

ATTITUDES TOWARD PHYSICAL ACTIVITY OF HIGH
SCHOOL GIRLS WITH OLDER ATHLETIC
SIBLINGS

by

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DEDICATION

I dedicate this work to my parents who's constant encouragement and enduring faith has accompanied me through all my endeavors.

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Chapter 1

INTRODUCTION

Every year the number of participants increases in the extra-curricular sport programs. From the elementary level to the professional ranks, cries for expansion are heard. What are the motivational factors that prompt this desire to participate in physical activity? Peer group values and the activities of friends dictate many of the adolescents' choices. However, even more influential than teenage associates, has been the sacred American institution, the family. The home environment establishes the earliest criteria for foundations and development in modes of thought and biases toward many aspects of life are impressed upon the child. Specifically, in the area of developing attitudes toward physical activity, the immediate unit of relatives seem to have a catalytic effect on the motivational factor in the creation of the child's attitude structure. The family's ideals about physical activity are transmitted to the child and his resultant attitude construct reflects these feelings about physical activity, whether negative or positive.

NEED FOR THE STUDY

"Play does not exist in isolation. The player brings with him his thoughts, anxieties, and determination - all of which are mirrored and transformed in his play (23:2)." The method of play and the reasons for play are of interest to the modern educator. The establishment and the change of these motives and the feelings one has about play are a result of exposure to additional information and group affiliation of the individual. "We must understand the basis and reasons for attitude establishment (32:225)."

One of the ways attitude is developed is through family interaction. These individual family interactions contain many unique intricacies in thought and action, thus different attitudes toward physical activity may result. According to Cratty (15), the family exerts the earliest effect and a profound one upon the child. The child is nurtured and molded by the general attitudes of her family toward the worth of physical activity. These feelings about physical activity seem to influence vigorous participation in the child, and consciously act upon her more so than such factors as economic level and race (15). The family is the initial and most important group in the individual's life; the family guides and directs her thought development and processes from the embryonic stage to death. Several theories identifying variables of attitude establishment are presented.

The pressure for language, achievement, and general learning are the three process variables that influence the attitude of the individual as propoorted by Ellis (17).

Play presents situations for development of all three of these processes and produces interaction that results in adaptations in the thought and behavior of the child.

Specifically, the interaction with siblings plays an important role in the formation of the child's attitude.

Because of the great amount of time spent with and around brothers and sisters, the younger child learns from the older children in many situations involved in play and physical activity.

Adlerian (2) theory states that the development of traits and patterns occurs during social interaction during childhood. This theory specifically involves the concepts of competition and alliance. For example, as the child grows she excels in specific areas and is deficient in others. Siblings will join forces where traits, interests, and abilities are similar. Where they differ, a process of mutual support or protection occurs. A particularly unique loyalty develops between siblings, cementing a kinship witnessed in both thought and deed. To apply Adlerian theory one could say, this mutual respect produces an entity of correlative ideas or feelings about physical activity.

Winch (49) suggested that in the family constellation the younger children identify more closely with the

older brothers and sisters than any other human character in their life. In extension of this theory, Toman (46) propoerted that in families with more than one child the older siblings become relatively strong determinants, especially when the parents are happy with each other and fade into the background. The older siblings set the tone for the younger child in almost every situation. Just as the elder children establish boundaries for acceptable behavior patterns, the oldest also influences attitudes of the younger brother or sister. Specifically, the expressed opinions of the older sibling permeate and shape the attitudes held toward physical activity by the younger child.

Play is not an island unto itself; many determining factors contribute to and establish why an individual participates in physical activity. In order to communicate with people about physical exercise and fitness one must understand why they participate and how these reasons were impressed on them.

STATEMENT OF THE PROBLEM

This study was concerned with one aspect of social interaction which maybe responsible for influencing and developing the high school female's attitude toward physical activity. Next to the relationship with her parents, the interaction with siblings is the most influential relationship

for the child (19). Specifically, the attitude structure of the child having older athletic siblings was examined. Cratty (16) states that the older children in the family will be the child's earliest instructor. This occurs long before the coach or the physical educator enters the life of the child.

With these factors in mind, this study was undertaken to investigate the relationship between athletic behavior of older siblings and the expressed opinions about physical activity of their tenth grade sisters. More specifically, the investigator wished to determine:

1. If a difference in attitude toward physical activity existed between those subjects who were athletes and those subjects who were non athletes.

2. If a difference in attitude toward physical activity existed between those subjects who had older athletic siblings and those subjects who had older non athletic siblings.

3. If a difference in attitude toward physical activity existed between groups of subjects of varying combinations of athletic experience and of varying athletic experience of subjects' siblings.

4. If a difference in attitude toward physical activity existed between four groups of athletic subjects. The subjects were grouped according to sibling constellation in the following manner: (a) older athletic sisters; (b)

older athletic brothers; (c) both sexes of older siblings were athletic; and (d) no older athletic siblings.

5. If a subject was an athlete were her older siblings athletes; and likewise, if a subject was a non athlete were her older siblings non athletes.

LIMITATIONS OF THE STUDY

This study contained three major limitations. They were:

1. The sample included only those students who obtained parent permission allowing them to participate in the study.

2. This study was only as valid as the honesty of the answers from the subjects. Specifically, the honesty of the answers on the informational questionnaire were of concern in this study. The subjects were grouped according to the answers concerning their athletic status. This information was discerned from the informational questionnaire.

3. Only those students having at least one older sibling were used as subjects. The younger siblings of the subjects were not noted or dealt with in this study.

DELIMITATIONS OF THE STUDY

The subjects for this study included all 1974 sophomore females with older siblings who had obtained parent

permission, and who were attending one of the four high schools surveyed in this study.

DEFINITION OF TERMS

Athlete

An individual who has participated on a high school or college interscholastic varsity, junior varsity, or frosh-soph athletic team was designated as an athlete.

ATPA

This was the scale used in this work to assess attitudes. It was developed by Kenyon (29) to measure attitude toward physical activity through six basic areas: social, health and fitness, pursuit of vertigo, aesthetic, catharsis, and ascetic.

Attitudes

Kenyon (28) defines attitudes in this manner, "a latent or non-observable, complex but relatively stable behavioral disposition reflecting both direction and intensity of feeling toward a particular object, whether it be concrete or abstract."

Sibling

For the purpose of this study only the older brothers and sisters were referred to as siblings of the subjects.

Chapter 2

REVIEW OF LITERATURE

"For many years attitudes have been classified with so-called intangibles and quite generally their measurement has been ignored (43)." According to Scott (43) it is a known fact that attitudes are important and that they play a major role in determining the amount of learning that takes place.

Numerous experts have established definitions for the concept of attitude. In 1929 Thurstone (45:6-7) stated, "attitude is the sum total of a man's inclination and feelings, prejudices or bias, preconceived notions, ideas, fears, threats, and convictions about any special topic." One of the leading authorities on attitudes, Allport (4), propoerted that, "attitude connotates a neuropsychological state of readiness for mental and physical activity." One of the most recent explanations of this concept was presented by Kenyon (29:2) in 1968. He claimed that attitude was "a latent or nonobservable, complex, but relatively stable behavioral disposition reflecting both direction and intensity of feeling toward a particular object, whether it be concrete or abstract." There has been a serious, concerted effort on the part of several individuals to develop and utilize scales that measure attitudes in physical

education. Through a review of available literature numerous studies were discovered which relate to these measurement techniques.

GENERAL ATTITUDES MEASURED BY SCALES

Many studies have been done in the area of individuals attitudes toward physical education in general and in some cases, various aspects involved in the field have been pin pointed. In 1936 Graybeal (21) investigated the attitude toward physical activity of college women following two years of physical education classes and found that these women gained 1.17 per cent toward the positive end of the scale and the women deprived of these classes moved 2.89 per cent down the scale. At the high school level students were divided into groups of those students having had high school physical education and those individuals not having had these classes. Nelson (36), Bell (6), and Brumbach and Cross (10) found, as did Graybeal, that those people having had exposure to physical education held physical exercise and fitness in a more positive light.

Baker (5) studied women, age 15 to 25 years, and their attitudes toward various factors that influenced participation. The significant factor of her study was the finding that as girls matured, chosen activity became less strenuous and more mechanized with emphasis on the spectator role.

Another aspect of physical education, success, was investigated by Carr (13) at the high school level, and by Vincent (47) at the college level. Both found that a more positive attitude accompanied a higher grade in physical education class.

General attitudes toward college physical education were studied by Kappes (27), Broer, Fox, and Way (9), Keogh (30), and Billing (7). Their findings of generally positive attitudes of both men and women presently enrolled in physical education classes were unanimous.

College students attitudes were evaluated based on their expressed feelings about their high school physical education experiences by three individuals. Here again, Bullock (11), Wear (48), and Mista (34) found both sexes to indicate favorable attitudes toward physical education when the students expressed positive feelings about their previous physical education experiences.

ATTITUDE SCALES

There have been many scales designed which allowed for these comparisons to be completed. Thurstone's (45) scale was established in the following manner. Propositions were assigned to a linear continuum so that central tendency of frequency distribution was possible for the group, thus a group mean was calculated. These means were then compared. The individual who served as a subject using this scale marked only those statements which he endorsed and each

question was rated on a 1 to 11 point value scale of intensity. A jury of judges predetermined this intensity rating. A statement that strongly favored physical education had a rating of 9 to 11, while a statement against physical education had a rating of 1 or 2. The individual's score was the mean of the scale values of the statements the person endorsed.

The Likert (48) attitude scale allowed every question to be checked, with a choice of five intensity ratings. Rather than each question having a predetermined intensity rating, the individual subject rated the questions according to his degree of endorsement. The final score was the sum of all answers. These two methods of scale design have been modified, adapted, and expanded in recent attitude scale development, but basically these techniques have been used. Adams compared these two types of scales to provide reliability and validity using 245 teachers and college students as subjects. The scales both yielded similar reliability and validity scores.

The Wear Attitude Inventory (Wear AI) was designed to ascertain attitudes toward physical education in the areas of physical well being, muscular endurance, acquisition of neuromuscular skills, resources for recreation, mental health, social, and safety (48). The original Wear AI had 120 questions; a short form has been since established and tested, 40 questions. This scale employed the Likert-type system of response.

Carr (13) developed a survey incorporating the Thurstone type scale, involved with three domains and 84 questions total. The three domains were social, personal, and activity.

Kappes (27) used a measure which was constructed of two parts. Part one contained questions dealing with the type of activity classes most liked. Part two contained 54 questions, subdivided into 20 assessing attitude toward physical education and 34 assessing the attitudes toward administration, equipment, and techniques of the programs. The Likert system was used.

The Bues-Remmer Scale (35) was developed to assess negative or positive attitudes toward physical activity using a Thurstone type scale.

The Plummer (38) Attitude Inventory consisted of three sections. Section one contained 20 items dealing with aspects of physical educations, section two contained questions with a choice of six possible answers, and section three was completed by the instructor and rated the student in one of five categories.

The Kenyon Attitude Toward Physical Activity (ATPA) was constructed using a seven point Likert scale. The total of 54 questions were divided into six areas; social, health and fitness, pursuit of vertigo, aesthetic, catharsis, and ascetic. The assessment of attitudes toward physical activity was possible in these six domains. Rather than a pure positive or negative assessment, the Kenyon ATPA

measured intensity of desirability for participation within each of the six sociopsychological domains.

These are several of the most widely utilized attitude scales in the literature to date. The results of the Wear AI, perhaps the most extensively used scale, will be considered in the next section.

RESULTS OF THE WEAR ATTITUDE INVENTORY

The following studies deal specifically with the attitude structure of athletic verses non athletic college students. Wear (48) found that of 272 men, the individuals who participated in competitive athletics during high school had a significant correlation ratio of 4.51 at the .01 level between this variable and positive attitudes toward physical education. The scores directly compared were taken from the Wear AI and a questionnaire ascertaining attitudes toward physical education.

Brumbach and Cross (10) tested 938 male subjects at the University of Oregon using the Wear AI. At the .05 level of significance, it was reported that those men participating in athletics had a better attitude toward physical education than those non-participants.

Several of the other studies completed have employed the Wear AI as an evaluation instrument for the general physical education program at the collegiate level. In 1953, Bell (6) tested 684 freshman women at University of Michigan and compared their composite scores on a three part

attitude survey to 173 seniors. The Wear AI was accompanied by a questionnaire pertaining to the individuals background and a statement of the individuals objects for physical education. Both newcomers and veterans rated high in social, mental health, and physical attributes. Also in both cases, the positive experience in previous physical education classes yielded a more favorable attitude toward physical education.

Broer, Fox, and Way (9) from University of Washington found the same results as did Bell with regard to the Wear AI components. They tested 1,149 freshman and sophomore college women. The students enrolled in the swim and tennis classes responded most favorably on the survey.

Again, in 1962 the Wear AI was used by Keogh (30). The physical, emotional, and social aspects rated highest when 266 college men and women were tested. They were instructed to react to the questions in terms of their present physical education classes.

Billing (7) also felt it important to assess the negative or positive attitude toward physical education. She administered a questionnaire regarding previous physical education classes, type of class enrolled in at the time, and the Wear AI to 691 women at Kansas State Teachers College. She found similar results as did Bell (6) and Broer (9). The senior women in her study had a more favorable attitude than the other three undergraduate

classes. Women in team and individual sports were more positive than dual or dance majors toward physical education.

Vincent (47) found, as did Broer (9), that women in swim classes had a higher attitude toward physical education as measured by the Wear AI. However, out of 188 women tested, gymnastic classes also yielded favorable attitudes. She also found a significant difference at the .05 level in success, as measured by a grade, and positive attitude, opposed to failure and a negative attitude.

Campbell (12) revealed conflicting results in that no significant difference was found between attitude of subjects based on high school attended, college matriculation, and type of physical education class enrolled in at the time.

The Wear AI has been used in many diverse and helpful ways as a determinant of negative or positive attitude toward physical education. It definitely has proven to be a valuable tool.

RESULTS OF OTHER SCALES

Mista (34) administered a revision of the Plummer Attitude Inventory to 1,126 freshman college women and her findings supported those of Wear (48) and Brumbach (10). Those students who were athletes in high school had a higher attitude score than those non athletes.

Richardson (40) revised the Thurstone scale and developed two valid attitude scales concerned with physical fitness and exercise. The two forms had a correlation coefficient of .87. Equal interval format was used in designing Richardson's scale. This measure was written for the college age subject.

Hunter (26) devised a scale which measured and classified college age females attitudes toward required physical education. She found that girls who didn't like physical education in high school enjoyed their college physical education experience if given a choice of activities.

Plummer (38) used the scale she devised to determine the extent to which the diverse backgrounds in physical education, both in private and public institutions, influenced the subjects attitude and interests. Her results supported others, if the students were given a choice of activity, their attitudes were more favorable.

RESULTS OF THE KENYON ATPA

The following studies attempt to look beyond the negative or positive attitudes toward physical education and investigate specific reasons for activity participation. Alderman (3) approached this sociopsychological question by assessing the attitudes of men and women athletes in ten different sports. No significant difference was found

between the sexes scores on the Kenyon ATPA. Overall, the aesthetic scale rated the highest and the ascetic the lowest.

Higgs (24) used the same survey and compared a group of 17 highly competitive women with an equal number of moderately competitive women. She found no difference between these two groups on any of Kenyon's six scales.

✓ Holder (25) used this scale to assess the attitudes of three groups of students enrolled in the Concepts program at Kansas State University. The three groups consisted of: (1) students attempting to quiz out, but failed; (2) students who successfully quized out of the program; (3) and, students who did not attempt to quiz out. She concluded that the first group had the worst attitude toward physical activity.

Studies have been done concerning the attitudes of athletes as opposed to non athletes. However, the subjects involved were college students or at least of college age. This study attempted to investigate the multidimensional, six component, aspect of attitudes toward physical activity of the high school female athlete and non athlete.

ATTITUDE STUDIES AS INFLUENCED BY THE FAMILY

Studies investigating the similarities and differences between siblings according to sex, ordinal position, and family size are presented in the literature. One of the classic studies in this area was done by Koch (31). Her findings indicated that the older male sibling

stimulates cognitive development of the other siblings more effectively than the older female sibling.

Circirelli (14) found conflicting results in that his observations found the subjects with the older sisters to score higher on IQ tests than did the child having older brothers. His study also indicated that siblings of like sex, and close in age scored higher on academic tests, than siblings of like sex, but more than four years in age difference.

Highly creative females correlated more with brothers creativity scores than did female subjects and sisters in a study by Helson (22).

Winch (49) reported that boys identify with older brothers more closely than girls with older sisters. Brim (8) suggested that cross-sex siblings assimilated traits of the opposite sex and that this effect is most pronounced in the younger of the siblings.

Roff, Merrill, and Sells (42, 44) conducted several studies involving sibling constellations in peer selection. They found that like-sex siblings personality traits and peer selection correlated more highly than did the cross-sex siblings.

The Adlerian Theory stated that social interaction during childhood was responsible for the development of personality traits and patterns. Ferguson (18) investigated this theory which was based on the two ideals in which

siblings exist, competition and alliance. He found through observations of 40 children, divided into two groups of ten pairs, allies and competitors, that opposite traits do not necessarily result because of competition between siblings, nor does alliance manifest similarities in traits.

These studies incorporated many factors of sibling similarities and differences. Several of the studies postulated reasons for diversion or sameness in traits, such as sex, age, and position in the family.

The following studies deal with specific similarities in attitudes toward various issues. Newcomb and Svehla (37) reported intra-sibling correlations on church affiliation as .60; on issues of war as .37; and on communism as .48. This study involved 558 families totaling 1,568 people.

In 1950 Roff (41) assembled all available information on intra-sibling resemblances. The report spoke of a study done in 1925-26 by Hartshorne, May, and Shuttleworth who found intra-sibling correlations of .38 on moral issues. Another study presented in this report was by Peterson in 1936 which investigated intra-sibling relationships in 11 civic issues yielding a correlation of .34 overall.

To date no work has been done in the area of attitudes toward physical activity based on various sibling constellations. The only information that sheds light on this subject are the studies done by Bullock (11) and

Hunter (26). Bullock found that women who were "only children" tended to dislike physical education in high school and college. Only 13.9 per cent of this group of "only children" liked high school physical education and 25 per cent liked it in college. Hunter reported unfavorable attitudes toward physical education of women who had been the only child, also.

The attitude studies presented support the theory that siblings behavior and opinions are adopted by the younger child and tend to influence the attitude structure of the child. This study was prompted by the lack of information presently available which presents attitude structures of high school females of various sibling constellations and behavioral patterns. Specifically, the female child with athletic siblings has been investigated.

Chapter 3

PROCEDURES

The purpose of this investigation was to determine if a difference in attitude toward physical activity existed between athletic subjects and non athletic subjects; to determine if a difference in attitude toward physical activity existed between subjects who had athletic siblings and those who had non athletic siblings; to determine if a difference in attitude toward physical activity existed between groups of subjects of varying combinations of athletic experience and of varying athletic experience of subjects' siblings; to determine if a difference in attitude toward physical activity existed between athletic subjects of various sibling constellations; and to determine if a subject was an athlete were her siblings athletes and likewise, if a subject was a non athlete were her siblings non athletes.

SELECTION OF SUBJECTS

The subjects for this study were 89 sophomore females who had at least one older sibling. All individuals from four local high schools, who met the three aforementioned qualifications (female, sophomore, had an older

sibling) were surveyed once parental permission was obtained.*

The subjects were divided into groups according to subject and sibling athletic status. The 89 subjects were first dichotomized into athletic subjects totaling 48 and non athletic subjects totaling 41. The subjects were further divided into a 2x2 bivariate table indicating athletic siblings and non athletic siblings. As Table 1 indicates, there were 30 athletic subjects who had athletic siblings; 18 athletic subjects who had non athletic siblings; 6 non athletic subjects who had athletic siblings; and 35 non athletic subjects who had non athletic siblings.

Table 1
Division of Subjects

Subjects	Athletic Siblings	Non Athletic Siblings
Athletes	30	18
Non Athletes	6	35

The subjects were further divided according to various sibling constellations. As Table 2 indicates, 9 athletic subjects had athletic sisters; 14 athletic subjects had athletic brothers; 7 athletic subjects had athletic

*The identity of the schools surveyed was withheld at the request of the authorities within these school districts.

siblings of both sexes; 18 athletic subjects had no athletic siblings; zero non athletic subjects had athletic sisters; 6 non athletic subjects had athletic brothers; zero non athletic subjects had athletic siblings of both sexes; and 35 non athletic subjects had no athletic siblings.

Table 2
Division of Subjects

Subjects	Athletic Sisters	Athletic Brothers	Athletic in Both Sexes	Non Athletic Siblings
Athlete	9	14	7	18
Non Athlete	0	6	0	35

SELECTION OF TEST INSTRUMENT

A two-part test containing an attitude scale and an informational questionnaire was administered to all subjects.

The Kenyon ATPA Form for Women (28, 29) was used as a determinant of the subjects attitudes. This particular measure was selected due to the ability of this scale to measure attitudes toward physical activity in six different aspects of attitude. Rather than merely testing for negative or positive attitudes toward physical activity, this scale indicated the subject's feelings toward physical activity in six elements of the affective domain. This multidimensional scale consisted of six sub-scales designed

to measure attitudes toward physical activity in the following areas:

Social

This scale dealt with the values gained from interaction with other individuals.

Health and Fitness

This scale dealt with the values of fitness that are realized and the prime interest in participation stems from the health related aspects.

Pursuit of Vertigo

The excitement of sport is realized and sought. The individual seeks the excitement of high speeds and dangerous feats, but always wishes to remain in control of his body.

Aesthetic

This aspect of attitude dealt with the appreciation of the beauty found in movement.

Catharsis

This scale indicated that the individual sought a release for tension precipitated by frustration.

Ascetic

The long, hard, rigorous training that is required of the competitor is enjoyed and sought by the individual. The tough competition is desirable.

These six sub-scales were determined internally consistent by Hoyt's analysis of variance (3). The reliability for the Form DW for Women is presented below in Table 3.

Table 3
Hoyt's Reliability for Form DW for Women,
Kenyon Scale

Social	Health and Fitness	Pursuit of Vertigo	Aesthetic	Catharsis	Ascetic
.68-.72	.83	.86	.87	.79	.74-.78

The Likert type answering system allows for a choice of seven possible answers per question. The Kenyon model is a workable, useful inventory for assessing attitudes toward physical activity. Comparative measures of central tendency, variability, and reliability between two similar populations indicate instrument stability.

The second part of the test instrument consisted of five questions which assessed the subject and sibling athletic status. This questionnaire was developed by the investigator and contains information concerning the athletic experience and sex of the subjects' sibling(s) and the athletic experience of the subject. Duplications of both parts of the testing instrument are located in Appendix A and B respectively.

TEST ADMINISTRATION PROCEDURES

Each school which participated in this study was visited by the investigator prior to the actual test day. At this time the parent permission slips (Appendix C) were distributed. Furthermore, the investigator explained to superintendents, principals, teachers, and students that the study had been approved by the Rights and Welfare Committee of Kansas State University, Health, Physical Education, and Recreation Department. The purpose of the study was also related at this time.

The test was administered to all sophomore girls who had at least one older sibling and who had obtained parental permission. The survey was totally a pencil-paper procedure which took the high school subjects approximately 20 minutes to complete. Each subject received a packet of materials including written instructions for the survey and personal questionnaire, the Kenyon ATPA, two pre-coded IBM answer cards, the personal questionnaire, and a pencil. The investigator orally related instructions concerning the use of IBM answer cards and she was personally available throughout the testing period to answer any questions. The subjects were tested during a class period when all sophomore girls were available. The subjects were tested in mass, but encouraged to complete the survey independently.

COLLECTION OF DATA

The attitude survey was administered to each subject once. Upon conclusion of data collection from all four schools, the data was transferred from the IBM answer cards, completed by the subjects, to Fortran Computer Cards and the mean scores for each sub-scale were computed for each individual subject.

ANALYSIS OF DATA

A 2x2 factorial analysis of variance was used to treat the data. Main effect mean differences (subject and sibling) were tested. Interaction between the variables were also tested. The F values were tested for significance at the .05 level.

A separate one way analysis of variance with a Sheffe multiple comparison test was calculated to determine if a difference in attitude existed between athletic subjects of various sibling constellations.* The F value was again tested at the .05 level of significance.

A Chi Square test for independence was computed to determine if subjects who were athletes had athletic siblings; and likewise, if non athletic subjects had non

*It was originally intended to complete a 2x2 analysis of variance with a Sheffe test on all subjects, however, due to the lack of subjects in two of the cells, only the athletic subjects were used in this comparison (see Table 2 for grouping).

athletic siblings. The .05 level of significance was used to test this calculation for independence.

Chapter 4

ANALYSIS AND PRESENTATION OF DATA

The five specific objectives of this study were to determine if differences in attitude toward physical activity existed between athletic and non athletic subjects; between subjects who had older athletic siblings and subjects who had older non athletic siblings; between groups of subjects of varying combination of athletic experience and of varying athletic experience of the subjects' siblings; between athletic subjects of various sibling constellations; and if a subject was an athlete were her siblings also athletes, and likewise, if a subject was a non athlete were her siblings non athletes.

DATA COLLECTION

The selection and division of subjects into various groups was carried out in accordance with the procedures discussed in Chapter 3. A 2x2 factorial analysis of variance was used to test each of the six sub-scales of the Kenyon ATPA. Main effect differences (subject and siblings) were tested. The F values were tested at the .05 level of significance.

A separate one way analysis of variance with a Sheffe multiple comparison test was calculated to determine if a difference in attitude toward physical activity existed between athletic subjects of various sibling constellations. The F value was tested at the .05 level of significance.

A Chi Square test for independence was computed to determine if subjects who were athletes also had athletic siblings, and likewise, if non athletic subjects had non athletic siblings. The .05 level of significance was used to test this calculation for independence.

PRESENTATION OF DATA

The data pertaining to each objective will be related in the following sections.

Objective 1

Objective one was designed to determine if a difference in attitude toward physical activity existed between those subjects who were athletes and those subjects who were non athletes. An analysis of variance summary for each of the six sub-scales is presented in Tables 4, 5, 6, 7, 8, and 9. These data related specifically to objective one.

When the differences in mean scores were tested for the social, pursuit of vertigo, and aesthetic sub-scales, no significant difference was found. When the differences in mean scores were tested for the health and fitness, catharsis, and ascetic sub-scales, a significant difference

Table 4
Analysis of Variance Summary
for Social Sub-Scale

Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Subjects	1	54.0581	54.0581	1.0113
Siblings	1	67.0365	67.0365	1.2541
Interaction	1	1.0999	1.0999	0.0206
Within Cells	85	4543.6870	53.4551	

Table 5
Analysis of Variance Summary for Health
and Fitness Sub-Scale

Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Subjects	1	383.2463	383.2463	5.8153 ^a
Siblings	1	42.0147	42.0147	0.6375
Interaction	1	157.8850	157.8850	2.3957
Within Cells	85	5601.7500	65.9029	

^asignificance at the .05 level.

Table 6

Analysis of Variance Summary for Pursuit
of Vertigo Sub-Scale

Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Subjects	1	89.3636	89.3636	1.2160
Siblings	1	70.7760	70.7760	0.9631
Interaction	1	304.0012	304.0012	4.1367 ^a
Within Cells	85	6246.6250	73.4897	

^asignificance at the .05 level.

Table 7

Analysis of Variance Summary for Aesthetic
Sub-Scale

Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Subjects	1	73.6357	73.6357	0.9047
Siblings	1	0.7699	0.7699	0.0095
Interaction	1	11.7135	11.7135	0.1439
Within Cells	85	6918.3750	81.3926	

Table 8
Analysis of Variance Summary for
Catharsis Sub-Scale

Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Subjects	1	363.9988	363.9988	5.9108 ^a
Siblings	1	175.3727	175.3727	2.8478
Interaction	1	0.2750	0.2750	0.0045
Within Cells	85	5234.4370	61.5816	

^asignificance at the .05 level.

Table 9
Analysis of Variance Summary for
Ascetic Sub-Scale

Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Subjects	1	591.0100	591.0100	11.2449 ^a
Siblings	1	8.9364	8.9364	0.1700
Interaction	1	262.8391	262.8391	5.0009 ^a
Within Cells	85	4467.4370	52.5581	

^asignificance at the .05 level.

was found. These scores indicate that there was a difference in attitude toward physical activity between athletic subjects and non athletic subjects on the three scale of health and fitness, catharsis, and ascetic. In all three cases the athletic subjects held a higher mean score than the non athletic subject. The mean scores for this main effect for each sub-scale of the Kenyon ATPA are presented in Table 10. Also presented in Table 10 are norms established as part of the validation of the ATPA scale.

Table 10
Mean Scores for Athletic and
Non Athletic Subjects

Subjects	S	HF	PV	AES	CATH	ASC
Athletic	36.48	50.63 ^a	40.75	35.40	41.52 ^a	35.65 ^a
Non Athletic	33.54	47.00	38.22	37.59	34.78	30.54
Kenyon Norms	32-34	44-45	36-37	35-36	35-36	31-32

^asignificant at the .05 level.

The norms established by Kenyon (29), author of the attitude testing instrument used, were not statistically compared to the mean scores of the subjects in this study. However, these norms were presented to indicate normality of the data collected in this study, as compared to established norms. The athletes mean scores were all equal to or greater than the Kenyon norms for all six sub-scales. The

same was true for the non athletes, except on the catharsis and ascetic sub-scales, where they fell below the norms. These scores indicate that this sample is not unlike the general population, at least as described by Kenyon, in attitude toward physical activity. Since both groups have a favorably high attitude toward physical activity, when compared to the norms, it is plausible to reason that significant difference in attitude would be difficult to detect. The closer the scores were to the top of the scale the lesser probability of finding a significant difference.

Objective 2

Objective two was designed to determine the difference in attitude toward physical activity between subjects who had athletic siblings and those who had non athletic siblings.

When the mean scores for the athletic sibling group were compared to the mean scores for the non athletic sibling group, no statistical difference was found on any of the six sub-scales. These scores indicated no statistically significant differences existing between subjects who had athletic siblings and subjects who had non athletic siblings. The F values are presented as the second main effect in Tables 4-9. The mean scores for each of the sub-scales for this main effect are presented in Table 11.

Table 11

Mean Scores for Subjects Who Had Athletic
Siblings and Subjects Who Had
Non Athletic Siblings

Siblings	S	HF	PV	AES	CATH	ASC
Athletic	37.03	49.81	42.14	35.50	42.03	35.17
Non Athletic	33.83	48.38	37.85	37.02	35.96	32.02

Since no significant difference was found between subjects who had athletic siblings and those who had non athletic siblings, it appears that the athletic experience of one's siblings has little to do with the attitude of the subject.

Objective 3

Objective three was designed to determine if a difference in attitude toward physical activity existed between groups of subjects of varying athletic experience and of varying athletic experience of subjects' siblings.

When each of the sub-scales were tested, a significant interaction was found on the pursuit of vertigo and ascetic scales (see Table 6 and 9). No significant interaction was found within the social, health and fitness, aesthetic, or catharsis sub-scales (see Tables 4, 5, 7, and 8).

The Kenyon norms are presented in Table 12, along with the mean scores of the cells for each of the six

sub-scales, as a comparison of normality of the data. In the social and pursuit of vertigo scales all cells were equal to or greater than the established norms. In the aesthetic area the athletes who had athletic siblings fell below the norm. In health and fitness and ascetic areas the non athletes who had athletic siblings fell below the norm. Also, the non athletes who had non athletic siblings fell below the norm on the catharsis sub-scale.

Table 12
Cell Means for Interaction for Each of the
Six Sub-Scales

Sub-Scale	Subjects	Athletic Siblings	Non Athletic Siblings
Social	Athletic	37.40	34.94
	Non Athletic	35.17	33.26
	Kenyon Norms	32-34	
Health & Fitness	Athletic	51.23	49.61
	Non Athletic	42.67	47.74
	Kenyon Norms	44-45	
Pursuit ^a of Vertigo	Athletic	43.33	36.44
	Non Athletic	36.17	38.57
	Kenyon Norms	36-37	
Aesthetic	Athletic	34.97	36.11
	Non Athletic	38.17	37.49
	Kenyon Norms	35-36	

^asignificant at the .05 level.

Table 12 (continued)

Sub-Scale	Subjects	Athletic Siblings	Non Athletic Siblings
Catharsis	Athletic	42.90	39.22
	Non Athletic	37.67	34.29
	Kenyon Norms	35-36	
Ascetic ^a	Athletic	36.97	33.44
	Non Athletic	26.17	31.29
	Kenyon Norms	31-32	

^a significant at the .05 level.

The mean scores as presented in Table 12 are graphically illustrated in Figure 1 for the significant interaction term in the pursuit of vertigo scale. The scores indicate the nature of the relationship of the subjects and siblings in respect to attitude toward physical activity. The graphs show that there was an interaction. It can be seen in Table 6 that there was no statistical difference between athletic and non athletic subjects on the pursuit of vertigo scale and likewise, there was no statistical difference between groups of subjects who had athletic siblings and those who had older non athletic siblings. However, it can be seen in Figure 1 that differences did exist which were marked by the significant interaction. In other words, Figure 1 suggests that there was a difference in pursuit of vertigo of athletes when compared to non athletes, but apparently only for those

subjects with athletic siblings. This interaction was not treated by a post analysis to determine significant differences between the cells, but it appears that the athletic siblings reinforce the "high attitude" of athletic subjects, while non athletic subjects with athletic siblings did not have similarly "high scores" on the pursuit of vertigo scale.

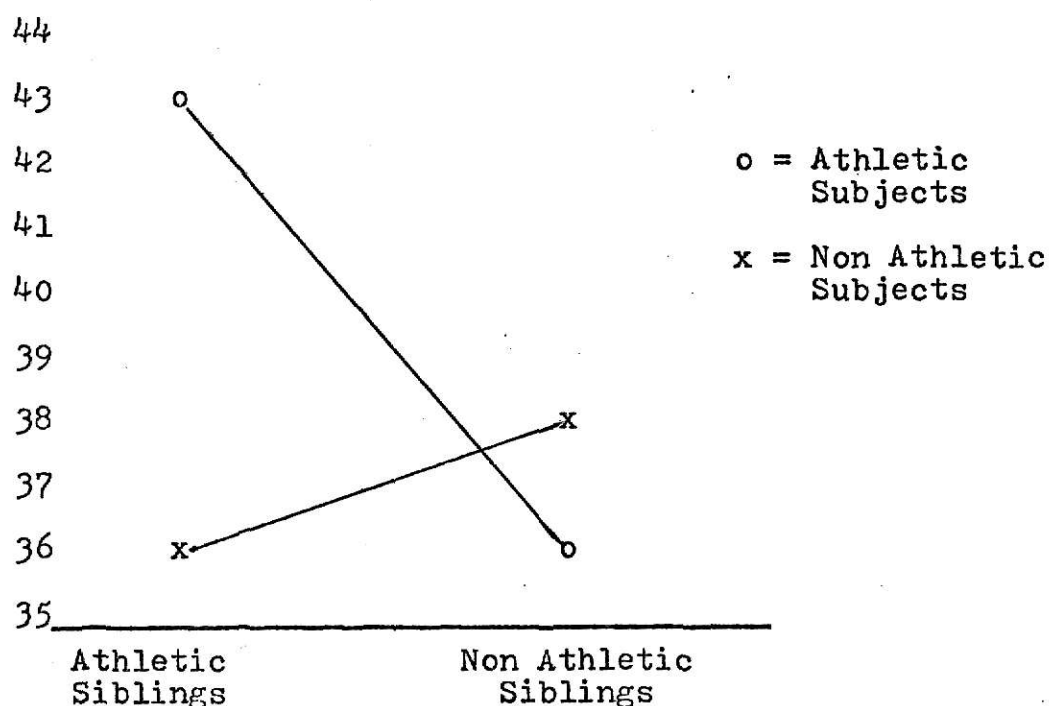


Figure 1

Interaction for Pursuit of Vertigo

The mean scores as presented in Table 12 are graphically illustrated in Figure 2 for the significant interaction term in the ascetic scale. In this case there was a difference between athletic and non athletic subjects (see Table 9). However, in view of the significant

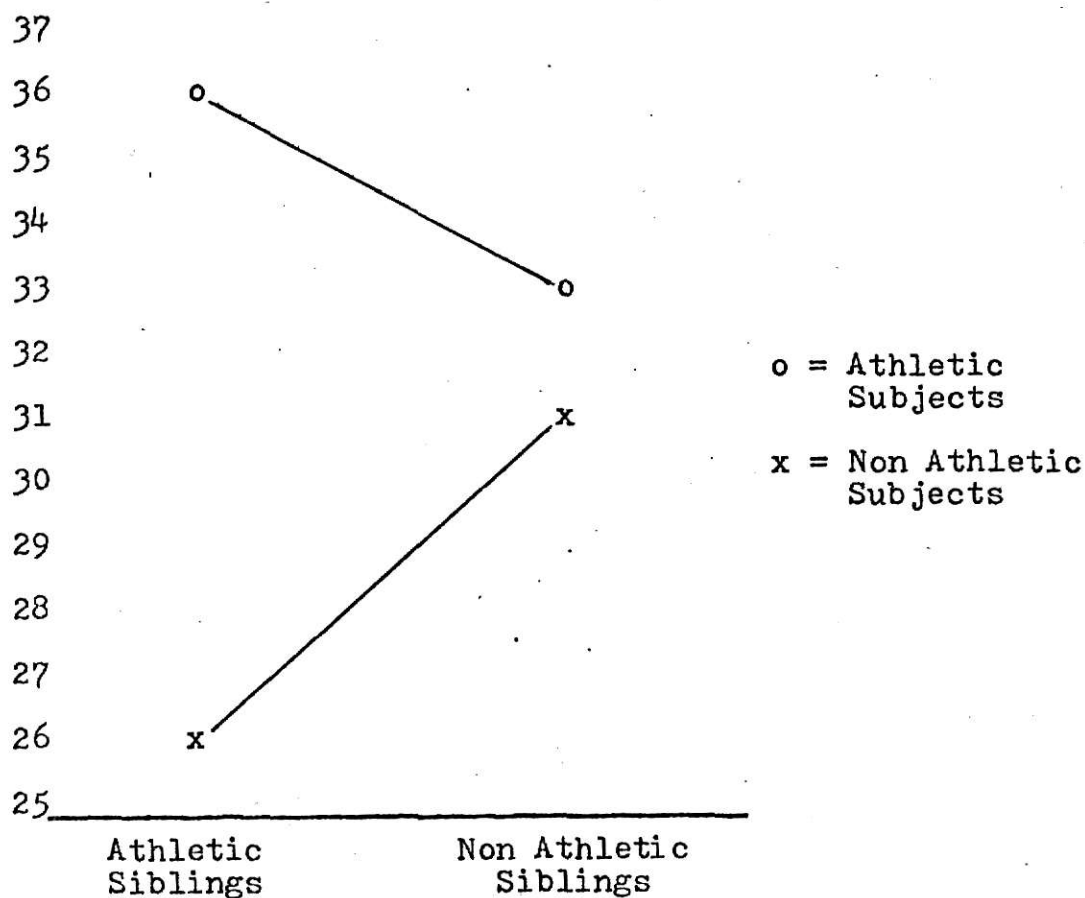


Figure 2

Interaction for Ascetic

interaction this significant main effect must be held subject to further scrutiny. As can be seen in Figure 2 there was really no difference between athletic subjects and non athletic subjects when only those having non athletic siblings were considered. The difference was in the athletic sibling group where there was a large difference indicated between the athletic subjects and non athletic subjects. This difference was enough to make the total difference between athletic subjects and non athletic subjects significant (see Table 9). Clearly however, the

only differences are between athletic subjects and non athletic subjects in the athletic sibling group. Here again, a post F test was not used in this study, but it appears from these results that as far as the ascetic attitude was concerned, athletic subjects had higher scores when they had athletic siblings perhaps because the athletic siblings supported their younger sister's ascetic attitude. Non athletic subjects with athletic siblings had lower scores perhaps because they rejected the attitude conveyed by their athletic peers. There was no noticeable difference in attitude between athletic and non athletic subjects in the non athletic sibling group.

Objective 4

Objective four was designed to determine if a difference in attitude toward physical activity existed between athletic subjects of various sibling groups. A separate one way analysis of variance with a Sheffe multiple comparison test was used to treat the data. The four groups compared were: athletic subjects who had athletic sisters; athletic subjects who had athletic brothers; athletic subjects who had athletic siblings of both sexes; and athletic subjects who had no athletic siblings.

The analysis of variance found a significant difference on the pursuit of vertigo sub-scale. However, when the Sheffe test treated the data, no significant difference in mean scores was found. These scores indicate that no

difference existed in attitude toward physical activity between the four sibling groups. A summary of the analysis of variance for each of the six sub-scales is presented in Table 13.

Table 13
Analysis of Variance Summary for
Each of the Sub-Scales

Social				
Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Between Groups	3	112.1602	37.3867	0.5588
Within Groups	44	2943.8200	66.9050	
Total	47	3055.9800		
Health and Fitness				
Between Groups	3	42.8125	14.2708	0.2234
Within Groups	44	2810.4370	63.8736	
Total	47	2853.2500		
Pursuit of Vertigo				
Between Groups	3	696.6250	232.2083	3.0883 ^a
Within Groups	44	3308.3750	75.1903	
Total	47	4005.0000		
Aesthetic				
Between Groups	3	17.0938	5.6979	0.0620
Within Groups	44	4042.3860	91.8724	
Total	47	4059.4800		

^a significant at the .05 level.

Table 13 (continued)

Catharsis				
Sources of Variation	df	Sums of Squares	Mean Squares	F-Ratio
Between Groups	3	272.0625	90.6875	1.6880
Within Groups	44	2363.9370	53.7258	
Total	47	2636.0000		

Ascetic				
Between Groups	3	301.0391	100.3463	1.5111
Within Groups	44	2921.9410	66.4077	
Total	47	3222.9800		

The mean scores for each group of sibling combinations and the statistics for each sub-scale computed by the Sheffe multiple comparison test are presented in Appendix D and E. No significant difference in attitude was found between the group means when the Sheffe test treated the data. These scores indicate no difference in attitude toward physical activity between subjects of various sibling groups. It appears that having variations in sex of older siblings makes no statistical difference in the attitude of the athletic subject. In other words, an athlete who had an athletic sister does not have a different attitude toward physical activity than the athlete who has an athletic brother, both sexes of siblings athletic, or non athletic siblings.

Objective 5

The purpose of objective five was to determine if a subject who was an athlete were her siblings also athletes. Likewise, if a subject was a non athlete were her siblings non athletes. A Chi Square test for independence was used to treat the data. The subjects were tabulated in a 2x2 frequency table consisting of athletic subjects who had athletic siblings; athletic subjects who had non athletic siblings; non athletic subjects who had athletic siblings; and non athletic subjects who had non athletic siblings.

The Chi Square was significant indicating that if a subject was an athlete her siblings were also athletes and the reverse was also true. If a subject was a non athlete her siblings were non athletes. This calculation indicates a statistical relationship between the athletic experience of subjects and the athletic experience of the subjects' siblings. The Chi Square summary is presented in Table 14.

It appears that if a subject was an athlete one could predict that her older siblings were also athletes. Likewise, if a subject was a non athlete most likely her siblings were also non athletes. In other words, families who are athletic tend to raise athletic children and families who are not athletic produce non athletes as children.

Table 14
Chi Square Summary

Subjects	Athletic Siblings		Non Athletic Siblings		Marginal f
Athletes	20	30	28	18	48
Non Athletes	16	6	25	35	41
Marginal f	36		53		89

significant at the .05 level.

DISCUSSION OF RESULTS

From a review of the literature, it was assumed prior to data collection that athletic subjects would score higher on the Kenyon ATPA than non athletes. However, because this scale had not been previously administered to high school age subjects, no conclusions were possible. As reported earlier in this chapter, there was a significant difference favoring the athletes on the health and fitness, catharsis, and ascetic sub-scales, and in all other sub-scales except the aesthetic, the athletes had a higher mean score. Overall, the athletes indicated a higher attitude toward physical activity than the non athletes, but more important, these statistics show that these high school females participate in physical activity because of health and fitness reasons; they have found an outlet for tension precipitated by frustration; and they enjoy the rigors of

training and the tough competition of sports. When compared to the established Kenyon norms, the mean scores of the subjects were very similar, indicating that their attitudes toward physical activity were not unlike the general population.

The investigator expected that subjects coming from homes where other siblings were athletes, the attitudes of these subjects would be higher than the subjects coming from non athletic homes. The social aspect was particularly expected to favor the individual of the athletic family. The prestige and popularity associated with being an athlete would naturally be desirable elements to acquire. It was supposed that the younger child in the family would follow in these athletic footsteps in thought and deed. As presented earlier in this chapter, when the athletic status of the subject was disregarded, there was no difference, statistically speaking, in the attitude construct toward physical activity. The Kenyon ATPA mean scores indicated no difference between subjects who had athletic siblings and those who had non athletic siblings. However, the Chi Square did show that in practice, athletes do come from athletic families and non athletes evolve from non athletic families. This presents a possibility of two plausible theories. One, the family dictates the athletic participation of the child; an athletic background breeds an athletic child. On the other hand, the child might

innately have the desire to participate in athletics and by so doing is reinforced by the family interest.

When the athletic subjects were separated into four sibling groups to determine if a difference existed in attitude toward physical activity, it was found that various sibling groups did not dictate variations in attitude. There is no difference in attitude toward physical activity between athletic subjects who had like-sex siblings; athletic subjects who had cross-sex siblings; athletic subjects who had athletic siblings of both sexes; and athletic subjects who had no athletic siblings.

When both subject and sibling athletic status was considered a significant interaction was found within the pursuit of vertigo and ascetic sub-scales. Figure 1 and 2 show that athletes attitudes were supported by their athletic siblings in the areas of participation for the excitement and competitive values. However, if a subject was a non athlete and her siblings were athletes her attitude was depressed in these two areas. In the non athletic sibling group, the attitudes of the subjects, whether athlete or non athlete, were similar. The most pronounced diversity in attitude was witnessed between the athlete and non athlete who had athletic siblings. The fact that a significant interaction was found on the ascetic scale indicated that the sibling athletic experience was a matter of interest in the subjects' attitudes toward physical

activity. Therefore, the difference found between athletic subjects and non athletic subjects (see Table 9) must be attributed to the high scores of the athletes who had athletic siblings.

Here again, the mean scores were compared to established norms for this attitude measure and similarity was evident. This indicates that this sample represented the general population in attitudes toward physical activity.

Possible reasons for these results deal with the concept of competition and alliance that the Adlerian theory addresses (2). Siblings of like interests manifest intrasibling support, as was evident with the athletic subject-athletic sibling and non athletic subject-non athletic sibling groups. Competition was indicated where variance in interests were located, such as in the athletic subject-non athletic sibling and non athletic subject-athletic sibling pairs. The attitudes of the subjects were depressed when the athletic behavior patterns of their siblings differed from their own.

When both the subject and sibling athletic status was considered, relationships between the athletic behavior of the siblings and subjects and the expressed opinions, concerning physical activity, of the subjects were apparent. Also, the trend for the younger child to be an athlete was evident when she evolved from a family of older athletic siblings.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the attitude toward physical activity of high school females based on family background and athletic experience. Specifically, the five research objectives of this study were: to determine if a difference in attitude toward physical activity existed between athletic and non athletic subjects; to determine if a difference in attitude toward physical activity existed between subjects who had athletic siblings and those who had non athletic siblings; to determine if a difference in attitude toward physical activity existed between groups of subjects of varying combinations of athletic experience and of varying athletic experience of subjects' siblings; to determine if a difference in attitude toward physical activity existed between athletic subjects of various sibling constellations; and to determine if a subject was an athlete were her siblings also athletes, and likewise, if a subject was a non athlete were her siblings non athletes.

The subjects for this study were 89 sophomore females who had at least one older sibling and had obtained parental permission to participate in the study. All

individuals, from four local high schools, who met the three basic qualifications (female, sophomore, had older sibling), were divided into various groups according to subject and sibling athletic status. They were first divided into athletic and non athletic subjects, then further divided into a 2x2 bivariate table indicating athletic siblings and non athletic siblings. Finally, athletic subjects were divided into four sibling constellations consisting of athletic sisters, athletic brothers, athletic siblings of both sexes, and non athletic siblings.

The Kenyon ATPA attitude measure was administered to all subjects. The survey was totally a pencil-paper procedure which took the high school subjects about 20 minutes to complete. The subjects received written instructions for completing the survey and the informational questionnaire. This questionnaire contained five questions which identified the subjects as athletes or non athletes and also identified the athletic status and sex of the subjects' siblings. The investigator was also available during the testing period to answer any questions. The subjects were tested in mass during a class period when all sophomore girls were available.

The data was treated by a 2x2 factorial analysis of variance to determine differences in attitudes toward physical activity of athletic and non athletic subjects who had athletic and non athletic siblings. The main effect difference in attitude toward physical activity between

athletic and non athletic subjects was successful on three of the Kenyon ATPA six sub-scales. The main effect difference in attitude toward physical activity between all subjects who had athletic siblings and all subjects who had non athletic siblings was not successful on any of the six scales. When both subject and sibling athletic experience was considered a difference in attitude was indicated on two of the six sub-scales marked by a significant interaction. A separate one way analysis of variance with a Sheffe determined differences in attitude toward physical activity between athletic subjects of various sibling constellations. No significant difference was found. A Chi Square test for independence reported that if a subject was an athlete her siblings were also athletes. Likewise, if a subject was a non athlete her siblings were non athletes.

The general conclusion reached was that when subject and sibling athletic experience was considered there was a difference in the subjects' attitude toward physical activity. More specifically, the athletic girl who had athletic siblings had a higher attitude in the areas of pursuit of vertigo and ascetic, than the non athletic girl who had athletic siblings.

CONCLUSIONS

The following conclusions were drawn based on the results and discussion of Chapter 4. These conclusions are based on the limitations of this study.

1. High school female athletes have a higher score on tests of attitude toward physical activity than do non athletes of the same age in the specific areas of health and fitness, catharsis, and ascetic.

2. The fact that older siblings are athletic or non athletic makes no difference in the younger sister's attitude toward physical activity when her athletic experience was not considered.

3. The family constellation concerning athletic experience is important in determining the attitude of the younger children in the family. The young athlete's attitudes toward physical activity are reinforced by having athletic siblings. However, when the athletic behavior of the siblings differs from that of the younger sister, her attitude is depressed.

4. The sex of the older sibling(s) makes no difference in the attitude toward physical activity of their younger sister.

5. Athletic families produce athletic children and the non athletic yield non athletic children. One can predict that if a child is an athlete, then her older siblings are most likely athletes. Likewise, if a child

is a non athlete, then most likely her older siblings are also non athletes.

RECOMMENDATIONS

Based on the results and interpretations of this study, more research needs to be done in the area of determining attitudes toward physical activity. The investigator suggests that:

1. Similar attitude measures be used to determine attitudes of both high school males and females according to subject and sibling athletic status.

2. Similar attitude measures be used to determine attitudes of individuals according to athletic status of younger siblings, as well as older siblings.

3. Similar attitude measures be used to determine attitude differences and similarities between various sibling groups; athletes, non athletes, like-sex, cross-sex, older, and younger.

4. Similar attitude measures be used in a longitudinal study of attitude change in the athlete and his or her siblings from the beginning of their athletic career through college.

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APPENDIX A
KENYON ATPA

This is a test to ascertain your opinions about physical activity. We are asking you to express what you think or feel about each of the following questions. The best answer is your personal opinion. Many different and opposing views are presented; you may find yourself agreeing strongly with some of the statements and disagreeing just as strongly with others.

INSTRUCTIONS

1. Express your agreement or disagreement by filling-in the appropriate number on the answer card. Use the following key:

- 1: VERY STRONGLY AGREE
- 2: STRONGLY AGREE
- 3: AGREE
- 4: UNDECIDED
- 5: DISAGREE
- 6: STRONGLY DISAGREE
- 7: VERY STRONGLY DISAGREE

For example, if you strongly disagree with a statement you fill-in the number 6 as follows:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

2. You should rarely need to use the number 4 (undecided).
3. Do not spend too much time on any one statement; try to respond, then go on to the next item.
4. Respond to all statements.
5. There are 54 items on this test. You have two answer cards. The card with the number one written in the 36th column is your first card, you will answer the

first 25 questions on this card and the remaining questions on the card with the number two written in the 36th column.

6. The last page of this test has an attached informational questionnaire. Respond either yes or no by circling the choice right on the questionnaire.

1. I would prefer quiet activities like swimming or golf, rather than such activities as water skiing or sail boat racing.
2. I would gladly put up with the hard training necessary for the chance to try out for the U. S. Olympic team.
3. The most important value of physical activity is the beauty found in skilled movement.
4. Physical education programs stress vigorous exercise since it contributes most to physical fitness.
5. The years of strenuous daily training necessary to prepare for today's international competition is asking a lot of today's young women.
6. The need for much higher levels of physical fitness has been established beyond all doubt.
7. Among the best physical activities are those which represent a personal challenge, such as skiing, mountain climbing, or heavy weather sailing.
8. Among the most desirable forms of physical activity are those which present the beauty of human movement such as modern dance and water ballet.
9. I would get by far the most satisfaction from games requiring long and careful preparation and involving stiff competition against a strong opposition.
10. Of all physical activities, those whose purpose is primarily to develop physical fitness, would not be my first choice.
11. The best way to become more socially desirable is to participate in group physical activities.
12. Almost the only satisfactory way to relieve severe emotional strain is through some form of physical activity.
13. Frequent participation in dangerous sports and physical activities are alright for other people but ordinarily they are not for me.
14. Physical education programs should place much more emphasis upon the beauty found in human movement.
15. If given a choice, I sometimes would choose strenuous rather than light physical activity.

16. There are better ways of relieving the pressures of today's living than having to engage in or watch physical activity.
17. I like to engage in socially oriented physical activities.
18. A part of our daily lives must be committed to vigorous exercise.
19. I am not particularly interested in those physical activities whose sole purpose is to depict human motion as something beautiful.
20. Colleges should sponsor many more physical activities of a social nature.
21. For a healthy mind in a healthy body the only place to begin is through participation in sports and physical activities every day.
22. The least desirable physical activities are those providing a sense of danger and risk of injury such as skiing on steep slopes, mountain climbing, or parachute jumping.
23. Being physically fit is not the most important goal in my life.
24. A sport is sometimes spoiled if allowed to become too highly organized and keenly competitive.
25. I enjoy sports mostly because they give me a chance to meet new people.

STOP! Leave the remaining columns blank and answer the remaining questions on the second answer card.

26. Practically the only way to relieve frustrations and pent-up emotions is through some form of physical activity.
27. The time spent doing daily calisthenics could probably be used more profitably in other ways.
28. Given a choice, I would prefer motor boat racing or running rapids in a canoe rather than one of the quieter forms of boating.
29. Of all the kinds of physical activities, I don't particularly care for those requiring a lot of socializing.

30. One of the things I like most in sports is the great variety of ways human movement can be shown to be beautiful.
31. Most intellectual activities are often just as refreshing as physical activities.
32. Strength and physical stamina are the most important pre-requisites to a full life.
33. Physical activities that are purely for social purposes, like college dances, are sometimes a waste of time.
34. The self-denial and sacrifice needed for success in today's international competition may soon become too much to ask of a 13 or 14 year old girl.
35. I am given unlimited pleasure when I see the form and beauty of human motion.
36. I believe calisthenics are among the less desirable forms of physical activity.
37. Watching athletes becoming completely absorbed in their sport nearly always provides me with a welcome escape from the many demands of present-day life.
38. If I had to choose between "still-water" canoeing and "rapids" canoeing, "still-water" canoeing would usually be my choice.
39. There are better ways of getting to know people than through games and sport.
40. People should spend twenty to thirty minutes a day doing vigorous calisthenics.
41. There is sometimes an over-emphasis upon those physical activities that attempt to portray human movement as an art form.
42. Physical activities having an element of daring or requiring one to take chances are desirable.
43. Since competition is a fundamental characteristic of American society, highly competitive athletics and games should be encouraged for all.
44. A happy life does not require regular participation in physical activity.

45. The best form of physical activity is when the body is used as an instrument of expression.
46. Sports are fun to watch and to engage in, only if they are not taken too seriously, nor demand too much time and energy.
47. Calisthenics taken regularly are among the best forms of exercise.
48. I could spend many hours watching the graceful and well coordinated movements of the figure skater or modern dancer.
49. The best thing about games and sports is that they give people more confidence in social situations.
50. Among the best forms of physical activity are those providing thrills such as sailing in heavy weather or canoeing on river rapids.
51. Regular physical activity is the major pre-requisite to a satisfying life.
52. In this country there is sometimes too much emphasis on striving to be successful in sports.
53. I would enjoy engaging in those games and sports that require a defiance of danger.
54. Most people could live happy lives without depending upon frequent watching or participating in physical games and exercises.

Did you place your last response in column 29 of the second answer card? If you did, please answer the informational questionnaire now. If you didn't, check to be sure that you haven't left out an item.

APPENDIX B
INFORMATIONAL QUESTIONNAIRE

Informational Questionnaire

Circle your answer on this paper for each of the questions.

1. Do you have an older sister?

YES NO

2. Does your older sister(s) play on an interscholastic varsity, junior varsity, or frosh-soph athletic team?

YES NO

3. Do you have an older brother?

YES NO

4. Does your older brother(s) play on an interscholastic varsity, junior varsity, or frosh-soph athletic team?

YES NO

5. Have you ever or are you playing on an interscholastic varsity, junior varsity, or frosh-soph athletic team?

YES NO

APPENDIX C
LETTER OF INFORMED CONSENT

Letter of Informed Consent

Dear Parents:

A study is being conducted by myself, Bonita McMullen, in conjunction with my Master's degree at Kansas State University. The purpose of this study is to survey the attitudes toward physical activity of high school girls with athletic siblings. It is my wish to discover if high school sophomore females who have older athletic brothers and/or sisters differ in attitude toward physical activity from those girls who have older non athletic siblings.

The Kenyon Attitude Toward Physical Activity scale plus an additional informational questionnaire will be administered to all subjects. The questionnaire will simply assess the athletic status of the subject and the subject's siblings. The test will occur during the regular class period. All answer sheets and forms will be numerically coded to insure privacy of all information collected. Your daughter will have the opportunity to receive a profile of her attitude toward physical activity if so desired, she is also free to withdraw from the study at anytime by not completing the two questionnaires.

As indicated by my signature below and being of sound mind, I, being the parent or legal guardian of the individual listed below, do hereby voluntarily consent to her participation in the procedure proposed. The process has been explained to your daughter and her signature below indicates her consent.

Subject's Signature

Parent's Signature

APPENDIX D

MEAN SCORES FOR EACH SIBLING
COMBINATION GROUP

Mean Scores for each Sibling
Combination Group

Social			
Sisters Athletic	Brothers Athletic	Both Sexes Athletic	Non Athletic Siblings
37.11	38.36	36.57	34.67
Health and Fitness			
52.44	50.21	51.00	49.89
Pursuit of Vertigo			
45.78	40.71	45.29	36.50
Aesthetic			
36.22	34.64	35.00	35.72
Catharsis			
42.78	44.64	39.14	39.39
Ascetic			
38.44	36.79	37.86	32.50

APPENDIX E

SHEFFE TEST FOR MULTIPLE COMPARISONS RESULTS

(Group 1=Athletic Sisters, 2=Athletic Brothers,
3=Both Sexes Athletic, 4=Non Athletic Siblings)

Sheffe Test for Multiple Comparisons

Social				
Group	1	2	3	4
1	0.00	0.04	0.01	0.18
2	0.04	0.00	0.07	0.53
3	0.01	0.07	0.00	0.09
4	0.18	0.53	0.09	0.00
Health and Fitness				
1	0.00	0.14	0.04	0.20
2	0.14	0.00	0.02	0.00
3	0.04	0.02	0.00	0.03
4	0.20	0.00	0.03	0.00
Pursuit of Vertigo				
1	0.00	0.62	0.00	2.29
2	0.62	0.00	0.43	0.62
3	0.00	0.43	0.00	1.72
4	2.29	0.62	1.72	0.00
Aesthetic				
1	0.00	0.05	0.02	0.01
2	0.05	0.00	0.00	0.03
3	0.02	0.00	0.00	0.01
4	0.01	0.03	0.01	0.00

Sheffe Test for Multiple Comparisons
(continued)

Catharsis				
Group	1	2	3	4
1	0.00	0.12	0.32	0.43
2	0.12	0.00	0.88	1.35
3	0.32	0.88	0.00	0.00
4	0.43	1.35	0.00	0.00
Ascetic				
1	0.00	0.08	0.01	1.06
2	0.08	0.00	0.03	0.73
3	0.01	0.03	0.00	0.73
4	1.06	0.73	0.73	0.00

APPENDIX F

RAW DATA SCORES FOR THE KENYON ATPA
AND INFORMATIONAL QUESTIONNAIRE
(1=YES, 2=NO)

Raw Data Scores

Subject	Kenyon ATPA Scores						Informational Questionnaire				
	S	HF	PV	AES	C	ASC	1	2	3	4	5
1	36	65	47	48	50	31	2	2	1	1	1
2	38	48	36	37	33	33	2	2	1	1	1
3	45	51	58	18	50	46	2	2	1	1	1
4	36	46	38	52	28	38	1	2	1	2	2
5	35	49	39	46	38	29	1	1	2	2	1
6	38	53	45	31	42	36	2	2	1	2	2
7	47	55	60	23	49	43	1	1	2	2	1
8	48	58	36	48	43	50	2	2	1	1	1
9	36	35	43	51	36	36	2	2	1	2	2
10	36	48	38	41	33	37	1	1	2	2	1
11	32	38	39	37	38	23	2	1	2	2	2
12	42	63	60	30	38	43	2	2	1	2	2
13	42	45	36	50	52	35	1	2	1	1	1
14	24	38	50	39	10	28	1	2	1	2	2
15	34	44	25	36	47	20	1	2	2	2	1
16	30	42	34	45	39	24	1	2	1	2	1
17	33	35	33	37	23	29	2	2	1	2	2
18	39	63	31	34	44	35	2	2	1	2	1
19	38	51	36	36	45	23	1	2	1	1	2
20	34	36	28	20	43	34	2	2	1	1	1
21	26	62	56	34	48	41	1	1	1	2	1
22	34	31	20	31	26	15	1	2	2	2	2
23	42	43	50	27	28	31	1	2	1	2	2
24	30	42	36	53	31	28	1	2	1	2	2
25	14	61	52	40	54	42	1	2	2	2	1
26	20	53	47	50	24	33	1	2	2	2	2
27	29	48	34	40	39	28	1	2	1	1	2
28	46	49	49	20	51	38	2	2	1	1	1
29	27	42	31	37	35	27	1	2	2	2	1
30	43	38	39	39	39	29	2	2	1	1	2
31	44	61	53	39	43	33	2	2	1	2	2
32	40	52	55	27	47	39	2	2	1	1	1
33	44	66	48	20	58	54	1	2	1	2	1
34	32	50	47	33	31	44	1	2	2	2	1
35	37	60	37	40	41	46	1	2	2	2	1
36	38	39	36	40	34	30	2	2	1	1	2
37	32	53	52	34	28	33	1	2	2	2	2
38	39	45	41	35	44	44	1	1	2	2	1
39	39	54	45	40	45	42	2	2	1	2	2
40	39	53	49	39	38	35	2	2	1	2	1
41	21	45	49	20	32	40	1	1	1	1	1
42	39	47	31	54	45	30	1	2	2	2	2

Raw Data Scores (continued)

Subject	Kenyon ATPA Scores						Informational Questionnaire				
	S	HF	PV	AES	C	ASC	1	2	3	4	5
43	35	42	40	33	36	37	1	1	1	1	1
44	39	51	44	37	34	31	1	1	1	1	1
45	33	48	41	42	47	25	2	2	1	1	1
46	39	50	29	35	30	35	1	2	2	2	1
47	33	32	39	37	30	24	1	2	1	2	2
48	27	43	33	49	31	28	2	2	1	2	2
49	36	56	32	44	38	28	1	2	2	2	2
50	40	43	37	28	38	34	2	2	1	2	2
51	19	42	50	41	32	40	1	1	1	1	1
52	16	51	27	22	28	26	2	2	1	2	2
53	40	38	26	49	30	26	1	2	2	2	1
54	27	39	42	20	32	32	1	2	2	2	2
55	33	53	42	36	31	24	1	2	2	2	2
56	37	37	26	31	33	30	1	2	2	2	2
57	36	49	39	38	31	31	2	2	1	2	2
58	40	48	43	39	37	25	1	2	2	2	2
59	30	47	41	26	39	20	1	2	2	1	2
60	32	45	40	43	35	32	2	2	1	2	1
61	35	43	35	29	28	34	1	2	1	2	2
62	30	52	32	44	37	27	1	2	1	2	2
63	44	63	47	36	50	55	1	1	2	2	1
64	34	49	40	49	30	30	1	1	1	2	1
65	31	31	33	37	32	24	2	2	1	1	2
66	51	67	33	44	46	39	1	1	1	1	1
67	26	42	35	31	36	23	1	2	2	2	1
68	38	61	24	16	44	34	1	2	2	2	1
69	35	48	44	28	46	31	1	1	1	1	1
70	31	53	43	40	47	39	1	1	2	2	1
71	38	51	46	40	43	30	1	2	1	1	1
72	47	42	34	48	32	25	1	2	1	2	1
73	42	61	27	37	55	35	1	2	2	2	2
74	34	46	37	33	26	29	1	2	2	2	2
75	34	48	35	37	36	25	1	2	1	2	2
76	28	55	21	46	29	22	1	2	2	2	2
77	27	47	29	32	28	26	1	2	1	2	2
78	41	65	42	40	43	30	2	2	1	2	2
79	56	62	57	42	48	47	1	1	1	1	1
80	42	47	47	22	46	28	1	1	1	2	1
81	25	43	26	29	40	30	2	2	1	1	1
82	36	50	45	37	29	41	2	2	1	1	1
83	36	49	37	43	38	29	1	2	1	2	1
84	40	55	39	39	48	40	1	2	1	1	1
85	30	53	42	34	39	35	1	2	2	2	2

Raw Data Scores (continued)

Subject	Kenyon ATPA Scores						Informational Questionnaire				
	S	HF	PV	AES	C	ASC	1	2	3	4	5
86	24	43	35	14	41	29	1	2	1	2	2
87	33	46	35	34	35	36	1	2	1	2	2
88	32	35	34	46	24	36	1	2	1	1	1
89	35	45	35	24	46	34	1	1	2	2	1

ATTITUDES TOWARD PHYSICAL ACTIVITY OF HIGH
SCHOOL GIRLS WITH OLDER ATHLETIC
SIBLINGS

by

BONITA K. MCMULLEN

B. S., San Jose State University, 1974

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Health, Physical Education and Recreation

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1975

The purpose of this study was to determine if a difference in attitude toward physical activity existed between athletic subjects and non athletic subjects; to determine if a difference in attitude toward physical activity existed between subjects who had athletic siblings and subjects who had non athletic siblings; to determine if a difference existed in attitude toward physical activity between groups of subjects of varying combinations of athletic experience and of varying athletic experience of subjects' siblings; to determine if a difference in attitude toward physical activity existed between athletic subjects of various sibling groups; and to determine if a subject was an athlete were her siblings also athletes, and likewise, when a subject was a non athlete were her siblings non athletes.

The subjects for this study were 89 sophomore females who had at least one older sibling. All individuals, from local high schools, who met the three basic qualifications (girls, sophomore, had older sibling) were surveyed once parental permission was obtained. The subjects were divided into various groups according to subject and sibling athletic status. They were first divided into athletic and non athletic subjects, then further divided into a 2x2 bivariate table indicating athletic siblings and non athletic siblings. Finally, the athletic subjects were divided into four sibling constellations consisting of athletic sisters,

athletic brothers, athletic siblings of both sexes, and non athletic siblings.

The Kenyon ATPA attitude measure was administered to all sophomore girls who had at least one older sibling and had obtained parental permission. The survey was totally a pencil-paper procedure which took the high school subjects about 20 minutes to complete. The subjects received written instructions for completing the survey and the instructor orally explained the use of IBM answer cards and she was also available throughout the testing procedure to answer any questions. The subjects were tested in mass during a class period when all sophomore girls were available.

The data was treated by a 2x2 factorial analysis of variance for unweighted means to determine differences in attitudes toward physical activity of athletic and non athletic subjects who had athletic and non athletic siblings. The main effect differences in attitude toward physical activity between athletic and non athletic subjects was successful on three of the six sub-scales of the Kenyon ATPA. The main effect difference in attitude toward physical activity between all subjects who had athletic siblings and all subjects who had non athletic siblings was not successful in indicating any differences in attitude. When both subject and sibling athletic status was considered a difference in attitude was indicated in two of the six

sub-scales by a significant interaction. A separate one way analysis of variance with a Sheffe to determine differences in attitude toward physical activity between athletic subjects of various sibling constellations was not successful. A Chi Square test for independence reported that if a subject was an athlete her siblings were also athletes. Likewise, if a subject was a non athlete her siblings were non athletes.

The general conclusion reached was that when subject and sibling athletic experience is considered, there is a difference in attitude toward physical activity of the subject.