A STUDY OF EXPERIENCE AND PRESENT PARTICIPATION IN PHYSICAL ACTIVITIES OF TEL AVIV UNIVERSITY FACULTY

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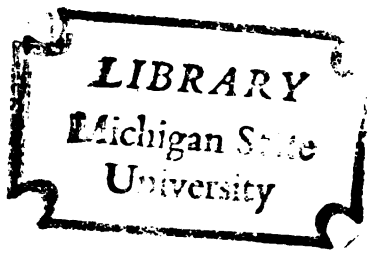

ABSTRACT

A STUDY OF PAST EXPERIENCE AND PRESENT PARTICIPATION IN PHYSICAL ACTIVITIES OF TEL AVIV UNIVERSITY FACULTY

By

Alexander Kushnir

This study was an attempt to determine the level and the type of participation in physical activities by the faculty at Tel Aviv University. The level of participation and the type of activities were related to the age of the subjects and their past experiences in physical education.

The data were concerned with 481 subjects, 355 males and 126 females, who reported that they are healthy and without physical limitations. The subjects were sorted by three age groups for each sex, young group (younger than 30), middle age group (30-45), and old group (older than 45). The data were analyzed to determine frequencies, distribution and percentages. Certain parts of the data were subjected to analysis by the chi square test of independence. The differences were tested for statistical significance on the 0.05 level of probability.

A high percentage of participation in physical activities was found: 66.7% among men and 62.5% among

women. The participation in physical activities did not decline with aging in both sexes. The type of the activities changed as a function of age. The shift was from team games to more individualistic activities. The most popular activity in all age groups, and both sexes, was swimming. The popularity of swimming is even increasing with aging. Tennis appears to have a high attraction for many adults, particularly in the middle age (30-45). The present study did not find justification for required programs in college as a means for improving participation in physical activities later in life. There was an indication that a voluntary program appears to improve students' attitudes toward physical activity and participation later in life.

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CHAPTER I

INTRODUCTION

Statement of the Problem

In the last few years there have been many references made concerning the implication involved in the justification of required physical education in universities. One of the goals of the required program is to serve the need of the student later in his life. Among other questions concerning this subject are the following three:

1. In what activities do adults mostly prefer to participate, how it relates to their age, and their past experience in physical education?
2. Has required physical education made any contribution to the individual participation in physical activities?
3. What kind, if any, physical education program will be effective to serve the students in their later life?

This thesis is an attempt to answer these questions.

Need for the Study

Our modern world leads to a more and more physically inactive style of life. This fact increases the importance of physical activities to human beings to promote sound medical health and emotional well being. In addition to other goals, the purpose of the required physical education program at the university is to develop in the student, skills which may stimulate him to use them and will be useful throughout his life.

Since required physical education is, perhaps, the last opportunity to attract the student to physical activities by direct educational means, maybe this goal is one of the most important. Generally speaking, people like most to become involved in activities they do best. Students therefore certainly select their required physical education classes in fields they are most happy with at the present time. Through this procedure they increase their enjoyment and attitude toward the given activity, and even improve their fitness, but maybe ignore their needs for the future.

Information on the questions which are defined in the Statement of the Problem could be useful in discussion in the justification of required physical education in universities. This maybe will be an assistance to design a more efficient program.

Nature and Scope of the Study

This study is an attempt to investigate the attitude and participation of the faculty members of Tel-Aviv Palestine University (~~Israel~~ Palestine), to physical activities. Also the study will indicate how their participation is related to their past experience with emphasis on required physical education programs during their study at the university.

All the faculty members, male and female, were subject to this study. A questionnaire and letter of request of co-operation was sent to all the population.

The questionnaire was concerned with the subjects' background, participation in physical activities (in past and present), and the reason for participation. The subjects were also asked to mention the activities they prefer to learn now.

The data from the returned questionnaire was coded on I.B.M. cards for analyzing.

The Sports and Recreational Center at Tel Aviv University includes multipurpose courts (used mainly for basketball and mini-soccer), six tennis courts, track and soccer stadium and outdoor swimming pool of olympic size. Two basements in other buildings on the campus are used as temporary gymnasiums for indoor activities. The faculty members are encouraged to take part in the physical education classes. All the physical education classes are opened to the faculty members. Also particular

courses are offered to faculty to participate with their peers and to learn new skills which are appropriate for their age. The faculty is charged a low membership fee for the use of the facilities of the Sports Center. The facilities are available most of the day, seven days per week. The Sport Center is open to the families including children. More than 50 percent of the faculty register for swimming and about 20 percent enroll for tennis. Several sports activities are not popular in Israel (like golf and squash) and are not included in the program at Tel Aviv University.

Limitations

The limitations of this study are as follows:

1. The study includes only faculty at Tel Aviv University, an atypical group who are not representative of college graduates;
2. The questionnaire of this study was sent to the faculty members who were on the salary payment list of the last month of the academic year 1973-74. Thus a relatively high percentage of the questionnaires were returned non-completed with the information that the subjects were not available;
3. The results of this study is based on the subjects responding to the questionnaire.

Not all the subjects responded to all items on the questionnaire. In addition, the subjects responses probably contain a certain number of biased answers.

Definition of Terms

1. Age Groups--The subjects were sorted in this study by three designated age groups as follows:
   a. Old Group: Those who were born not later than December 31, 1928 and they are older than 45;
   b. Middle-Age Group: Those who were born January 1, 1929 to December 31, 1943, and their ages are 30-45;
   c. Young Group: Those who were born after December 31, 1943 and they are younger than 30.
2. Types of Physical Activities--In this study the physical activities were classified into three types based on the nature of the activities:
   a. Individual Activities: Including (1) track and field or jogging; (2) golf or bowling; (3) weight-lifting; (4) calisthenics; (5) rowing; (6) sailing; (7) skiing or waterskiing; (8) target shooting; (9) swimming.
   b. Dual Games: Including: (1) boxing or wrestling; (2) judo or karate; (3) tennis; (4) table tennis; (5) fencing; (6) squash;

c. Team Games: Including: (1) field handball; (2) basketball; (3) volleyball; (4) soccer.

3. Required Program = Physical Education Required Program--Activity course required of all students to achieve graduation. Courses are generally scheduled during the Freshman and Sophomore years.

4. Intramural Program--Voluntary physical activities program designed to allow students with any level of skill to participate during their leisure time.

5. Sedentary Subject--A subject who does not participate in physical activities.

6. Active Subject--A subject who is taking part in physical activity.

CHAPTER II

REVIEW OF LITERATURE

Many studies have focused on the effects of required physical education in universities. Most of these studies were dealing with the influence of this program on the students physical condition and their attitude toward physical education. Joseph B. Oxendine (20) made a survey in 1968 of the status of required physical education programs in colleges and universities throughout the United States. He sent a questionnaire to 1,046 institutions and received 723 (69.1%) completed answers. This survey determined, among other facts:

a. 87% of the institutions have required physical education for all students and an additional 7% have such a program for students in certain departments.

b. Among those institutions with required programs two-thirds mandate physical education for a period of two years.

c. Physical education courses showing the greatest gains in programs emphasize "recreational" and fitness activities.

d. There is a rather strong tendency toward the reduction or elimination of team sports.

Without ignoring the fact that some institutions which did not respond probably did not have such a program, even so his study shows that required physical education has been quite accepted in the United States at the end of the 1960s.

Contradictory opinions are found in the literature concerning the role of required physical education and which aspects of the programs should be emphasized. Carl E. Willgoose (28) believes in the importance of fitness. "We approach our potential mental capacity only when we are capable of putting into action that which we have thought about." Physical fitness is one of the strongest reasons for including physical education in higher education curricula. Fitness should be stressed to the students. The feeling of improvement fitness and teaching scientific facts on fitness can be the tools to encourage participation in physical education programs.

On the other hand, Raymond A. Weiss (25) claims that enjoying physical activity is more important to human well being than merely stressing high levels of physical fitness. Weiss does not ignore the importance of basic

physical fitness which is needed to learn a given skill, but the emphasis, in his opinion, should be on the enjoyment of the activities. Weiss also mentions several possible disadvantages of "too much fitness." One disadvantage is that overemphasis on physical fitness in school could lead to less interest in physical activities later in life.

Being concerned with this latter issue, Janet A. Wessel and others (27) describe a new approach in required physical education at Michigan State University in 1957. A course called "Foundations of Physical Education" attempts to guide the students on using their leisure time more effectively. The students learned to apply biological, psychological, sociological and physiological facts through activity. This course "would provide the basis for developing a physically educated person." The authors report that "this new requirement was very favorably received by students." However, without observation on the influence of such a program for an extended time even they could not answer the question: Would such a course "guide the student toward a more intelligent and beneficial activity program while in college and after graduation?"

Edward Derrick Bell (3) completed (in 1967) a survey attempting to determine if the attitudes of students toward physical activities were influenced by taking the "Foundations of Physical Education" course at Michigan

State University. His data suggest that the attitudes of most students were unchanged as a result of taking the course.

Donald E. Campbell (8) does not believe that explanation and scientific evidence can convince people to participate in any kind of recreational activity. "People do not engage in recreational activities because they are convinced that such will be good for them. Since man is a creature of habits, the way a person spends his leisure time may be determined by habits."

Bryant J. Cortly (9) in a book of Psychology and Physical Activities drew the conclusion that "the need to play seems as fundamental in humans as the seeking of food." Physical education programs do not need more subtle reasons for their existance than simply to satisfy this basic need.

What are the students' attitudes towards physical education prior to college? General agreement exists that students come to the university with positive attitudes towards physical education. For example, Brumback and Cross (4) found that students entering the University of Oregon held favorable attitudes towards physical education. Further, they found that the favorable attitude of the students was directly related to the number of years spent in physical education during high school. The athletes in their sample held better attitudes than the non-athletes. Similarly, Bell (3) in his study on the influence of the "Foundation of Physical Education" course found a majority

of the students entering the course held a positive attitude towards physical education.

In a study of women's attitudes towards physical education, Morilyn F. Vincent (24) shows a significant relationship between attitude and success in physical education. Thus for women positive attitude towards physical education also directly influences participation in physical activities.

A number of other studies have been done on the attitudes and participation of adults in recreation and physical activities programs. Some studies focus more on physical activity as a part of recreation and leisure activities. While other studies deal most directly with the physical activities adults engage in.

James A. Baley (2) studied the relationship between leisure activities and the age of the adult. He comes to four major conclusions: (1) as men grow older, they participate less frequently in almost all forms of recreational activities; (2) the activities which increased in popularity with age were usually sedentary in nature and enjoyed either alone or with only a few others; (3) three categories of activities which declined the most were those requiring quick reaction time, stamina and endurance, and those satisfying a romantic or erotic impulse; (4) participation in sports was also directly related to income level. Activity increased from low to higher income groups, but the highest income group showed a decline in activity.

David A. Cunningham and others (10) studied the frequency of participation in leisure activities of men. His subjects were men living in Tecumseh, Michigan and ranged from the ages of 16 to 69 years. Activities were classified according to the energy cost of each activity. Six age groupings were used in the study: 16-29, 30-39, 40-49, 50-59, 60-69. When the energy cost of the activity was taken into account there was a general decrease in leisure time activities observed from the youngest to the oldest groups.

A number of other studies (5, 7, 8, 14, 15, 18, 26, 29) also support the conclusion that increase in age leads to a decrease in activity. The evidence also suggests that the type of leisure time activity also changes as a function of age. As the individual becomes older there is a shift from participation in games to more sedate activities (5, 8, 14, 18, 19, 22, 26, 29).

At Longston University, Davis Welch (26) did an analytic survey of leisure time activities of the Longston faculty members. Ninety-eight recreational activities were reported by the eighty-eight faculty members, of whom approximately 60% engaged in practically no physical activities. The inactive recreational pursuits were more common among this group than active pursuits. But generalization from this sample of faculty members to other faculties is difficult, since the most frequent reason

given for lack of participation of physical activities was lack of facilities at the university.

Another variable which appears to influence adult participation in physical activities is level of education. Dorothy V. Harris (15) believes that middle aged men who volitionally participate in physical activities differ from their sedentary peers in several ways. She draws a profile of the volitionally active man as one who, "grew up in an urban area; had parents who encouraged his participation in sports; was a member of high school and college athletic teams; had more years of formal education; had always participated in vigorous activity; and enjoyed strenuous exercise."

Thomas L. Burton (5) supports the correlation between degree of participation in physical activities and income and level of education. Based on the 1965 "Pilot National Recreational Survey" done in England, Burton notes that high income is associated with higher levels of participation in almost every sport. This generalization is particularly true of water sports. Furthermore, some sports such as swimming and tennis appear to have a high income and high educational status.

In an analysis of female participation Burton believes that sex has much less of an influence upon levels of participation but much greater effect upon the type of activities chosen. In offering a psychological explanation,

Brian Sutton-Smith and others (23) who studied the game involvement of adults suggest that "because games of physical skill are associated with high achievement training they will be preferred by upper as compared with the lower status groups and by men as compared with women." Furthermore, L. E. Kratz (16) in a study of women's sports and their implication for women's participation in modern society, suggests that women's sport participation may be related to the acceptance of sports as an appropriate activity for women.

General agreement exists that physical activity is good for adults of advancing years. Wessel and others (27) are warning that "we may well be in danger of losing the minimum degree of activity necessary to maintain positive health." Buskirk and Counsilman (6) stated the psychological and social benefits occurred during middle age through participation in physical activity may be as important as the physiological benefits.

On the other hand studies indicate that participation in physical activities decreases with aging. These conclusions stimulate the questions: (a) Is the decline in participation in physical activities with age physiological or psychological and socio-cultural? (b) When and how does ones attitude towards physical activities form? Perhaps a most crucial and important question is (c) can we ever find a high percentage of participation in physical activities in an adult population?

The common belief is that the general decline in physical activity with age is due to a physiological decline with age. There are several studies in contrast with the common belief that a decrease in physical activity is only due to physiological reasons. For example, Zobrowski (29) suggests that "the decrease in activities associated with physical exertion is to a certain extent a manifestation of cultural expectation rather than due only to aging." Buskirk and Counselman (6) state that many individuals of middle age feel a compulsion to remain inactive when they reach middle age. This could be a result of their fear that exercise might be harmful.

Burton (5) suggests two possible reasons for the decline in participation with age. First, there is "the physical effort demanded of participants and, often, the discomfort and even pain associated with this (physical effort)." Secondly, there is the psychological reason resistance to carry on activities which one was forced to participate in as a youth. Burton states "there is, also, a direct relationship between levels of participation during leisure time and the degree of compulsion that individuals attach to certain sports." In his opinion it is rare for sports taught at school to survive long into adult life and many sports do "suffer a definite loss of interest among adults which is, in part, associated with an identification of these as compulsory school sports."

Corthy (9) believes that the types of physical activities which one participates in later in life probably becomes established during youth. Stiles (21) feels that a critical stage or period for attitude formation comes during the transition from youth to adulthood. As an example of the striking discontinuity which can exist between youth and adulthood, Montoye and others (18) studied the participation of former letter winners and non-letter winners in adult life. There were a number of differences between the two groups in the activities which they participated in as adults. But overall the most striking finding was the surprisingly low percentage of participation found in both groups.

Faced with the fact that the college graduate's level of participation later in life was so low, they asked "what could be done earlier to increase the motivation for sports participation in later adult life?" Unfortunately no clear-cut answer could be given. They reported two approaches but these prove to be contradictory. First, physical education programs should offer instructional courses in the "recreational type" sports which may be carried on at all age periods. Secondly, it is not the training or proficiency in specific sports which carries over into later life, but that the positive attitude formed about sports participation which is important. Therefore, the programs should contain courses which appeal to the

present interests of the students and not to the interests they may have later in life.

What could a curriculum of physical education at the university contribute to the attitudes and participation in later life? Is this stage of life too late as Corthy (9) believes? Or is this stage of life a critical period for attitude formation as Stiles (21) suggests?

Lehmann and Payne (17) supported Stiles argument in their study on the attitude and value changes of college freshmen. Their study did not concern itself with specific attitudes toward physical education but they found that this is a critical stage in life for changes in attitude and values. It has been also shown that changes in attitudes and values will occur between the freshmen to senior years. The degree and extent of the changes are dependent upon, among other factors, the nature of the experience.

Harris (15) states "a positive attitude toward physical activity was formed early in life." But in her study she shows that it is possible to improve adult attitude toward physical activities even at the age of 40 or later. In her study she compared three groups of male employees of the Pennsylvania State University, aged 40-59 all clinically healthy. The first group of subjects who were "volitionally active"; the second group of subjects who were sedentary and the third group of subjects

who were sedentary as the second group but "a one year program" of physical education designed for them. A questionnaire of "Physical Attitude Inventory" was administered to the subject's of the three groups. Significance difference was found between the "volitionally active" and the two other groups. The sedentary men who became active in the "one year program" still held attitudes similar to those who remained sedentary; but, generally, "their attitudes became more like those held by the volitionally active men."

One of the main arguments to justify the existance of a required physical education program in the university is that this program serves the students needs later in life. However, little has been done to determine the physical activities, interests and participation of college graduates (later in life) as a tool for the evaluation of the required physical education they received during college.

In 1948 Carroll Adams (1) surveyed the alumni of Columbia University to learn what active recreation they were participating in. He came up with some interesting findings: (a) Individuals in various vocations and professions revealed marked similarity to their choices of games; (b) Individual recreational games and sports requiring a small number of participants predominate among the most frequent activities; (c) many alumni cease all physical activities when they begin to become involved in

earning their living; (d) participation by most alumni is seasonal. The time of greatest activity is during the summer; (e) the most recently graduated classes revealed the greatest variety of interests in physical activities; (f) 41% of the responded subjects stated that they could trace their interest in games and sports back to Columbia University, but only 23% indicated that they learned the skills of the activity that they are participating in at Columbia.

Ronald A. Murray (19) conducted a survey on the physical activities of electrical engineering graduates of Michigan State University. The information obtained in this study support the idea that individual sports and informal activities more popular with graduates than team games. The subjects surveyed had a great interest in activities that involved water, mainly swimming and diving.

In conclusion, the literature points out that many students have quite a positive attitude towards physical education during college. The participation in physical activities decreases with aging, but the decrease in the college educated appears to be less than that found in the total population. Like the total population, college graduates attitudes are changed towards different kinds of activities with aging. There is a shift from team games to more sedentary activities and individualistic activity. No clear cut suggestions were found to improve adult

participation in physical activities. Finally, general agreement exists that one of the main roles of the physical education programs at the universities is to influence participation later in life. Only a few studies have attempted to find a relationship between adult participation and college physical education programs. In these studies no clear evidence was found to support the belief that these programs are having the desired influence.

CHAPTER III

METHODOLOGY

Devising the Questionnaire

A questionnaire was devised in order to collect the relevant data as represented in the introduction. The questionnaire is composed of five parts:

Part One: Deals with personal background, and items concerned with experience in physical activities in the past.

Part Two: Includes the list of physical activities. The subjects were asked to indicate in which of the activities they participated in the past or present. They were also asked to indicate in what frequency, and at what stage of life they began to participate in the actual activity.

Part Three: Is composed of two lists of reasons which could have caused the motivation to be be active or non-active in physical activities. The subjects were asked to mark their responses

to each reason according to three categories:

1. one of the important reasons;
2. one of the reasons but not an important one;
3. not a reason for me at all.

Part Four: Is composed of 15 statements with five responses possible (fully agree, agree, no opinion, disagree, strongly disagree). The statements are concerned with their opinion and attitude toward physical education. The subjects were also asked to respond to the purpose of a compulsory physical education program at the University.

Part Five: The subjects indicated what physical activities, if any, they would be interested in learning now.

An initial questionnaire was devised and 30 people were asked to complete it. In response to this pilot study some changes were made in the questionnaire in order to make it clear and easier to answer. An I.B.M. code was assigned to each item and the final questionnaire was completed (Appendix A).

The Population

The population consisted of all the faculty members, male and female, who were on the salary payment list at

Tel-Aviv University during October, 1974. This list was available in the administration office and it included 1,664 names and the department from which they were paid. All the population of 1,664 names were subject to the survey of this study.

Techniques of Mailing

On the first week of December, 1974, the questionnaire was mailed to all the 1,664 names at their department with the following:

1. Questionnaire;
2. Letter requesting their co-operation (Appendix B);
3. Envelope with the author's return address at the Physical Education Unit.

In the event the subject was unavailable a request was typed on the back of the envelope to return it with an explanation of why it could not be delivered.

Return Data

Up to the end of January, 1975, 465 (27.9%) completed and 152 (9.1%) non-completed questionnaires were returned. The most common reasons which were mentioned in the envelopes of the non-completed questionnaires were: "left the university" and "on sabbatical."

Due to the low responses (total of 37.0%), another questionnaire was mailed with a follow-up letter (Appendix C) to a random sample of the non-responses population. Out of 1,048 non-responding subjects, 10 percent (which included 105 names) was selected by random. Three days after the second questionnaire was sent the subjects were called to find out if the envelope was received (and if not, why not). The subject was also encouraged to fill out the questionnaire and to mail it back at the earliest date. Out of 105 second questionnaires:

--Fifty six (53.3%) were returned with completed data;

--Twenty four (22.8%) were returned non-completed with the information that the subjects were not available (the common reasons were similar to the first run);

--Three subjects (2.8%) refused to deal with the questionnaire;

--Twenty one questionnaires (20.0%) were not returned with unknown reason.

The data obtained for each subject at the two runs was coded on I.B.M. cards for purposes of analysis. A pilot test was made to compare the responses of the two--the 465 who responded in the first run and the 56 who responded after the follow up letter. No significant differences were found in the two groups, so it was decided to analyze the 521 subjects as one group.

Tabulation and Organization of the Data

An age distribution of the subjects was made according to sex. This distribution of 387 men and 134 women is shown in Table 1. Based on the age distribution of each sex the subjects were sorted by three designated age groups as follows:

Old Group: Who were born not later than December 31, 1928 and they are older than 45;

Middle-Age Group: Who were born January 1, 1929--December 31, 1943 and their ages are 30-45;

Young Group: Who were born after December 31, 1943 and they are younger than 30.

The subjects who reported that they have physical and health limitations which inhibit them from participating in sport activities were removed from the population. The analyzed data concerned with the age group as it is shown in Table 2 for men and Table 3 for women.

Statistical Procedures

In several cases the subjects were classified either as sedentary or active. In some other cases the active subjects were classified by the number of activities in which they are participating: one, two, three or more activities. This classification was made in order to determine differences in degree of involvement in physical activities.

Equipment at the Computer Center (initially at Tel Aviv University, later at Michigan State University) was used to determine frequencies, distributions and percentages. Certain parts of the data were subjected to analysis by the Chi Square Test of Independence. When the table were 2 x 2 fold (df =) or the count in any cell was less than 5 a correction for continuity (called Yates' correction) was made (8). The differences were tested for statistical significance on the 5 percent level of probability.

TABLE 1

Age Distribution of the Responding Subjects

	Men			Women		
Age	Absolute Freq.	Relative Freq. (%)	Cum. Freq. (%)	Absolute Freq.	Relative Freq. (%)	Cum. Freq. (%)
68	1	0.3	0.3	--	--	--
67	--	--	0.3	--	--	--
66	2	0.5	0.8	--	--	--
65	--	--	0.8			
64	3	0.8	1.5	2	1.5	1.5
63	3	0.8	2.3	2	1.5	3.0
62	2	0.5	2.8	2	1.5	4.5
61	4	1.0	3.8	--	--	4.5
60	5	1.3	5.2	--	--	4.5
59	2	0.5	5.7	2	1.5	6.0
58	2	0.5	6.2	1	0.7	6.7
57	3	0.8	7.0	--	--	6.7
56	4	1.0	8.0	2	1.5	8.2
55	8	2.1	10.1	--	--	8.2
54	8	2.1	12.2	--	--	8.2
53	5	1.6	13.8	1	0.7	9.0
52	4	1.0	14.8	--	--	9.0
51	5	1.3	16.1	1	0.7	9.7
50	6	1.6	17.6	--	--	9.7
49	3	0.8	18.4	1	0.7	10.4
48	8	2.1	20.5	1	0.7	11.2
47	5	1.3	21.8	2	1.5	12.7

TABLE 1--Continued.

Age	Men			Women		
	Absolute Freq.	Relative Freq. (%)	Cum. Freq. (%)	Absolute Freq.	Relative Freq. (%)	Cum. Freq. (%)
46	5	1.3	23.1	2	1.5	14.2
45	9	2.3	25.4	5	3.7	17.9
44	13	3.4	28.8	3	2.2	20.1
43	10	2.6	31.3	3	2.2	22.4
42	16	4.1	35.5	6	4.5	26.9
41	12	3.1	38.6	--	--	26.9
40	17	4.4	43.0	5	3.7	30.6
39	17	4.4	47.4	1	0.7	31.3
38	15	3.9	51.3	7	5.2	36.6
37	17	4.4	55.7	5	3.7	40.3
36	19	4.9	60.6	7	5.2	45.3
35	19	4.9	65.5	8	6.0	51.5
34	16	4.1	69.7	8	6.0	57.5
33	11	2.8	72.5	8	6.0	63.4
32	19	4.9	77.5	8	6.0	69.4
31	16	4.1	81.6	6	4.5	73.9
30	23	6.0	87.6	5	3.7	77.6
29	12	3.1	90.7	8	6.0	83.6
28	19	4.9	95.6	10	7.5	91.0
27	7	1.8	97.6	9	6.7	97.8
26	6	1.6	99.0	2	1.5	99.3
25	2	0.5	99.5	1	0.7	100.0
24	2	0.5	100.0	--	--	100.0
TOTAL	387	100		134	100	

TABLE 2

Distribution by Age Groups--Men

Group	Age	Total Subjects	Physical Health Limit	Subject Analyzed	(%)
Old	Older than 45	89	14	75	21.12
Middle Age	30-45	267	14	213	60.00
Young	Younger than 30	71	4	67	18.88
Total		387	32	355	100.00

TABLE 3

Distribution by Age Groups--Women

Group	Age	Total Subjects	Physical Health Limit	Subject Analyzed	(%)
Old	Older than 45	19	3	16	12.7
Middle Age	30-45	80	3	77	61.1
Young	Younger than 30	35	2	33	26.2
Total		134	8	126	100.00

CHAPTER IV

ANALYSIS OF THE DATA

The present study was undertaken to determine the level and type of participation in physical activities by the faculty at Tel Aviv University. The level of participation and the type of activities were related to the age of the subjects and to their past experiences in physical education. Although the questionnaire used also asked for information concerning the subject's attitudes and reasons for participation in physical activities, only the age and past experience variables are analyzed in this presentation of the data.

Present Participation in Physical Activities

The present participation in physical activities is presented in Table 4 for men and Table 5 for women. These tables show the number of subjects and the percentage of each age group who are inactive and active in one or more activities.

A high percentage, 66.7% of the men and 62.5 of the women, take part in physical activities. Among the

TABLE 4

Present Participation in Physical Activities in the Three Age Groups According to the Number of Activities for Men

	Participation According to the Number of Activities				Total	
Age Group	None	One	Two	Three	Count	%[2]
Old Number	(21)	(26)	(16)	(12)	(75)	
Old Percentage[1]	28.0%	34.7%	21.3%	16.0%		21.2%
Middle-Age Number	(75)	(61)	(39)	(37)	(212)	
Middle-Age Percentage[1]	35.4%	28.8%	18.4%	17.5%		59.9%
Young Number	(22)	(18)	(16)	(11)	67)	
Young Percentage[1]	32.8%	26.9%	23.9%	16.4%		18.9%
Total Count	(118)	(105)	(71)	(60)	(354)	
Total Percentage[2]	33.3%	29.7%	20.1%	16.9%		100.0%

Chi Square = 2.70066 df = 6 $\alpha > 0.05$

[1]The percentage is out of the total count in each age group.

[2]The percentage is out of the total subjects.

TABLE 5

Present Participation in Physical Activities in the Three Age Groups According to the Number of Activities for Women

	Participation According to the Number of Activities				Total	
Age Group	None	One	Two	Three	Count	%[2]
Old Number	(6)	(8)	(2)	(-)	(16)	
Old Percentage[1]	37.5%	50.0%	12.5%	--		12.7%
Middle-Age Number	(26)	(30)	(17)	(4)	(77)	
Middle-Age Percentage[1]	33.8%	39.0%	22.1%	5.2%		61.1%
Young Number	(13)	(14)	(5)	(1)	(33)	
Young Percentage[1]	39.4%	42.4%	15.2%	3.0%		26.2%
Total Count	(45)	(52)	(24)	(5)	(126)	
Total Percentage[2]	37.5%	41.3%	19.0%	4.0%		100.0%

Chi Square = 2.62112 df = 6 $\alpha > 0.05$

[1]The percentage is out of the total count in each age group.

[2]The percentage is out of the total subjects.

men, 29.7% participate in one activity, 20.1% in two activities, and 16.9% in three or more activities. Most of the women are active in one activity (41.3%) with 19.0% in two activities and only 4.0% in three or more. The tendency to participate in minimum activities is stronger in the old group of the women with 50% active in one activity and none in three.

There is no significant difference between the age groups, as far as sedentary in contrast with active and in the number of the activities. Furthermore, among men the old group is even more active than the others with only 28.0% of the subjects sedentary as compared with 35.4% in the middle age group and 32.8% in the young group.

The surprisingly high percentage of participation in physical activities by the faculty at Tel Aviv University is contrary to the common beliefs and the findings of the studies concerned with adult participation in physical activities. In this study the involvement in physical activities is not decreasing with age. This finding is in direct opposition with the general agreement that a decline in activity is inevitable and almost nothing can be done to prevent it.

The faculty at Tel Aviv University is an atypical group who are not representative of the total adult population. Their educational background is the highest and their income is higher than the average. These two factors were mentioned in the literature as having a

positive correlation with participation in adulthood. The fact that those subjects who indicated physical or health limitations were eliminated from the study might also account for some other higher participation found here. However, the fact that an active effort is made to encourage the subjects to take part in physical activities, as mentioned in the introduction, should also be taken into account. Organizing groups and teaching the needed skills which are motivationaly and physically suitable to their age may be influencing their participation. The findings obtained on this point appear to support Zobrowski's opinion (29) that the decrease in physical activities "is to a certain extent a manifestation of cultural expectation rather than due only to aging."

Perhaps these findings also partially answer the important question on how can we keep adults active. At Tel Aviv University adults were encouraged to participate in physical activities by direct means, that is by teaching the needed skills in a group with his peers and opening the facilities during convenient hours. These efforts may have lead to maintaining in physical activities even at an advanced age.

The Type of the Present Activities

The subject's participation in each kind of activity is presented in Table 6 for males and Table 7 for females. The most popular activity for all age groups, men and women,

TABLE 6

Rank of Participation in Activities for All Men and For the Age Groups

	All Women N = 355		Old Group N = 75		Middle Age N = 213		Young Group N = 67	
The Activity	%	Number	%	Number	%	Number	%	Number
Swimming	50.7%[1]	(180)	60.0%	(45)	48.3%	(103)	47.8%	(32)
Tennis	17.7%	(63)	14.7%	(11)	18.3%	(39)	19.4%	(13)
Calisthenics	17.1%	(61)	28.0%	(21)	14.1%	(30)	14.9%	(10)
Table Tennis	12.1%	(43)	10.7%	(8)	12.7%	(27)	11.9%	(8)
Basketball	4.8%	(17)	1.3%	(1)	5.7%	(12)	6.0%	(4)
Fencing	4.2%	(15)	6.7%	(5)	3.8%	(8)	3.0%	(2)
Track & Field or jogging	3.9%	(14)	2.7%	(2)	4.2%	(9)	4.5%	(3)
Soccer	3.7%	(13)	--	(-)	3.3%	(7)	9.0%	(6)
Sailing	3.4%	(12)	2.7%	(2)	3.3%	(7)	4.5%	(3)
Skiing or Water Ski	3.1%	(11)	4.0%	(3)	2.4%	(5)	4.5%	(3)
Volleyball	2.8%	(10)	--	(-)	3.3%	(7)	4.5%	(3)
Target Shooting	2.3%	(8)	4.0%	(3)	2.4%	(5)	--	(-)
Weightlifting	1.7%	(6)	2.7%	(2)	1.9%	(4)	1.5%	(1)
Rowing	1.7%	(6)	1.3%	(1)	1.9%	(4)	1.5%	(1)
Golf	1.1%	(4)	--	(-)	0.9%	(2)	3.0%	(2)
Squash	1.1%	(4)	--	(-)	1.9%	(4)	--	(-)
Boxing	0.9%	(3)	--	(-)	0.5%	(1)	3.0%	(2)
Judo & Karate	0.6%	(2)	--	(-)	0.9%	(2)	--	(-)
Field Handball	0.3%	(2)	--	(-)	0.5%	(1)	1.5%	(1)
Total Count of Activities[2]		474		104		277		93

[1]The percentage is out of subjects in the group (N).

[2]One person may take part in more than one activity.

TABLE 7

Rank of Participation in Activities for All Women and For the Age Groups

	All Women N = 126		Old Group N = 16		Middle Age N = 77		Young Group N = 33	
The Activity	%	Number	%	Number	%	Number	%	Number
Swimming	54.8%[1]	(69)	62.5%	(10)	57.1%	(44)	45.5%	(15)
Calisthenics	24.6%	(31)	6.3%	(1)	27.3%	(21)	27.3%	(9)
Tennis	5.6%	(7)	--	(-)	6.5%	(5)	6.1%	(2)
Table Tennis	3.2%	(4)	6.3%	(1)	3.9%	(3)	--	(-)
Sailing	1.6%	(2)	--	(-)	2.6%	(2)	--	(-)
Skiing and Water Ski	1.6%	(2)	--	(-)	2.6%	(2)	--	(-)
Basketball	0.8%	(1)	--	(-)	--	(-)	3.0%	(1)
Total Account of Activities[2]		116		12		77		27

[1]The percentage is out of subjects in the group (N).

[2]One person may take part in more than one activity.

is swimming. For both sexes there is increased participation in swimming from the young to the old group. Among the women swimming is almost the only activity which the subjects in the old group report taking part in, while in the middle age and the young groups a sizeable percentage of women also do calisthenics. These two activities, swimming and calisthenics, are classified as individual activities. The dual games of tennis and table tennis rank third and fourth in participation for women. Participation in tennis is 5.6% and in table tennis is 3.2%.

Among the men four activities show high participation. Two are classified as individual activities, swimming (50.7%) and calisthenics (17.1%), while two are dual games, tennis (17.7%) and table tennis (12.1%). The fifth most popular activity for men is the team game of basketball with 4.8% participation. Overall there is a decrease in team games with aging. This is very clear in the case of soccer with 9% of the young group participating, 3.3% participate in the middle group, and 0.0% in the old group.

Figure 1 shows the participation and shift of preference for men's activities as they grow older. The activities are classified by three types: individual, dual, and team games.[1] For each age group the percentage of participation in each type of activity was calculated from the total number of activities for subjects in each

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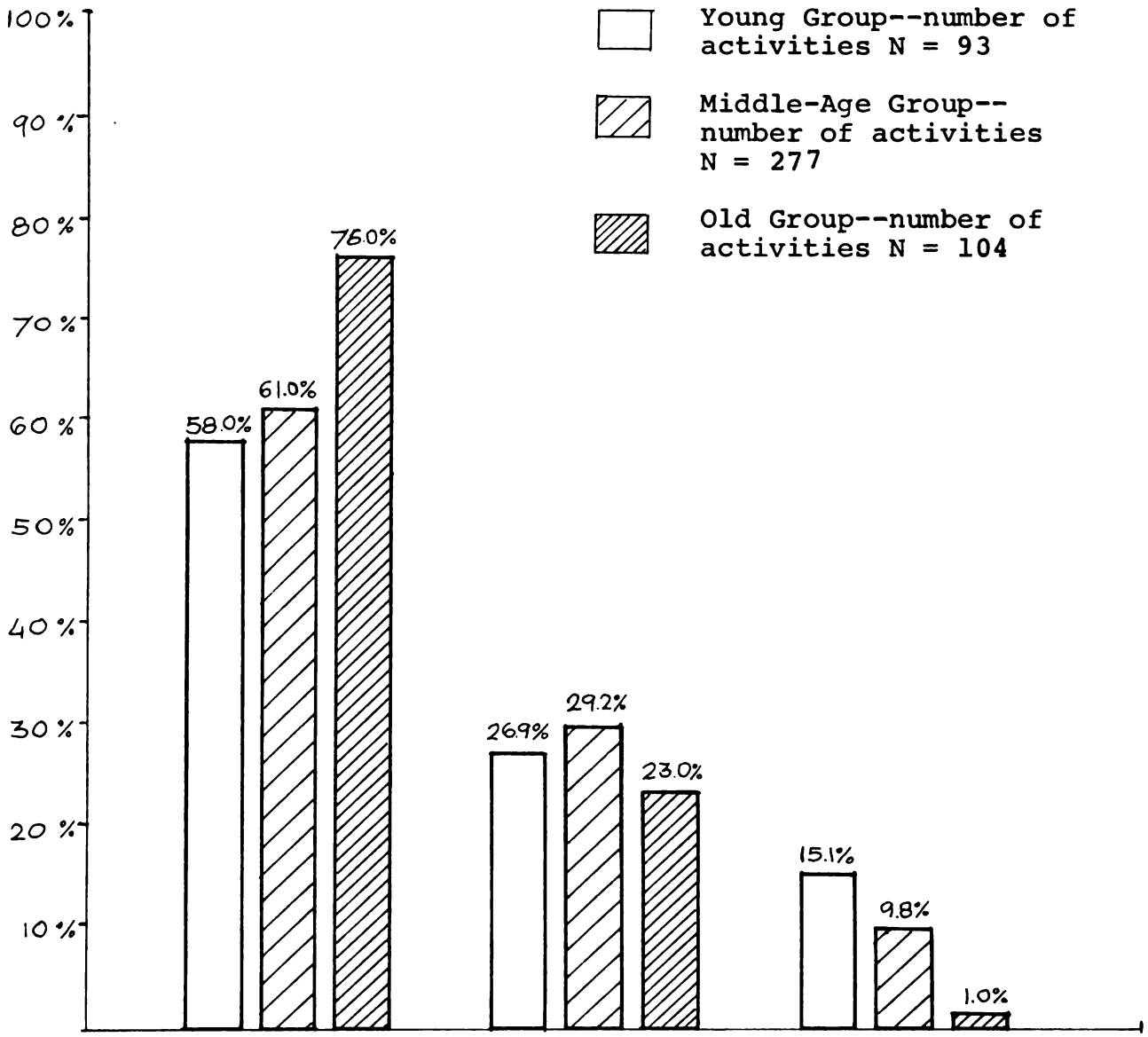
[1]See Definition of terms.



Chi Square = 15.936 df = 4 $\alpha < 0.05$

Figure 1. Percentage of Participation by Age Groups[1] in the Three Types of Activities.[2]

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[1]Age Groups--see Definition of Terms.

[2]Three Types of Activities--see Definition of Terms.

age group. (For example, in the old group the subjects took part in 104 activities. Seventy-nine of these activities were individual, 24 were dual, and only one was a team activity. These then gave the percentages of 76%, 23% and 1% for participation in individual, dual, and team activities.)

Figure 1 shows the following relationships for men:

a. Individual activities are the most popular activities. The dual games are second with the team games last in popularity;
b. The popularity of individual activities increase with age. There is a modest increase from the young to the middle age group (3.0%) and a sharp increase from the middle age to the old group (15.0%);
c. In dual games there is an increase from the young group to the middle age group (2.3%), but a decrease is shown from the middle age to the old group (6.2%);
d. A sharp decrease in participation is shown in team games with aging almost disappearing completely in the old group. The decline in team sports across groups is 15.1% in the young group, 9.8% in the middle group, and 1.0% in the old group.

These findings support the conclusions from a number of studies which reported an increase in recreational activities requiring only a few participants or an increase in solitary activities with advancing age. Along with the increase in individualistic activities, there is a sharp decline in team games.

Experience in Required Physical Education and its Relationship to Present Participation

In responding to the question on participation in a university required physical education program, 174 of the men (49.3%) and 52 of the women (41.3%) took part in required programs. Tables 8 for men and Table 9 for women show the difference in present participation between the subjects who participated in a required program and those who did not. No significant difference for men or for women were found in present participation between those with required and non-required experience. In the men, 67.8% with required experience are active now as compared to 65.4% of the men without the required experience. Among the women participation at present for those with the non-required backgrounds are a little more than those with required backgrounds, 64.9% as compared with 63.5%.

Table 10 shows the rank of the activities from the required programs for men and the percentage of subjects who took part in each activity. Most of the women (42 out of 52) did not report the type of activity engaged in

TABLE 8

Present Participation of Men With and Without Experience of Required Program

Participation in Required Physical Education Program		Present Participation		Total	
		Non-active	Active	Count	Percentage[3]
Yes	Number	(56)	(118)	(174)	49.3%
	Percentage[1]	32.2%	67.8%		
No	Number	(62)	(117)	(179)	50.7%
	Percentage[2]	34.6%	65.4%		
Total	Count	118	235	353	100.0%
	Percentage[3]	33.4%	66.6%		100.0%

Chi Square = 0.14107 df = 1 $\alpha > 0.05$

[1]The percentage is out of the subjects who took part in required program.

[2]The percentage is out of the subjects who did not take part in required program.

[3]The percentage is out of the total subjects.

TABLE 9

Present Participation of Women With and Without Experience of Required Program

Participation in Required Physical Education Program		Present Participation		Total	
		Non-active	Active	Count	Percentage[3]
Yes	Number	(19)	(33)	(52)	41.3%
	Percentage[1]	36.5%	63.5%		
No	Number	(26)	(48)	74	58.7%
	Percentage[2]	35.1%	64.9%		
Total	Count	45	81	126	100.0%
	Percentage[3]	35.7%	64.3%		

Chi Square = 0.0073 df = 1 $\alpha > 0.05$

[1]The percentage is out of the subjects who took part in required program.

[2]The percentage is out of the subjects who did not take part in required program.

[3]The percentage is out of the total subjects.

TABLE 10

Rank of Activities and Percentage of Participation for Men in Their Required Program

The Activity	Number of Subjects N = 174	Percentage[1]
Calisthenics	77	44.5%
Track and Field or jogging	33	19.0%
Basketball	31	17.9%
Swimming	24	13.8%
Soccer	20	11.2%
Volleyball	18	5.1%
Tennis	12	6.9%
Fencing	7	4.0%
Weightlifting	6	3.5%
Field Handball	4	2.3%
Judo or Karate	3	1.7%
Boxing	2	1.2%
Golf	1	0.6%
Squash	1	0.6%
Target shoot	1	0.6%
Total Activities[2]	240	

[1]The percentage is out of the 174 subjects who took part in required program.

[2]The same person may take part in more than one activity.

during their required programs. Therefore, only the data for the men is presented.

The activities from the required programs and the activities presently engaged in were categorized according to the three types: individual, dual, and team games. The results of this comparison are presented in Figure 2. The following relationships were found from these data for men:

a. About the same percentage of subjects report being involved in individual activities during the required programs as at present. However, this does not mean that the same subjects are represented in the two percentages. (This will be discussed further in the next section.);

b. The percentage of participation in dual games is less in the required program (10.4%) than at present (27.4%);

c. There is a sharp decrease in participation in team games from the required program (30.4%) as compared with the present participation (8.9%).

The data was inspected to see if those who had participated in a required program were participating in the same activities now. The following number of male subjects reported such participation: swimming 15, basketball 6, track and field and jogging 3, calisthenics 3, tennis 1, field handball 1, giving a total of 29. Thus, only

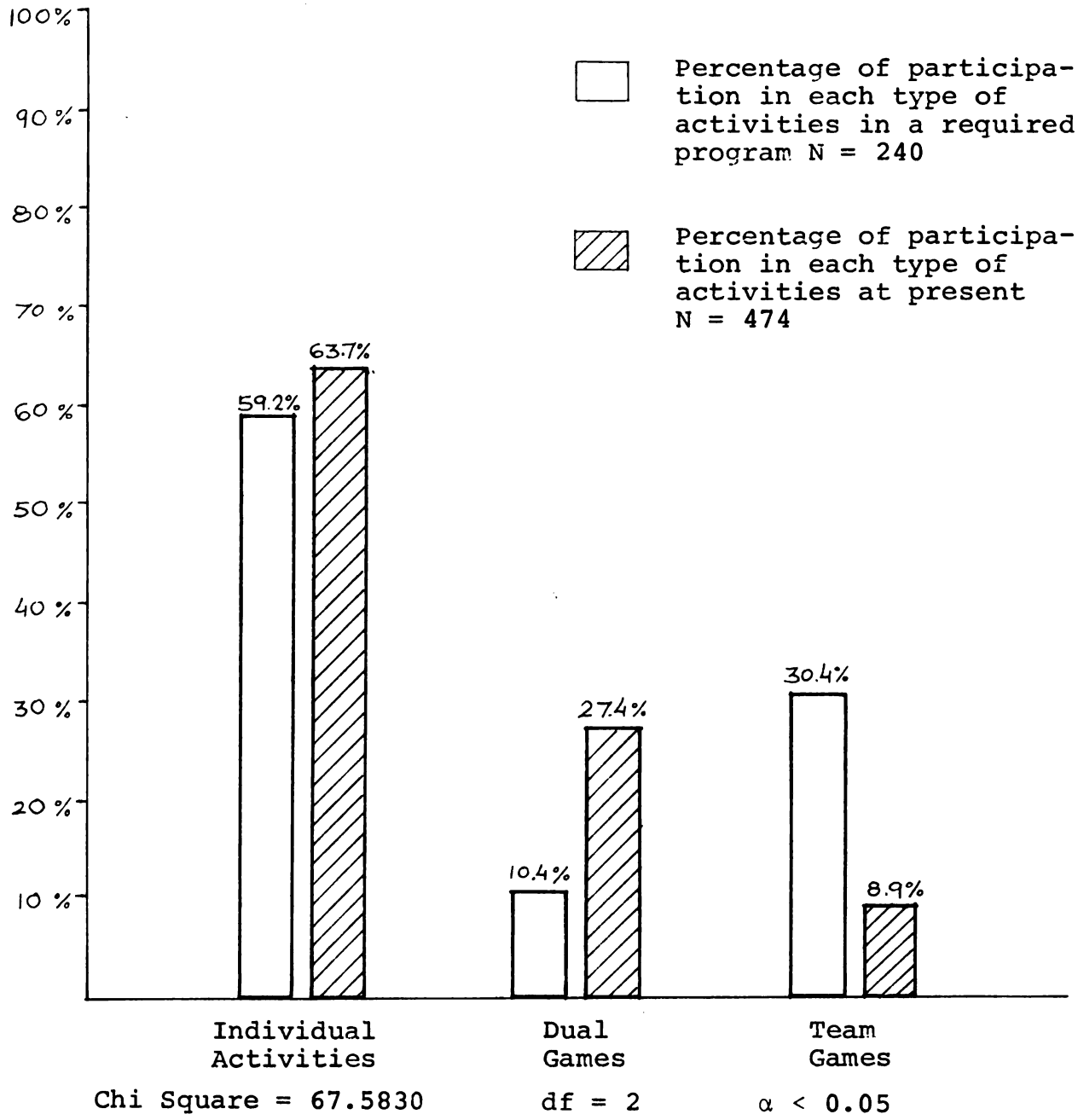

Figure 2. Percentage of Subjects Given by Types of Activities[1] Engaged in During Required Program and at Present.

[1]Types of Activities--see Definition of Terms.

29 out of the 174 men (16.6%) who participated in a required program were now doing the same activity.

Overall, these findings lead to the conclusion that the required physical education programs did not have a significant influence on the adult participation of subjects surveyed in this study. In addition, most of the subjects who participated in a required program were not engaged in the same activities nor do they use the skills learned in their required programs.

Present Participation as it Relates to Activities Begun Earlier and Later in Life

Subjects were asked to indicate when they began each of the activities they had participated in or were participating in at present. Although the questionnaire listed five stages of life which could be marked, only two stages were used in the present analysis. These two stages are: (a) began the activity before the university, and (b) began the activity in the university or later. It should be remembered in interpreting these results that most of the students coming to the university in Israel do so after they have been in the army. So, their age is often between 21 and 23 years old.

Table 11 for men and Table 12 for women shows the number of subjects who began an activity early or later in life. The tables also indicate the percentage of subjects who are still taking part in these activities. In most of

TABLE 11

Present Participation as it Relates to Activities Began Earlier and Later in Life for Men

	Began to Participate in the Activity Before University			Began to Participate in the Activity at University or Later		
The Activity	Number	Still Active	%	Number	Still Active	%
Track & Field or jogging	122	8	6.6%	16	5	31.3%
Calisthenics	129	29	22.5%	43	28	65.1%
Tennis	35	18	51.4%	74	41	55.4%
Table Tennis	119	28	23.5%	24	9	37.5%
Basketball	103	14	13.6%	9	2	22.2%
Volleyball	99	5	5.1%	18	3	16.7%
Soccer	96	8	8.3%	10	4	40.0%
Swimming	166	125	75.3%	45	35	77.8%

TABLE 12

Present Participation as it Relates to Activities Began Earlier and Later in Life for Women

	Began to Participate in the Activity Before University			Began to Participate in the Activity at University or Later		
The Activity	Number	Still Active	%	Number	Still Active	%
Track & Field or jogging	21	--	--	--	--	--
Calisthenics	66	18	27.3%	25	12	48.0%
Tennis	13	1	7.7%	20	5	25.0%
Table Tennis	23	4	17.4%	2	--	--
Basketball	27	1	3.7%	--	--	--
Volleyball	12	--	--	1	--	--
Swimming	61	49	63.6%	16	15	93.8%

the activities listed a significantly higher percentage of the subjects who began their participation in the university or later on are presently continuing to participate. This finding might be explained by the fact that a shorter time has passed since the subjects began these activities.

Inspection of these tables, however, point to several exceptions to the argument just stated:

(a) A higher percentage of both sexes began to swim early in life. This is the reason for the relatively small number of subjects who started their participation in college or later. In both sexes the highest percentage of participation in any activity is in swimming no matter when the skill was learned. One can also conclude that the high continuation rate in those who learned the skill later in life points to an activity which is good to start as one gets older. Thus, it is never too late to start to swim.

(b) Tennis is the only activity which more subjects began to participate in at the university or later in life than earlier in life. The late acquisition of this skill could be explained by the fact that the high school physical education programs do not include this skill nor are there facilities to learn on. Tennis is also a relatively expensive activity when compared to other activities. On the other hand, tennis appears to have a very high attraction for many adults. When adults have an opportunity to learn the skill, many usually try to learn this activity.

(c) Table 10 shows that 77 men took part in calisthenics in their required programs at the university, but only three of them are participating now in this activity. The fact that 74 out of the 77 (96.1%) have withdrawn from this activity could lead to the hurried conclusion that teaching calisthenics in the curriculum for men did not serve the student's needs later in life. However, a deeper examination of the data gives evidence that in addition to the general shift in the type of activities adults chose, there is also the role of personal preferences for specific activities.

First, among all men 61 subjects (17.1%) are now taking part in calisthenics. As an activity calisthenics ranks third in popularity among the men (see Table 6). Thus, this activity is not rejected by most men, but is chosen as an activity to participate in. Secondly, of the 43 subjects who began calisthenics in college or later, 28 (65.1%) are still taking part in this activity (Table 11). So, over half of the men who started this activity in college or later have chosen to continue with it. This result in combination with the results in the preceeding paragraph indicate that the drop out rate in this activity appears to be caused by the compulsory nature by which the former group of men took part in calisthenics. These findings would appear to have important implications when designing a university physical education program. Both the general trends found towards preference in activities

should be considered and the role of individual preference for activities should be taken into account.

Experience in Intramural Programs at College and Present Participation

Out of a total of 343 men reported, 120 (35.0%) had taken part in an intramural program at the university. Among the women only 24 out of 126 (19.8%) stated that they had had such an experience. Table 13 shows the difference among men in present participation between those subjects who did and did not have intramural experience at the university.

For the men a significant difference was found between these two groups. The subjects with intramural experience were presently more active (76.7%) than the subjects without such experience (60.5%). In spite of the small number of women, a similar trend of greater adult participation is found among those who participated in intramurals at the university, Participation among those women with intramural experience is 79.2% and for non-intramural participants it is now 60.9%.

Apparently, the students who took part in the intramural programs may have had a more positive attitude towards physical activities while at the university. Their participation in an intramural program would be an indication of this. One can assume that it is this positive attitude which is carried over into their higher participation in adult activities too. The data would also indicate

TABLE 13

A Comparison of Participation in Intramural Activities at the University with Present Participation for Men

Present Participation	Intramural Experience: Took Part	Intramural Experience: Did Not Take Part	Total: Count	Total: Percentage[3]
Non-active Number	(28)	(88)	116	33.8%
Non-active Percentage	23.3%[1]	39.5%[2]		
Active Number	(92)	(135)	227	66.2%
Active Percentage	76.7%[1]	60.5%[2]		
Total Count	120	223	343	
Total Percentage[3]	35.0%	65.0%		100.0%

Chi Square = 8.3612 df = 1 $\alpha < 0.05$

[1]The percentage is out of the 120 subjects who took part in an intramural program.

[2]The percentage is out of the 223 subjects who did not take part in an intramural program.

[3]The percentage is out of all 343 subjects.

TABLE 14

Present Participation Related to College Intramural When Subjects Come from Required and Non-Required Program

Present Participation	Took Part in Required Program	Do Not Take Part in Required Program	Total Count	Total %[3]
Non-active Number	(22)	(6)	28	23.3%
Non-active Percentage	31.9%[1]	11.8%[2]		
Active Number	(47)	(45)	92	76.7%
Active Percentage	68.1%[1]	88.2%[2]		
Total Count	69	51	120	
Total Percentage[3]	57.5%	42.5%		100.0%

Chi Square = 5.5586 df = 1 $\alpha < 0.05$

[1]The percentage is out of the 69 subjects who took part in a required program.

[2]The percentage is out of the 51 subjects who did not take part in a required program.

[3]The percentage is out of 120 subjects who participated in intramural program.

that participation is even greater among those who were not required to participate in a compulsory physical education program, but who voluntarily chose to participate in intramural activities.

This last point is supported by the data represented in Table 14. Here the 120 male subjects who have had experience in the intramural program were divided into two groups: (a) subjects who participated in a required program and volunteered for the intramural activities; and (b) subjects who did not have a required program and volunteered for intramural activities. A significant difference was found between these two groups. The present participation among the subjects who did only the intramural activities is now higher (88.2%) than for those who had the intramural and required experiences (68.1%). An analysis was not done for the kind of activities in the intramural compared with the required programs since the questionnaire did not ask for information on the intramural activities.

The present study did not find justification for the required program as a means for improving participation in physical activities later in life. There was an indication that a voluntary program appears to improve students' attitude towards physical activities and increasing participation later in life.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The present study was an attempt to determine the level and the type of participation in physical activities by the faculty at Tel Aviv University. The level of participation and the type of activities were related to the age of the subjects and their past experiences in physical education.

All the faculty, male and female, who were on the salary payment list at Tel Aviv University during October 1974 were subject to the survey of this study. The questionnaire was sent to 1.664 subjects and a letter requesting their co-operation. Up to the end of January 1975, 464 (27.9%) completed questionnaires were returned. One hundred fifty two (9.1%) questionnaires were returned non-completed when the most common reasons were "left the university" or "on sabbatical." Out of 1,048 non-responding, a random sample of 10% (105 names) were mailed with another questionnaire and follow-up letter. Fifty six questionnaires (53.3%) were returned with completed

data and twenty four (22.8%) returned non-completed when the common reasons were similar to the first run. No significant differences were found in the responses of the two groups, so it was decided to analyze the 521 as one group. The subjects who reported that they have physical and health limitations were eliminated from the population. The analyzed data concerned with 355 males and 126 females.

The subjects were sorted by three age groups for each sex: (a) young group (younger than 30); (b) middle age group (30-45); (c) old group (older than 45). The activities were classified in three categories according to their nature: (a) individual activities; (b) dual games; (c) team games.[1] Several tables were analyzed based on this classification.

Fourteen tables and two figures were drawn from the information that was taken from the questionnaires. The data was analyzed to determine frequencies, distributions and percentages. Certain parts of the data were subjected to analysis by chi square test of independence. The differences were tested for statistical significance on the 0.05 level of probability.

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[1]See Definition of Terms.

Conclusions

Based on the findings of this study the following conclusions were justified:

1. A high percentage of the faculty at Tel Aviv University were taking part in physical activities (men--66.7%; women 62.5%).
2. The participation in physical activities did not decline with aging in both sexes, men and women.
3. The type of activities change as a function of age with only a few people. Activities which increased in popularity with age were noted to be individualistic in their nature. Along with the increase in individualistic activities, there is a sharp decline in team games.
4. The most popular activity for all age groups, men and women, is swimming. The popularity of swimming was even increased with age.
5. Tennis appears to have a high attraction for many adults particularly in the middle age (30-45).
6. In addition to the general trend which was found in adults as a group, indications were found that the individual differences play a role in the choice of the activity.

7. The required physical education program at the Universities did not have a significant influence on the participation in physical activities of the subjects surveyed. In addition, most of the subjects did not engage in the same activities nor did they use the skills learned in their required program.
8. The present study did not find justification for the required program in college as a means for improving participation in physical activities later in life. There was an indication that a voluntary program appears to improve students' attitude towards physical activities and increasing participation later in life.

Recommendations

Information is still needed on aspects of adult's participation in physical activities. Further investigation seems to be needed in several aspects:

1. Motivations for physical activity participation needs to be studied at all age periods.
2. Investigation has to be done on individual differences, physically and mentally, which

motivated one in participation and choice of the kind of the activity.

3. Surveys have to be done on different programs of physical education, in high school and at college, as related to participation in physical activities later in life.
4. A comparative study has to be done on physical activity services for adults in different communities and how it affects their participation.

REFERENCES

REFERENCES

1. Adams, Carroll. "Active Recreation Interests of Columbia College Alumni." Research Quarterly 19:43-47, 1948.

2. Baley, James A. "Recreation and Aging Process." Research Quarterly 26:1-7, 1955.

3. Bell, Edward Derrick. "The Influence of the Foundation of Physical Education Course at Michigan State University Upon the Attitude of Freshmen Male Students." Unpublished M.A. thesis, Michigan State University, 1967.

4. Brumbach, Wayne B. and John A. Cross. "Attitude Toward Physical Education of Male Students Entering the University of Oregon." Research Quarterly 36:10-16, 1965.

5. Burton, Thomas L. Recreation Research and Planning. London: George Allen and Unwin, Ltd., 1970.

6. Buskirk, E. R. and J. E. Counsilman. "Special Exercise Problems in Middle Age." In Science and Medicine of Exercise and Sports. Edited by W. R. Johnson. New York: Harper and Brothers, 1960, pp. 504-505.

7. Cameron, Fred E. "Leisure-Time Activities of Business and Professional Men in Iowa." Research Quarterly. 6:96, 1935.

8. Campbell, Donald E. "Analysis of Leisure Time Profiles of Four Age Groups of Adult Males." Research Quarterly 40:266-273, 1969.

9. Cortly, Bryant J. Psychology and Physical Activity. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968.

10. Cunningham, David A.; H. J. Montage; H. L. Metzner; and J. B. Keller. "Active Leisure Time Activities as Related to Age Among Males in a Total Population." Journal of Geronology 23:551-556, 1968.

11. Dixon, Wilfred J. and Frank J. Massey. Introduction to Statistical Analysis. New York: McGraw-Hill Book Co., 1957.

12. Dumazedier, Joffre. Sociology of Leisure. New York: Elsevier Scientific Publishing Company, 1974.

13. Garrett, Henry E. and R. S. Woodworth. Statistics in Psychology and Education. New York: David McKay Company, Inc., 1966, pp. 212-275.

14. Halested, Robert E. "A Survey of a Rural Population and the Effect of Physical Education Upon the Selection of Leisure Time Activities." Unpublished M.S. thesis, University of Wisconsin, 1964.

15. Harris, Dorothy V. "Physical Activity History and Attitudes of Middle-Aged Men." Medicine and Science in Sports 2:203-208, 1970.

16. Kratz, L. E. "A Study of Sports and Implication of Women's Participation in Them in Modern Society." Unpublished Ph.D. Dissertation, Ohio State University, Columbus, 1958.

17. Lehman, Irvin J. and Isabell K. Rayne. "An Exploration of Attitude and Value Changes of College Freshmen." Personnel and Guidance Journal 41: 403-408, 1962-3.

18. Montoye, Henry J.; Wayne Van Huss; and Marvin Zuideman. "Sport Activities of Athletes and Non-Athletes in Later Life." Physical Educator 16:48-51, 1959.

19. Murray, Ronald A. "A Study of the Physical and Recreational Activities of Michigan State University Graduates of the Department of Electrical Engineering." Unpublished M.A. thesis, Michigan State University, 1962.

20. Oxendine, Joseph B. "Status of Required Physical Education Programs in Colleges and Universities." Journal of Health Physical Education Recreation 40:32-35, 1969.

21. Stiles, M. H. "Motivation for Sports Participation in the Community." Canadian Medical Association Journal 96:889-892, 1967.

22. Stuho, Elsie J. "Interests and Abilities as a Basic for Program Planning." Research Quarterly 7:92, 1936.

23. Sutton-Smith, Brian; John M. Roberts; and Robert M. Kozelka. "Game Involvement in Adults." The Journal of Social Psychology 60:15-30, 1963.

24. Vincent, Marilyn F. "Attitude of College Women Toward Physical Education and Their Relationship to Success in Physical Education." Research Quarterly 36:10-16, 1965.

25. Weiss, Raymond A. "Is Physical Fitness our Most Important Objective?" Journal of Health Physical Education Recreation 35:17-18, 1964.

26. Welch, Constance Davis. "Leisure-Time Activities of Langston University Faculty Members." Research Quarterly 24:368-369, 1953.

27. Wessel, Janet A.; John A. Friedrich; and Dorothy A. Kerth. "A New Approach in the College Required Program." Journal of Health Physical Education Recreation 31:17-19, 1960.

28. Willgoose, Carl E. "Redirection College Physical Education." Journal of Health Physical Education Recreation 34:38-39, 1963.

29. Zobrowski, Mark. "Aging and Recreation." Journal of Gerontology 17:302-309, 1962.

APPENDIX A

SPORT AND PHYSICAL EDUCATION QUESTIONNAIRE

SPORT AND PHYSICAL EDUCATION QUESTIONNAIRE

A. PART ONE

FOR OFFICE USE

1. First Name _____ Last Name _____ | | | | | | (5, 1-4)

2. Year of Birth _____ 19| | | (6-7)

3. Sex (signify by circle) Male | | Female | | (8)

4. Present place of work (signify by circle) Administrative Staff | 1 | Academic Staff | 2 | (9)

5. Year of graduation from university (undergraduate) 19| | | (11-12)

6. Place of graduate education (signify by circle) | 1 TAU | 2 TECH | 3 HU | 4 USA | 5 EUR | 6 OTH | (13)

7. Within the framework of your university study, did you participate in compulsory physical education? Yes | 1 | No | 2 | (14)

8. If you answered YES to question 7, respond to the following questions (a), (b) and (c). (If you answered NO to question 7, skip on to question 9.)

(a) For how many years?..... | | | (15-16)

FOR OFFICE USE

(b) In which activities?

(1) _____ | | | (17-18)

(2) _____ | | | (19-20)

(3) _____ | | | (21-22)

(4) _____ | | | (23-24)

(5) _____ | | | (25-26)

(6) _____ | | | (27-28)

(c) Did your compulsory physical education include theoretical classes? Yes | 1 | No | 2 | (29)

9. Did you participate in additional sports activities during the period of your university study (intramural program)? Yes | 1 | No | 2 | (30)

10. Did you play on a varsity team during the period of your university study? Yes | 1 | No | 2 | (31)

11. Do you smoke? Yes | 1 | No | 2 | (32)

12. (a) During the period of your academic studies, did physical or health limitations inhibit your sports activities? Yes | 1 | No | 2 | (33)

(b) Do physical or health limitations inhibit your sports activities today? Yes | 1 | No | 2 | (34)

FOR OFFICE USE

2					
5			1-4		

B. PART TWO

A listing of sports and recreational activities is presented below. Please mark X in the frequency column appropriate for each sports activity. In the case of seasonal sports, reflect frequency during the season. Complete columns B and C if you did not mark X in column A(1).

ACTIVITY	A. Mark with X as appropriate			B. Frequency (seasonal or annual)			C. My participation began					
	Was never active (1)	Am now active (2)	Was in past active (3)	Less than once weekly (1)	twice weekly (2)	More than twice weekly (3)	Before high school (1)	In high school (2)	In the army (3)	In university (4)	After university (5)	
1. Boxing or wrestling												7
2. Track & Field Jogging												10
3. Judo or karate												13
4. Golf or bowling												16
5. Weightlifting												19
6. Calisthenics												22
7. Rowing												25
8. Tennis												28
9. Table tennis												31
10. Field handball												34
11. Basketball												37
12. Volleyball												40
13. Soccer or mini-soccer												43
14. Sailing												46
15. Fencing												49
16. Skiing or Waterskiing												52
17. Squash												55
18. Target shooting												58
19. Swimming												61
20. Other--specify:												

63-65 66-68

69-71 72-74

(continuation from card 1)

C. PART THREE

Circle the correct box:

1. I do not participate and I am not interested in participating in sports activities.
2. I do participate or I am interested in participating in sports activities.

1
2

36

If you circled statement 1 above, please skip over the first of the two tables which appear below and complete the second one. If you circled statement 2, please complete the first of the two tables which appear below and skip the second one.

REASON	One of the important reasons (1)	One of the reasons but not an important one (2)	Not a reason for me at all (3)	
1. Weight control				37
2. Release and relaxation from emotional stress				38
3. Physical fitness maintenance				39
4. For the pleasure of the sport				40
5. The satisfaction and pleasure of social contact				41
6. The good feeling after the activity				42
7. The pleasure from competition				43
8. The importance for health and prevention of illness				44
9. Release from daily pressures				45
10. (Other reasons)				46

Since you do not participate in sports activities, relate to each one of the following reasons:

REASON	One of the most important reasons (1)	One of the reasons but not the most important one (2)	Not a reason for me at all (3)	
1. I do enough				48
2. Lack of time				49
3. Lack of facilities at my disposal				50
4. Physical or health limitations				51
5. Budget limitations.				52
6. Lack of interest				53
7. Lack of training and requisite skill				54
8. Lack of competitors or suitable partner				55
9. Other reasons: _____ _____				56

D. PART FOUR

Here are 15 statements. Treating each one independently, mark an X in the column which reflects your viewpoint.

STATEMENT	Fully Agree (1)	Agree (2)	No Opinion (3)	Disagree (4)	Strongly Disagree (5)	
1. To maintain a state of good health, one must dedicate his free time to sports activities.						58
2. Sports activities and physical education are offered to fulfill the same purpose at the high school and university level.						59
3. The moment of competition is the principal factor in sports participation by the 30-45 age group.						60
4. The government should collect 0.1% additional tax to be dedicated to the provision of sports facilities for the public						61
5. These days people should be active in sports so that they will be fit to cope with the pressures of modern society.						62
6. Pleasure and good feeling are the main reasons for sports activities.						63
7. There is no harm in being physically fit but one can exist without it.						64
8. Awareness of the importnace of health is the main reason for sports activities.						65
9. From a certain point of view, sports activities are a waste of time.						66
10. The main purpose of compulsory sports at the university level is the instruction of certain sports which could be useful in the future.						67
11. Team sports (e.g., soccer, etc.) is the best way for the 30-45 age group to participate in sports activities.						68
12. It is most important for persons in the 30-45 age group to be physically active.						69
13. The main purpose of compulsory sports in a university is to provide for the physical fitness of the students.						70
14. Recreational activities (beach, fishing, hunting, etc.) could fulfill the needs of the 30-45 age group.						71
15. The motivation for participation in sports activities is the same for the 20-25 and 30-45 age groups.						72

E. PART FIVE

In which area of sports activity, if any, would you be interested in learning, if you had available the necessary time and facilities?

1. If you are not interested in any sports activity, mark X in the box. [ ] | [ ] 74
2. First priority of interest _____ | [ ] 75-76
3. Second priority of interest _____ | [ ] 77-78
4. Third priority of interest _____ | [ ] 79-80

APPENDIX B

LETTER OF EXPLANATION

ACCOMPANYING QUESTIONNAIRE

אוניברסיטת תל-אביב
TEL-AVIV UNIVERSITY

Sport and Physical Education Unit

.....19....

Dear

SURVEY OF PHYSICAL ACTIVITIES OF FACULTY AND STAFF OF THE UNIVERSITY

The Sport and Physical Education Unit at Tel Aviv University is conducting a survey which will be the basis for a new program of sport and physical education facilities for the students and staff.

I would appreciate it very much if you would kindly fill in the enclosed questionnaire and return it to the Sport and Physical Education Unit. Early completion and return of the form to us would be a great help.

Thank you for your cooperation.

Sincerely yours

Eli Kushnir
Athletics Director

P.S. In a timing test which was done, filling in of the questionnaire takes no more than 10 minutes.

RAMAT-AVIV, TEL-AVIV TEL. 416111 קריית האוניברסיטה, רמת-אביב, תל-אביב טל.

APPENDIX C

FOLLOW-UP LETTER

אוניברסיטת תל-אביב
TEL-AVIV UNIVERSITY

Sport and Physical Education Unit

.....19....

Dear

Several weeks ago we sent you a questionnaire in regard to a survey on physical activities for the staff of the University.

For one reason or another, we have not yet received the completed questionnaire.

It would be very much appreciated if you could spare a few minutes to fill in this questionnaire (once more attached hereto) and return it to us as soon as possible.

Thank you for your cooperation.

Sincerely yours

Eli Kushnir
Athletics Director

RAMAT-AVIV, TEL-AVIV TEL. 416111 קריית האוניברסיטה, רמת-אביב, תל-אביב טל