA number was necessary to determine whether or not a particular group of subjects were remiss in returning their questionnaires. The subjects' numbers were used only to enable the investigator to conduct the appropriate follow-up procedures.

A roster of females selected for this study was made and the return of each instrument was indicated on the roster. The data were transferred from the questionnaires to Michigan State University Data Sheets (NCS Trans-Optic E. F 5709-54321) and were recorded on tapes by personnel at the Michigan State University Test Scoring Service. The data then were taken from the tapes and entered on computer cards by employees of Michigan State University Data Processing Center. The data deck was interpreted and listed. The listing served as a guide for checking the accuracy of the data cards against the code sheets. If discrepancies occurred, the code sheets were corrected and new data cards were made.

A computerized data analysis using the Statistical Package for Social Studies (SPSS) program at Michigan State University was selected. The sub-programs used were CONDESCRIPTIVE, CROSSTABS, BREAKDOWN and FREQUENCIES.

All survey studies appear to have the inherent problem of achieving a high percentage of return which is

considered to be representative of the population. Consultants at the ISR believe a 20 percent non-response can be reasonably ignored. Isaac and Michael (1977) support this belief. Additional non-respondents necessitate special consideration.

According to Kish (1976, p. 532), "non-response refers to many sources of failure to obtain observations (responses, measurements) on some elements selected and designated for the sample." Accurate accounts of the non-response rate are necessary for understanding the sources of non-response, for controlling and reducing non-response and for estimating the possible effect of non-response on the survey.

There are four types of non-response discussed by Cochran (1974). Procedures for handling these are outlined by Cochran (1974) and Kish (1976). "Non-coverage" can arise from the use of incomplete lists. This can be a problem in large samples. However, city directories are believed to be approximately 95 percent accurate in listing residents and dwellings and therefore should have provided adequate coverage for this study.

A second category of non-response, "unobtainables," refers to the unanswered forms returned due to address error, no forwarding address or similar mailing problems and knowledge of a potential respondent's death. The use of first-class mail, which insures either forwarding to a new address or returning to sender, helped reduce the problem

of "unobtainables." The elimination of students and retirees, as listed in the city directories, helped to reduce the number of "unobtainables" as well as "not-at-homes" which refers to unanswered forms due to the inability of the investigator to contact the subject during call-back procedures or the subjects choosing not to reply for reasons unknown to the investigator. Another safeguard against this type of non-response was a carefully written, pre-tested, revised questionnaire which had an appealing format. A fourth type of non-response is one about which little can be done. Each survey will have a group referred to as the "hard core refusers" who will choose not to be a part of the investigation. They will be a source of bias with which the researcher cannot contend.

A specific number of follow-ups or "call-backs" is recommended before a potential respondent is labeled as a non-responder. Three follow-ups were used in this study and an accurate record of the returns elicited at each follow-up was kept. One week after the initial mailing (May 8, 1979), a post card was sent to each woman. The message thanked her for already responding if she had done so or asked for her cooperation if she had not yet responded. A second notice was mailed after a two-week interval (May 21, 1979) without response. This notice contained another questionnaire and a letter of transmittal. A third follow-up was based on telephone interviews of a random sub-sample of women who had

not responded by June 8, 1979. This later procedure is suggested by Hansen and Hurwitz (1964) and is supported by Kish (1976). Three or four mailings often will raise the response level to over 80 percent, and interview follow-ups on a sub-sample of subjects will further raise the response level. Low response to one mailing should not be accepted because the low levels may reflect severe selection bias.

The telephone interviews were conducted with one-third of the non-respondents drawn at random. The main purpose of the calls was to determine the reasons for their not replying, and to encourage them to complete the form and return it. Consultants at the ISR recommended a call to one-third of the non-respondents because this represented a number which was feasible in terms of time and money. It also was predicted to yield sufficient information regarding the non-respondents. The names of the non-respondents were categorized by SMSAs, the SMSAs were ordered alphabetically and then re-ordered geographically according to zip code number. A systematic procedure of drawing every third card was completed. The telephone calls were made between 7:00 and 9:00 p.m. during a two-week period (June 11-25, 1979). This time was chosen because the most desirable hours to conduct household surveys are in the early evening (Dillman, 1978). The investigator let the telephone ring eight times before determining

that the subject was not available. Three calls was the maximum number made to any one potential subject in an effort to contact her.

A similar conversation was held with each lady. The conversation included an introduction, a reminder that a questionnaire had been mailed to her, recognition that hers had not been received and a question regarding her intent to reply. A natural conversation followed, and usually the investigator was able to ascertain the reasons for the non-response as well as some demographic data. The non-respondents were not pressed to answer the questions.

Table 5 displays the initial mailing and follow-up procedures according to SMSA.

As previously mentioned, careful records were kept of the non-respondents. Substitutions were not made for the category of "unobtainables." The rationale for this decision was based on the fact that substitution does not help; it is only equivalent to building up the size of the initial sample, leaving the bias of non-response undiminished (Kish, 1976).

The final response rate equalled the number of returned forms divided by 700 and multiplied by 100. Response rates also were determined by each SMSA by dividing the number of forms returned by the number sent and multiplying by 100.

TABLE 5

NUMBER OF QUESTIONNAIRES MAILED INITIALLY AND DURING FOLLOW-UP PROCEDURES ACCORDING TO SMSA

SMSA	Initial Mailing	Post Cards Mailed	Second Follow-Up*	Telephone Interview**
Ann Arbor	29	29	5	1
Bay City	12	12	5	1
Detroit	441	441	270	41
Flint	51	51	25	4
Grand Rapids	54	54	23	4
Jackson	13	13	6	0
Kalamazoo	22	22	11	2
Lansing	42	42	28	5
Muskegon-Muskegon Hts.	15	15	9	1
Saginaw	21	21	11	1
Total	700	700	393	60

*Number depended on the number of questionnaires not returned from each SMSA.

**Number represented one-third of the nonrespondents.

A small non-response is unlikely to produce a large effect on sample statistics, thus a report of the size of the non-response is sufficient. A response of 60-65 percent was pre-determined to be representative of the population with an anticipated 20 percent non-response attributable to "unobtainables" and a 20 percent or less non-response due to a combination of "not-at-homes" and "definite

refusals." The investigator continued the survey until all "call-back" procedures were completed even though a 60 percent return was realized at an earlier time.

Treatment of the Data

The decisions regarding appropriate statistical procedures for data analysis in this study were made on the recommendations of Ms. Nid Kajornsin, consultant in research design and statistics in the Office of Research Consultation, Michigan State University. Discussions of the theoretical aspects of the selected tests of significance have been taken from the text by Marascuilo and McSweeney (1977).

Two basic statistical procedures were used. Descriptive statistics were applied to the demographic data and selected questions. This enabled the investigator to characterize the sample and sub-classes.

The ages of the respondents were reported in three ways. The range in age, the mean and the standard deviation in years were calculated. Since the active respondents also were placed in four age groups (18-25, 26-35, 36-50 and over 50 years of age), the number and percentage of women in each category were calculated and reported.

The marital status of the respondents was reported by the number and percentage of women in each of the categories of single, married, divorced and widowed. The

number of respondents having children in the selected age categories of under six years, between six and 12 years, between 13 and 18 years and over 18 years was tabulated. The number and percentage of women completing highest levels of education (elementary, junior high or middle school, high school, or college) also was reported.

The respondents were asked to mark their present employment status (not employed, part-time, full-time) and identify their current occupations. The list of occupations and the frequency with which they were mentioned is found in Appendices E and F. The number and percentage of women who do not have outside employment as well as the number and percent of women working full- or part-time were determined. The above statistics were calculated for all women and were reported according to SMSA as well as by the classes of active and inactive women.

The second statistical procedure involved the application of non-parametric techniques to determine whether or not significant differences existed between variables. The chi-square test of homogeniety for equal proportions was used to test the hypothesis that the probability distribution of each of the populations is identical or homogeneous (Marascuilo and McSweeney, 1977, p. 135). A .05 level of rejection was used for all tests of significance.

For the purpose of data analysis, the respondents were classified as being physically active or physically

inactive as defined by the American College of Sports Medicine (1978). A physically active woman is one who is engaged in a regular exercise program designed to develop and maintain physical fitness in healthy adults. To be considered physically active, the respondent must engage in continuous rhythmic aerobic activity using large muscle groups at least three days per week for a minimum of 15 minutes per session. An inactive women either engages in a lesser program of physical activity or is sedentary.

The active women also were categorized as participating in either a supervised or an unsupervised program of physical exercise. A supervised physical exercise program is one which is sponsored by a group or an agency such as a community center, a school, or a medical institution and which provides leadership and planned individual or group exercise regimens. An unsupervised program of physical activity is one in which the individual is "on-her-own" without benefit of professional leadership or prescribed training workouts. The active women also were sub-divided into age groups.

No effort was made to determine socio-economic status, religion or race because the women might have interpreted this as an invasion of privacy and refused to answer the questions. Age, marital status, sex and number of children by age group, education and occupation were the only demographic data sought.

Appropriate comparisons were made between different sub-classes to discover whether differences existed between them and to answer the major questions about the reasons for these differences.

The influence of physical education experiences was identified by examining the types of activities or sports pursued, perceived enjoyment and instructional emphasis. The physical education program was described by educational level (elementary, junior high or middle school, high school), by being required or elective, and by being co-educational or segregated by sex at each of the educational levels.

The co-curricular sports programs included competition in interscholastic athletics and/or participation in after-school sports programs (intramurals) sponsored by the school, or participation in agency sponsored sports programs in the community. The types of activities pursued, perceived enjoyment, program emphasis and the reasons for the respondents' participation or non-participation in these co-curricular activities were examined.

Childhood play habits were determined by reviewing the amount of time spent in early play activities. The amount of encouragement to be physically active that was given to the respondent during childhood by family members, friends and teachers also was ascertained. In addition, similar questions were asked regarding the current time spent by the respondents in play with their immediate

families and the types of physical activities pursued.

The classifications made for data analysis were active and inactive women, women in supervised or unsupervised programs and age groups of active women. The findings are reported in graphic, tabular and written forms. The replies to the major questions and sub-questions were analyzed carefully and conclusions were drawn. Suggestions and recommendations were made which will add to the knowledge base of curriculum development and teacher education specialists who are directly involved in adult physical education programs for women.

Variables

Within survey studies, it sometimes is difficult to determine which variables should be classified as independent variables as opposed to dependent variables and the decision often is arbitrary. Babbie (1973) suggests a basic guideline to assist researchers faced with this dilemma. Whenever there is a clear time-order relating two variables, the one whose values are determined earlier in time is the independent variable; the one whose values are determined later in time is the dependent variable. If the time-order of variables is not clear, the designation of independent and dependent variables must be made on a logical basis.

The following variable categories are defined as they were used in the current study. The variables have not been labeled as either dependent or independent variables in this discussion. Appropriate labels were attached for the actual data analyses.

1. Physical activity habits.--Women who engage in regular exercise programs designed to develop and maintain physical fitness at least three times per week for a minimum of 15 minutes per session are referred to as being active; those women who have a lesser frequency of exercise are classified as being inactive.

2. Age.--18-25, 26-35, 36-50 and over 50 years of age.

3. Educational level.--Elementary, junior high or middle school, high school and college.

4. Description of physical education class.--Co-educational refers to boys and girls participating together in classes; segregated by sex refers to those classes composed of only one sex. Required class refers to the students having to take physical education for credit toward promotion or graduation; elective class refers to the students being allowed to determine whether or not they want to enroll in physical education classes.

5. Types of physical activity programs engaged in by active women.--Supervised programs consist of physical activities planned and practiced under the supervision or direction of an exercise leader; unsupervised programs are those in which the individual is "on-her-own" without benefit of professional leadership or a prescribed training workout.

6. Types of activities or sports participated in.--Basic skills or fundamentals; team sports such as basketball, volleyball, or softball; fitness activities such as jogging or calisthenics; swimming; leisure-time sports such as tennis or golf; dance; gymnastics and tumbling.

7. Instructional emphasis during physical education class.--Skill development through skill drills and lead-up activities; talks or lectures on fitness and health-related concepts; time spent playing the game with little or no time spent on skill; fitness activities for the primary purpose of improving the levels of physical fitness; movement exploration.

8. Perceived enjoyment.--Ranges from definitely not enjoyable to very enjoyable.

9. Co-curricular sports programs.--Interscholastic athletics is that phase of the school physical education program which is geared to providing competitive sports

participation for boys and girls who possess high levels of skill; intramurals is that phase of the school physical education program which is geared to the abilities and skills of the majority of students and consists of voluntary participation in games and sports on an organized or informal basis; agency sponsored sports are those which are planned and supervised by groups outside the school, such as community recreation centers, YMCA-YWCA, or the AAU.

10. Program emphasis in intramurals and agency sponsored sports.--Instruction refers to attention given to the learning of new skills and activities; competition refers to the opportunity for youngsters to compete against peers within the same school or league; recreation refers to youngsters enjoying informal activities which involve neither organized competition nor instruction.

11. Perceived improvement as a result of participation in an exercise program.--Ranges from regressed to definite improvement in the areas of self-image, release of muscle tension, muscle tone, posture, efficiency on the job, nervousness, sleep habits, zest for life, sex life, participation in recreation, nutrition and diet and drinking and smoking habits.

12. Levels of discomfort and stress.--Ranges from very stressful to not stressful.

13. Changes in levels of discomfort or stress.--Ranges from greatly increased to greatly decreased.

14. Perceived progress.--Ranges from no progress to faster than expected.

15. Frequency of current participation in physical activity.--Ranges from none to three or more times per week.

16. Importance of the exercise leader.--Ranges from not important to very important.

17. Number of years in the current physical activity program.--Ranges from less than one to more than five years.

18. Reserved time for daily workouts.--Morning, afternoon, evening.

19. Number of hours spent per day in play during childhood.--Ranges from none to more than five hours.

20. Number of times per week during childhood the respondent engaged in physical activity.--Ranges from none to more than five times.

21. Amount of encouragement given by parents and others to the respondent to be physically active during childhood.--Ranges from none to very much.

22. Members of immediate family encouraged by respondent to be physically active.--Ranges from no members to all members.

23. Members of immediate family who are physically active.--Ranges from no members to all members.

24. Number of times per week immediate family is physically active together.--Ranges from none to five or more times.

25. Frequency of considered workouts.--Ranges from one to five or more times per week.

26. Duration of each considered workout.--Ranges from less than one-half hour to more than one hour.

27. Progression rate in terms of individual workout assignments.--Ranges from too easy to too difficult.

28. Reasons for being physically active or inactive.--See questions 2, 8.*

29. Reasons for engaging in or refraining from participation in co-curricular sports.--See questions 33, 36, 38, 29, 41, 42.*

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*See Appendix A for questions and accompanying answer categories on the questionnaire.

30. Reasons for frequently considering the initiation of a physical activity program.--See question 4.*

31. Reasons for participating in a supervised physical activity program.--See question 12.*

32. Factors which influence the initiation of a physical activity program.--See question 9.*

33. Reasons for the importance of the exercise leader.--See question 14.*

34. Facilities used in unsupervised programs.--See question 17.*

35. Sources of information used for developing a physical activity program.--See question 18.*

36. Factors which motivate a woman to complete or stop a workout once it has begun.--See question 25.*

37. Causes of discomfort or stress.--See question 27.*

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*See Appendix A for questions and accompanying answer categories on the questionnaire.

CHAPTER IV

RESULTS AND DISCUSSION

This section of the research report is divided into four parts. The first part explains the initial mailing and follow-up procedures used in the data collection. characterizations of the respondents as a group and as subclasses of active and inactive women also are presented. The tables displaying these demographic data for the respondents are arranged alphabetically according to Standard Metropolitan Statistical Areas. This method of presentation was selected to increase the readibility of the tables and to give the reader insight into the respondents according to urban areas.

Special recognition is given to a group of inactive women who indicated that they have seriously considered initiating a physical activity program. Their desired activities, proposed workout schedules and reasons for wanting to begin exercise programs are discussed.

Part two of this chapter attempts to answer the first research question: What influences do participation in physical education classes and co-curricular sports programs during elementary and secondary school, childhood play

habits and parental encouragement of childhood play have on the current physical activity habits of the respondents? The variables under consideration as influential factors are participation in physical education and co-curricular sports, activities pursued, reasons for participation or non-participation in co-curricular sports, instructional and program emphasis, number of hours per week spent in play during childhood, amount of encouragement to be physically active during childhood which was received from selected individuals and the number of times per week the respondents played with at least one parent during childhood. Chi square tests of homogeniety were employed to determine whether there are differences in the proportions of active and inactive women in relation to these selected variables. Differences between the active women according to the sub-class, supervised versus unsupervised, also were determined in relation to selected variables.

The third part of this chapter relates directly to the second research question: What currently operating factors influence the respondents to comply and adhere to a regimen of regular physical activity? Information was obtained regarding variables such as reasons for engaging in physical activity, sports pursued, length of time in the programs, levels of stress, changes in levels of stress, kinds of injuries sustained, rate of progression, role of exercise leaders, facilities used, sources of

information used to develop exercise protocols, current familial activity patterns and perceived benefits derived from participation in regular exercise. Chi-square tests of homogeniety were employed to determine if there are differences in the proportions active women according to program setting (supervised or unsupervised) in relation to the selected variables. Differences also were determined between the proportions of active women, according to four age categories, in relation to selected variables.

This chapter concludes with a summary of results. Significant differences in the proportions of inactive and active women in relation to selected variables are discussed. Differences between the proportions of active women according to sub-class, supervised versus unsupervised also are included.

Acquisition of the Data

Questionnaires were mailed to 700 randomly selected nonstudent and nonretiree women, over 18 years of age, who live in 10 urban areas of the State of Michigan. Three follow-up procedures were conducted to elicit a high response rate. A special effort was made by the investigator to describe the nonrespondents and to identify the reasons why they did not reply as requested.

Table 6 displays the number of questionnaires mailed to the selected women and returned to the investigator as a

TABLE 6

NUMBER OF QUESTIONNAIRES MAILED AND RETURNED, TELEPHONE INTERVIEWS ATTEMPTED, AND TOTAL RESPONSE ACCORDING TO SMSA

SMSA	Initial Mailing		Post Card		Follow-up Letter		Telephone Call		Total Response	
	M	R	M	R	M	R	A	R	N	%
Ann Arbor	29	10	29	12	5	2	1	0	24	82.8
Bay City	12	3	12	4	5	3	1	0	10	83.3
Detroit	441	74	441	85	270	109	41	4	272	61.7
Flint	51	10	51	15	25	19	4	0	44	86.3
Grant Rapids	54	10	54	17	23	16	4	0	43	79.6
Jackson	13	2	13	4	6	6	0	0	12	92.3
Kalamazoo	22	8	22	2	11	4	2	2	16	72.7
Lansing	42	9	42	4	28	15	5	1	27	64.3
Muskegon-Muskegon Hts.	15	4	15	2	9	8	1	0	14	93.3
Saginaw	21	4	21	4	11	7	1	0	15	71.4
Total N	700	134	700	149	393	187	60	7	477	
%		19.1		21.3		26.7		1.0		68.1
Cumulative %		19.1		40.4		67.1		68.1		

M = Number of questionnaires mailed.
R = Number of usable responses.
A = Number of telephone calls attempted.

result of the initial mailing and each follow-up procedure as well as the total response rate of each SMSA. The number of telephone interviews attempted and the questionnaires returned as a result of the telephone calls are shown also.

One week after the initial mailing, 134 usable questionnaires (19.1 percent) had been returned to the investigator. Post cards which thanked the respondents for their cooperation or requested them to return the completed forms were sent to all 700 women at the end of the first week. This procedure elicited the return of an additional 149 completed forms. Forty percent of the questionnaires were completed and returned during the first two weeks of data collection. A second letter, accompanied by another questionnaire, was sent to each of the 393 remaining nonrespondents. Within the next two-week period, 187 women responded to this request. This represented a 67.1 percent return at the end of one month. Telephone interviews with a randomly selected sub-sample of nonrespondents (N = 60) yielded an additional one percent return which brought the total response rate to 68.1 percent. Each SMSA produced a response rate greater than 60 percent which is considered to be representative of the population. The Jackson and Muskegon-Muskegon Heights SMSAs produced 92.3 percent and 93.3 percent returns, respectively, which were the highest response rates. The Lansing and Detroit SMSAs had 64.3 percent and 61.7 percent returns, respectively, which were

the lowest return rates.

Figure 1 displays the number of returns received during the five-week period of data collection. Although not clearly shown in the figure, the second mailing of the questionnaires brought nearly 130 returns over a three-day period. The largest influx of mail was 62 returns in one day, five days after the second follow-up procedure was completed.

Tables 7 and 8 show the nonresponse rates which relate to both the written and telephone interview follow-up procedures. The "unobtainable" category of nonrespondents accounts for 6.1 percent of the total sample size; "not-at-homes," 20.3 percent; and "definite refusals," 5.4 percent. This represents an overall nonresponse rate of 31.9 percent.

Telephone interviews with 60 nonrespondents were attempted and 43 contacts were made. Twenty-three of the women refused to reply, 21 were not at home, and nine were categorized as "unobtainables." The telephone calls yielded the return of seven completed questionnaires.

Since accurate records were kept throughout the data collection procedures, a more complete description of each of the nonresponse categories is possible. For example, the "unobtainable" category consists of 18 women who had moved and left no forwarding addresses, eight women who had died, 13 women with address errors, and four women with disconnected telephones.

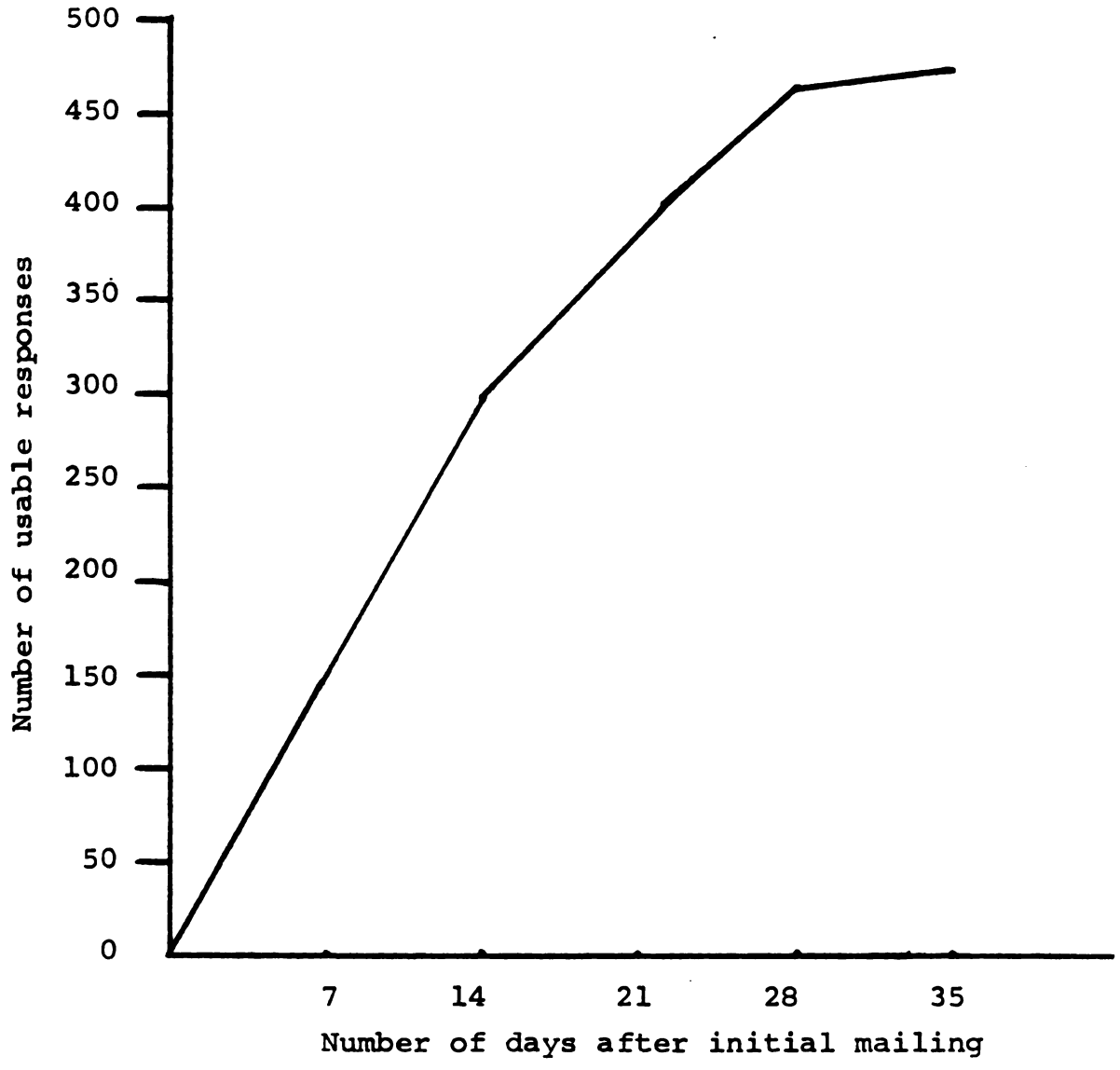


Fig. 1.--Number of Usable Responses Received During the Five-Week Data Collection Period

TABLE 7

SUMMARY OF NONRESPONDENTS BY CATEGORY AND TOTAL NONRESPONSE ACCORDING TO SMSA

SMSA	Nonresponse Category			Nonresponse	
	Unobtainables	Not-at-Homes	Definite Refusals	N	%
Ann Arbor	1	2	2	5	17.2
Bay City	0	2	0	2	16.7
Detroit	33	105	31	169	38.3
Flint	2	2	3	7	13.7
Grand Rapids	3	7	1	11	20.4
Jackson	1	0	0	1	7.7
Kalamazoo	1	5	0	6	27.3
Lansing	1	13	1	15	37.7
Muskegon-Muskegon Hts.	0	1	0	1	6.7
Saginaw	1	5	0	6	28.6
Total N	43	142	38	223	
%	6.1	20.3	5.4		31.9

The "not-at-homes" comprised the largest number (N = 142) of nonrespondents. These were women who did not complete the questionnaires for reasons unknown to the investigator. It is possible that the forms were never received, that the respondents were on extended vacations or were ill, or that they chose not to reply and did not indicate their wishes either in writing or verbally to the investigator.

TABLE 8

SUMMARY OF RESULTS OF TELEPHONE INTERVIEWS WITH A SUB-SAMPLE OF NONRESPONDENTS (N = 60)

SMSA	Telephone Calls Attempted	Telephone Calls Completed*	Unobtain-ables	Not-at-Homes	Definite Refusals	Responses
Ann Arbor	1	1	0	0	1	0
Bay City	1	0	0	1	0	0
Detroit	41	33	8	12	17	4
Flint	4	4	1	0	3	0
Grand Rapids	4	0	0	4	0	0
Jackson	0	0	0	0	0	0
Kalamazoo	2	2	0	0	0	2
Lansing	5	2	0	3	1	1
Muskegon-Muskegon Hts.	1	0	0	1	0	0
Saginaw	1	1	0	0	1	0
Total	60	43	9	21	23	7

*Does not necessarily indicate that the investigator talked to the desired respondent.

Many of the "definite refusals" did not appear to be extremely opposed to completing the questionnaire, although they did not agree to do so. Several women telephoned the investigator to explain their reasons for not responding and to apologize for their lack of cooperation. Nearly one-half of the 43 women interviewed by telephone stated reasons for their nonresponse while other women wrote letters or notes on the incompleted forms to explain their actions. Twelve women were not interested in the survey, eight were ill, eleven were too busy and two had been educated in Europe and did not think their replies would be helpful. Laziness, old age and the inability to speak English were listed by one woman each as the prime reason for not responding. Only two women expressed obvious opposition to the study. One woman had an aversion to all questionnaires, and the other woman did not approve of the study of physical activity habits.

The reasons for the nonresponses corresponded to those reported by Dillman (1978); i.e., too busy, poor health, not interested, too old, feelings of inadequacy on the subject matter and objections to surveys in general.

It was possible to characterize some of the nonrespondents as a result of the telephone interviews with 43 of the women. Several were over 80 years of age, were either married or widowed, were physically inactive according to the criteria for this study, were not employed

and suffered from poor health such as heart problems or arthritis.

No questionnaires were received from students or retirees. Therefore the investigator recorded the responses of all 477 women who returned the instruments. Fortunately, the women answered the questions according to the directions, although some women did not answer all of the questions asked of them. For example, 43 women did not reveal their ages. A report of the missing data is made where appropriate. The statistical computations were based on the number of women replying to the questions, not the total number of respondents.

Respondents

The respondents (N = 477) represented women living in 10 metropolitan areas of the State of Michigan. Table 9 gives the demographic data for the women according to each SMSA as well as the total number and percentage of women in each demographic category. Over one-half (55.6 percent) of the women were currently married while 23.7 percent were divorcees. The remainder of the women were either single (9.3 percent) or widowed (11.4 percent). Four of the respondents did not reveal their marital status.

A preponderance (93 percent) of the women had earned a high school diploma (N = 221) or had attended college (N = 214). Several women indicated that they had graduated from nursing or business schools. They were entered in the

TABLE 9

SUMMARY OF DEMOGRAPHIC DATA OF THE RESPONDENTS ACCORDING TO SMSA

SMSA		Marital Status (N = 473)				Number of Children by Sex and Age Group[b]								Education Level Attained (N = 467)				Employment Status (N = 475)		
						Boys				Girls										
		S	M	D	W[a]	1	2	3	4	1	2	3	4	Elementary	Junior High	High School	College	Not Employed	Part-Time	Full-Time
Ann Arbor (N = 24)	N	0	19	2	2	4	2	2	7	5	8	4	4	0	0	8	16	8	10	6
	%	0.0	82.6	8.7	8.7									0.0	0.0	33.3	66.7	33.3	41.7	25.0
Bay City (N = 10)	N	0	6	4	0	2	2	2	5	1	1	3	4	0	0	2	8	2	4	4
	%	0.0	60.0	40.0	0.0									0.0	0.0	20.0	80.0	20.0	40.0	40.0
Detroit (N = 272)	N	37	136	61	36	8	20	47	78	20	21	46	76	5	12	123	125	148	29	95
	%	13.7	50.4	22.6	13.3									1.9	4.5	46.4	47.2	54.4	10.7	34.6
Flint (N = 44)	N	2	28	11	3	5	9	5	14	3	5	7	12	1	3	20	20	16	8	20
	%	4.5	63.6	25.0	6.8									2.3	6.8	45.5	45.5	36.4	18.2	45.5
Grand Rapids (N = 43)	N	1	27	14	2	3	6	14	21	3	6	12	19	1	4	26	12	14	15	14
	%	2.3	61.4	31.8	4.5									2.3	9.3	60.5	27.9	32.4	17.2	32.6

[a] S = Single.
M = Married.
D = Divorced.
W = Widowed.

[b] 1 = Under 6 years of age.
2 = Between 6 and 12 years.
3 = Between 13 and 18 years.
4 = Over 18 years.

TABLE 9 (Continued)

SMSA		Marital Status (N = 473)				Number of Children by Sex and Age Group								Education Level Attained (N = 467)				Employment Status (N = 475)		
						Boys				Girls										
		S	M	D	W	1	2	3	4	1	2	3	4	Elementary	Junior High	High School	College	Not Employed	Part-Time	Full-Time
Jackson (N = 12)	N	0	6	2	2	0	1	3	4	0	0	1	5	0	0	6	4	4	3	3
	%	0.0	60.0	20.0	20.0									0.0	0.0	60.0	40.0	40.0	30.0	30.0
Kalamazoo (N = 16)	N	0	6	8	2	0	1	2	6	1	2	3	8	0	2	6	7	6	4	6
	%	0.0	37.5	50.0	12.5									0.0	13.3	40.0	46.7	37.5	25.0	31.3
Lansing (N = 27)	N	1	18	2	6	5	7	3	9	2	1	2	12	0	2	15	10	10	6	11
	%	3.7	66.7	7.4	22.2									0.0	7.4	55.6	37.0	37.0	22.2	40.7
Muskegon-Muskegon Heights (N = 14)	N	1	8	5	0	1	3	4	3	1	5	6	2	0	1	6	7	7	2	5
	%	7.1	57.1	35.7	0.0									0.0	7.1	42.9	50.0	50.0	14.3	35.7
Saginaw (N = 15)	N	2	9	3	1	2	0	1	6	0	0	1	5	0	1	9	5	5	6	4
	%	13.3	60.0	20.0	6.7									0.0	6.7	60.0	33.3	33.3	40.0	26.7
Total	N	44	263	112	54	30	51	83	153	36	49	85	147	7	25	221	214	220	87	168
	%	9.3	55.6	23.7	11.4									1.5	5.4	47.3	45.8	46.3	18.3	35.4

category "college" as the highest educational level attained. Only 32 women had completed only junior high (N = 25) or elementary schools (N = 7). Ten women did not disclose their highest educational level.

The women were asked to indicate their current employment status and to list their occupations if they were employed. Of the 168 women who stated they are full-time employees, 29 were involved in clerical work, 23 were teachers, 16 were registered nurses, 11 were salespersons and 10 worked in factories. Clerical work and nursing comprised the major employment of the part-time employees (N = 87). A further breakdown of the occupations engaged in by the respondents is found in Appendices E and F. Although not shown in the table, a further breakdown of employment status by SMSA showed that the highest percentage (67.3 percent) of nonworking women lived in Detroit. The Detroit SMSA also had the highest percentage (33 percent) of the total respondents pursuing part-time employment, while the Flint SMSA had the highest percentage (45.5 percent) of women respondents who are full-time employees. The data show a range of 25 to 40.7 percent of the respondents were involved in full-time employment in the other SMSAs.

Since the presence of children is a factor which determines how a woman spends her time, an effort was made to determine the age, sex and number of children. The question was incorrectly answered by many women, thus making it

impossible to determine the number and age of the children each woman had. They indicated if they had children in the age and sex categories rather than indicating the number of children in each category. Instead, it only can be determined whether or not the women, as a group, have children within the designated age categories. For example, of the approximate 425 women who have children, 30 women have boys under six years of age, 51 have boys between the ages of six and twelve years, 83 have boys between the ages of thirteen and eighteen years, and 153 women have boys over eighteen years of age. Similar frequencies are reported for the women having girls. It is interesting to note that there is nearly an equal distribution of boys and girls among the women who are married or have been married. Further calculations show that there is an average of 1.47 children per married, widowed or divorced woman. These calculations rest on the assumption that the single women have not borne children.

The ages of the respondents range from 19 to 69 years with a mean of 45.1 $\pm$ 12.0 years. Forty-three women did not state their ages.

In summary, the typical respondent is married, possesses a high school or college education, has 1.47 children and is 45 years of age. There is no discernable trend in employment status, although a few more women are employed than are not employed.

Active and Inactive Respondents

The women were asked to indicate the frequency of their current involvement in physical activity. The replies to this question were used to assign the women to the categories of Inactives and Actives for data analysis.

Nearly three-fourths (71.3 percent) of the women reported that they engage in physical activity less than three times per week while the remainder of the women (28.7 percent) reported that they exercise three or more times per week. The criteria established for classifying the women into the two categories were based on the recommendations of the American College of Sports Medicine for exercise programs designed to enhance endurance fitness in healthy adults (1978). The women who participated in physical activity two times per week or less were categorized as Inactives; the women who participated three or more times per week were classified as Actives.

Previous surveys designed to determine the physical activity patterns of Americans have shown a higher percentage of active adults than is revealed in the current study. For example, in 1977 the U.S. National Office for Health Statistics (1977) reported that 48.6 percent of Americans were engaged in some form of physical activity. Earlier, Bucher (1974) reported that 54 percent of American women over 18 years of age were involved in some form of physical activity. Similar results were found by Harris

pollsters (Brody, 1979). They reported that 59 percent of Americans over 18 years of age were regularly physically active. It should be noted that these researchers did not establish the criteria upon which to base physical activity as being sufficient to improve endurance fitness as was done by this investigator. If the only interest is in determining whether or not women engage in physical activity, then it can be reported from this study that 40 percent of the respondents engage in physical activity at least once a week.

A descriptive analysis of the inactive and active women is shown in Table 10. The mean age of the Inactives is 46.1 $\pm$ 11.6 years; the Actives are somewhat younger with a mean age of 42.6 $\pm$ 12.9 years. Nearly equal proportions of the inactive and active women are divorced (22.6 percent, 25.9 percent) and widowed (11.6 percent, 11.1 percent) while a significantly greater percentage of the Inactives are married ($P = .0045$). There does not appear to be a difference in the average number of children.

There is a significant difference in the highest educational levels attained by the women ($P < .0001$). A total of 64.0 percent of the Actives attended college as compared to only 38.4 percent of the Inactives.

Employment status was similar between the groups, although the largest difference appeared in the category of full-time employment. Forty percent of the active women

TABLE 10

SUMMARY OF DEMOGRAPHIC DATA OF THE RESPONDENTS ACCORDING TO SUB-CLASS, ACTIVE VS. INACTIVE

Respondents	$\bar{X}$ and SD Age in Years		Marital Status[a]				Number of Children by Sex and Age Group[c]								Education Level Attained[d]				Employment Status		
							Boys				Girls										
			S	M	D	W[b]	1	2	3	4	1	2	3	4	Elementary	Junior High	High School	College	Not Employed	Part-Time	Full-Time
Inactive (N = 341)	46.1 ± 11.6	N	22	200	77	39	21	39	57	116	31	34	61	112	5	19	180	127	160	66	113
		%	6.5	59.3	22.6	11.6									1.5	5.7	54.4	38.4	47.2	19.5	33.3
Active (N = 136)	42.6 ± 12.9	N	22	63	35	15	9	12	26	37	5	15	24	35	2	6	41	87	60	21	55
		%	16.3	46.7	25.9	11.1									1.5	4.4	30.1	64.0	44.1	15.4	40.4
Total	45.2 ± 12.1	N	44	263	112	54	30	51	83	153	36	49	85	147	7	25	221	214	220	87	168
		%	9.3	55.6	23.7	11.4									1.5	5.4	47.3	45.8	46.3	18.3	35.4

[a] $x^2 = 13.06$, df = 3, p = .0045.

[b] S = Single.
M = Married.
D = Divorced.
W = Widowed.

[c] 1 = Under 6 years of age.
2 = Between 6 and 12 years.
3 = Between 13 and 18 years.
4 = Over 18 years.

[d] $x^2 = 26.90$, df = 3, p = .0000.

are employed full-time while only 33.8 percent of the inactive women have full-time occupations.

Respondents Who Considered Initiating Physical Activity Programs

There is a special group of inactive women which merits consideration. These women are important because, even though they are not engaged in regular physical activity, they have seriously considered initiating a program. They include about one-half of the inactive group of women. A personal evaluation of their physical fitness is the primary motive of these women for considering physical activity. Earlier studies (Gerland, 1960; Bucher, 1974; Phillips, 1966) have shown that women want to exercise primarily to improve appearance by losing weight, maintaining figures or staying slim. Stiles (1967) believes a desire for buoyant health is the primary motive for initiating a physical activity program. In recent years there has been an emphasis on the importance of regular physical exercise in attaining and maintaining a desired level of physical fitness. This awareness may have prompted the women to evaluate their own physical fitness levels and to seriously consider exercise.

"Not enough time" is the main factor preventing these women from participating in regular exercise. "Fatigue," "poor health" and "lack of interest" also are

inhibitory factors. These factors correspond closely to those determined by Moore (1941) and Gerland (1966). A tabulation of the questionnaires revealed that more single women and widows than married women reported "no companions" as the reason for their not pursuing regular physical activity.

If exercise specialists are to develop programs for these women based on their expressed interests, jogging, cycling and swimming would be the most popular activities. Bowling, calisthenics and tennis also are listed as sports which the women are considering. The desired frequency of workouts for these women would be three times per week for at least one-half hour per workout. However, over 50 percent of the women who considered initiating a physical activity program did not specify a desired length of workout time. Based on information revealed in the data, about one-half of the currently inactive women would be interested in initiating a physical activity program corresponding to the criteria established by ACSM for promoting endurance fitness in healthy adults if they had sufficient time to participate.

Perhaps these women need individualized programs directed by exercise specialists. Often people find time once they have made a commitment to pursue a particular goal. This was the case with a group of middle-aged Swedish males. They had not pursued physical activity for many

years because they "did not have the time" and/or were afraid to exercise due to health problems. When they received invitations to join an individualized exercise program directed by medical personnel, many found the time and also developed an interest, as indicated by the high attendance rate and the years of participation in the program (Foss, 1976).

Influence of Previous Sports Experienced on the Current Physical Activity Habits of the Respondents

The responses of the 477 women were carefully analyzed to determine whether there is a difference between the proportion of inactive and active women in relation to selected variables associated with previous physical education experiences, co-curricular sports activities, childhood play habits and the encouragement the women received from parents and others to be physically active during childhood.

Physical Education

Information regarding the structure and organization of the classes, the perceived enjoyment of participation, the types of physical activities pursued and the main instructional emphasis of the physical education teachers at each of the three levels of education (elementary, junior high or middle school, high school) were obtained. Table 11 displays the numbers and percentages of

TABLE 11

NUMBER AND PERCENTAGE OF RESPONDENTS WHO PARTICIPATED IN PHYSICAL EDUCATION AT EACH LEVEL OF FORMAL EDUCATION

	Physical Education*				Level of Education					
	Had		Never Had		Elementary**		Junior High***		High School	
Respondents	N	%	N	%	N	%	N	%	N	%
Inactive	292	85.9	49	14.1	195	66.8	237	81.2	266	90.8
Active	128	94.1	8	5.9	108	84.4	116	90.6	122	95.3
Total	420	88.1	57	11.9	303	72.1	353	84.0	388	92.1

*X^2 = 5.58, df = 1, P = .0180.

**X^2 = 12.85, df = 1, P = .0003.

***X^2 = 5.26, df = 1, P = .0219.

the respondents who had physical education instruction across the three educational levels.

A careful scrutiny of the tabulated data shows that only 57 women did not experience any physical education instruction and that 420 women did have exposure to physical education during their formal education. A significant difference ($P = .018$) was found between the proportions of inactive and active women relative to their overall participation in physical education. A total of 94.1 percent of the active women indicated experience in physical education as compared to 85.9 percent of the inactive women.

Significant differences were found also within two educational levels. Nearly three-fourths of the women were taught physical education activities during elementary school, and a significantly greater proportion of active women than inactive women were the recipients of this instruction ($P = .0003$). An increased percentage of the total number of women experienced physical education during junior high or middle school, and again the difference between the proportions of active and inactive women was significant ($P = .0219$). Physical education classes at the senior high level were apparently more common. Over 90 percent of both groups of women indicated they had participated in physical education during this part of their formal education.

The results also showed 83 percent of the women who had participated in physical education indicated that their physical education classes were required during elementary and high school, and over 90 percent of these women stated that their junior high or middle schools imposed a physical education requirement. This meant that it was necessary for the students to take physical education for credit toward promotion or graduation.

Approximately 60 percent of the women who had participated in elementary school physical education classes indicated that these classes were coeducational. Over 80 percent of the women who had participated in physical education during junior high or middle school were in physical education classes segregated by sex. A significantly greater proportion of the active women than the inactive women were taught physical education during high school in a coeducational setting ($P = .0152$). The true impact of coeducational classes at the high school level cannot be readily assessed. The implementation of Title IX will provide more insight into this matter in future investigations. Perhaps the disadvantages of having coeducational classes are not as serious as some physical education teachers believe. A positive influence toward continued activity might result from the new physical education programs.

Physical Education Activities.--Table 12 represents a breakdown of the physical education activities experienced by the inactive and active sub-classes. Several women could not recall whether or not they had taken the types of activities listed, and other women did not answer all parts of the question. If no answer was given, the investigator made no further assumptions regarding participation or non-participation.

Physical education curriculum specialists have advocated an elementary physical education program which consists mainly of basic movement and sports skills, dance and self-testing activities. An introduction to team sports through modified or lead-up games often occurs in the upper elementary grades. This pattern of physical education was evident during the childhood years of the respondents. Approximately 70 percent of the inactive women and 80 percent of the active women were exposed to basic movement and sports skills during elementary school. Roughly 30 to 40 percent of the women participated in dance, gymnastics and fitness activities. Team sports were taught to 22.9 percent of the inactive women and to 17.3 percent of the active women at this time.

There were no significant differences between the proportions of inactive and active women in relation to participation in basic movement and sports skills, team sports, fitness activities, leisure-time sports, dance and

TABLE 12

NUMBER AND PERCENTAGE OF INACTIVE AND ACTIVE WOMEN WHO EXPERIENCED PHYSICAL EDUCATION ACTIVITIES AT EACH EDUCATION LEVEL

Types of Physical Education Activities		Had		Never Had		Can't Recall		Education Level: Elementary		Education Level: Junior High		Education Level: High School	
		N	%	N	%	N	%	N	%	N	%	N	%
Basic Movement and Skills	I	176	69.8	31	12.3	45	17.9	122	69.7	89	50.9	92	52.6
	A	91	79.8	12	10.5	11	9.7	74	81.3	45	49.5	43	47.3
Team Sports[a]	I	253	94.0	8	3.0	8	3.0	58	22.9	183	72.3	205	81.0
	A	110	90.2	11	9.0	1	0.8	19	17.3	82	74.5	93	84.5
Fitness Activities	I	170	66.7	62	24.3	23	9.0	54	32.0	108	62.9	129	76.3
	A	87	72.5	24	20.0	9	7.5	24	27.6	50	58.1	68	78.2
Swimming	I	112	45.9	116	47.5	16	6.6	5	4.4	61	54.0	98	85.8[c]
	A	65	56.5	47	40.9	3	2.6	11	17.2[b]	29	44.6	46	70.8
Leisure-Time Sports[d]	I	68	28.9	152	64.7	15	6.4	4	4.3	22	30.4[e]	59	85.5
	A	58	50.9	50	43.9	6	5.2	1	1.7	8	13.8	56	96.6
Dance[f]	I	148	60.2	79	32.1	19	7.7	53	35.8	70	47.3	96	64.9
	A	95	81.2	21	17.9	1	0.9	40	42.1	38	40.0	54	56.8
Gymnastics or Tumbling	I	120	47.8	107	42.6	24	9.6	39	32.5	66	55.0	88	73.3
	A	64	54.7	49	41.9	4	3.4	19	29.7	42	66.7	45	71.4

[a] $x^2 = 8.14$, df = 2, p = .0171.

[b] $x^2 = 6.62$, df = 1, p = .0101.

[c] $x^2 = 7.24$, df = 1, p = .0268.

[d] $x^2 = 16.15$, df = 2, p = .0003.

[e] $x^2 = 6.01$, df = 1, p = .0490.

[f] $x^2 = 16.51$, df = 2, p = .0003.

I = Inactive
A = Active

gymnastics and tumbling during elementary school physical education. A significant difference (P = .0101) was observed for swimming at the elementary school level. However, it is somewhat meaningless because only five inactive women and 11 active women indicated they had taken swimming at the elementary school level.

A more meaningful, though statistically nonsignificant, observation is that a greater percentage of active women (81.3 percent) than inactive (69.7 percent) participated in basic movement and sports skills at the elementary school level. This finding, in terms of educational importance, suggests that physical education curriculum specialists should carefully consider the merits of continuing to provide a strong foundation of basic sports skills at the elementary school level because of their potential positive influence on later activity habits.

The experiences of the women in junior high or middle school physical education classes were very comprehensive. Team sports were the most frequently reported activities. The data show that an almost equal proportion of active and inactive women participated in the activities listed. The only significant difference (P = .049) was that a greater percentage of the inactive women than the active women participated in leisure-time sports during junior high or middle school. Again the reader is cautioned as only 30 women

(22 inactive and 8 active) reported having participated in leisure-time sports during this time.

Historically, early secondary school physical education programs have been oriented toward team sports such as basketball, volleyball and softball. A more recent (circa 1960) trend is the inclusion of leisure-time sports such as tennis and golf. The data show no significant differences between the proportions of inactive and active women in relation to the activities they participated in during high school physical education with the exception of swimming. A greater proportion of the inactive women than active women ($P = .0268$) had swimming during high school physical education. No explanation is given for this finding except the girls might have rejected physical activity as a result of the personal inconveniences often associated with swimming during school hours.

Team sports were the most common activity during high school physical education, but the data show that approximately three-fourths of the women were exposed to fitness-type activities, leisure-time sports and gymmastics during this time. The inclusion of leisure-time sports in the high school physical education curriculum appears to have educational value. A large percentage (96.6) of the active women were exposed to leisure-time sports in high school physical education classes.

In addition to the previously mentioned differences within educational levels, there were three significant comparisons across educational levels. A greater proportion of the active women had exposure to leisure-time sports and dance; whereas, inactive women had more exposure to team sports (see Table 12, p. 153).

It should be noted that both across and within educational levels, nearly equal proportions of the women were exposed to physical fitness activities. This instruction evidentally was not adequate, or at least it did not definitely influence the women to become physically active. "Children seldom continue with physical fitness programs unless they are aware of the principles of a good fitness program" (Caldwell, 1977, p. 118).

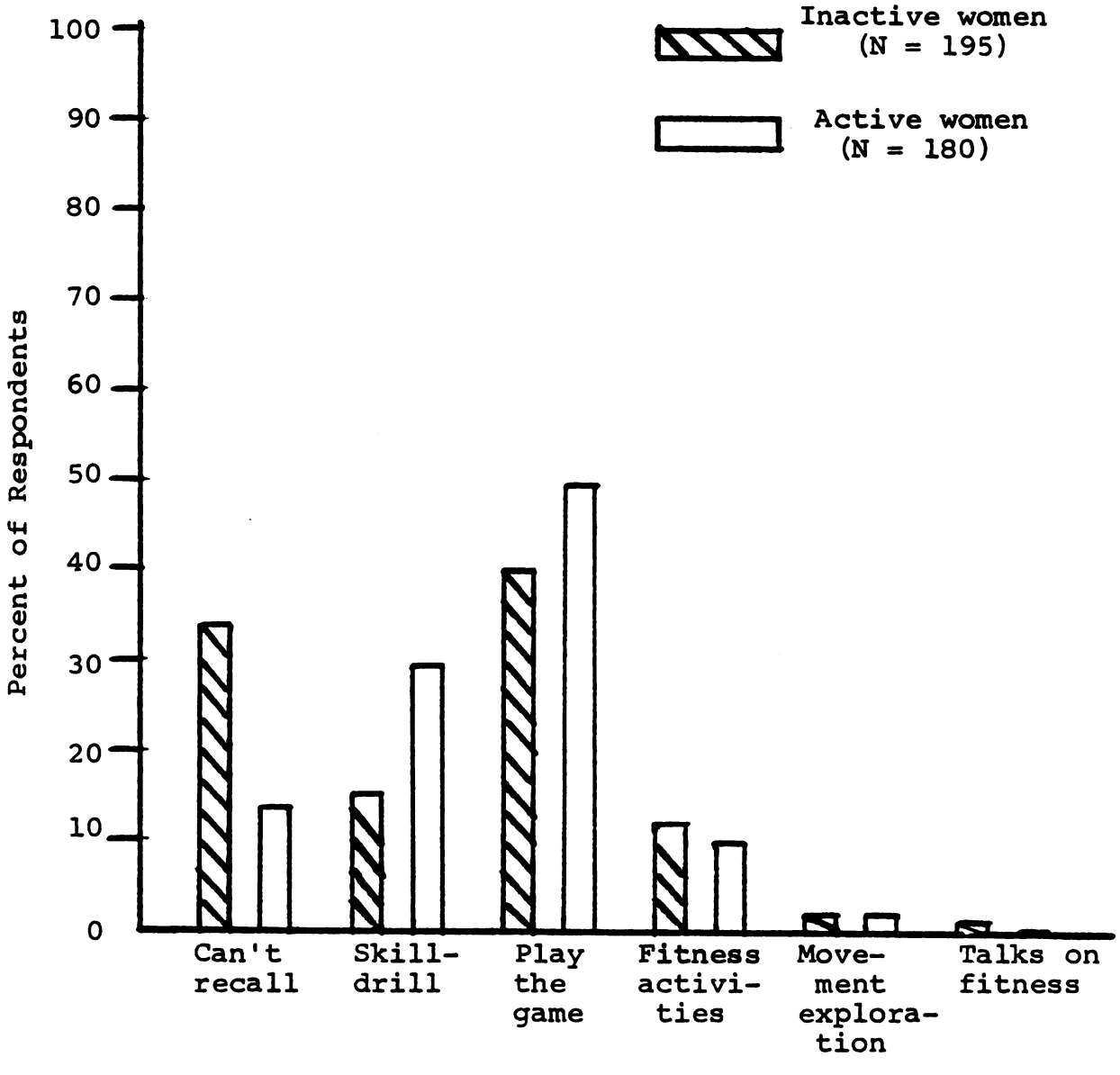
There also appears to be little carry-over from most school sports to the current activity practices of the respondents. Team sports was the most widely taught physical education activity, but has the fewest number of current participants among the respondents. According to Bucher (1974), this finding should not be too surprising. He reported that over 60 percent of the women interviewed in his study had never participated in team sports. One could reasonably assume that lack of skill and knowledge of team sports would account for the relatively low frequency of team sports participation today. However, over 90 percent of the women in the current project reported

they had participated in team sports during school, therefore, one can possibly assume the women have the knowledge and skills, but lack the interest, companions and time to pursue these sports. On the other hand, the instruction may have been poor and the women do not have the skills needed to pursue team sports. Also, since most of the active women workout on their own, team sports would not be a logical choice for activity. Cycling, walking, swimming and calisthenics are the most common choices of physical activity among various age groups of Americans (U.S. National Office for Health Statistics, 1977; Bucher, 1974). These findings are congruent with the present study and with Phillips (1966).

Instructional Emphasis.--The next area investigated was the main instructional emphasis used by the respondents' physical education teachers. The alternative replies were: skill development through skill drills and lead-up activities, talks or lectures on fitness and health-related concepts, time spent playing the game, fitness activities for the primary purpose of improving levels of physical fitness and movement exploration. Significant differences between the proportions of women in the sub-classes could have implications for physical education in the selection of teaching methods for various grade levels.

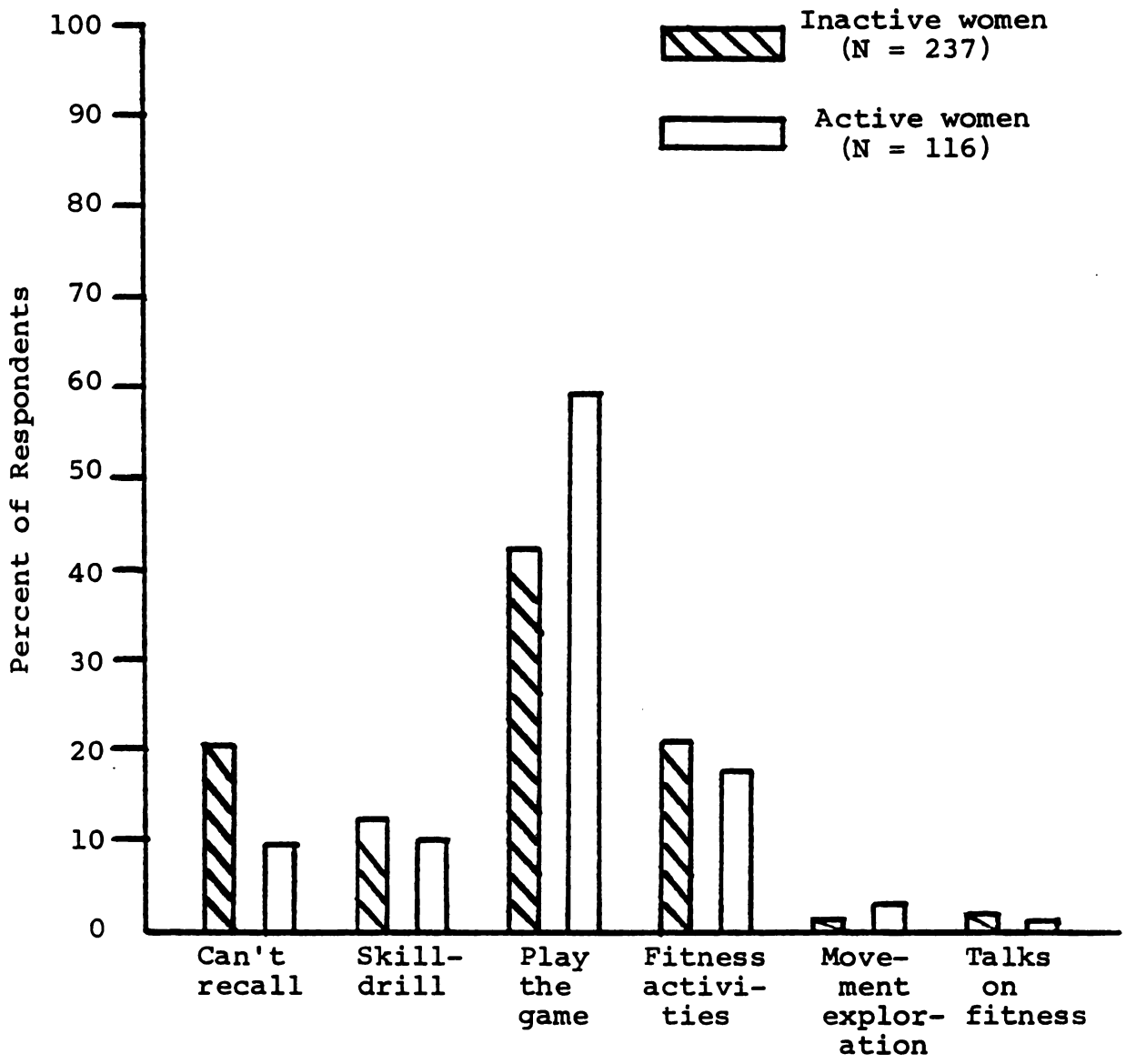
This area of inquiry presented a problem to many respondents as is indicated by the percentage of "I can't recall" responses. Figures 2, 3 and 4 display the percentages of women, by sub-classes, who were exposed to the various instructional emphases at the three educational levels. Figure 2 shows that a significantly higher percentage of the inactive women than the active women were unable to recall the major instructional emphasis during elementary school physical education classes (P = .0015). It also shows that the use of skill drills and games were experienced by a greater proportion of the active women than the inactive women.

The instructional emphasis during junior high or middle school and high school was predominantly "playing the game." Again approximately 20 percent of the inactive women, as opposed to about 10 percent of the active women, could not recall the main approach used by their physical education teachers. A significant difference was observed (P = .0122) at the junior high or middle school level. There are perhaps many factors which are responsible for the respondents' inability to remember; but it is interesting to note that, at all three school levels, it was the group of inactive women who most often replied "I can't recall." Perhaps the "playing the game" type of instruction left a favorable impression on the active women and thus directly influenced their later



$X^2 = 19.62$, df = 5, P = .0015.

Fig. 2.--Main Instructional Emphasis Used by Physical Education Teachers at the Elementary School Level



$X^2 = 14.60$, df = 5, P = .0122.

Fig. 3.--Main Instructional Emphasis Used by Physical Education Teachers at the Junior High School Level

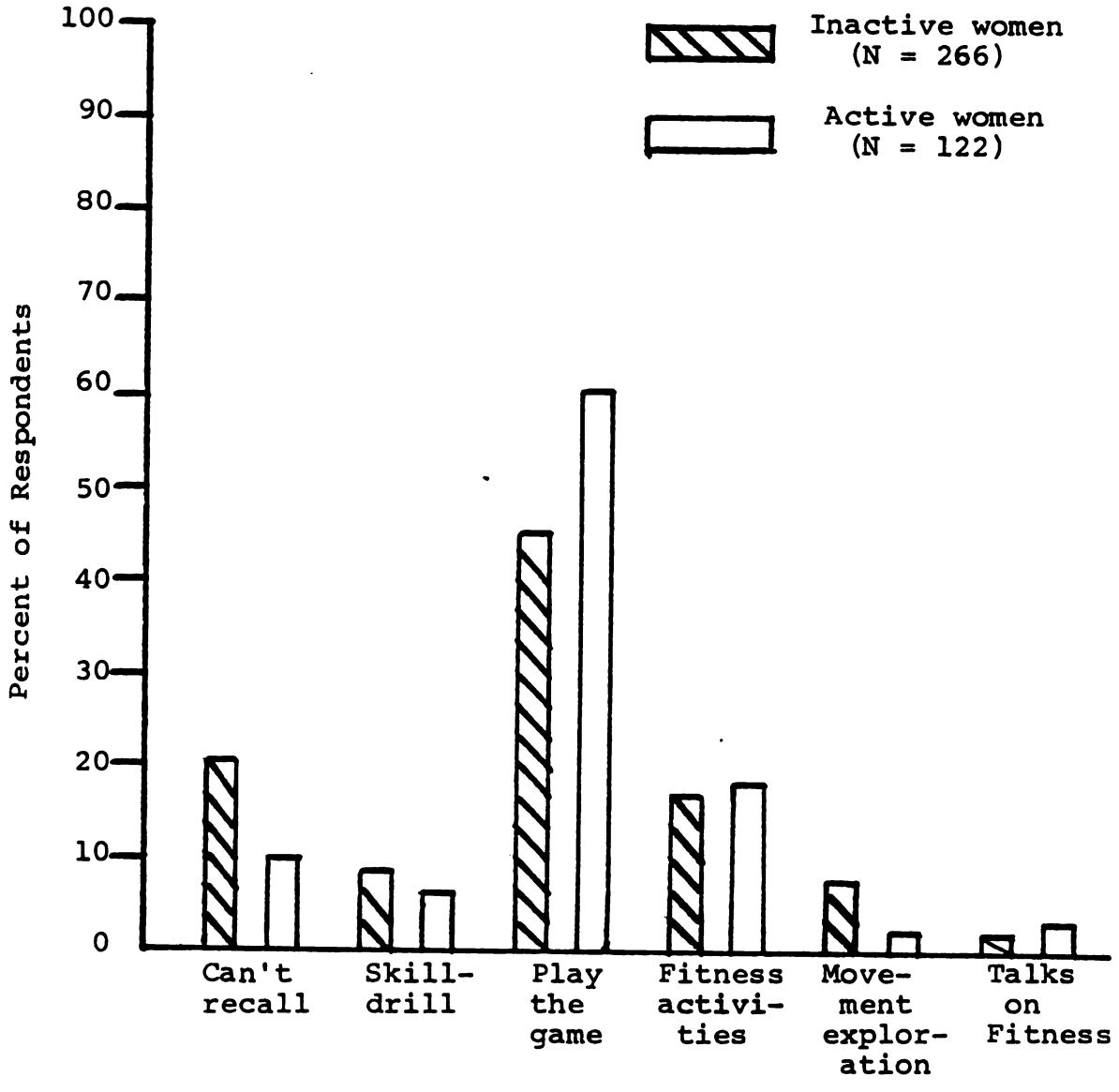
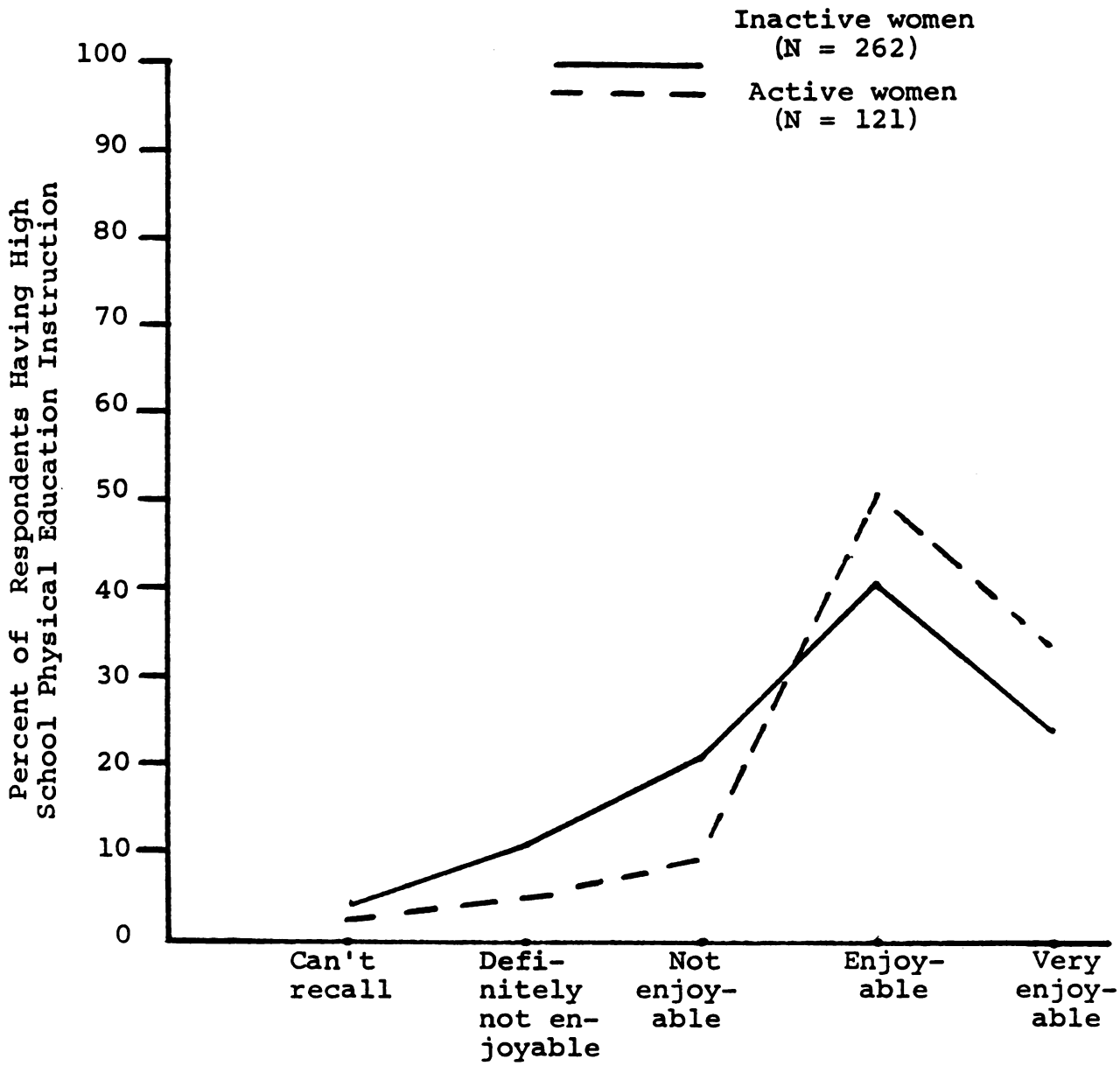


Fig. 4.--Main Instructional Emphasis Used by Physical Education Teachers at the High School Level

activity patterns. A slightly higher percentage of inactive women than active women were enrolled in physical education classes in elementary and junior high or middle school where the teacher emphasized fitness-type activities.

Enjoyment of Physical Education Classes.--An interesting trend was observed in relation to the enjoyment of physical education at the various educational levels. At the elementary school level, three-fourths of all the women indicated that their over-all feelings toward physical education were enjoyable or very enjoyable. The active and inactive women were in near total agreement at each category of enjoyment which ranged from definitely not enjoyable to very enjoyable. Differences in their attitudes toward physical education began to appear during junior high or middle school. The inactive women began to show a less favorable attitude toward physical education. As is shown in Figure 5, a significant difference ($P = .001$) appeared at the high school level. The active women derived greater enjoyment from participation in physical education classes during high school than did the inactive women.

According to Stiles (1967), Harris (1960) and Brunner (1969), positive attitudes toward physical activity are formed early in life, and a critical period for continued



$X^2 = 18.56$, df = 4, P = .001.

Fig. 5.--Level of Enjoyment of High School Physical Education Classes

sports participation probably comes in the transition from youth to adult years. Darst (1978) suggests that teachers should provide (or continue to provide) secondary school students with instruction in activities which appeal to them and give them a chance for success. This experience should contribute toward making physical activity a meaningful component of one's lifestyle. "We never engage in physical activities later in life if we have failed at these things in the past" (Caldwell, 1977, p. 105).

In review, this investigator believes certain aspects of early physical education programs and practices may have had positive and negative influences on the attitudes and continued physical activity habits and patterns of adult women. The active women are distinguished by their participation in physical education in general and specifically by their participation in elementary and junior high or middle school physical education classes (Table 11, p. 149). A relatively large number of the active women were exposed to leisure-time activities and dance during their formal education (Table 12, p. 153), and they enjoyed physical activity at all grade levels.

On the other hand, although the inactive women enjoyed physical education during elementary and junior high or middle school, they did not enjoy it during high school as much as the active women did. The inactive women were exposed to leisure-time sports earlier and to swimming

later than their active counterparts (Table 12). The relationship between later inactivity and these two physical education experiences is difficult to explain. Perhaps leisure-time sports offered in junior high or middle school are too difficult for the students to master during this particular period of growth. Girls often express dissatisfaction with high school swimming classes. Scheduling, large class size, variability in skill among students (which eliminates the potential for individual attention if only one instructor is available), and the problems associated with maintaining an attractive appearance are often responsible for negative feelings toward swimming during school hours. This may have had a lasting effect on the physical activity habits of the inactive women.

Physical educators should strive to provide activities and lessons which are enjoyable at each grade level. Enjoyment of physical activity begins to waiver during junior high or middle school for many students and continues to decline during the senior high school years. The educational challenge is to provide activities which appeal to the students. This is of particular importance during secondary school when students are developing specialized interests. If they are to continue physical activity throughout life, they must be exposed to interesting activities and must be provided with instruction so

that they can become proficient.

Curriculum specialists should continue the emphasis on basic movement and sports skills in elementary school physical education. As a basic sports skill, swimming should be taught at the elementary school level whenever facilities permit. Most children should learn to swim by the time they have completed junior high or middle school. At the high school level, swimming and swimming-related activities should be offered chiefly on an elective basis; and careful consideration should be given to ability grouping, scheduling, class size and dressing time. Leisure-time sports should receive the greatest impetus at the senior high school level.

Further investigation into the influence of physical education on the physical activity habits of adult women is warranted. Additional information regarding grading procedures, measures of success, number of years of participation, sex of teacher, class size, frequency and duration of classes and specific activities (rather than activity categories) would provide greater insight into the problem. Since accurate recall is necessary, it would be advisable, if possible, to gain access to school records and curriculum guides and to discuss the issues with teachers and other school personnel. These techniques would provide a more accurate description of the successful practices and programs.

Co-Curricular Sports

Within the realm of this investigation, co-curricular sports programs consist of three components. Interscholastic athletics is that component of the school physical education program which is designed to provide opportunities for competition to boys and girls who possess high levels of skill in various sports. Intramural sports is that phase of the school physical education program which is geared to the abilities and skills of the majority of students and which consists of voluntary participation in games and sports on either an organized or an informal basis. Agency-sponsored sports are those sports which are planned and supervised by groups outside the school. These groups (agencies) provide instruction, recreation and competition in a variety of activities.

Table 13 shows the numbers and percentages of women who participated in co-curricular sports programs during their formal education. The percentages are low. The data show near homogeniety between the two groups, although a somewhat higher percentage of active women than inactive women were involved in agency-sponsored sports.

Interscholastic Athletics.--Interscholastic athletic programs provide an opportunity for participants to achieve and maintain high levels of fitness and skill and to compete on a higher level than in intramural sports. These programs should provide an opportunity for youngsters to

TABLE 13

NUMBER AND PERCENTAGE OF RESPONDENTS WHO PARTICIPATED IN CO-CURRICULAR SPORTS PROGRAMS DURING FORMAL EDUCATION

	Co-Curricular Sports Programs					
	Interscholastic Athletics		Intramural Sports		Agency-Sponsored Sports	
Respondents	N	%	N	%	N	%
Inactive	57	16.7	100	30.0	44	13.4
Active	27	19.8	42	32.1	28	21.5
Total	84	18.0	142	30.6	72	15.7

excel in a particular sport, should prepare them with skills and knowledges to pursue a life of continued physical activity, and should cause them to be supportive of community efforts to provide good athletic programs for its citizens (American Physical Education Association, 1937).

It has been established that interscholastic athletic programs for women did exist during the childhood years of the respondents, although these programs were not extensive and did not receive the unconditional support of all physical educators, administrators and citizens.

The primary reasons given by women for joining interscholastic teams were the enjoyment derived from participation and the fact that their friends were involved. Over 70 percent of the active women who had participated

in interscholastic athletics and 60 percent of the inactive women who had participated listed enjoyment of participation; whereas, 14 percent of both groups competed because their friends were involved. Forty-one respondents (22 inactive and 19 active) had competed in basketball, while a total of 29 had participated in softball and only five played golf. There were no significant differences between the proportions of inactive and active women when specific interscholastic sports were considered.

The respondents were asked to select the primary reason for their not joining athletic squads during school. Some of the options were: no team for girls, lack of interest, lack of skill, lack of time and poor health. The largest proportion (63.6 percent) of the active women who did not compete in athletics gave "no team for girls" as their reason for not competing. A significantly greater proportion of the inactive women than the active women ($P = .036$) indicated "lack of interest" as their principle reason for not competing. These reasons are similar to those cited by Sherriff (1971). She reported that no previous physical education experiences, feelings of inadequacy in sports, lack of companions and lack of interest were factors which discouraged girls from participating in interscholastic athletics.

Intramural Sports.--A well-planned intramural program will provide opportunities for instruction, recreation and competition in a variety of sports which appeal to a majority of students. Even though a small percentage (30.6) of the women participated in intramural programs, most of them did so because the activities appealed to them, the participation was enjoyable and their friends were involved. Programs involving dance and fitness-type activities were chosen most often, followed by gymnastics, team sports and swimming. The most commonly emphasized aspect of intramural programs was sports instruction with the exception of team sports where competition was primarily emphasized. There were no significant differences between the proportions of active and inactive women in terms of sports they had experienced during intramural participation. The fact that a larger absolute proportion (85.7 percent) of the active women than the inactive women (59.2 percent) received instruction in gymnastics as part of intramural programs may be of educational importance.

Reasons for nonparticipation in intramurals were similar to those expressed by the women for nonparticipation in interscholastic athletics, namely, lack of school intramural programs and lack of interest.

Agency-Sponsored Sports.--Various agencies within communities have established sports programs to fill the void

created by restricted physical education programs as well as to provide additional opportunities for competition, recreation and instruction. According to the women's replies to questions pertaining to agency-sponsored sports programs, agencies did provide opportunities for them to learn new sports not taught in schools and also did provide activities which appealed to the women. The active women enrolled in agency-sponsored sports to learn new activities, while most of the inactive women enrolled because their friends were involved. The main reasons expressed by women for not joining agency-sponsored sports programs were lack of programs or lack of interest. The agency-sponsored activities most frequently engaged in by the women were swimming and team sports. The program emphasis in team sports was recreation while the emphases in swimming were both recreational and instructional. The reader is cautioned against drawing definite conclusions since only 15 percent of the women were involved in agency-sponsored sports programs.

In summary, few conclusions and recommendations can be made from this study regarding the impact of co-curricular sports on the current physical activity habits of adult females. Relatively few women were able to join these programs, mainly due to program non-existence in local schools and communities. Available intramural programs served mainly as sources of additional sports instruction while

the limited agency-sponsored sports programs offered opportunities to learn new activities not taught in school. The women who participated in co-curricular sports enjoyed their involvement in these programs. They often were influenced by their friends to initiate participation.

Vendien (1957) has shown a positive relationship between intramural participation and voluntary participation during leisure time. She reported out-of-class programs correlated highly ($r = .928$) with leisure-time activities of high school girls, while a low correlation ($r = .28$) existed between out-of-class activities and the physical education class program. Results of her study suggest the inclusion of more popular activities in high school physical education programs. She also recommends that physical educators, community recreation personnel, and community agencies should effectively plan together so there can be an integration of the school physical education program and leisure-time activities within the community. The current study reveals no significant differences between the proportions of active women and inactive women in relation to any of the variables associated with co-curricular sports programs except for the reasons given by the women for not competing in interscholastic athletics. This finding does not support Vendien's recommendation as participation of the respondents in co-curricular sports had no significant impact on their current activity status.

Childhood Play Habits

A child's interest in sports is developed partly through the child's interactions with his/her parents. Their involvement in sports begins in childhood, is reinforced by parental encouragement, continues into middle-age and diminishes only in the last stage of the life cycle as part of a broader disengagement from previous leisure activities (Snyder and Spreitzer, 1973).

Several inquiries were made about the childhood play habits of the respondents. They were asked to indicate how many hours per day they spent in play during childhood, how many times per week they played together with at least one parent and the amount of encouragement to be physically active received from family members and others. A response, "I can't recall," was provided for women who could not remember details about their childhood play habits. Approximately 20 to 30 percent of the women chose this response. No conclusions can be drawn regarding the number of hours per day spent in play during childhood and its influence on current physical activity habits of adult women as no significant differences were found.

Data presented in Table 14 indicate that spending childhood play time with at least one parent, even if only once per week, may influence whether or not the child continues participating in physical activity during adulthood. Forty-three percent of the 460 respondents did not engage in

TABLE 14

FREQUENCY RESPONDENTS PLAYED WITH AT LEAST ONE PARENT DURING CHILDHOOD

	Respondents					
	Inactive		Active		Total	
Times Per Week	N	%	N	%	N	%
Can't recall	82	25.1	27	20.3	109	23.7
None	148	45.3	50	37.6	198	43.0
1	40	12.2	27	20.3	67	14.6
2	31	9.5	13	9.8	44	9.6
3	11	3.4	9	6.8	20	4.3
4	2	0.6	5	3.8	7	1.5
5 or more	13	4.0	2	1.5	15	3.3
Total	327		133		460	

$X^2 = 16.88$, df = 6, P = .0097.

any childhood play with a parent. A significantly greater proportion of the active women had spent some time in childhood play with a parent than did the inactive women (P = .0097).

It was not determined which parent (mother or father) provided this playtime companionship. Previous studies (Greendorfer and Lewko, 1978; Greendorfer, 1977; Synder and Spreitzer, 1976) have shown that fathers, peers and coaches have been the most influential persons to stimulate the sports participation of youngsters, especially girls.

Results of the current investigation (Table 15) show that a greater proportion of the active women received some encouragement to be physically active during childhood from their fathers (P = .0009). In fact, over one-third of the inactive women stated they received no encouragement to be physically active from their fathers.

Contrary to previous reports (Greendorfer and Lewko, 1978), the siblings seemed to play a significant role in the activity patterns of the active women. They had at least received some encouragement from their brothers and/or sisters, while over 40 percent of the inactive women reported they had received no encouragement from siblings (P = .0078).

Peers or friends also provided encouragement to the active women to engage in physical activity during childhood. This finding was significant (P = .0193) and corresponds to the conclusions drawn by Greendorfer and Lewko (1978). Additional evidence to support the important influence of friends on childhood activity patterns was discussed in the section on co-curricular sports programs earlier in this chapter.

Any encouragement by mothers, teachers, relatives and physicians to be physically active as youngsters appeared to have no significant influence on adult activity practices. This is reflected in the similar proportions of active and inactive respondents who reported receiving

TABLE 15

NUMBER AND PERCENTAGE OF RESPONDENTS WHO WERE GIVEN ENCOURAGEMENT BY SELECTED INDIVIDUALS TO BE PHYSICALLY ACTIVE DURING CHILDHOOD

Individuals		Amount of Encouragement										Total Respondents	
		Can't Recall		None		Some		Much		Very Much			
		I	A	I	A	I	A	I	A	I	A	I	A
Mother	N	56	18	95	34	110	53	26	19	23	8	310	132
	%	18.1	13.6	30.7	25.8	35.6	40.2	8.4	14.4	7.4	6.1	90.9	97.1
Father*	N	63	18	103	29	94	46	21	21	18	15	299	129
	%	21.1	14.0	34.4	22.5	31.4	35.7	7.0	16.3	6.0	11.6	87.7	94.8
Sibling**	N	53	15	105	32	71	48	16	9	10	9	255	113
	%	20.8	13.3	41.2	28.3	27.8	42.5	6.3	8.0	3.9	8.0	74.8	83.1
Relatives	N	70	29	140	58	33	21	12	3	6	2	261	113
	%	26.8	25.7	53.6	51.3	12.6	18.6	4.6	2.7	2.3	1.8	76.5	83.1
Friends***	N	58	13	80	28	88	54	33	14	18	13	277	122
	%	20.9	10.7	28.9	23.0	31.8	44.3	11.9	11.5	6.5	10.7	81.2	89.7

*X^2 = 18.63, df = 4, P = .0009.

**X^2 = 18.86, df = 4, P = .0078.

***X^2 = 11.75, df = 4, P = .0193.

I = Inactive women.

A = Active women.

TABLE 15 (Continued)

Individuals		Amount of Encouragement: Can't Recall I	Can't Recall A	None I	None A	Some I	Some A	Much I	Much A	Very Much I	Very Much A	Total Respondents I	Total Respondents A
Teachers	N	64	20	107	43	67	35	25	19	19	9	282	126
	%	22.7	15.9	37.9	34.1	23.8	27.8	8.9	15.1	6.7	7.1	82.7	92.6
Doctors	N	82	48	150	56	21	9	1	1	5	3	259	117
	%	31.7	41.0	57.9	47.9	8.1	7.7	0.4	0.9	1.9	2.6	75.9	86.0

encouragement from these potential sources of family and professional influence.

The response categories of some, much and very much encouragement are not quantifiable but the investigator believes that they broadly reflect the recall impressions of the respondents. No efforts were made to determine the childhood period (early, middle, late) during which encouragement was provided. Researchers (Pudelkiewicz, 1970; Malumphy, 1970; Greendorfer, 1976; Snyder and Spreitzer, 1976) have determined that encouragement to be physically active is provided by different individuals during various developmental stages.

Supervised Versus
Unsupervised Women

Consideration was given to the impact of previous participation in physical education or athletics programs on the preference of active women for supervised as opposed to unsupervised programs. These data are shown in Table 16. First of all, over 90 percent of active women had received physical education instruction, 30 percent had participated in intramurals, 20 percent had joined agency-sponsored sports programs and 15 to 20 percent were members of school athletic squads. Secondly, homogeniety between sub-groups is evident indicating that these prior experiences did not significantly influence whether or not women practiced activity on their own or under supervision.

TABLE 16

NUMBER AND PERCENTAGE OF ACTIVE WOMEN WHO PARTICIPATED IN PHYSICAL EDUCATION AND CO-CURRICULAR SPORTS PROGRAMS DURING FORMAL EDUCATION

	Co-Curricular Sports Programs							
	Physical Education		Interscholastic Athletics		Intramural Sports		Agency-Sponsored Sports	
Active Women	N	%	N	%	N	%	N	%
Unsupervised	91	94.8	20	22.2	29	31.5	20	22.2
Supervised	37	92.5	7	15.0	13	33.3	8	20.0
Total	128		27		42		28	

The purpose of Table 17 is to provide information about the number and percentage of active women currently involved in supervised versus unsupervised activity programs according to their participation in selected activities during school physical education, intramurals and agency-sponsored sports programs. No significant differences were found indicating that the specific sports practices earlier in structured and supervised experiences do not determine adult preferences for activity supervision. The size of the sub-classes prohibited a meaningful calculation of differences in relation to participation in the various sports in intramurals and agency-sponsored programs.

A further examination of the data contrasting supervised and unsupervised active women indicates no significant differences for several variables. These are not shown but include: instructional emphasis used by physical education teachers, program emphasis in co-curricular sports, amount of encouragement received from individuals to be physically active during childhood, the number of times per week that childhood play was engaged in with at least one parent and the number of hours per day spent in play during childhood.

Physical education curriculum specialists may attach some educational importance to absolute differences between the percentage of supervised and unsupervised

TABLE 17

NUMBER AND PERCENTAGE OF ACTIVE WOMEN WHO PARTICIPATED IN SELECTED ACTIVITIES IN PHYSICAL EDUCATION, INTRAMURAL AND AGENCY SPONSORED SPORTS PROGRAMS DURING SCHOOL YEARS

Types of Activities		Programs					
		Physical Education		Intramural Sports		Agency-Sponsored Sports	
		U (N = 91)	S (N = 37)	U (N = 29)	S (N = 13)	U (N = 20)	S (N = 8)
Basic movement and skills	N	62	29	10	3	4	1
	%	68.1	78.4	35.5	23.1	20.0	12.5
Team sports	N	77	33	20	5	10	1
	%	84.6	89.2	69.0	38.5	50.0	12.5
Fitness	N	62	25	15	6	7	1
	%	68.1	67.6	51.7	46.2	35.0	12.5
Swimming	N	45	20	12	2	11	5
	%	49.5	54.1	63.2	15.4	55.0	62.5
Leisure-time sports	N	40	18	12	5	6	0
	%	44.0	48.6	63.2	38.5	30.0	0.0

U = Active women in unsupervised physical activity programs.

S = Active women in supervised physical activity programs.

TABLE 17 (Continued)

Types of Activities		Programs					
		Physical Education		Intramural Sports		Agency Sponsored Sports	
		U (N = 91)	S (N = 37)	U (N = 29)	S (N = 13)	U (N = 20)	S (N = 8)
Dance	N	66	29	15	5	6	2
	%	72.5	78.4	51.7	38.5	30.0	25.0
Gymnastics or tumbling	N	41	23	7	7	4	1
	%	45.1	62.2	24.0	53.8	20.0	12.5

active women responding to specific questions. For example, a greater percentage of the unsupervised active women than supervised active women had been exposed to elementary and junior high or middle school physical education programs which emphasized physical fitness activities. By contrast, a greater percentage of the supervised women experienced junior high or middle school physical education classes where emphasis was on "skill drill." A possible explanation for these absolute differences in proportions may be that the fitness instruction better prepared women to pursue physical activity on their own. A key difference might have been the provision of both concepts and skills as opposed to simply an emphasis on sports skills without providing any rationale for pursuing activity to enhance fitness.

Some absolute differences in proportions of supervised versus unsupervised active women when contrasts of the influential roles played by selected individuals in encouraging them to engage in play as youngsters were considered. Absolute differences as large as 23.6 percentage points between the sub-groups of supervised and unsupervised active women were calculated for the influence of siblings in providing encouragement for participation. The percentage differences between the sub-groups for the influence of teachers and fathers were 17 and 18 percentage points, respectively. In these contrasts, the proportion of supervised

active women favorably influenced by the designated individuals was greater in all cases. These absolute differences may imply that women who have a close relationship with fathers, teachers and siblings may tend to continue close associations with others and may desire group activity and/or exercise leaders.

Current Factors Which Motivate Women to Engage in Physical Activity Programs

The second research question is addressed in this section of the chapter. Currently operating factors which motivate women to comply and adhere to a regimen of regular physical activity are identified. The active women (N = 136) are divided into sub-classes according to their preferred physical activity setting, supervised versus unsupervised. These sub-groups of supervised and unsupervised active respondents contained 40 and 96 women, respectively. Chi-square tests of homogeniety were administered to determine significant differences between the proportions of active women in supervised and unsupervised physical activity programs with regard to selected variables.

According to Wilmore (1974), any successful exercise program must accomplish two major goals: (1) teach people why they should be physically active; and (2) motivate them to follow through with a personal activity program. Emphasis often has been placed on fitness testing

and on individual exercise prescription, and little attention has been given to the program components which play a vital role in an individual's compliance and adherence to physical exercise regimens. Many individuals prefer to workout under the direction of an exercise specialist who can prescribe individual or group exercise routines and provide the leadership to insure that programs are carried out as prescribed. Other individuals prefer to exercise on their own without the benefits of a professionally prescribed exercise program or an exercise specialist. Many of these individuals are vulnerable to the negative forces which may eventually result in their quiting the programs.

Berg (1978) has expressed that a major goal of fitness programs should be to promote an addiction to activity. Such addiction has a chance of developing if the physical activity is enjoyable, beneficial and suited to the needs and interests of the clientele involved. If people can exercise without undue pain, stress or injury, at a time and place convenient to them and engage in activities which are personally appealing, the greater will be the likelihood of their continued participation. Individuals must develop favorable attitudes toward exercise which will subsequently reinforce their compliance and adherence to programs of regular physical activity.

Unsupervised and Supervised Active Women

Table 18 displays the numbers and percentages of active women who participate in unsupervised and supervised physical activity programs. Seventy percent of the 136 active women engaged in unsupervised physical activity programs, i.e., exercised on their own without the benefits of professional leadership or prescribed training workouts. Local parks, playgrounds, streets and their own homes most commonly served as exercise facilities for these women.

TABLE 18

NUMBER AND PERCENTAGE OF ACTIVE WOMEN WHO PARTICIPATE IN UNSUPERVISED AND SUPERVISED PHYSICAL ACTIVITY PROGRAMS

	Active Women	
Physical Activity Programs	Number	Percent
Unsupervised	96	70.6
Educational setting	16	11.8
Community setting	13	9.6
Commercial setting	6	4.4
Local parks, streets	37	27.2
Own home	24	17.6
Supervised	40	29.4
Medical setting	2	1.5
Commercial setting	21	15.4
Educational setting	4	2.9
Community setting	13	9.6

The remaining 30 percent of all active women were involved in supervised physical activity programs under the direction of medical personnel, or auspices of community, educational or commercial agencies. These programs typically provide professional leadership and planned individual or group exercise regimens. Commercial and community agencies provide the activities for nearly all of the active women who are involved in supervised exercise programs.

Researchers (Bucher, 1974; Sidney and Shephard, 1976; Gerland, 1960) have identified numerous factors which motivate people to exercise. Among these factors, health, appearance and enjoyment of activity appear to be the most prevelant. The results of the current investigation indicate that similar motivational factors existed for the women who were surveyed. Nearly 40 percent of the active women stated that they are active because they believe exercise is good for their health. Appearance, as defined by a desire to lose weight, stay slim to improve their figure, was the second most mentioned reason for being physically active. "Enjoyment of participation" and "to feel better" also were frequently selected as motivating reasons for exercising on a regular basis. There were, however, no significant differences between the two subgroups of active women in terms of their reasons for being physically active. It is interesting to note that

contrary to previously cited studies, health-related motivational factors had a higher absolute percentage of responses than did appearance-related factors.

One of the common objectives of physical education instruction is to provide students with knowledges, attitudes and skills for lifelong participation in physical activity. Only 11 of the 136 active women stated that previous physical education experiences influenced their decision to become physically active. Instead, an awareness of the aging process and self-health care concepts were selected as the factors which most influenced their decision to start exercising. This finding was not viewed as too surprising since the average age of the active respondents was 42 years. It is discouraging, however, to find that less than one-tenth of the active women were motivated to exercise as a result of knowledge about the importance of physical fitness which should have been taught and learned in school physical education classes.

It can also be noted that only 12.3 percent of the women who exercise on their own used information from previous physical education experiences to assist them in planning their exercise routines. Instead, they were assisted by current media (32.2 percent) or suggestions from professionals such as exercise specialists or physicians (35.4 percent). Again, the data are based on a small number (N = 66) of the total respondents, but may indicate that physical

educators have not assumed their responsibility for providing adequate information and skill related to physical fitness programs. On the other hand, the concepts and skills may have been included in the physical education curriculum as discussed earlier in this chapter, but the students were not ready to assimilate them or were not interested in them at that particular time.

Table 19 displays the current sports or physical activities engaged in by active women in supervised as opposed to unsupervised exercise programs. The activities most preferred by all women were jogging-walking, cycling, swimming, playing tennis and doing calisthenics. A higher percentage (81.3 percent) of the women in unsupervised activities prefer to jog than women in supervised programs (62.5 percent). This finding was statistically significant (P = .0353).

Two absolute differences which failed to attain statistical significance were those for calisthenics and tennis. In each case the percentages were higher for the supervised sub-group. This may reflect the common association that exists between calisthenics leadership, tennis instruction and tennis facilities found within commercial exercise settings that are by necessity supervised.

Injury, discomfort and/or stress have contributed to the temporary curtailment or withdrawal from participation in exercise programs (Mann, et al., 1969; Oja, et al., 1974; Pollock, et al., 1977; Kavanagh, et al., 1970; Tzankoff,

TABLE 19

PHYSICAL ACTIVITIES CURRENTLY ENGAGED IN BY ACTIVE WOMEN IN SUPERVISED AND UNSUPERVISED PHYSICAL ACTIVITIES PROGRAMS

Sport	Active Women			
	Unsupervised (N = 96)		Supervised (N = 40)	
	N	%	N	%
Jogging-walking*	78	81.3	25	62.5
Cycling	27	28.1	10	25.0
Calisthenics	32	33.3	19	47.5
Swimming	28	29.5	13	32.5
Skiing	9	9.4	3	7.5
Bowling	16	16.7	9	22.5
Golf	14	14.6	4	10.0
Tennis	20	20.8	14	35.0
Team sports	2	2.1	4	10.0
Racquetball	9	9.4	7	17.5

*$X^2 = 4.43$, df = 1, P = .0353.

1972). The most frequent complaint of subjects in these investigations was soreness and stiffness in the lower extremities, especially in the regions of the calf muscles, knee joints and Achilles tendons. Many subjects also complained of perspiration, body heat build-up, general fatigue and throat dryness. Muscle soreness and stiffness of the lower extremities were the most common complaints of women in the present study. Other problems encountered were general overall fatigue, muscle fatigue, body heat build-up and joint soreness and stiffness.

A speculation of the current study was that women who exercise under the direction of a trained specialist and/or who have an individualized exercise prescription would experience significantly fewer injuries and related problems than women who develop their own exercise protocols. There was no statistical support for this idea although some differences in absolute response percentages were observed. Injuries occurred most often during the first week of activity and diminished as training progressed. Further analysis indicated no significant differences between the two sub-groups of active women in terms of the initial occurrence of exercise related stresses and discomforts or in the time of recovery from such ailments.

The incidence of injury and related complaints by active women is encouraging, and may have contributed to the length of time the women have been physically active. Approximately 75 percent of the supervised women have been active three or more years, approximately 30 percent of the unsupervised women have been active two years with 30 percent having been active more than five years. No definitive explanation can be given for the seemingly low injury rates. Perhaps proper warm-up and cool-down exercises, proper workout schedules or activity selection helped to eliminate potential injury problems. On the other hand, the women may not have pushed themselves to extremes at the beginning of their programs or may have lightened their workloads once

they experienced pain and continued activity at a lower intensity or slower pace.

Other factors influencing adherence to physical activity programs are knowledge of progress toward pre-determined goals and experiencing improvements in psychological, sociological and physiological parameters. Exercise leaders who practice behavior modification techniques (Leventhal, 1973; McAlister, 1974; Meyer and Henderson, 1974; Yarvotte, 1965) stress the importance of periodic assessment and positive feedback. Valid baseline data describing the status of the women in relation to these parameters were not available. Thus, the investigator had to rely on the ability of the active respondents to contrast their previous and current status in relation to the selected variables. Over 60 percent of the active women thought their progress during training matched well with their expectations while approximately 30 percent perceived their progress as slower than they had anticipated.

Table 20 shows the mean index of active women for selected variables before the initiation of physical activity and their current status of self-perception. The active women expressed significant improvement ($P < .001$) in all of the variables studied.

The variables selected for scrutiny are among those which could be assessed by the women themselves without organized testing or evaluation procedures and are important

TABLE 20

PERCEIVED IMPROVEMENT OF ACTIVE WOMEN IN SELECTED PSYCHOLOGICAL, SOCIOLOGICAL AND PHYSIOLOGICAL VARIABLES AS A RESULT OF EXERCISE PARTICIPATION

	Index of Perceived Improvement								
	Before			Now					
Variables	$\bar{X}$	±	SD	$\bar{X}$	±	SD	T-value	df	2-tail Prob.*
Self-image	2.83	±	.79	4.00	±	.64	15.39	102	< .001
Release of muscle tension	2.68	±	.68	4.04	±	.58	15.03	99	< .001
Muscle tone	2.62	±	.72	3.96	±	.66	16.66	101	< .001
Posture	3.04	±	.92	3.79	±	.72	9.66	101	< .001
Efficiency on the job	3.22	±	.74	3.98	±	.68	8.92	91	< .001
Sleep habits	3.07	±	.74	3.92	±	.68	11.49	101	< .001

*Probability was calculated to three decimal places.

Scale: 1 = very poor
2 = poor
3 = average
4 = good
5 = excellent

TABLE 20 (Continued)

	Index of Perceived Improvement								
	Before			Now					
	$\bar{X}$	±	SD	$\bar{X}$	±	SD	T-value	df	2-tail Prob.*
Nervousness	2.89	±	.87	3.81	±	.72	10.33	98	< .001
Zest for life	2.98	±	.76	4.04	±	.69	14.15	101	< .001
Sex life	3.24	±	.85	3.72	±	.84	5.69	81	< .001
Participation in recreation	2.91	±	.84	3.79	±	.85	9.73	98	< .001
Nutrition and diet	2.94	±	.97	3.89	±	.70	9.53	103	< .001

facets of everyday living. They are reported with appreciation that the use of scientific methodology is a stronger approach for assessing changes in psychological, sociological and physiological dimensions and for determining the actual benefits derived from physical activity participation. Trained personnel, special equipment and appropriate psychometric procedures often are not readily available. The exercise leaders must then rely on client expressions about their feelings of progress and improvement. Women who exercise on their own likely also experience or sense similar feelings of accomplishment and improvement which serve as a positive motivation for them to continue physical activity.

Improvements in self-image after exercise programs have been reported by Hanson and Nedde (1974) and Kilbom (1971). These reports indicated that participants in long-term physical training programs had less perception of fatigue as a result of physical training. A report by Massey and Shephard (1971) indicates that favorable attitudes toward long-term physical conditioning programs also are developed as individuals engage in exercise programs. Jabel and Cheesman (1978) reported that senior citizens in an exercise program conducted by young adults for Seniors "felt better" after exercise. Forty-five percent of the Seniors felt stronger and 65 percent continued to exercise on their own between the regularly scheduled sessions. Morgan, et

al. (1970) explain that psychometric tools do not exist for an objective assessment of the expression "feeling better" although it is often used to indicate the benefits one derives from being physically active. It may be both prudent and adequate to simply accept the expression as a positive outcome of participation in physical activity.

The active women in both sub-groups were similar in all areas of inquiry directly related to current physical activity habits with the exception of two variables, jogging as an activity and the time of day when the women scheduled their workouts. The women who workout on their own prefer morning; the women in the supervised programs exercise in the evenings (P = .0002). They were also similar in that neither sub-group related any change in smoking or drinking habits to their participation in physical activity.

Sub-Classes of Active Women by Age Category

In addition to examining the differences between the proportion of women in supervised or unsupervised physical activity programs, an effort was made to determine whether any significant differences exist in the two sub-groups of women according to age category. Unfortunately, the number of women in the supervised programs is small and four of them did not report their ages. Therefore, they are not included in the data analysis using age categories.

Parten (1960) recommends at least 30 respondents per category to establish a base of reliability. In the study of supervised active women by age, only four women are in the 18-25 year category, twelve women are between the ages of 26 and 35 years, thirteen are between 36 and 50 years of age, and seven are over 50 years old. Chi-square tests of homogeniety were conducted and the reader is alerted that the results and any reported significance are based on N = 36.

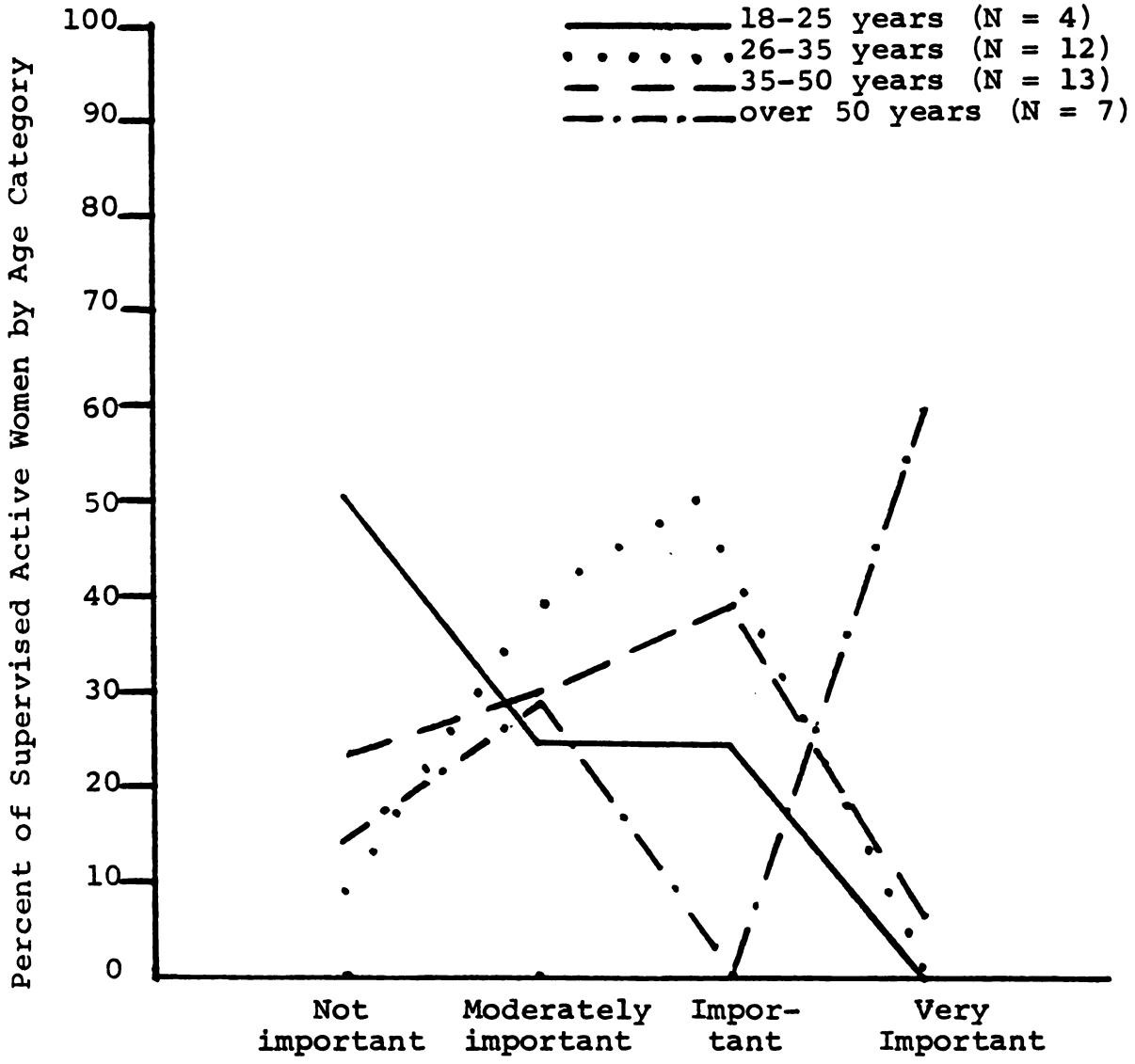
The size of the age groups for the women in the unsupervised programs is somewhat larger due to an increased number of participants. Again, seven of these women did not reveal their ages, and the statistical calculations were based on 89 responses rather than 96. Eight women are in the 18-25 year category; nineteen are in the 26-35 year category; thirty-two are between the ages of 36 and 50 years; and thirty women are over 50 years of age. The greatest percentage (64) of active women in the supervised programs are between 26 and 50 years of age, while the greatest percentage (62) of the active women in unsupervised programs are over 36 years old.

The active women were asked to indicate the main reasons for their preferring to workout in supervised settings. No significant differences across the four age groups were found. Fourteen of the 36 women indicated they needed an organized program. Although the reasons for

needing an organized program were not explored, one can speculate that the women needed to make a commitment to a program, or wanted technical assistance or instruction in specific activities to improve their physical fitness levels or attain other pre-determined goals. Several women indicated they selected an organized program because they lacked self-discipline and needed a "push." Other women preferred to workout in a group and a supervised program provided an opportunity.

These reasons stated above are similar to those disclosed by Sidney and Shephard (1976) and Foss (1976) who determined the reasons why senior citizens and middle-aged men engaged in supervised programs. The Seniors desired facilities and a program of instruction on how to exercise safely in order to establish a regular pattern of physical activity beneficial to the improvement of their health. The middle-aged Swedish males stated that the invitation from the medical personnel to join a physical training program was the incentive they needed to become physically active.

Since a characteristic of supervised programs is leadership, the women were asked to indicate how important the exercise leader is to them, and why the leader is important. A significant difference ($P = .0269$) was found regarding the importance of the exercise leader across age groups. Figure 6 shows this finding. The exercise leader was unimportant to younger women, while those women over



$x^2 = 18.80$, df = 9, P = .0269.

Fig. 6.--Perceived Importance of the Exercise Leader

50 years of age indicated that the leader was very important to them. The major role assumed by the leader was to provide technical assistance.

Frequency of workouts and individual exercise prescription are important components of an exercise program. This implies that program planners must schedule activities at a time which is convenient to the clients and must provide activities which will assist the women in attaining their pre-defined goals and increasing their general level of physical fitness. Eighty percent of the respondents in supervised activity programs indicated that their scheduled workout times are convenient for them. Over one-half of them also indicated that their progression rate in terms of individual workout assignments were of proper difficulty.

Frequency of exercise and exercise routines also are important to the women who work out on their own. Over two-thirds of these women have a regular exercise program to follow, and three-fourths of them reserve time during their daily-living routines for a workout. Information and suggestions to assist them in planning their own programs were received primarily from current media and professionals. Only eight of the 96 active women who devised their own exercise programs used previous physical education experiences as the basis for their decisions regarding activity planning.

Nearly all of the active women stated that they generally complete a workout once they begin. The primary inducement for completion of a workout is the belief that the workout is "good for them." "Enjoyment of the activity" and "feeling better" are also reasons given for finishing a workout. Only three women indicated they consider stopping an activity once they begin. Illness and boredom are factors responsible for such considerations.

In summary, although few statistical differences are reported between the proportion of active women in supervised or unsupervised programs or across the four age groups, pertinent information was obtained which may assist program planners in the development and implementation of successful physical activity programs for adult females.

Participation in physical activity was initiated by most women due to their awareness of the aging process and self-health care concepts, and was continued because the women believed that physical activity was good for their health and also their appearance. A program which emphasizes physical fitness aspects may be most attractive to middle-age women. Programs which offer jogging-walking, playing tennis, cycling, swimming, and doing calisthenics would also appear to be quite popular. Exercise specialists should consider the development of exercise training facilities in the community parks and neighborhoods to better accommodate women who enjoy working out on their own.

Their expressed desire to exercise in the morning may reflect an interest in safety and a desire to exercise during periods of daylight.

Exercise specialists must be knowledgeable in the psychological, physiological, and sociological aspects of training, and should be well-skilled in the technical aspects of various activities. Older women, in particular, need the exercise leader to provide them with technical assistance during their training periods.

Physical educators must become more assertive in their efforts to teach the "hows" and "whys" of physical fitness so that students can develop and implement their own exercise programs, or at least be able to distinguish between fact and fiction if as adults they continue to rely on current media as the prime source of information about physical fitness.

Current Familial Physical Activity Patterns

The current physical activity patterns engaged in by the respondents and their immediate families was studied. There is a tendency for both spouses to be active if one is active. Heinzelmann and Bagley (1970) investigated the relationship between the wife's attitude toward the exercise program and her husband's adherence to an 18-month program. The data show that the husband's adherence to the exercise program was directly related to the wife's

attitude toward the program. Eighty percent of those men whose spouses had a positive attitude toward the program demonstrated a good-to-excellent adherence pattern. This was contrasted to 20 percent who exhibited only fair-to-poor adherence when their spouses were non-supportive. In future studies it would be interesting to investigate the reverse, i.e., to examine the attitudes of husbands toward their wives' participation in an exercise program.

Table 21 shows the percentage of women who encourage immediate family members to be physically active and the family's current involvement in physical activity.

Nearly one-fourth of the active women live alone as compared to 16.2 percent of the inactive women. One-half of the inactive women indicated they encourage all members of their family to be physically active. This persuasion evidentally didn't have much impact, since only 20.4 percent of the inactive women report that all members of their family who live at home are actually involved in regular physical activity. The active women appear to be somewhat more convincing in their efforts to stimulate other family members to become physically active. Fifty-six percent of the active women provided encouragement to all family members, and 34.6 percent of them reported favorable responses to this encouragement. A higher percentage of active women than inactive women reported that only their husbands are active.

TABLE 21

PERCENTAGE OF WOMEN WHO ENCOURAGE MEMBERS OF THEIR IMMEDIATE FAMILIES TO BE PHYSICALLY ACTIVE AND PERCENTAGE OF FAMILY MEMBERS CURRENTLY INVOLVED IN PHYSICAL ACTIVITY

	Encouraged to be Active*			Currently Active**		
Family Members	Inactive	Active	%	Inactive	Active	%
I live alone	16.2	24.4	18.6	16.2	28.4	18.6
Only the husband	10.5	8.1	9.8	11.6	16.5	13.0
Only the children	10.8	3.0	8.5	4.9	3.8	4.6
Only the boys	0.9	0.0	0.6	11.9	3.8	9.5
Only the girls	0.0	0.7	0.2	6.7	6.8	6.7
All members	50.3	55.6	51.8	20.4	34.6	24.5
None	11.4	8.1	10.4	27.7	9.8	22.6

*X^2 = 16.13, df = 6, P = .0131.

**X^2 = 33.09, df = 6, P = .0000.

As reported earlier, on the average there is at least one child per family regardless of marital status, except single, and also a near equal distribution of boys and girls. Also, there are approximately 170 males and 170 females under the age of 18 years, which probably means they are still living at home and would be included in the reporting. The other 150 male and female offspring are likely over 18 years of age and probably do not reside at home. These facts may help to explain the figures pertaining to the children as a unit or separately according to sex.

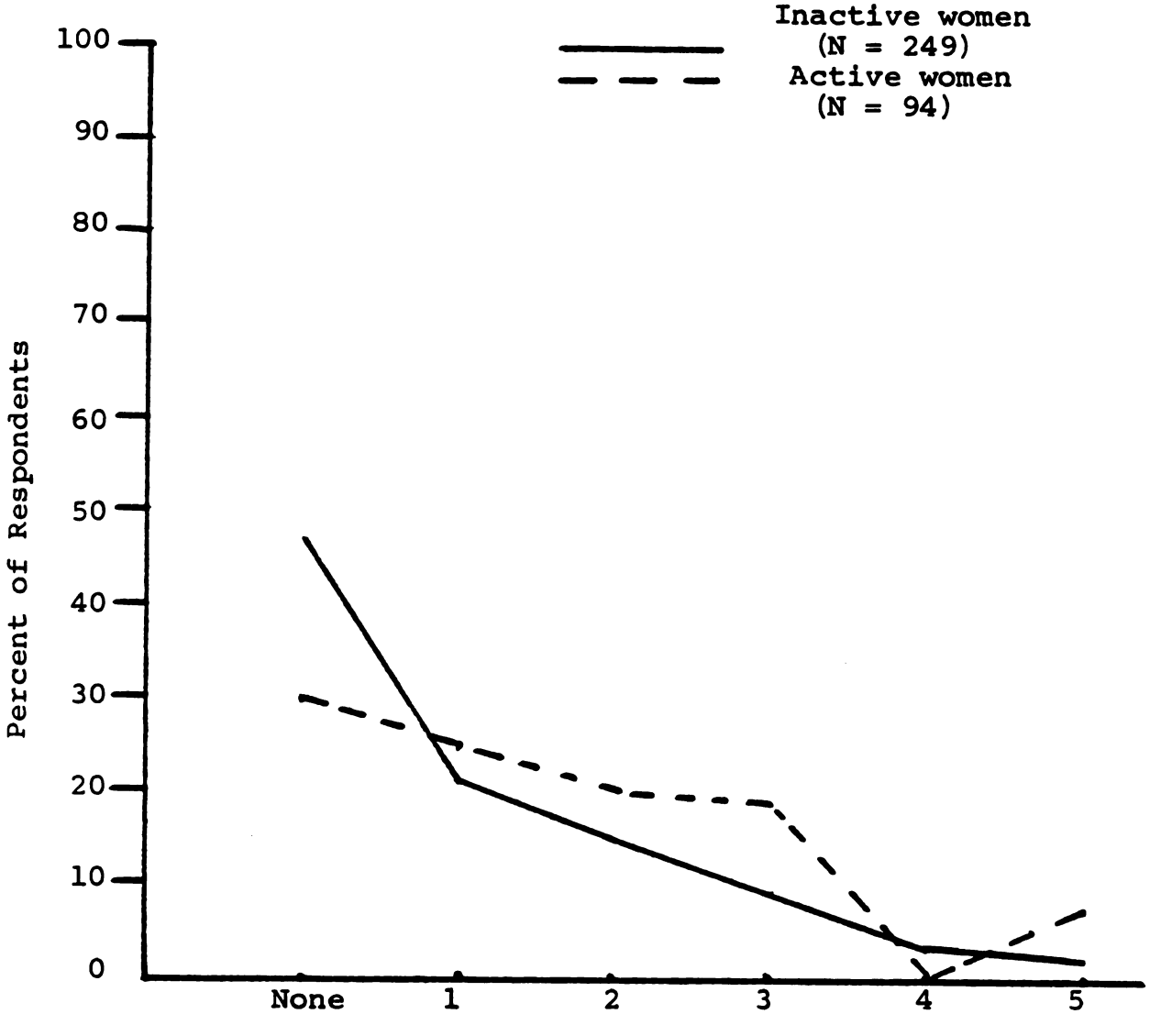
Activity patterns of "only" girls and of "only" children are similar. However, an absolute difference occurs between the proportion of women in the two sub-classes and the physical activity habits of the boys. Nearly 12 percent of the inactive women report that only the boys are active, while 3.8 percent of the active women report the same.

The data show that the active and inactive women are not homogeneous in relation to their encouragement of family members to be physically active ($P = .0131$) nor in relation to the responsiveness of family members living at home to engage in regular physical activity ($P < .0001$). The active women are more likely to encourage physical activity and to have family members who are physically active.

Figure 7 shows the frequency of family sports activity. The graph illustrates the active women to be involved more often in family activity than the inactive women ($P = .0304$). Approximately 45 percent of the inactive women engage in no family sports as compared to 31.9 percent of the active women. About one-fourth of each group of women said they played together as a family unit once a week, while a greater proportion of active women than inactive women indicated participation in family activity two or three times per week. Overall, outdoor activities such as hiking, boating, canoeing and leisure sports such as tennis and golf were the most popular family activities among the women. Although only 61 women reported jogging or calisthenics (fitness-type activities) as family activity, there was a significant difference between the active and inactive women in relation to this variable ($P = .0031$). Nearly one-third of the active women engage in jogging and calisthenics with their families as compared to only 16 percent of the inactive women.

Summary of Results

Descriptive data show that only 136 of the 477 respondents (28.0 percent) engage in regular physical activity three or more times per week. Seventy percent of these active women workout on their own without supervision, while the remaining 30 percent prefer to workout in supervised



$X^2 = 12.35$, df = 5, P = .0304.

Fig. 7.--Number of Times Per Week Respondents and Their Immediate Families Engage in Physical Activity Together

programs. Over one-half of the women who engage in physical activity less than three times per week are interested in beginning a regular physical activity program.

Significant differences were found between the proportion of active versus inactive respondents for the following variables:

1. A greater proportion of the inactive women are married.
2. A greater proportion of the active women attained a higher level of education (college).
3. Considering all levels of formal education collectively, a greater proportion of active women had participated in physical education classes in school.
4. Considering specific educational levels, a greater proportion of active women had participated in physical education classes in elementary and junior high or middle school.
5. A greater proportion of active women had participated in coeducational physical education classes during high school.
6. Generally, a greater proportion of active women had received instruction in leisure-time sports and dance during physical education classes.
7. A greater proportion of active women had received instruction in swimming during elementary school physical education classes.
8. A greater proportion of active women had enjoyed their physical education experiences during high school.
9. A greater proportion of active women had spent more time per week in play with at least one parent during childhood.

10. A greater proportion of active women had received some encouragement to be physically active during childhood from fathers, siblings, and friends.

11. A greater proportion of active women are currently involved in physical activity with their immediate families, spend more time per week in family sports activity, and engage in fitness-type activities.

12. A greater proportion of active women did not compete in interscholastic athletics because their schools did not provide teams for girls; the inactive women did not compete because they did not have the interest.

13. A greater proportion of inactive women had received instruction in swimming during high school physical education classes, in team sports when all levels of education are considered, and in leisure-time sports during junior high or middle school.

14. A greater proportion of inactive women could not recall the instructional emphasis used by their physical education teachers during elementary and junior high or middle school classes.

No significant differences were found between the proportion of active versus inactive respondents for the following variables:

1. Participation in co-curricular sports programs.

2. Activities engaged in during co-curricular sports programs.

3. Perceived enjoyment of various co-curricular sports experiences across all educational levels, and during elementary and junior high or middle school physical education classes.

4. Reasons for participating in co-curricular sports programs.

5. Reasons for not participating in intramural and agency-sponsored sports programs.

6. Instructional emphasis used by physical education teachers during high school physical education classes, and the emphasis of co-curricular sports programs across all educational levels.

7. Educational levels during which women engaged in co-curricular sports.

8. Number of hours per day spent in play activities during childhood.

Significant differences were found between the proportion of supervised versus unsupervised active women and the following variables:

1. A greater proportion of unsupervised women prefer to jog.

2. A greater proportion of unsupervised women prefer to work out in the morning; supervised women perfer evening workout times.

No significant differences were found between the proportion of supervised versus unsupervised active women for the following variables:

1. Reasons for being physically active.

2. Factors which influence women to initiate physical activity programs.

3. Length of time spent in current physical activity programs.

4. Levels, kinds and occurrence of injuries or related stress and discomforts as a result of physical training.

5. Motivation to continue or to discontinue a planned workout.

6. Perceived progression rate.

7. Participation in physical education and co-curricular sports programs.

8. Instructional or program emphasis during physical education classes and co-curricular sports programs.

9. Types of sports participated in during physical education classes and co-curricular sports programs.

10. Amount of encouragement received from family members and significant others to be physically active during childhood.

11. Number of times per week that play activities were engaged in with at least one parent during childhood.

A significant difference was found between the proportion of supervised active women by age group in their perceptions of the importance of the exercise leader. Women over 50 years of age perceived leaders as more important than did younger women. No significant differences were found by age categories in relation to reasons for participating in supervised programs, facilities used, or the sources of information employed by women to develop their own unsupervised physical activity programs.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this investigation was to identify the major factors that support or inhibit the initiation and maintenance of physical activity programs for women who reside in 10 urban areas in Michigan. These factors include childhood play habits, parental encouragement to be physically active during childhood and previous experiences in physical education and co-curricular sports programs during elementary and secondary school. Currently operating factors which influence participation or non-participation in physical activity programs include both personal and environmental considerations.

The data were collected by means of a specially designed questionnaire. Questionnaires were mailed to 700 randomly selected, nonstudent and nonretiree women, over 18 years of age, who live in 10 Michigan urban centers. The names of the women were selected from the most recently published city directories of each urban area. The questionnaire consisted of three sections. Section A pertained to

the current physical activity habits of the respondents, Section B pertained to previous experiences in physical education classes and co-curricular sports programs, and the last section contained questions which reflected demographic data. The five-week data collection procedures yielded a 68.1 percent return.

The 477 respondents (mean age = 45.1 $\pm$ 12.0 years) were categorized as being physically active (N = 136) or physically inactive (N = 341) according to the recommendations of the American College of Sports Medicine for exercise programs designed to enhance endurance fitness in healthy adults. Of the 136 active women, 96 participate in unsupervised physical activity programs, while 40 women participate in supervised programs offered mainly by community and commercial agencies. Significant differences between the active and inactive women for selected variables were determined by chi-square tests of homogeniety. Chi-square tests were used to determine significant differences in the proportion of active women by the sub-classes, supervised vs. unsupervised, for selected variables. Supervised and unsupervised active women were subsequently categorized into four age groups. Descriptive statistics were used to characterize the respondents, categorize them according to appropriate sub-classes, and provide additional information about their interests and intentions to participate in regular physical activity.

The conclusions of this study can be generalized only to non-student and non-retiree females, over 18 years of age, who are living in 10 of Michigan's metropolitan centers and who are represented by the random sample.

Conclusions and Recommendations

The conclusions drawn in this study are based on statistical significance as determined by non-parametric statistical procedures. The recommendations are directed toward physical educators and exercise specialists as a challenge for them to develop new activity programs or to improve existing ones. They also are intended to present a challenge to curriculum specialists and teacher educators to provide programs of professional growth and development which will expand the knowledge and skills of current and future leaders in the field of physical education. These leaders must be prepared to assume the varied responsibilities demanded by the contemporary physical education profession. The "new" physical educators must be able to provide school programs which will prepare students for a life of physical activity and also to assist in the development and implementation of programs for adults who desire instruction in physical activities and assistance in constructing programs to enhance their levels of physical fitness and quality of life.

Conclusion 1

The women who reside in Michigan's urban areas and engage in physical activity at least three times per week prefer jogging, cycling, swimming, playing tennis or doing calisthenics as a means of improving their health status and appearance. Awareness of the aging process and self-health care concepts are the main reasons which motivate them to begin exercising on a regular basis. A majority of the active women workout on their own as opposed to exercising in a supervised setting. Those who exercise on their own use primarily current media and advice from professionals as sources of information for developing their exercise regimens. The active women who exercise in supervised programs solicit assistance from personnel employed by civic and commercial agencies. The primary reason given for inactivity is lack of time; secondary reasons are fatigue from daily routines, poor health and lack of interest.

Recommendation 1

Physical educators and exercise leaders should concentrate on increasing the proportion of active women. Program directors should implement motivational strategies that stress an awareness of the aging process and self-health care concepts as well as the physical activities preferred by the women, and thereby increase the probability that more women will become physically active. Since few active women

were influenced to exercise by fitness concepts learned in physical education classes, physical educators and exercise leaders must improve their teaching strategies. They must provide scientifically documented information about proper exercise techniques and expected outcomes when various training modalities are employed. It also is imperative that women be instructed in the logistics of developing their own physical activity programs.

A comprehensive study of adult females is recommended to understand more fully the physical activity needs and interests of all women rather than just a select few. These investigations should include females living in rural areas and other geographical areas, should include those attending college, and should give special consideration to race, socio-economic status and age.

Conclusion 2

If they had sufficient time, many of the inactive women would begin physical activity programs considered adequate by the American College of Sports Medicine to promote endurance fitness in healthy adults. Self-appraisal of their current fitness status would serve as the primary stimulus for beginning physical activity programs comprised mainly of jogging, swimming and cycling.

Recommendation 2

Physical educators and exercise leaders must be professionally prepared to assist adult females with the modi-

fication of their current behavior patterns and the self-ordering of their priorities so as to allow time for regularly scheduled workouts. They also must be prepared to develop physical activity programs for women that are structured to effectively counteract inhibitory restrictions for participation imposed upon them by family, occupation, environs and personal preferences. Additionally, they should be educated in the skillful use of group sensitization techniques as an important motivational device to stimulate interest of women about their current status of fitness and future involvement in physical activity.

Conclusion 3

Certain components of elementary, junior high or middle school and high school physical education programs exert a positive influence on the physical activity habits of adult females. Participation in physical education in general, and specifically in elementary and junior high or middle is important. There is little carry-over from most school sports to current activity practices. In fact, swimming instruction during senior high school appeared to have an adverse effect on the proportion of women choosing to participate in physical activity programs as adults. Team sports were the most widely taught physical education activity, but they have the fewest number of current participants among the respondents. They are still a viable component of physical education programs and should remain in the curriculum for their inherent

purposes, such as the development of leadership, teamwork, sportsmanship and physiological parameters.

Attitudes toward physical education likely have the greatest impact on future physical activity habits. High school physical education classes may be the most crucial time for the development and implementation of programs conducive to re-establishing positive attitudes toward physical activity. However, interests change as people mature and gain more experiences in life. This may be responsible for the normal shifts in physical activity preferences as the women become older. Background experiences in physical education do not serve as valuable sources of information for women interested in developing their own physical activity programs nor do previously taught fitness and health-related concepts motivate women to consider or engage in exercise.

Recommendation 3

Physical education must be continued as an essential component of the elementary and junior high or middle school curricula. Physical educators should concentrate on finding ways to create and sustain student interest in physical activity rather than simply considering the curricular framework within which activities are to be taught. They also should recognize the inherent play interests of pupils and encourage continuation and expansion of those interests rather than imposing potentially inhibitory objectives such as an over-emphasis on sports competition. An atmosphere of joyful participation must be created and student selection of

physical activities should be encouraged to increase the probability that girls will continue to be involved in physical activity. Additional research is needed to further identify those components of physical education programs which are mainly responsible for perpetuating as well as stimulating the development of positive attitudes. A study of grading procedures, measures of success, number of years of participation, sex of teacher, class size, frequency and duration of classes, specific activities, teaching methods and program emphasis is needed.

Physical education programs specifically designed to promote the concept of physical fitness should be developed and physical educators should inculcate in each student an attitude of personal responsibility for the attainment and maintenance of optimum physical fitness. These programs must provide opportunities for girls to become knowledgeable and proficient in those activities most widely pursued by adult women.

Conclusion 4

The results of this study do not support previous research findings which have indicated that co-curricular sports programs foster continued participation in physical activity. The results of the current study, however, represent a small number of adult females, wherein many did not have the interest, desire or opportunity to participate in co-curricular sports programs during their formal education. Lack of sufficient data prohibits additional conclusions.

Recommendation 4

In-depth investigations of co-curricular sports programs are warranted to determine more clearly their long-term impact on participants in terms of continued voluntary involvement in physical activity. The results of these further studies of intramural, interscholastic athletic and agency-sponsored sports programs will allow comparative justification for the continuation of each type of program.

Conclusion 5

Girls who engage in play with at least one parent during childhood tend to continue physical activity, while girls who are without the benefit of parental companionship during play tend to be less physically active as adults. Fathers, siblings and friends should not be underestimated as desirable role models for women, supporting the development of positive habits toward continued participation in physical activity.

Recommendation 5

The importance of the presence of adult models during childhood play should be emphasized in consultations or other communications between physical education personnel and parents. Furthermore, physical educators should strive to provide opportunities for children and parents to engage in physical activity together within the environs of their own homes, neighborhoods or schools. For example, special school physical education events which promote child-parent participation should be an integral part of the physical education curriculum.

Conclusion 6

Physical activity appears to manifest itself within families. Active adult females tend to have active spouses and children, and tend to pursue fitness-type activities with members of their immediate families.

Recommendation 6

Physical educators should strive to develop programs which will encourage and promote family sports participation both within and outside of the school. Coeducational classes at the high school level, in particular, may contribute significantly to improve familial physical activity patterns. Further research is warranted after the coeducational programs mandated by federal legislation are well-established and properly implemented.

Conclusion 7

Activity preference, scheduled workout time and need for leadership are strong factors which distinguish between women who pursue supervised as opposed to unsupervised physical activity programs. Jogging, cycling, playing tennis, swimming and doing calisthenics are currently the most popular activities pursued by women regardless of the program setting. Older women, in particular, desire professionally trained exercise specialists to provide them with technical assistance. Evening hours are preferred by women who engage in supervised physical activity programs, while morning hours are preferred by unsupervised participants.

Recommendation 7

Physical educators and exercise leaders must be well-educated in disciplines relevant to understanding the impact of physiological, psychological, sociological and environmental variables as they modify the receptiveness of adult females to initiate and maintain physical activity programs. Physical educators and exercise leaders must be prepared to provide quality instruction and technical assistance in activities such as walking-jogging, cycling, tennis, swimming and calisthenics. They must provide expertise in creating and promoting unsupervised adult programs which utilize local neighborhoods, parks, streets and homes. Physical educators must serve as expert consultants to civic and commercial agencies who sponsor activity programs for adult females. Physical educators also must impart this information to students for use in later life, and also to adults who currently express an interest in physical activity programs.

Further research is suggested to provide more insight into reasons why women voluntarily elect unsupervised physical activity programs. Factors such as program availability, socio-economic status, activity preference, availability of facilities or companionship should be studied. Studies of community work patterns, family responsibilities, program availability and concern for personal safety would provide additional helpful information to program directors who could then schedule workout times to benefit the greatest number of women.

APPENDICES

APPENDIX A

Physical Activity Questionnaire

These questions are designed to obtain information about your past experiences in physical education and other school sports programs, as well as your present day involvement in exercise such as jogging, tennis, or other sports. It is important that you answer all questions which pertain to you. All responses are important regardless of whether or not you are currently involved in physical activity. The questions in Section A should be read carefully and answered only if they apply to you. Sections B and C are answered by everyone. All replies are to be made by circling a number which best represents your answer, but you may wish to write in comments. It should take you no longer than 15 minutes to complete the form. This time will be well spent because your replies will be used to develop new programs or improve current adult physical fitness and physical activity programs. Here is your chance to make a valuable contribution.

PHYSICAL ACTIVITY QUESTIONNAIRE
SECTION A

1. How often during the past two years have you participated in physical exercise, such as jogging, tennis, or swimming, for longer than 15 minutes each time?
   1 NONE
   2 ONCE IN A WHILE
   3 1-2 TIMES PER WEEK
   4 3 OR MORE TIMES PER WEEK

2. If you have not participated 3 or more times per week, indicate the main reason you didn't.
   1 NOT ENOUGH TIME
   2 NO INTEREST OR DESIRE
   3 NOT ENOUGH SKILL TO ENJOY PHYSICAL ACTIVITY
   4 NO AVAILABLE FACILITIES
   5 NO COMPANIONS
   6 NO ORGANIZED PROGRAM
   7 TOO TIRED - HAD ENOUGH PHYSICAL ACTIVITY ON THE JOB
   8 POOR HEALTH, INJURY, OR HANDICAP
   9 LACK OF MONEY
   10 OTHER (SPECIFY)_____

3. If you have not participated 3 or more times per week, how often have you thought about becoming physically active on a regular basis?
   1 NEVER
   2 SELDOM
   3 FREQUENTLY
   4 VERY OFTEN

4. If your answer to question 3 was frequently or very often, what stimulated your thoughts?
   1 PERSONAL EVALUATION OF LEVEL OF PHYSICAL FITNESS
   2 RECOMMENDATION OF FAMILY DOCTOR - HEALTH SCARE
   3 COMMENTS FROM FAMILY OR FRIENDS
   4 NEW AWARENESS OF AGING PROCESS AND SELF-HEALTH CARE CONCEPTS
   5 INFLUENCE OF MEDIA (TV, MAGAZINES, BOOKS)
   6 EXPERIENCES AND CONCEPTS FROM PREVIOUS PHYSICAL EDUCATION INSTRUCTION
   7 OTHER (SPECIFY)_____

5. If your answer to question 3 was frequently or very often, what sports had you planned on doing?

1	JOGGING, WALKING	7	GOLF
2	CYCLING	8	TENNIS
3	CALISTHENICS	9	TEAM SPORTS
4	SWIMMING	10	RACKETBALL, PADDLEBALL OR SQUASH
5	SKIING		
6	BOWLING	11	OTHER (SPECIFY)_____

6. If your answer to question 3 was frequently or very often, how many times per week were you planning to exercise?

1 2 3 4 5 OR MORE

7. If your answer to question 3 was frequently or very often, had you specified a length of time for each workout?

1 NO 2 YES

If yes, how long were you planning to workout each time?
1 ONE-HALF HOUR OR LESS
2 AT LEAST ONE HOUR
3 MORE THAN ONE HOUR

Questions 8 to 27 are to be answered by the women who have been active 3 or more times per week. Others turn to Section B.

8. Indicate the main reason you have been active.
1 GOOD FOR MY HEALTH (HEART, BREATHING, PHYSICAL CONDITION)
2 I WANTED TO LOSE WEIGHT, STAY SLIM, IMPROVE MY FIGURE
3 I ENJOY PHYSICAL ACTIVITY
4 I FEEL BETTER AFTER I HAVE BEEN ACTIVE
5 I WANTED TO SOCIALIZE
6 MY DOCTOR PRESCRIBED PHYSICAL ACTIVITY
7 OTHER (SPECIFY)_____

9. What most influenced you to start an exercise program?
1 IMPORTANCE OF PHYSICAL FITNESS TAUGHT IN PHYSICAL EDUCATION
2 IMPORTANCE OF "QUALITY OF LIFE" CONCEPT
3 CURRENT MEDIA (TV, MAGAZINES, BOOKS)
4 AWARENESS OF AGING PROCESS AND SELF-HEALTH CARE CONCEPT
5 IT IS THE "IN" THING TO DO
6 AVAILABILITY OF PROGRAMS
7 NEW FACILITIES
8 OTHER (SPECIFY)_____

10. Indicate the sports you currently participate in.

1	JOGGING, WALKING	7	GOLF
2	CYCLING	8	TENNIS
3	CALISTHENICS	9	TEAM SPORTS
4	SWIMMING	10	RACKETBALL, PADDLEBALL OR SQUASH
5	SKIING		
6	BOWLING	11	OTHER (SPECIFY)_____

11. Which type of environment best describes the program you participate in?
    1 "ON MY OWN" WITHOUT SUPERVISION
    2 A SUPERVISED PROGRAM SPONSORED BY A MEDICAL GROUP
    3 A SUPERVISED PROGRAM SPONSORED BY A PRIVATE CLUB SUCH AS VIC TANNY
    4 A SUPERVISED PROGRAM SPONSORED BY A SCHOOL OR COLLEGE
    5 A SUPERVISED PROGRAM SPONSORED BY AN AGENCY SUCH AS YMCA-YWCA, COMMUNITY CENTER, AAU, CHURCH

12. If you participate in a supervised program, indicate the main reason.
    1 I WAS HIGHLY MOTIVATED
    2 I NEEDED A "PUSH" - LACK OF SELF DISCIPLINE
    3 I NEEDED AN ORGANIZED PROGRAM
    4 I FEEL SAFE IN A SUPERVISED PROGRAM
    5 I WANTED TO WORKOUT WITH A GROUP
    6 I DIDN'T HAVE THE KNOWLEDGE OR SKILLS TO DO IT ON MY OWN
    7 ENCOURAGEMENT FROM SPOUSE, FAMILY, OR FRIENDS
    8 OTHER (SPECIFY)_____

13. If you participate in a supervised program, how important is the presence of the leader?
    1 NOT IMPORTANT
    2 MODERATELY IMPORTANT
    3 IMPORTANT
    4 VERY IMPORTANT

14. If your answer to question 13 was important or very important, indicate why the leader is imporant to you.
    1 PROVIDES MOTIVATION
    2 PROVIDES TECHNICAL ASSISTANCE
    3 PROVIDES ASSISTANCE IN PACING ME WHILE I EXERCISE
    4 PROVIDES MORAL SUPPORT
    5 PROVIDES SAFETY AND SECURITY
    6 OTHER (SPECIFY)_____

15. If you participate in a supervised program, is the workout time convenient for you?

    1 NO 2 ONLY SOMETIMES 3 YES, ALWAYS

16. If you participate in a supervised program, how do you view the progression rate that is expected of you in terms of individual workout assignments?
    1 NO INDIVIDUAL WORKOUT ASSIGNMENTS ARE MADE
    2 PROPER DIFFICULTY
    3 TOO EASY
    4 TOO DIFFICULT
    5 SOME WORKOUTS ARE TOO EASY
    6 SOME WORKOUTS ARE TOO DIFFICULT

17. If you exercise "on your own", what facilities do you use?
    1 LOCAL SCHOOL, UNIVERSITY, OR COLLEGE
    2 LOCAL COMMUNITY RECREATION CENTER OR YMCA-YWCA
    3 COMMERCIAL SPORTS CLUB SUCH AS VIC TANNY
    4 LOCAL PARKS, PLAYGROUNDS, OR STREETS
    5 OWN HOME

18. If you exercise "on your own", do you have a regular program that you follow?
    1 NO 2 YES

    If yes, where did you obtain information to help you develop your program?
    1 PREVIOUS PHYSICAL EDUCATION EXPERIENCES
    2 CURRENT MEDIA (TV, MAGAZINES, BOOKS)
    3 SUGGESTIONS FROM FAMILY, FRIENDS, OR RELATIVES
    4 SUGGESTIONS FROM PROFESSIONALS SUCH AS PHYSICIANS, COACHES, OR EXERCISE SPECIALISTS
    5 OTHER (SPECIFY)_____

19. Do you reserve time during your daily routine for a workout?
    1 NO 2 YES

    If yes, when do you workout?
    1 MORNING 2 AFTERNOON 3 EVENING

20. How many years have you participated in your exercise program?
    LESS THAN ONE 1 2 3 4 5 OR MORE

21. How do you view the level of discomfort and stress endured during your workouts?
    1 NOT STRESSFUL
    2 MINIMALLY STRESSFUL
    3 MODERATELY STRESSFUL
    4 STRESSFUL
    5 VERY STRESSFUL

22. If you experience any discomfort or stress, during which week of your program did this first occur?

    1 2 3 4 5 OR LATER

23. If you experience any discomfort or stress, how has the level changed during the program?
    1 GREATLY DECREASED
    2 DECREASED
    3 REMAINED THE SAME
    4 INCREASED
    5 GREATLY INCREASED

24. What do you believe causes the discomfort or stress?
    1 BLISTERS WHERE?_____
    2 MUSCLE CRAMPS WHERE?_____
    3 MUSCLE SORENESS AND STIFFNESS WHERE?_____
    4 JOINT SORENESS AND STIFFNESS WHERE?_____
    5 MUSCLE FATIGUE WHERE?_____
    6 HEADACHE
    7 DRYNESS OF THROAT - SENSATION OF THIRST
    8 SICKNESS
    9 EXCESSIVE PERSPIRATION
    10 HEART PALPITATION
    11 CHEST PAIN
    12 GENERAL OVERALL FATIGUE
    13 DIFFICULTY IN BREATHING
    14 BODY HEAT BUILD-UP
    15 OTHER (SPECIFY)_____

25. Once you start a workout do you generally manage to complete what you set out to do?
    1 NO 2 YES
    If yes, what motivates you to complete the workout?
    1 DETERMINED TO SUCCEED - PRIDE
    2 KNOW IT IS GOOD FOR ME
    3 INFLUENCED BY INHERENT GROUP PRESSURE
    4 ENJOY THE WORKOUT
    5 KNOW I WILL FEEL BETTER AFTERWARDS
    6 OTHER (SPECIFY)_____

If no, what causes you to consider stopping a workout?
1 EXTREME FATIGUE
2 ILLNESS
3 LOSS OF INTEREST - BOREDOM
4 STIFFNESS OR SORENESS
5 OTHER (SPECIFY)_____

26. How do you view the progress you have made during training?
1 NO PROGRESS
2 SLOWER THAN EXPECTED
3 AS EXPECTED
4 FASTER THAN EXPECTED

27. If you were sedentary and then started an exercise program, how do you view yourself now as compared to before you started? Use these scalings to indicate your feelings about the following variables:
1=very poor; 2=poor; 3=average; 4=good; 5=excellent

VARIABLES		Now					Before Exercise				
1	SELF IMAGE	1	2	3	4	5	1	2	3	4	5
2	RELEASE OF MUSCLE TENSION	1	2	3	4	5	1	2	3	4	5
3	MUSCLE TONE	1	2	3	4	5	1	2	3	4	5
4	POSTURE	1	2	3	4	5	1	2	3	4	5
5	EFFICIENCY ON THE JOB	1	2	3	4	5	1	2	3	4	5
6	SLEEP HABITS	1	2	3	4	5	1	2	3	4	5
7	NERVOUSNESS	1	2	3	4	5	1	2	3	4	5
8	ZEST FOR LIFE	1	2	3	4	5	1	2	3	4	5
9	SEX LIFE	1	2	3	4	5	1	2	3	4	5
10	PARTICIPATION IN RECREATION	1	2	3	4	5	1	2	3	4	5
11	NUTRITION AND DIET	1	2	3	4	5	1	2	3	4	5

If you smoked before starting an exercise program, have your smoking habits changed since you started activity?
1 NO
2 YES, I SMOKE LESS
3 YES, I SMOKE MORE
4 YES, I QUIT

If you drank alcoholic beverages before starting an exercise program, have your drinking habits changed since you started activity?
1 NO
2 Yes, I DRINK LESS
3 YES, I DRINK MORE
4 YES, I QUIT

SECTION B
All women please answer these questions.

28. Check the school levels in which you had physical education.
____NEVER ____ELEMENTARY ____JUNIOR HIGH ____HIGH SCHOOL
MIDDLE SCHOOL

29. Describe your physical education classes at each level.

	Can't recall	Coeducational	Segregated by sex
ELEMENTARY	1	2	3
JUNIOR HIGH	1	2	3
HIGH SCHOOL	1	2	3
	Can't recall	Elective	Required
ELEMENTARY	1	2	3
JUNIOR HIGH	1	2	3
HIGH SCHOOL	1	2	3

30. Circle the school level in which you had the types of sports listed.

	Can't recall	Never	Elementary	Junior High	High School
Basic movement and skills	1	2	3	4	5
Team sports such as basketball or volleyball	1	2	3	4	5
Fitness such as jogging or calisthenics	1	2	3	4	5
Swimming	1	2	3	4	5
Leisure sports such as golf or tennis	1	2	3	4	5
Dance	1	2	3	4	5
Gymnastics	1	2	3	4	5

31. What was the <u>main</u> instructional emphasis used by the physical education teacher at each school level?

	Can't recall	Skill drill	Play the game	Fitness activities	Movement exploration	Talks on fitness
ELEMENTARY	1	2	3	4	5	6
JUNIOR HIGH	1	2	3	4	5	6
HIGH SCHOOL	1	2	3	4	5	6

32. How do you view your overall enjoyment of physical education?

	Can't recall	Definitely not enjoyable	Not enjoyable	Enjoyable	Very enjoyable
ELEMENTARY	1	2	3	4	5
JUNIOR HIGH	1	2	3	4	5
HIGH SCHOOL	1	2	3	4	5

The next questions pertain to your participation in after-school sports. "Interscholastic sports" (IS) refers to organized teams competing against other schools. "Intramurals" (IM) refers to sports supervised and conducted by school personnel for all students within the same school. Agency sports (AS) are those sponsored outside the school such as at the YMCA-YWCA, community recreation centers, or AAU.

33. When did you play after-school sports?

	Can't recall	Never	Elementary	Junior High	High School
INTERSCHOLASTIC SPORTS	1	2	3	4	5
INTRAMURALS	1	2	3	4	5
AGENCY SPORTS	1	2	3	4	5

34. If you competed in interscholastic sports (IS) in high school, indicate the sports played by circling the number seasons played.

SPORT	SEASONS	SPORT	SEASONS
FIELD HOCKEY	1 2 3 4	SOFTBALL	1 2 3 4
SWIMMING	1 2 3 4	TRACK/FIELD	1 2 3 4
BASKETBALL	1 2 3 4	TENNIS	1 2 3 4
GOLF	1 2 3 4	GYMNASTICS	1 2 3 4
OTHER (SPECIFY) _____	1 2 3 4		

35. If you competed in IS in high school, indicate the main reason you did.

1 ENJOYED THE COMPETITION
2 FRIENDS WERE INVOLVED
3 NOTHING ELSE TO DO
4 MAINTAIN A GOOD PHYSICAL CONDITION
5 IT WAS THE "IN" THING TO DO
6 MAINTAIN A HIGH LEVEL OF SKILL
7 PARENTS ENCOURAGED ME
8 OTHER (SPECIFY)_____

36. If you did not compete in IS in high school, indicate the main reason you didn't.

1 NO TEAM FOR GIRLS
2 LACK OF INTEREST
3 LACK OF SKILL
4 LACK OF TIME, MONEY, OR TRANSPORTATION
5 POOR HEALTH, INJURY, OR HANDICAP
6 PARENTS WOULD NOT LET ME
7 DIDN'T WANT "SOCIAL STIGMA" ATTACHED TO FEMALE ATHLETE
8 INTERFERED WITH MY STUDIES OR A JOB
9 NONE OF MY FRIENDS WERE INVOLVED
10 OTHER (SPECIFY)_____

37. If you participated in IM, indicate the types of sports played by circling the program emphasis for each.

	Can't recall	Recre-ation	Instruc-tion	Competi-tion
Basic movement and skills	1	2	3	4
Team sports such as basket-ball or volleyball	1	2	3	4
Fitness such as jogging or calisthenics	1	2	3	4
Swimming	1	2	3	4
Leisure sports such as golf or tennis	1	2	3	4
Dance	1	2	3	4
Gymnastics or tumbling	1	2	3	4

38. If you played IM, indicate the main reason you did.
1 NOT ENOUGH SKILL TO PLAY INTERSCHOLASTIC SPORTS
2 ACTIVITIES APPEALED TO ME
3 ENJOYED THE PARTICIPATION
4 FRIENDS WERE INVOLVED
5 SUBSTITUTE FOR PHYSICAL EDUCATION
6 OPPORTUNITY TO LEARN NEW SPORTS
7 REPLACED INTERSCHOLASTIC SPORTS
8 OTHER (SPECIFY)_____

39. If you did not play IM, indicate the main reason you didn't.
1 NO PROGRAM IN THE SCHOOL
2 LACK OF INTEREST
3 LACK OF SKILL
4 LACK OF TIME, MONEY, OR TRANSPORTATION
5 POOR HEALTH, INJURY, OR HANDICAP
6 PARENTS WOULD NOT LET ME
7 DIDN'T WANT "SOCIAL STIGMA" ATTACHED TO FEMALE ATHLETES
8 INTERFERED WITH MY STUDIES OR A JOB
9 NONE OF MY FRIENDS WERE INVOLVED
10 OTHER (SPECIFY)_____

40. If you played AS, indicate the type of sports you played by circling the program emphasis for each.

	Can't recall	Recre-ation	Instruc-tion	Competi-tion
Basic movement and skills	1	2	3	4
Team sports such as basket-ball or volleyball	1	2	3	4
Fitness such as jogging or calisthenics	1	2	3	4
Swimming	1	2	3	4
Leisure sports such as golf or tennis	1	2	3	4
Dance	1	2	3	4
Gymnastics and tumbling	1	2	3	4

41. If you played AS, indicate the main reason you did.
    1 OPPORTUNITY TO LEARN SPORTS NOT TAUGHT IN SCHOOL
    2 OPPORTUNITY TO COMPETE IN SPORTS NOT OFFERED IN SCHOOL
    3 ACTIVITIES APPEALED TO ME
    4 PARENTS ENCOURAGED ME
    5 HAD NOTHING ELSE TO DO
    6 FRIENDS WERE INVOLVED
    7 MY SCHOOL DIDN'T HAVE AN IM OR IS PROGRAM
    8 OTHER (SPECIFY)_____

42. If you did not play AS, indicate the main reason you didn't.
    1 NO AGENCY IN MY COMMUNITY OFFERED SPORTS
    2 LACK OF INTEREST
    3 LACK OF SKILL
    4 LACK OF TIME, MONEY, OR TRANSPORTATION
    5 POOR HEALTH, INJURY, HANDICAP
    6 PARENTS WOULD NOT LET ME
    7 DIDN'T WANT "SOCIAL STIGMA" ATTACHED TO FEMALE ATHLETE
    8 INTERFERED WITH MY STUDIES OR A JOB
    9 NONE OF MY FRIENDS WERE INVOLVED
   10 OTHER (SPECIFY)_____

43. How do you view your overall enjoyment in after-school sports?

	Can't recall	Definitely not enjoyable	Not enjoyable	Enjoyable	Very enjoyable
IS	1	2	3	4	5
IM	1	2	3	4	5
AS	1	2	3	4	5

These questions pertain to your childhood play activities, parental encouragement, and current family activity habits.

44. On the average, how many hours per day were you physically active during your free time in childhood (to age 15 yrs.)?

    Can't recall 0 1 2 3 4 5 OR MORE

45. On the average during childhood, how many times per week did you and one of your parents play together?

    Can't recall 0 1 2 3 4 5 OR MORE

46. How much encouragement did you receive to be physically active during childhood from the following people?

	Can't recall	None	Some	Much	Very much
Mother	1	2	3	4	5
Father	1	2	3	4	5
Siblings	1	2	3	4	5
Relatives	1	2	3	4	5
Friends	1	2	3	4	5
Teachers	1	2	3	4	5
Doctor	1	2	3	4	5

47. Which members of your current family have you encouraged to be active?
1 I LIVE ALONE
2 NONE OF THEM
3 ONLY MY HUSBAND
4 ONLY THE CHILDREN
5 ONLY THE BOYS
6 ONLY THE GIRLS
7 ALL MEMBERS

48. Which members of your current family living at home are presently involved in regular physical activity?
1 I LIVE ALONE
2 NONE OF THE FAMILY MEMBERS
3 MY HUSBAND
4 ONE OR MORE BOYS
5 ONE OR MORE GIRLS
6 ALL OF THE FAMILY MEMBERS

49. How many times per week on the average do you and your family play together?
0 1 2 3 4 5 OR MORE

50. What types of physical activity do you engage in as a family?
1 OUTDOOR ACTIVITIES SUCH AS HIKING, BOATING, CAMPING
2 LEISURE SPORTS SUCH AS TENNIS, GOLF, BOWLING, OR SOFTBALL
3 SWIMMING
4 FITNESS SUCH AS JOGGING OR CALISTHENICS

SECTION C

Age:____Years
Marital Status: ___SINGLE___MARRIED____DIVORCED____WIDOWED
Age, sex and number of children:

	Under 6 years	Between 6-12	Between 13-18	Over 18
BOYS	_____	_____	_____	_____
GIRLS	_____	_____	_____	_____

What is the highest education level you completed?
1 ELEMENTARY 2 JUNIOR HIGH 3 HIGH SCHOOL 4 COLLEGE

Are you employed outside the home?
1 NO
2 YES, PART TIME OCCUPATION_____
3 YES, FULL TIME OCCUPATION_____

APPENDIX B

Letter of Transmittal

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF HEALTH PHYSICAL EDUCATION AND RECREATION
MOTOR PERFORMANCE STUDY · WOMEN'S INTRAMURAL BUILDING

EAST LANSING · MICHIGAN · 48824

May 1, 1979

Adult education programs are being developed in your community for the purpose of providing a "second chance" for women to gain knowledge and skills for their use in everyday life. Unfortunately, very little information regarding the special needs and interests of adult women is available. One area in particular is adult physical fitness and physical activity programs. Women are becoming more aware of the need for improving their levels of physical fitness, but often times do not know how to go about it in a systematic way which will insure success. In order for planners to devise the best possible programs for adult women, it is necessary to determine what kinds of programs appeal to them, what types of activities they like, and to gain insight into previous experiences in physical education which have influenced their current interest and participation (or lack of it) in exercise.

As a responsible woman, you are being given the opportunity to provide this valuable information which will serve as a basis for future physical fitness and physical activity programs especially designed for adult women. A small random sample of Michigan women has been drawn to voice their opinions concerning past and present experiences in physical activity and sports programs. Because you represent <u>all</u> adult women in Michigan, it is important that you respond to the questions regardless of whether or not you are currently physically active. It is necessary to complete the enclosed form and return it to me by May 15. A self-addressed stamped envelop is provided. The questionnaire should take about 15 minutes to complete.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so I may check your name off the mailing list when your questionnaire is returned. Your name will never appear on the questionnaire.

The results of this research will be made available to the College of Education faculties at various colleges and universities, and to specialists outside the field of education who are responsible for providing physical fitness and physical education information and programs for women. You may receive a summary of results by writing "copy of results requested" on the back of the return envelop along with your name and address. Please <u>do not</u> put this information on the questionnaire itself.

I would be most happy to answer any questions you might have. Please write or call. My telephone number is (313) 663-1359. Your assistance in this study is greatly appreciated. Better programs for all women will be a result of your cooperation. Thank you very much.

Sincerely yours,

Peggy Foss

Peggy Foss, Project Director

APPENDIX C

Post Card

May 8, 1979

Last week a questionnaire seeking your assistance in developing adult physical activity programs for women was mailed to you. Your name was drawn in a random sample of women living in Michigan.

If you have already completed and returned it, please accept my sincere thanks. If not, please do so today. Because it has been sent to only a small, but representative, sample of Michigan women, it is extremely important that yours be included in the study if the results are to accurately represent the opinions of Michigan women.

If by some chance you did not receive the questionnaire, or it was misplaced, please call me now (313 663-1359) and I will get another one in the mail to you today.

Sincerely yours,

Peggy Foss, Project Director

APPENDIX D

Second Letter of Transmittal

1733 Covington Drive
Ann Arbor, MI. 48103
May 18, 1979

About three weeks ago I wrote to you requesting information which will serve as a basis for future physical activity and physical fitness programs for women. As of today, I have not received your completed questionnaire.

I have undertaken this study because I believe that activity programs for adult women should focus on your wants and needs instead of programs for the general public which may or may not appeal to you. Special programs can be developed for women of all ages, interests, abilities and health status if information related to these needs is known.

I am writing to you again because of the importance each questionnaire has to the usefulness of the study. The women whose names were randomly selected represent <u>all</u> women living in major urban centers of Michigan. In order for the results of this study to be truly representative, it is essential that each selected woman, whether currently physically active or not, return the questionnaire.

In the event your questionnaire has been misplaced, a second copy with a self-addressed stamped envelope is enclosed. I realize that this is a very busy time of year for everyone, but would appreciate just 15 minutes of your time. The response so far has been very good, and I would like very much to include your input.

Thank you for your cooperation. Have a nice summer!

Cordially,

Peggy Foss

Peggy Foss
Project Director

APPENDIX E

Full-Time Occupations Listed by Respondents and Number of Women Employed in Each

Occupation	Number
Accountant	4
Administrator	5
Artist	1
Baby sitter	1
Bank teller	3
Business	6
Cafeteria worker	1
Cashier	3
Clerical worker	29
Computer programmer	1
Driver	1
Factory worker	10
Food service supervisor	1
Golfer	1
Hairdresser	1
Janitress	2
Keypunch operator	1
Kitchen aide	1
Legal assistant	1
Letter carrier	1
Librarian	2
Media center supervisor	2
Medical technologist	1
Nurse's aide	3
Occupational therapist	1
Piano teacher	1
Real estate salesperson	2
Registered nurse	16
Resident hall manager	1
Salesperson	11
Supervisor	1
Teacher	23
Teacher's aide	1
Technical writer	1
Trackman	1
Urban agent	1
Waitress	3
	145

Twenty-three women did not report their full-time occupations.

APPENDIX F

Part-time Occupations Listed by Respondents and Number of Women Employed in Each

Occupation	Number
Avon representative	4
Baby sitter	1
Banker	2
Bookkeeper	6
Clerical worker	17
Craft demonstrator	1
Florist	1
Hairdresser	1
Janitress	3
Journalist	1
Key punch operator	1
Kitchen aide	2
Laboratory technician	1
Laundromat worker	1
Lunchroom supervisor	1
Minister	1
Musician	2
Occupational therapist	1
Piano teacher	1
Presser	1
Real estate salesperson	1
Registered nurse	9
Salesperson	4
Teacher	5
Teacher's aide	1
Travel agent	1
Waitress	1
	71

Sixteen women did not report their part-time occupations.

LIST OF REFERENCES

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Adams, Gene M. and deVries, Herbert A. Physiological effects of an exercise training regimen upon women aged 52-79. Journal of Gerontology, January 1973, 28, 50-55.

Alden, Mabel. The factors in the required physical education program that are the least attractive to the college girl. Research Quarterly, December 1932, 3, 97-107.

American College of Sports Medicine. Position statement on the recommended quantity and quality of exercise for developing and maintaining fitness in healthy adults. Sports Medicine Bulletin, July 1978, 13, 1-3.

American Physical Education Association. Standards in athletics for girls and women: Guiding principle in the organization and administration of athletic programs. Research Quarterly, May 1937, 8, 32-72.

Anderson, Theresa. The attitudes of high school girls toward physical activities. Research Quarterly, December 1934, 5, 49-61.

Babbie. Earl R. Survey research methods. Belmont: Wadsworth Publishing Company, Inc., 1973.

Baca, Luciano, Howard, Joan G., and Howard, Alvin W. Student activity program in junior high/middle school. National Association of Secondary School Principals Bulletin, December 1975, 59, 395.

Baker, Gertrude M. Survey of the administration in physical education in public schools in the United States. Research Quarterly, December 1972, 33, 632-637.

Baker, Mary C. Factors which may influence the participation in physical education of girls and women 15-25 years of age. Research Quarterly, May 1940, 11, 126-131.

Beise, Dorothy. A comparative analysis of the physical education background, interests, and desires of college students as an evaluation procedure. Research Quarterly, December 1940, 11, 120-134.

Bell, Margaret and Walters, Etta. Attitudes of women at the University of Michigan toward physical education. Research Quarterly, December 1953, 24, 379-385.

Berg, Kris. Exercise prescription: A practitioner's view. The Physician and Sportsmedicine, February 1978, 6, 98-104.

Brody, Jane E. American exercise boom proves no boon to physical fitness. Ann Arbor News, January 10, 1979.

Broer, Marion and Holland, Dolly. Physical education interests and needs of University of Washington women in service classes. Research Quarterly, December 1954, 25, 387-397.

Broer, Marion. Evaluation of a basic skills curriculum for women students of low motor ability at the University of Washington. Research Quarterly, March 1955, 26, 15-27.

Broer, Marion, Fox, Katherine, and Way, Eunice. Attitudes of University of Washington women students toward physical education activity. Research Quarterly, December 1955, 26, 379-384.

Brumback, Wayne and Cross, John A. Attitudes toward physical education of male students entering the University of Oregon. Research Quarterly, March 1965, 36, 10-16.

Brunner, Burton D. Personality and motivating factors influencing adult participation in vigorous physical activity. Research Quarterly, October 1969, 40, 464-469.

Bucher, Charles A., Koenig, Constance, and Barnhard, Milton. Methods and materials for secondary school physical education. St. Louis: The C. V. Mosby Company, 1961.

Bucher, Charles A. National adult physical fitness survey: Some implications. Journal of Physical Education and Recreation, January 1974, 4, 25-28.

Bullock, Marguerite and Alden, Florence D. Some of the factors determining the attitude of freshmen women at the University of Oregon toward required physical education. Research Quarterly, December 1933, 4, 60-70.

Butler, George D. Introduction to community recreation (4th Ed.). New York: McGraw-Hill Book Company, 1967.

Caldwell, Frances. Adults play big role in children's sports. The Physician and Sportsmedicine, April 1977, 5, 103-118.

Campbell, Donald E. Student attitudes toward physical education. Research Quarterly, October 1968, 39, 456-463.

_____. Analysis of leisure time profiles of four age groups of adult males. Research Quarterly, May 1969, 40, 266-273.

Carr, Martha. The relationships between success in physical education and selected attitudes expressed by high school freshmen girls. Research Quarterly, December 1945, 16, 176-191.

Ciuciu, George. The socialization process of children by means of extemporized and organized games. International Review of Sport Sociology, 1974, 9, 7-21.

Cochran, William G. Sampling techniques. New York: John Wiley and Sons, 1974.

Coffey, Margaret A. Then and now: The sportswoman. Journal of Health, Physical Education and Recreation, February 1965, 36, 38-50.

Cowell, Charles C. and France, Wellman L. Philosophy and principles of physical education. Englewood Cliffs: Prentice Hall, 1963, p. 146.

Craig, H. W. Sports interests and attitudes of students enrolled in the service curriculum in physical education at the University of Illinois. Research Quarterly, May 1939, 10, 143-149.

Darst, Paul W. Learning environment to create lifelong enjoyment of physical activity. Journal of Physical Education and Recreation, January 1978, 49, p. 44.

Daughtrey, Greyson. Effective teaching in physical education for secondary schools (2nd Ed.). Philadelphia: W. B. Saunders Company, 1973.

Dauer, Victor P. Dynamic physical education for elementary school children (3rd Ed.). Minneapolis: Burgess Publishing Company, 1970.

Dillman, Don A. Mail and telephone surveys: The total design method. New York: John Wiley and Sons, 1978.

Division of Girls and Women's Sports. Statement of policies for competition in girls and women's sports. Journal of Health, Physical Education and Recreation, September 1963, 34, 31-33.

_____. DGWS statement on competition for girls and women. Journal of Health, Physical Education and Recreation, September 1965, 36, 34-37.

_____. DGWS statement on competition for girls and women: Guidelines for interscholastic athletic programs for junior high school girls. Journal of Health, Physical Education and Recreation, September 1966, 37, 36-37.

Dobbs, Ralph C. and Steponovich, A. J., Jr. Understanding physical education programs for adults. Adult Leadership, November 1972, 21, 149-150.

Doherty, John P. Life long physical education. Physical Educator, December 1975, 4, 198-200.

Driftmier, Erna. Individual differences in interests and physical traits as related to high school girls in physical education. Research Quarterly, March 1933, 4, 198-200.

Drowatzky, John N. Motor learning principles and practices. Minneapolis: Burgess Publishing Company, 1975.

Duncan, David R. Measuring the generation gap: Attitudes toward parents and other adults. Adolescence, Spring 1978, 13, 77-81.

Edgren, Harry D. The interests and participation in out-of-school recreation activities. Research Quarterly, October 1937, 8, 56-68.

Eisenman, Patricia A. and Golding, Lawrence A. Comparison of effects of training on $\dot{V}_{O_2}$max in girls and young women. Medicine and Science in Sports, Summer 1975, 136-138.

Foss, Peggy. The attitudes of South Dakota State College women students toward physical education. Unpublished master's thesis, South Dakota State College, 1960.

_____. Motivational factors influencing compliance, adherence, and maintenance of physical training by middle-aged Swedish males. Unpublished paper, Michigan State University, 1976.

_____. A cross-cultural study: Motivational factors influencing compliance, adherence, and maintenance of physical training by middle-aged Swedish and American males. Unpublished paper, Michigan State University, 1978.

Fox, Margaret G. Activities they wish they'd had in college. Journal of Health, Physical Education and Recreation, January 1957, 28, p. 14.

Franklin, Barry A. Effects of a 12-week physical conditioning program on cardiorespiratory function, body composition, and serum lipids of normal and obese middle-aged women. Unpublished doctoral dissertation, Pennsylvania State University, 1976.

Gates, Edith M. The non-school girl in athletics. Research Quarterly, October 1932, 3, 96-98.

Gendel, Evalyn S. Lack of fitness a source of chronic ills in women. The Physician and Sportsmedicine, February 1978, 6, 85-89.

Georgiady, Alexander and Savage, Russell. Status of physical education in elementary schools. Research Quarterly, March 1940, 11, 40-47.

Gerland, LaVaugh Roe. A study to determine the influence of the foundation of physical education course upon concept of physical self and attitudes toward physical activity among college women. Unpublished master's thesis, Michigan State University, 1960.

Graybeal, Elizabeth. Measurement in physical education for women. Research Quarterly, December 1936, 7, 60-63.

Greendorfer, Susan. Role of socializing agents in female sport involvement. Research Quarterly, May 1977, 48, 304-310.

Greendorfer, Susan and Lewko, John. Role of family members in sport socialization of children. Research Quarterly, May 1978, 49, 146-152.

Halsey, Elizabeth and Porter, Lorena. Physical education for children: A developmental program. New York: Holt, Rinehart and Winston, 1958.

Hammerman, Donald R. and Hammerman, William M. Outdoor education: A book of readings. Minneapolis: Burgess Publishing Company, 1968.

Hansen, M. H. and Hurwitz, W. N. The problem of nonresponse in sample surveys. Journal of American Statistical Association, 1964, 41, 527-529.

Hanson, John S. and Nedde, William. Long-term physical training effect in sedentary females. Journal of Applied Physiology, July 1974, 37, 112-116.

Harris, Bea. Attitudes of students toward women's athletic competition. Research Quarterly, May 1968, 39, 278-284.

Harris, Dorothy. Physical activity history and attitudes of middle-aged men. Medicine and Science in Sports, Winter 1970, 2, 203-208.

Havighurst, R. J. The leisure activities of the middle-aged. American Journal of Sociology, 1957, 63, 152-162.

Haynes, Wilma D. After college what? Research Quarterly, March 1931, 2, 211-218.

Heinzelmann, F. and Bagley, R. Response to physical activity programs and their effects on health behavior. Public Health Report, 1970, 89, 905-911.

Holmes, Harold, Jr. Effects of training on chronic health complaints of middle-aged men. Unpublished doctoral dissertation, University of Illinois, 1969.

Irwin, Leslie W. and Reavis, William. Practices pertaining to health and physical education in secondary schools. Research Quarterly, October 1940, 11, 93-109.

Isaac, Stephen and Michael, William. Handbook in research and evaluation. San Diego: EDITS Publishers, 1977.

Jable, J. Thomas and Cheesman, Mary Jane. An exercise project by young adults for senior citizens. Journal of Physical Education and Recreation, January 1978, 49, 26-27.

Kane, Isabel and Hodgson, Pauline. A study of factors influencing participation of college women in an elective program of physical education. Research Quarterly, March 1939, 10, 57-65.

Kasch, Fred. Fitness and cardiovascular health. In G. H. McGlynn (Ed.), Issues in physical education and sports. San Francisco: National Press Books, 1974.

Kavanagh, T., Shephard, R. J., Pandit, V. and Doney, H. Exercise and hypnotherapy in the rehabilitation of the coronary patient. Archives of Physical Medicine and Rehabilitation, 1970, 51, 578-587.

Kelley, E. James and Lindsay, Carl A. Knowledge obsolescence in physical educators. Research Quarterly, May 1977, 48, 463-474.

Kenyon, Gerald S. A conceptual model for characterizing physical activity. Research Quarterly, March 1968, 39, 96-105.

Kilbom, A., Hartley, L. H., Saltin, B., Bjure, J., Grimby, G., and Astrand, I. Physical training in sedentary middle-aged and older men. I. Medical Evaluation Scandinavian Journal of Clinical and Laboratory Investigation, 1969, 24, 315-323.

Kilbom, A. Physical training in women. Scandinavian Journal of Clinical and Laboratory Investigation, 1971, 28 (suppl. 119), 1-34.

Kirchner, Glenn, Cunningham, Jean, and Warrell, Eileen. Introduction to movement education. Dubuque: William C. Brown Company Publishers, 1970, p. 4.

Kish, Leslie, Survey sampling. New York: John Wiley and Sons, Inc., 1976.

Kratz, L. E. A study of sports implication of women's participation in them in modern society. Unpublished doctoral dissertation, Ohio State University, 1958.

Lamb, David R. Physiology of exercise. New York: Macmillan Publishing Company, Inc., 1978.

Larsen, Margaret. State organization of athletic association for girls in secondary schools. Research Quarterly, October 1931, 2, 63-74.

Leavitt, Norma M. and Duncan, Margaret J. The status of intramural programs for women. Research Quarterly, March 1937, 8, 68-79.

Lee, Mabel. The case for and against intercollegiate athletics for women and the situation since 1923. Research Quarterly, May 1931, 2, 93-128.

Lemen, Mildred G. The relation between selected variables and attitudes of college women toward physical education and certain sports. Unpublished doctoral dissertation, State University of Iowa, 1962.

Leonard, George G. Physical education for life. Today's Education, September 1975, 64, 75-79.

Leventhal, Howard. Changing attitudes and habits to reduce risk factors in chronic disease. The American Journal of Cardiology, May 1973, 31, 571-580.

Locke, Lawrence. Personalized learning in physical education. Journal of Physical Education and Recreation, June 1976, 47, 32-35.

Maas, Gerald. Promoting high school intramurals. Journal of Physical Education and Recreation, February 1978, 49, 40-41.

Malumphy, Theresa. The college woman athlete--questions and tentative answers. Quest, June 1970, 24, 18-27.

Mand, Charles L. Outdoor education. New York: J. Lowell Pratt and Company, 1976.

Mann, G. V., Garrett, H. L., Farhi, A., Murray, H., and Billings, F. T. Exercise to prevent coronary heart disease, American Journal of Medicine, 1969, 46, 46-49.

Marascuilo, Leonard A. and McSweeney, Maryellen. Nonparametric and distribution-free methods for the social sciences. Monterey: Brooks/Cole Publishing Company, 1977.

Marshall, Violet B. A discussion of the requirement in physical education for women in colleges and universities. Research Quarterly, December 1934, 4, 3-17.

Mason, Skip. A different look for high school intramurals. Journal of Physical Education and Recreation, November 1978, 49, 81-83.

Massie, J. F. and Shephard, R. F. Physiological and psychological effects of training: A comparison of individual and gymnastic programs with a characterization of the exercise drop-out. Medicine and Science in Sports, Fall 1971, 3, 110-117.

McAlister, A. L. Behavioral science applied to cardiovascular health: Progress and research needs in the modification of risk taking habits in adult population. Health Education Monograph, 1974, 4, 45-74.

McClusky, Howard Y. The coming of age in lifelong learning. Journal of Research and Development in Education, Summer 1974, 7, 97-100.

McElreath, Mark P. How to figure out what adults want to know. Adult Leadership, March 1976, 24, 232-235.

McGee, Rosemary. Comparisons of attitudes toward intensive competition for high school girls. Research Quarterly, March 1956, 27, 60-73.

Meyer, A. J. and Henderson, J. B. Multiple risk factor reduction in prevention of cardiovascular disease. Preventive Medicine, 1974, 3, 225, 236.

Miller, John P. Humanizing the classroom. New York: Praeger Publishers, 1976.

Mista, Nancy J. Attitudes of college women toward their high school physical education programs. Research Quarterly, March 1968, 39, 166-174.

Montgomery, Katherine W. Principles and procedures in the conduct of interscholastic athletics for adolescent girls. Research Quarterly, March 1942, 13, 60-67.

Montoye, H. J. and Cunningham, D. A. Professional preparation in health, physical education and recreation. In R. L. Ebel (Ed.), Encyclopedia of Educational Research. London: MacMillian, 1969.

Moore, Beverly Young. The attitude of college women toward physical activity as a means of recreation. Research Quarterly, December 1941, 12, 720-725.

Morgan, William, Roberts, John, Brand, Frank, and Feinerman, Adrian. Psychological effect of chronic physical activity. Medicine and Science in Sports, Winter 1970, 2, 213-217.

Moyer, Lou Jean, Mitchim, John C., and Bell, Mary M. Women's attitudes toward physical education in the general education program at Northern Illinois University. Research Quarterly, December 1966, 37, 515-519.

Nachemson, A. L. Low back pain--It's etiology and treatment. Clinical Medicine, 1971, 78, 18-24.

National Association for Human Development. Testimony on physical fitness for older persons. Washington, D.C.: President's Council on Physical Fitness and Sports, D-HEW, 1975.

Nemson, Edward. Specific annoyances in relation to attitude in physical education classes. Research Quarterly, October 1949, 20, 336-346.

Nixon, John E. and Jewett, Anne E. An introduction to physical education (7th Ed.). Philadelphia: W. B. Saunders Company, 1969, p. 56.

Oja, Pekka, Tereslinna, Pentti, Partane, Timo, and Karava, Risto. Feasibility of an 18 months' physical training program for middle-aged men and its effect on physical fitness. American Journal of Public Health, May 1974, 64, 459-464.

Orlick, T. D. Family sports environment and early sports participation. Paper presented at Canadian Psychomotor Learning and Sports Psychology Symposium, Waterloo, Ontario, 1971.

Parten, Mildred B. Surveys, polls, and samples: Practical procedures. New York: Harper and Brothers, Publishers, 1960.

Phillips, Coralie. A survey of physical activity backgrounds and present participation in and attitudes toward sports and recreational activities of resident graduate women students of Michigan State University. Unpublished master's thesis, Michigan State University, 1966.

Pollock, M. L., Gettman, L. R., Melesis, C. A., Bah, M. D., Durstine, L., and Johnson, R. B. Effects of frequency and duration of training on attrition and incidence of injury. Medicine and Science in Sports, Spring 1977, 9, 31-36.

Polk, R. L. (Ed.). Ann Arbor (Washtenaw County) city directory. Taylor, Mich.: R. L. Polk and Company Publishers, 1978, p. 147.

Pudelkiewicz, Eugeniusz. Sociological problems of sports in housing estates. International Review of Sport Sociology, 1970, 5, 73-107.

Rhodes, Joan. Research in the field of adult and continuing education. Adult Leadership, November 1974, 23, 149-151.

Robinson, John and Godkey, Geoffrey. Work and leisure in America: How we spend our time. Journal of Physical Education and Recreation, October 1978, 49, 6-7.

Rohrs, Jan VanDuzer. The relationship between selected physical activity background factors and the physical performance and evaluation measures used in the foundations of physical education course at Michigan State University. Unpublished master's thesis, Michigan State University, 1962.

Ruffer, William A. A study of extreme physical activity groups of young men. Research Quarterly, May 1968, 36, 183-196.

Seagoe, Mary V. A teacher's guide to the learning process 2nd Ed.). Dubuque: William C. Brown Company, 1961.

Sherriff, Marie. Why compete??? In Division of girls and women's research reports: Women in sport. Washington, D.C.: American Association for Health, Physical Education and Recreation, 1971.

Sidney, K. H. and Shephard, R. J. Attitudes toward health and physical activity in the elderly. Medicine and Science in Sports, Winter 1976, 8, 246-252.

Simon, J. A. and Smoll, F. L. An instrument for assessing children's attitudes toward physical activity. Research Quarterly, December 1974, 45, 407-415.

Singer, Robert N. Coaching, athletics, and psychology. New York: McGraw-Hill Book Company, 1972.

Smoll, Frank L., Schutz, Robert W., and Keeney, Joan K. Relationships among children's attitudes, involvement, and proficiency in physical activities. Research Quarterly, December 1976, 47, 797-803.

Solley, William H. Relationship between participation in interschool sports and extraclass play activities in college. Research Quarterly, March 1961, 32, 93-108.

Sommers, Lawrence M. (Ed.). Atlas of Michigan. East Lansing: Michigan State University Press, 1977.

Stiles, M. H. Motivation for sports participation in the community. Canadian Medical Association Journal, March 1967, 96, 889-892.

Stoedefalke, Karl. Physical fitness programs for adults. The American Journal of Cardiology, May 1974, 33, 787-790.

_____. Physical fitness programs for adults. In Ezra Amsterdam, Jack H. Wilmore, and Anthony N. DeMaria (Eds.), Exercise in cardiovascular health and disease. New York: Yorke Medical Books, 1977.

Snyder, Eldon and Spreitzer, Elmer. Family influence and infolvement in sports. Research Quarterly, October 1973, 44, 249-255.

_____. Correlates of sports participation among adolescent girls. Research Quarterly, December 1976, 47, 808-809.

Toogood, Ruth. A survey of recreational interests and pursuits of college women. Research Quarterly, October 1939, 10, 90-100.

Tzankoff, S. P. Physiological adjustments to work in older men as affected by physical training. Journal of Applied Physiology, September 1972, 33, 343-350.

U.S. Bureau of the Census. Census of population: 1970 vol. 1 Characteristics of the population, part 24, Michigan. Washington, D.C.: United States Government Printing Office, 1973.

U.S. National Office for Health Statistics, U.D. Department of Health, Education and Welfare. Health--United States--1976-77. Washington, D.C.: United States Government Printing Office, 1977.

Universities Study Commission. Joint legislative study on youth sports programs: Agency sponsored sports--phase I. State of Michigan, November 18, 1976.

Vannier, Maryhelen and Foster, Mildred. Teaching physical education in elementary schools (3rd Ed.). Philadelphia: W. B. Saunders Company, 1963.

Van Why, John. A study to determine factors conducive to voluntary participation in active play. In Greyson Daughtrey, Effective teaching in physical education for secondary schools (2nd Ed.). Philadelphia: W. B. Saunders Company, 1973.

Vendien, Christine. The relationship between leisure time activities and physical education programs for Michigan high school girls. Unpublished doctoral dissertation, Stanford University, 1957.

Waggoner, Miriam. Individual differences in interests and efforts of college women as related to a program of physical education. Research Quarterly, October 1935, 6, 86-95.

Wagner, Miriam. Intramurals and women's athletics associations. Research Quarterly, March 1931, 2, 206-216.

Watson, G. G. Sex role socialization and the competitive process in little athletics. Australian Journal of Health, Physical Education and Recreation, 1975, 70, 10-21.

Wear, Carlos L. Evaluation of attitude toward physical education as an activity course. Research Quarterly, March 1951, 22, 114-126.

Weick, Kathryn. Objectives of physical education expressed as needs by university students. Research Quarterly, October 1975, 46, 385-388.

Wescott, Wayne L. Physical fitness: What is it and why should it be included in secondary school programs. National Association of Secondary School Principals Bulletin, May 1978, 62, 15-18.

West, Glenn R. The coming of adult physical education curriculum. Journal of Physical Education and Recreation, February 1979, 50, 55-56.

Wiedamann, Inge von Lewinski and Howe, Eugene C. Undergraduate attitudes and interests with regard to physical education activities at Wellesley College. Research Quarterly, March 1937, 8, 15-32.

Willgoose, Carl E. The curriculum in physical education (2nd Ed.). Englewood Cliffs: Prentice-Hall, Inc., 1974, p. 132.

Wilmore, Jack. Individual exercise prescription. The American Journal of Cardiology, May 1974, 33, 757-759.

Yarvote, P. M. Organization and evaluation of physical fitness programs in industry. Journal of Occupational Medicine, September 1965, 16, 587-589.

Zaichkowsky, Linda B. Attitudinal differences in two types of physical education programs. Research Quarterly, October 1975, 46, 364-370.

Zimmerman, Helen M. Physical activity experience and interests of college women. Research Quarterly, March 1954, 25, 109-119.