

INTERNAL-EXTERNAL LOCUS OF CONTROL AND ATTITUDES
TOWARD PHYSICAL ACTIVITY AMONG FEMALE
COLLEGE ATHLETES AND NON-ATHLETES

by

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TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
ACKNOWLEDGMENTS	vi
Chapter	
1. INTRODUCTION	
Introduction	1
Statement of Purpose	3
Limitations	4
Definition of Terms	4
2. REVIEW OF LITERATURE	
Introduction	7
Locus of Control Literature	7
Attitude Toward Physical Activity Research	13
Summary	15
3. PROCEDURES	
Selection of Subjects	18
Testing Instrument	19
Collection of Data	20
Test Battery Scoring	21
Analysis of Data	22
4. RESULTS AND DISCUSSION	
Introduction	23
Raw Data Analysis	23
Summary	35

5. SUMMARY AND CONCLUSIONS	
Introduction	38
Conclusion	40
Suggestions for Further Study	40
BIBLIOGRAPHY	42
APPENDIX A	47

TABLES

Table	Page
1. Internal vs. External Locus of Control Distribution for Female Athletes and Non-Athletes	23
2. Analysis of Variance for Health and Physical Fitness Subscale	24
3. Means for Athlete vs. Non-Athlete Females on the Health and Physical Fitness Subscales	24
4. Analysis of Variance for the Social Subscale	25
5. Means for Athlete vs. Non-Athlete Females on the Social Subscale	25
6. Analysis of Variance for the Ascetic Subscale	26
7. Means for Athlete vs. Non-Athlete Females on the Ascetic Subscale	26
8. Analysis of Variance for the Aesthetic Subscale	27
9. Means for Athlete vs. Non-Athlete Females on the Aesthetic Subscale	27
10. Analysis of Variance for the Catharsis Subscale	28
11. Means for Athlete vs. Non-Athlete Females on the Catharsis Subscale	28
12. Analysis of Variance for the Pursuit of Vertigo Subscale	29
13. Means for Athlete vs. Non-Athlete Females on the Pursuit of Vertigo Subscale	29
14. Means for Rotter Internal-External Control Scale for the Health and Physical Fitness Subscale	30

15.	Means for Rotter Internal-External Control Scale for the Social Subscale	30
16.	Means for Rotter Internal-External Control Scale for the Ascetic Subscale	31
17.	Means for Rotter Internal-External Control Scale for the Aesthetic Subscale	31
18.	Means for Rotter Internal-External Control Scale for the Catharsis Subscale	32
19.	Means for Rotter Internal-External Control Scale for the Pursuit of Vertigo Subscale	32
20.	Pearson Correlation Coefficients for the Rotter I-E Scale vs. Kenyon ATPA Subscales	33
21.	Summary Table for Subscale Means for Female Athletes, Non-Athletes, and the Original Kenyon Norms	34

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Chapter 1

INTRODUCTION

Participation in some form of physical activity has increased at a phenomenal rate in recent years. "Fully 59 percent--just over 90 million adults--claim to have participated in some form of sport or athletic activity in the past year. In 1961, no more than 24 percent reported comparable activity" (15:6). This acceleration in the popularity of physical activity and increased emphasis on participation in sports has many influencing factors. These factors range from educational opportunities associated with collegiate athletic participation to peer recognition associated with other competitive situations. Involvement in physical activity of some form consequently depends on the individual's choice and attitudes toward physical activity.

Kenyon (19:566) undertook research in which he sought to understand the "social and psychological significance of sport and physical activity . . . by studying the social psychological unit . . . of attitude." Through this research he suggested that there are six reasons why people choose to participate in physical activity. If we understand these six attitudes, we begin to see why people become involved in physical activity.

Recent work by Roberts (33) has shown that some people learn to become "helpless" in physical activity. These people believe that they are doomed to failure in sports and activity and that their abilities and efforts make little difference in determining the outcome of their own involvement in sports and physical activities. Utilizing Rotter's scheme (34), these people would be considered to be external in their locus of control. Locus of control is defined by Rotter in the following way:

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, fate, as under control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control (35:1).

Based on what we know from previous research, it is reasonable to hypothesize that athletes may feel more in control of their destiny, or are internal, while non-athletes may feel more helpless, or external, particularly in physical activity settings. Similarly it seems that athletes may have different attitudes about physical activity than non-athletes (7,8). Finally, it may be that some relationships exist between locus of control, attitudes toward physical activity, and athletic experience.

Statement of Purpose

The purpose of this study was to determine interrelationships among locus of control, attitudes toward physical activity, and the athletic experience of college women. Specifically, it was the purpose of this study to:

1. Determine if athletes and non-athletes differ in internal-external (I-E) scores.
2. Determine if significant differences exist between athletes and non-athletes on each of the six Attitude Toward Physical Activity Inventory (Kenyon Scale) subscales.
3. Determine if groups of subjects possessing internal, internal-external, or external locus of control scores differ on each of the six Attitude Toward Physical Activity subscales.
4. Determine if interactions exist between the main effect variables (athletic experience and locus of control) for the six Attitude Toward Physical Activity Inventory subscales.
5. Determine if significant relationships exist between each of the six Attitude Toward Physical Activity Inventory subscales and the locus of control measures.
6. Determine if Attitude Toward Physical Activity measures for the sample studied were similar to the original Kenyon norms (19).

Limitations

The ensuing study was completed with the recognition that there were several limiting factors. The testing sample was small. Because of its size broad interpretation of results was not made. Instead, they have been interpreted for the specific situation in this project. The investigator also realized that attitudes have a dynamic quality. Testing instruments designed to measure attitudes yield a static measurement. Specific limitations of the scales used in this study will be discussed in Chapter 3. And finally, when there are human subjects responding to a test battery, the honesty of their responses may vary (16).

Definition of Terms

Attitudes (as defined by Kenyon) - "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" (19:567).

Physical Activity (as defined by Kenyon) - "Denotes organized (structured), nonutilitarian (in an occupational or maintenance sense) gross human movement, usually manifested in active games, sports, calisthenics, and dance" (24:72).

Social Experience (as defined by Kenyon) - "Those physical activities whose primary purpose is to provide a medium for social intercourse, i.e., to meet new people and to perpetuate existing relationships" (24:74).

Health and Fitness (as defined by Kenyon) - "Can be characterized primarily by its contribution to the improvement of one's health and fitness" (24:74).

Pursuit of Vertigo (as defined by Kenyon) - "Those physical experiences providing, at some risk to the participant, an element of thrill through the medium of speed, acceleration, sudden change in direction, or exposure to dangerous situations, with the participant usually remaining in control" (24:75).

Aesthetic Experience (as defined by Kenyon) - "Activities (that) are conceived of as possessing beauty or certain artistic qualities" (24:76).

Catharsis (as defined by Kenyon) - "Physical activity as providing a release of tension precipitated by frustration through some vicarious means" (24:76).

Ascetic Experience (as defined by Kenyon) - "Physical activities which require long periods of strenuous and often painful training; which involve stiff competition and demands that the individual give up a number of pleasures for a period of time" (24:76).

Locus of Control (as defined by Rotter) - "Individually held perceptions concerning the degree to which an individual believes that his behavior has been instrumental in attaining varied outcomes" (35:1).

Internal-External Locus of Control Scale - A scale designed by Rotter (35) to determine the degree to which the respondent expects that reward reinforcement is dependent on or independent of his own behavior.

Internal Control - Refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control (35:1).

External Control - Refers to the perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control (35:1).

ATPAI (Attitude Toward Physical Activity Inventory) - A testing instrument developed by Kenyon to assess attitudes toward physical activity in six subdomains (19).

Athlete - A person who engages in some form of physical activity, either competitive or non-competitive.

Non-Athlete - A person whose daily activities do not involve competitive or non-competitive physical activity.

Chapter 2

REVIEW OF LITERATURE

The underlying purpose of this research project was to explore the relationship between attitudes toward physical activity and locus of control by comparing responses to two test groups (college female athletes versus college female non-athletes). Tests administered were the Rotter Internal-External Control Scale, which gives us insight as to what type of control we might expect from the subjects; and the Kenyon Attitude Toward Physical Activity Inventory, which provides some of the reasons why people choose to participate in physical activity.

Locus of control studies are many and diverse, but few relate directly to physical activity. Attitude research in physical activity can also be found quite easily, but seldom is the locus of control variable included in these studies. By measuring both locus of control and attitudes toward physical activity we may better understand the individuals engaged in physical activity. The next two sections of this chapter deal with current research in locus of control and attitudes toward physical activity.

Locus of Control Literature

First and foremost, it must be realized that locus of control is but one of several variables affecting behavior.

In a study by Davis and Phares (9) the point that locus of control was not the only behavioral determinant was made. It was found that internals in skill and ambiguous situations sought more information than they did in chance situations. The authors concluded that "individuals with a generalized expectancy that reinforcement was contingent upon their own behavior tend to actively engage in information seeking to a greater degree than individuals who do not hold such an expectancy" (9:556-57). "The presence of explicit environmental cues regarding the nature of the contingency between behavior and outcome should diminish the importance of an expectancy for internal or external control." This hypothesis developed by Rotter (34) appears to have been confirmed by Davis and Phares. This study also lends support to another hypothesis of Rotter (34), namely that "the individual who has a strong belief that he can control his own destiny is likely to be more alert to those aspects of the environment which provide useful information for his future behaviors. . . ."

In a review by Lefcourt (22:206-220), it was concluded that low externals subjects preferred high probability choices through which to maximize their success (22:216). Lefcourt suggests that when expectancies do become generalized as a result of I-E expectancy in varying behavior situations, certain behavior will result. "The individual will take

steps to improve his environmental conditions, place greater value on skill or achievement reinforcements and be generally more concerned with his ability, particularly his failures; and be resistive to subtle attempts to influence him" (22:218).

In a recent article, Rotter (35) discusses some of the misconceptions of I-E research. He notes that caution must be exercised when utilizing the I-E Scale to predict behavior. Since generalized expectancies do have their limitations, Rotter (35) observes, as did Phares, that generalized expectancy "represents only one of the many variables that enter into the prediction of behavior, and their relative importance is a function of the novelty and/or ambiguity of the situation" (35:59). The I-E reinforcement variable can predict the noval/ambiguous situations far better than it can predict situational outcomes such as in social influence and achievement. The I-E Scale can be used as a "broad measure to explore a large variety of possible theoretical and practical problems . . ." (35:59). Supportive research by Schure (38) indicated the success-failure feedback is also important when utilizing the I-E control of reinforcement variable. This research project was pursued with the realization that there were several limitations with reference specifically to the locus of control concept.

In one of the first studies with specific reference to the relationship between locus of control and sport,

Lynn et al. (25) set out to determine if a relationship existed between expressed preference of group versus individual activity and alienation (externality). Significant results were obtained using 12 to 15 year old males classified in group-team sports, individual sport participants, and non-participants. All the subjects of this study obtained low mean scores on the Rotter I-E Scale, thus indicating that they tended to be more internally controlled and less alienated. This observation is not consistent with those of Phares (32:159) in which he reported, through a review of research, that internality increases with age with the adolescent years tending to the external end of the continuum. Lynn et al. (25) concluded that team sport participants were significantly more internal than either non-participants or individual sport participants. An interesting inference was made as the authors stated that "students trained to cooperate as members of teams seemed more able to see a direct connection between their efforts and the rewards and reinforcements of society" (25:553).

DiGuiseppe (11) completed a similar study, but the results were not statistically significant. The results did, however, support research by Phares (32:159) indicating the trend of adolescents to lean toward the external end of the continuum.

In one of the first studies with a specific group of sport participants and locus of control, Gilliland (14)

compared male and female athletes and non-athletes on the locus of control variable. He found no significant difference between groups and observed higher I-E mean scores than those reported by Phares (32) and Rotter (34).

The past several studies reviewed here all dealt with specific groups and the relationship of locus of control within those groups. Sonstroem and Walker (42) choose rather to compare locus of control and attitudes to exercise and physical fitness. A review of their study revealed that there were situational distinctions between people's expectancies involving physically and intellectually determined skills (42:1031). The study was designed to "test the hypothesis that internals who endorsed more favorable attitudes toward physical activity would exhibit higher fitness levels and would be more active in physical exercise" (42:1032). The conclusions reached supported this hypothesis in that internals did perform more favorably on physical tests than did externals.

Other research by Campbell (4) conflicted with Lynn et al. (25) and Gilliland (14). When female athletes were examined with respect to sociological and psychological variables in relation to locus of control, no significant differences were found to exist among athlete groups, between team and individual sport groups, nor between athlete and non-athlete participants on the Rotter I-E Scale. These

results are, however, consistent with the findings of DiGuiseppe (11).

Research done by Jeffers (17) with 200 male and female college students concluded that the score on the Rotter I-E Scale decreased within the sample listed above following a twelve-week physical fitness and conditioning program.

In 1971, Lockhart (23) tried to determine if a relationship existed between personality factors and attitudes toward physical activity and physical education in 200 college females. She summarized her results by concluding that a relationship does exist between factors depicting a healthy personality and positive attitude toward physical activity and physical education.

An attempt to identify selected psychological components and investigate self-perception in female athletes was the topic of research completed by Kukla and Pargman (21). Significant differences were found between female varsity athletes and female intramural athletes. The varsity athletes identified personal growth statements (gained confidence, self-awareness, self-expression, concentration, etc.) and produced greater achievement and competitive responses while intramural athletes identified physical factors (appearance, health, etc.) in determining self-perception (21:377). Both groups indicated a higher social interest and greater

achievement orientation while involved in athletics. Though the authors did not specifically utilize the locus of control variable in their research, they may well have alluded to it by measuring self-perception. Varsity athlete responses identified personal growth statements which are characteristic of internal responses on the I-E Scale while intramural athlete responses identified physical factors which are characteristic of external responses on the I-E Scale.

Attitude Toward Physical Activity Research

This final section isolates several studies regarding the Kenyon ATPA Inventory. The purpose of the initial article by Kenyon (19) was "to report efforts to construct a model characterizing physical activity as a sociopsychological phenomenon" (19). In this article Kenyon delineated what the six scales would be and defined each. Once those structural models were defined a statistical analysis was used to determine internal consistency and construct validity. Such an analysis validated the inventory developed. A following article by Kenyon (24) presented the six subscales for attitude toward physical activity assessment along with the procedures used to develop each subscale. Schutz and Smoll (39) developed a scale to measure attitude toward physical activity in children which proved to be essentially (statistically) equivalent, with caution advised in

interpretation of results (39:1034). A review of several studies utilizing the Kenyon ATPA Inventory should demonstrate how the scale has been used in research concerning attitudes toward physical activity.

In a study "to determine the effectiveness of the Foundations of Physical Activity course in attaining its objectives," Kidd (20:36) administered the Kenyon ATPA Inventory using a pre-test, post-test method. Results yielded no significant differences between subscales on the Kenyon ATPA Inventory except in the health and physical fitness and ascetic subscales. He concluded that the course (1) failed to improve attitudes toward physical activity, however it (2) did increase the knowledge of the course content. Another study by Dotson and Stanley (12) using the Kenyon ATPA Inventory to determine attitude profiles of male university students for the purpose of comparing observed attitudes with (1) size of the high school, (2) record of achievement, (3) non-varsity sport record of achievement, and (4) the activity course selected. With regard to purpose (4), athletes chose activity courses based on the ascetic quality of those courses.

Delforge (10), in a unique study to determine attitudes toward physical activity of physically handicapped and non-handicapped college students, demonstrated no significant difference in any of the subscales except for the ascetic

subscale in which male college students responded significantly less positively. Zaichkowski (46) studied change in attitude of students enrolled in required physical education programs at the University of Toledo and at Bowling Green University. She concluded that there was some relationship between affective and behavioral components of attitude and that attitude toward physical activity does change after exposure to a physical education class of ten weeks.

Two studies by Corbin (7,8) to determine which attitudes were central in the motivation of champion women basketball players and champion women track athletes, respectively, concluded that female athletes in both studies scored significantly higher in the ascetic subscale. This suggests that female athletes are motivated by rigorous training and competition (ascetic) reasons. Female college basketball players were also motivated to participate in physical activity as a catharsis (emotional release). These findings are consistent with those observations by Dotson and Stanley (12).

Summary

In this chapter an attempt was made to briefly examine the locus of control variable and attitudes as they relate to physical activity. This project will attempt to explore the relationship between attitudes toward physical

activity and locus of control among college female athletes and non-athletes. Research reviewed in this chapter allows us to observe that, in general, no significant differences were found to exist between athlete and non-athlete response to the Rotter I-E Scale. When the Rotter I-E Scale was not used, one study indicated that female varsity athletes identified with personal growth statements for determining self-perception rather than the physical factors which the intramural group identified with. Responses to the Kenyon ATPA Inventory allow us to infer that female athletes score higher than female non-athletes on the ascetic and catharsis subscales.

The research reviewed in this chapter had dealt with either locus of control or attitudes toward physical activity among various populations. Few of the studies examined deal jointly with locus of control or attitudes toward physical activity. By jointly studying both locus of control and attitudes toward physical activity in the female college athlete, non-athlete population, we may better understand how the two are related. Several interesting questions arise. Do internals compete for reasons different from externals? Are athletes more frequently internal or external? What are the similarities between athletes and non-athletes with respect to locus of control and attitudes toward physical activity? By measuring locus of control and attitudes toward

physical activity, utilizing the Rotter I-E Scale and Kenyon ATPA Inventory respectively, we may discover answers to these questions and, in understanding those answers, gain clearer insight into the relationship between locus of control and attitudes toward physical activity.

Chapter 3

PROCEDURES

Selection of Subjects

The subjects selected for this study were 44 college female students ranging in age from 16 to 24 years who were enrolled in the Spring, 1977 semester at Kansas State University.

These 44 subjects were further divided into two groups of 22 subjects. Group one (female athletes) consisted of 22 college female varsity athletes who had competed on one or more women's intercollegiate athletic teams at some time during the 1976-77 academic year. Group two (female non-athletes) consisted of 22 college female non-athletes each of whom was a member of one of the several social sororities and had not competed on any women's intercollegiate athletic teams while at Kansas State University. Aside from both test groups being female and college students, there were no other similarities between test groups. The only difference between the two groups was the athlete, non-athlete difference.

The test battery (Appendix A) was given to 56 college female subjects who volunteered for the study. Those 56 subjects were instructed by the researcher on how to complete the test battery. They were allowed to take it home to

complete it, and requested to return it to the researcher within ten days. Of the original 56 test battery booklets given out, 44 were completed correctly and returned, thus comprising the final test subjects.

Testing Instrument

The test battery (Appendix A) utilized in this study consisted of four parts. The first component of the test battery was a consent form retained by the researcher. The second component was a background information sheet and answer sheet.

The third component consisted of the Kenyon ATPA Inventory, form DW (19). Form DW of the inventory consisted of 54 statements which were to be rated on a seven-point Likert Scale. Responses ranged from very strongly agree to very strongly disagree. The 54 statements measured responses in the six subscales of the ATPA Inventory. The six subscales were as follows: (1) Health and Physical Fitness, (2) Social, (3) Ascetic, (4) Aesthetic, (5) Catharsis, and finally (6) Pursuit of Vertigo. The 54 responses were not categorized by subdomain, but rather were randomly distributed throughout the inventory. A higher score in a specific subscale indicated a stronger attitude in that subscale, whereas a lower score consequently indicated a weaker response in that specific subscale. Reliabilities were lowest

in the social preference subscale, form DW, and highest in the pursuit of vertigo subscale, for DM. The validity of all scales with the exception of the catharsis subscale was adequate. This has been attributed to the fact that catharsis is also representative of other subscales.

The fourth and final component of the test battery was the Rotter Internal-External Control Scale as developed by Rotter (34). The scale consisted of 29 forced-choice items which included six filler items to disguise the true nature of the scale. Each item presented two conflicting statements of which the subject had to choose one alternative. Scoring of the scale was accomplished by counting the total number of external responses selected. A high score indicated an expectancy of external control of reinforcement while a low score indicated an internal expectancy. Test-retest reliabilities appear adequate. They ranged from .49 to .83 in the Rotter (34) sample. Reliabilities from other studies using the I-E Scale varied from the original Rotter reliabilities but not enough to be of concern for this project (34:42).

Collection of Data

Test booklets were assembled including all four items in the test battery. Booklets were then distributed within the sample population, completed within ten days, and returned

to the investigator. Those booklets distributed to the college female athlete sample were coded by placing an even number on the booklet. Those distributed to the college female non-athlete sample were coded by placing an odd number on the booklet. This procedure simplified data collation.

Once the booklets were received and placed into their specific categories (athlete, non-athlete), the consent form and answer sheets were removed. The data received were scored and coded. Background material was also coded for the computer.

Test Battery Scoring

The 54-item Kenyon ATPA Inventory, form DW, for measuring attitude toward physical activity is scored on a seven-point Likert Scale ranging from very strongly agree to very strongly disagree. Since the inventory has responses to the six subscales randomly distributed throughout the inventory, the first step in scoring was to determine which items fit into specific subscales. Once that was accomplished, total scores in each subscale could be computed by determining the different weights of each scale response and adding them together. A high score reflected a more positive attitude toward that subscale while a lower score indicated a more negative attitude toward that subscale.

The Rotter I-E Scale for measuring I-E control of reinforcement is scored by adding the total number of external responses to the 23-item forced-choice scale. Filler item scores have been deleted. A low score indicated a more internal attitude, while a high score reflects a more external attitude.

Analysis of Data

After the test data were collected and coded, they were submitted for analysis. A two-by-three cell analysis was performed with the groupings of female athlete, female non-athlete and internal, internal-external, and external Rotter I-E Scale scores comprising the cell. Internals were those subjects who scored eight or lower on the I-E Scale. Internal-external, a grouping used to represent those scores which fell between the means of each test group, were subjects who scored higher than nine and lower than twelve on the I-E Scale. Externals were those subjects who scored higher than twelve on the I-E Scale. A Chi Square technique was used to analyze frequency of external, internal-external, and internal locus of control among athletes and non-athletes. An analysis of variance (ANOVA) was performed to demonstrate test group interaction for each of the dependent variables which were the six subscales of the Kenyon ATPA. Finally, a Pearson Product Moment Correlation was computed to determine relationships among the variables studied.

Chapter 4

RESULTS AND DISCUSSION

In this chapter data collected, as described in Chapter 3, are presented. Data relative to each research objective are presented in the order the objective was listed in Chapter 1. The level of significance used throughout this study was the .05 level.

Raw Data Analysis

Objective 1: Determine if athletes and non-athletes differ in frequency of locus of control (internal, internal-external, external).

A Chi Square analysis was performed on this group of data and yielded the results displayed in Table 1. The Chi Square value of 6.71 was significant indicating that athletes were more frequently internals than non-athletes.

Table 1

Internal vs. External Locus of Control Distribution
for Female Athletes and Non-Athletes

I-E Scale	Athletes	Non-Athletes	Total	χ^2
Internal (≤ 8)	9	5	14	6.71 ^a
I-E (9-12)	10	6	16	
External (≥ 13)	3	11	14	

^aIndicates significant at the .05 level.

Objective 2: Determine if significant differences existed between athletes and non-athletes on each of the six ATPA inventory subscales.

Health and Physical Fitness. The ANOVA performed on this subscale yielded no significant difference between athlete vs. non-athlete responses. These results are displayed in Table 2. The means of the responses for the two test groups are displayed in Table 3.

Table 2

ANOVA for the Health and Physical Fitness Subscale

Source of Variation	df	SS	MS	F
Varsity	1	9.50	9.50	.27
LC	2	19.32	9.66	.28
V X LC	2	121.68	60.84	1.75
Within	38	1320.59	34.75	
Total	43	1497.16		

^aIndicates significant at the .05 level

Table 3

Means for Athlete vs. Non-Athlete Females on the Health and Physical Fitness Subscale

	Athlete	Non-Athlete
Total	45.65	44.62

^aNo underline indicates a significant difference at .05 level.

Social. The ANOVA performed on this subscale yielded a significant difference between athlete vs. non-athlete responses. These results are displayed in Table 4. The means of the responses for the two test groups further indicate this difference and are displayed in Table 5.

Table 4
ANOVA for the Social Subscale

Source of Variation	df	SS	MS	F
Varsity	1	215.98	215.98	7.65 ^a
LC	2	210.97	105.48	3.73 ^a
V X LC	2	76.75	38.38	1.36
Within	38	1073.36	28.25	
Total	43	1568.18		

^aIndicates significant at the .05 level.

Table 5
Means for Athlete vs. Non-Athlete
Females on the Social Subscale^a

	Athlete	Non-Athlete
Total	38.97	34.06

^aNo underline indicates a significant difference at .05 level.

Ascetic. The ANOVA performed on this subscale yielded no significant difference between athlete vs. non-athlete

responses. These results are displayed in Table 6. The means of the responses for the two test groups are displayed in Table 7.

Table 6
ANOVA for the Ascetic Subscale

Source of Variation	df	SS	MS	F
Varsity	1	154.20	154.20	2.40
LC	2	244.38	122.19	1.90
V X LC	2	123.03	61.51	.96
Within	38	2438.33	64.17	
Total	43	3172.64		

^aIndicates a significant difference at the .05 level.

Table 7
Means for Athlete vs. Non-Athlete
Females on the Ascetic Subscale

	Athlete	Non-Athlete
Total	34.97	30.82

^aNo underline indicates a significant difference at .05 level.

Aesthetic. The ANOVA performed on this subscale yielded no significant difference between athlete vs. non-athlete responses. These results are displayed in Table 8. The

means of the responses for the two test groups are displayed in Table 9.

Table 8
ANOVA for the Aesthetic Subscale

Source of Variation	df	SS	MS	F
Varsity	1	33.39	33.39	.42
LC	2	134.97	67.49	.85
V X LC	2	129.39	64.69	.81
Within	38	3023.28	79.56	
Total	43	3405.73		

^aIndicates a significant difference at the .05 level.

Table 9
Means for Athlete vs. Non-Athlete
Females on the Aesthetic Subscale

	Athlete	Non-Athlete
Total	38.81	40.74

^aNo underline indicates a significant difference at .05 level.

Catharsis. The ANOVA performed on this subscale yielded a significant difference between athlete vs. non-athlete responses. These results are displayed in Table 10. The

means of the responses for the two test groups further indicate this difference and are displayed in Table 11.

Table 10
ANOVA for the Catharsis Subscale

Source of Variation	df	SS	MS	F
Varsity	1	424.25	424.25	9.09 ^a
LC	2	318.32	159.16	3.41 ^a
V X LC	2	62.53	31.26	.67
Within	38	1773.27	46.67	
Total	43	2757.16		

^aIndicates significant at the .05 level.

Table 11
Means for Athlete vs. Non-Athlete
Females on the Catharsis Subscale^a

	Athlete	Non-Athlete
Total	42.74	35.87

^aNo underline indicates a significant difference at .05 level.

Pursuit of Vertigo. The ANOVA performed on this subscale yielded no significant difference between athlete vs. non-athlete responses. These results are displayed in Table 12.

The means of the responses for the two test groups are displayed in Table 13.

Table 12

ANOVA for the Pursuit of Vertigo Subscale

Source of Variation	df	SS	MS	F
Varsity	1	121.67	121.67	1.86
LC	2	55.91	27.96	.43
V X LC	2	44.54	22.27	.34
Within	38	2486.88	65.44	
Total	43	2797.64		

^aIndicates a significant difference at the .05 level.

Table 13

Means for Athlete vs. Non-Athlete Females
on the Pursuit of Vertigo Subscale

	Athlete	Non-Athlete
Total	39.59	35.91

^aNo underline indicates a significant difference at .05 level.

Objective 3: Determine if groups of subjects possessing internal, internal-external, or external locus of control differed on each of the six ATPA factors

Health and Physical Fitness. The ANOVA performed on this subscale yielded no significant difference within the Rotter distribution. These results have been previously displayed in Table 2. The means of the responses for the three Rotter groups are displayed in Table 14.

Table 14

Means for Rotter Internal-External Control Scale
for the Health and Physical Fitness Subscale

	Internal	I-E	External
Total	46.14	44.62	44.65

^aNo underline indicates a significant difference at .05 level.

Social. The ANOVA performed on this subscale yielded a significant difference within the Rotter distribution. These results were previously displayed in Table 4. The means of the responses for the three Rotter groups further indicate this difference and are displayed in Table 15.

Table 15

Means for Rotter Internal-External Control
Scale for the Social Subscale^a

	Internal	External	I-E
Total	38.66	37.50	33.40

^aNo underline indicates a significant difference at .05 level.

Ascetic. The ANOVA performed on this subscale yielded no significant difference within the Rotter distribution. These results were previously displayed in Table 6. The means of the responses for the three Rotter groups are displayed in Table 16.

Table 16

Means for Rotter Internal-External Control
Scale for the Ascetic Subscale

	Internal	I-E	External
Total	36.50	31.87	30.32

^aNo underline indicates a significant difference at .05 level.

Aesthetic. The ANOVA performed on this subscale yielded no significant difference within the Rotter distribution. These results were previously displayed in Table 8. The means of the responses for the three Rotter groups are displayed in Table 17.

Table 17

Means for Rotter Internal-External Control
Scale for the Aesthetic Subscale

	Internal	I-E	External
Total	37.08	40.77	41.47

^aNo underline indicates a significant difference at .05 level.

Catharsis. The ANOVA performed on this subscale yielded a significant difference within the Rotter distribution. These results were previously displayed in Table 10. The means of the responses for the three Rotter groups further indicate this difference and are displayed in Table 18.

Table 18

Means for Rotter Internal-External Control
Scale for the Catharsis Subscale^a

	Internal	External	I-E
Total	42.63	39.42	35.87

^aNo underline indicates a significant difference at .05 level.

Pursuit of Vertigo. The ANOVA performed on this subscale yielded no significant difference within the Rotter distribution. These results were previously displayed in Table 12. The means of the responses for the three Rotter groups are displayed in Table 19.

Table 19

Means for Rotter Internal-External Control
Scale for the Pursuit of Vertigo Subscale

	Internal	I-E	External
Total	37.86	39.25	36.15

^aNo underline indicates a significant difference at .05 level.

Objective 4: Determine if interactions existed between the main effect variables (athletic experience and locus of control) for each of the six ATPA subscales.

No significant interaction was found to exist between the main effect variables of athletic experience and locus of control. Those results were displayed previously in Tables 2, 4, 6, 8, 10, and 12.

Objective 5: Determine if significant relationships existed between each of the six ATPA subscales, the locus of control measures, and athletic experience.

Computation of Pearson Correlation Coefficients yielded one significant relationship. This occurred between the Rotter I-E Scale and the ascetic subscale of the Kenyon ATPA Inventory. The Pearson r value was a negative correlation of $-.442$. This value indicates that regardless of whether a subject was an athlete or not, those who score high in external locus of control on the Rotter I-E Scale also score high on the ascetic subscale of the Kenyon ATPA Inventory. The Pearson r values for the Rotter I-E Scale vs. the Kenyon ATPA Inventory subscale scores are displayed in Table 20.

Table 20

Pearson Correlation Coefficients for the
Rotter I-E Scale vs. Kenyon ATPA Subscales

	HPF	SO	AS	AE	CA	PV
Rotter I-E Scale	-.026	.140	-.442 ^a	.112	-.204	-.142

^aIndicates significant at the .05 level.

Objective 6: Determine if ATPA measures for the sample studied were similar to the original Kenyon norms.

In comparison with the original Kenyon norms, the scores on the ATPA Inventory in this test battery came very close to the original norms with some exceptions. A summary of those scores can be found in Table 21. Female athletes scored almost five points higher than the original norms in the social and catharsis subscales. Female non-athletes scored very similarly to the original norms with the exception of the aesthetic subscale, in which they scored four points higher.

Table 21

Summary Table for Subscale Means for
Female Athletes, Non-Athletes, and
the Original Kenyon Norms

Subscale	Athletes	Non-Athletes	Original Kenyon Norms
HPF	45.65	44.62	44.3 - 45.4
Social	38.97	34.07	32.0 - 34.0
Ascetic	34.97	30.82	31.2 - 31.5
Aesthetic	38.81	40.74	35.1 - 36.7
Catharsis	42.74	35.87	35.1 - 36.7
Pursuit of Vertigo	39.59	35.91	36.6 - 37.4

Summary

In summary, the scores on the Rotter I-E Scale showed a significant difference between college female athletes and non-athletes with athletes being significantly more internal than non-athletes. The mean for the Rotter I-E Scale for female college athletes was 9.36, standard deviation, 3.07; and for female college non-athletes, 12.12, standard deviation, 3.43. Female college athletes scored very close to the results published by Gilliland (14) in which female individual sports participants scored 9.87, standard deviation, 3.84, on the Rotter I-E Scale. DiGiuseppe (11:34) reported lower mean scores on the Rotter I-E Scale, but Gilliland (14) suggested that the difference in mean scores was reflective of sampling differences. Neither study mentioned here included a test of mean differences.

There were no significant differences between female college athletes versus non-athlete scores on the Kenyon ATPA Inventory on the health and physical fitness, ascetic, aesthetic, and pursuit of vertigo subscales. However, a significant difference was found to exist between female college athletes versus non-athlete scores with respect to the Kenyon ATPA social and catharsis subscales. The female college athlete group scored approximately five points higher in the social subscale and approximately seven points higher in the

catharsis subscale than did the female college non-athlete group. Female college athletes also scored approximately four points higher in the ascetic subscale though not to a significant degree.

These findings are somewhat consistent with other research. Corbin (7) found that champion women basketball players, when compared to female college non-athletes, scored significantly higher on the ascetic and catharsis subscales of the Kenyon ATPA Inventory and below the original Kenyon ATPA Inventory norms in the social subscale. The results of this study were consistent with the catharsis subscale score. Corbin (8) found that champion female track athletes scored significantly ($p > .05$) higher on the ascetic subscale of the Kenyon ATPA Inventory.

Another interesting observation can be made with regard to comparison of the Rotter I-E Scale mean scores and the Kenyon ATPA Inventory mean scores. Internal subjects scored significantly higher on the social and catharsis subscales of the Kenyon ATPA Inventory (see Tables 15 and 18). It may be noted here that when a comparison of these two sets of data (specifically the ANOVA for athlete and non-athlete scores on the Kenyon ATPA Inventory to the ANOVA for the Rotter I-E Scale scores on the Kenyon ATPA Inventory) was made, the same phenomenon was occurring. Athletes scored significantly higher on the social and catharsis subscales

of the ATPAI while internals also scored significantly higher on those same subscales. This is not to suggest a cause and effect relationship but rather to observe test group similarities. There was no significant interaction between the main effect variables of athletic experience and locus of control.

When the Rotter I-E Scale scores were compared to ATPA inventory subscale scores only one correlation was found to be significantly different from zero (see Table 20). A negative correlation was found to exist between Rotter I-E Scale scores and high scores in the ascetic subscale. Internals were those subjects scoring low on the Rotter I-E Scale. The means of the responses for the three Rotter groups (as displayed in Table 16) indicate that internals scored higher than either the I-E group or the external group on the ascetic subscale, though not to a significant degree. These results further reinforce the negative correlation. In summary, it has been observed that internal subjects scored higher in the ascetic subscale than did either the I-E group or the external group. This result implies that female college non-athletes as well as athletes who are internal on the Rotter I-E Scale are competitive and enjoy the rigors of training. Though we cannot infer from the results of this study that internals were athletes, it does make it easier to understand previous research by Corbin (7,8) that female athletes compete primarily for ascetic reasons.

Chapter 5

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine inter-relationships among locus of control, attitudes toward physical activity, and the athletic experience of college women. Specifically, it was the purpose of this study to:

1. Determine if athletes and non-athletes differ in internal-external (I-E) scores.
2. Determine if significant differences exist between athletes and non-athletes on each of the six Attitude Toward Physical Activity Inventory subscales.
3. Determine if groups of subjects possessing internal, internal-external, or external locus of control differed on each of the six Attitude Toward Physical Activity subscales.
4. Determine if interactions exist between the main effect variables (athletic experience and locus of control) for the six Attitude Toward Physical Activity Inventory subscales.
5. Determine if significant relationships exist between each of the six Attitude Toward Physical Activity Inventory subscales, the locus of control measures, and athletic experience.

6. Determine if Attitude Toward Physical Activity measures for the sample studied were similar to the original Kenyon norms (20).

The test groups were comprised of 22 college female athletes and 22 college female non-athletes. These students were enrolled in the Spring, 1977 semester at Kansas State University, Manhattan, Kansas.

The testing instrument consisted of a four-part test booklet. The contents of the booklet (Appendix A) were as follows: (1) a consent form, (2) a background information sheet, (3) the Kenyon Attitude Toward Physical Activity Inventory, and (4) the Rotter Internal-External Control Scale for assessing locus of control.

Test group subject results were tabulated and coded, analyzed by computer, and presented in Chapter 4. Findings revealed in Chapter 4 were found to be consistent with some research (7,8,11,15,26), and also yielded interesting findings unique to this study.

Athletes are more likely to be classified as internal in locus of control than non-athletes. Athlete scores on the Kenyon ATPA Inventory were significantly higher on the social and catharsis subscales than non-athlete scores. Internal subjects scored significantly higher on the social and catharsis subscales of the Kenyon ATPA Inventory and a significant relationship existed between internal subjects and high scores

on the ascetic subscale of the Kenyon Inventory. Female athletes scored higher on the social, ascetic, and catharsis subscales when compared to the original Kenyon norms (20).

Conclusion

Several conclusions can be reached from the results of this study. Though broad generalizations cannot be made, the results of this study indicated that female college athletes were more likely to participate in physical activity as a means for social interaction and as an emotional release rather than other reasons. High correlations were reflected in the ascetic subscale by both female college athletes and non-athletes. In view of other results in this study, internal female athletes and non-athletes participate for ascetic reasons receiving enjoyment from rigorous training and intense competition. This study supports conclusions reached by Corbin (7,8) in that, aside from competing for ascetic reasons rather than others, they may also feel that they are in control of their own destiny.

Suggestions for Further Study

There is clearly a need for further inspection of the relationships between locus of control and attitudes toward physical activity. It would be interesting to know if utilization of other testing instruments in this area

would yield similar results. Another possibility would be to perform a long range study of this nature. Those results would show the direction attitudes toward physical activity and locus of control are taking as "norms" change and physical activity rises in popularity. One might also consider researching attitudes and locus of control in different socio-economic groups. Correlations of locus of control with activity levels and views of family members would give us better insight when competitive days are over.

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APPENDIX

Consent Form

Dear Student:

As part of my research related to my Master's thesis, I am interested in your attitudes toward physical activity and life in general. I believe this is an important area of research in physical education since it is one of the goals of physical education to help people become more aware of their bodies and how they might modify behavior related to physical activity.

The purpose of this study is to determine if there is a significant correlation between people's attitudes toward physical activity and their views on life in general. This will enable us to understand better why people participate in physical activity and make some assumptions as to what type of activity people prefer.

In the next hour you will be asked to respond to approximately 100 questions related to this study. The test requires no studying, only your honest response. It is in no way dangerous and you are free to ask any questions, get up and walk around if you feel fatigued, or withdraw at any time. A full explanation of how the test battery should be completed will be attached. Results from the test battery will be made available to you by indicating on your response sheet in the designated area. All data collected will be kept confidential and only used for research purposes.

Your help in this research study is sincerely appreciated. If you agree to participate in this study please indicate by signing your name at the bottom of this letter.

Thank you,

Debrah Morante
Graduate Student in Health,
Physical Education and Recreation

Sign here if you consent to
participating in this study.

Background Information

Test Booklet Number: _____

Circle One of the Following:

Sex: M F

Age: 16-18 18-20 20-22 22-24 25

Classification: Fr. So. Jr. Sr. Grad.

Intramural Sport Participant: Yes No

Intercollegiate Sport Participant: Yes No

Club Sport Participant: Yes No (Ex. Crew, Rugby, Soccer)

ATPA Answer Sheet

Express your agreement or disagreement by writing the appropriate symbol on this answer sheet corresponding to the question number according to the following code:

VSA: Very strongly agree	U: Undecided
SA: Strongly agree	D: Disagree
A: Agree	SD: Strongly disagree
	VSD: Very strongly disagree

For example: 1. The United Nations should be abolished.
 1. SD (If you strongly disagree)

You should rarely need to use the U. Respond to all statements.

1. _____	14. _____	27. _____	41. _____
2. _____	15. _____	28. _____	42. _____
3. _____	16. _____	29. _____	43. _____
4. _____	17. _____	30. _____	44. _____
5. _____	18. _____	31. _____	45. _____
6. _____	19. _____	32. _____	46. _____
7. _____	20. _____	33. _____	47. _____
8. _____	21. _____	34. _____	48. _____
9. _____	22. _____	35. _____	49. _____
10. _____	23. _____	36. _____	50. _____
11. _____	24. _____	37. _____	51. _____
12. _____	25. _____	38. _____	52. _____
13. _____	26. _____	39. _____	53. _____
		40. _____	54. _____

Kenyon Attitude Toward
Physical Activity
Inventory
Form DW

Instructions:

1. Express your agreement or disagreement by placing the appropriate symbols in the blank provided on the answer sheet corresponding to the question number.
2. Respond to the statements in the order given.
3. The significance of this research depends upon the degree to which you express your own opinions.
4. Follow the answer sheet instructions.

* * * * *

1. I would prefer quiet activities like swimming or golf, rather than such activities as water skiing or sailboat racing.
2. I would gladly put up with the necessary hard training for the chance to try out for the U. S. Women's Olympic Team.
3. The most important value of physical activity is the beauty found in skilled movement.
4. Physical education programs should 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 is all right 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 motion.
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.
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 prerequisites 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 thirteen or fourteen 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 sports.

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 prerequisite 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 participation in physical games and exercise.

Rotter Scale

Please circle either a or b for each of the following:

1. a Children get into trouble because their parents punish them too much.
b The trouble with most children nowadays is that their parents are too easy with them.
2. a Many of the unhappy things in people's lives are partly due to bad luck.
b People's misfortunes result from the mistakes they make.
3. a One of the major reasons why we have wars is because people don't take enough interest in politics.
b There will always be wars, no matter how hard people try to prevent them.
4. a In the long run people get the respect they deserve in this world.
b Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a The idea that teachers are unfair to students is nonsense.
b Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a Without the right breaks one cannot be an effective leader.
b Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a No matter how hard you try some people just don't like you.
b People who can't get others to like them don't understand how to get along with others.
8. a Heredity plays the major role in determining one's personality.
b It is one's experiences in life which determine what they're like.

9. a I have often found that what is going to happen will happen.
b Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
b Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a Becoming a success is a matter of hard work, luck has little or nothing to do with it.
b Getting a good job depends mainly on being in the right place at the right time.
12. a The average citizen can have an influence in government decisions.
b This world is run by the few people in power, and there is not much the little guy can do about it.
13. a When I make plans, I am almost certain that I can make them work.
b It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. a There are certain people who are just no good.
b There is some good in everybody.
15. a In my case getting what I want has little or nothing to do with luck.
b Many times we might just as well decide what to do by flipping a coin.
16. a Who gets to be the boss often depends on who was lucky enough to be in the right place first.
b Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17. a As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
b By taking an active part in political and social affairs the people can control world events.
18. a Most people don't realize the extent to which their lives are controlled by accidental happenings.
b There really is no such thing as "luck."

19. a One should always be willing to admit mistakes.
b It is usually best to cover up one's mistakes.
20. a It is hard to know whether or not a person really likes you.
b How many friends you have depends upon how nice a person you are.
21. a In the long run the bad things that happen to us are balanced by the good ones.
b Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. a With enough effort we can wipe out political corruption.
b It is difficult for people to have much control over the things politicians do in office.
23. a Sometimes I can't understand how teachers arrive at the grades they give.
b There is a direct connection between how hard I study and the grades I get.
24. a A good leader expects people to decide for themselves what they should do.
b A good leader makes it clear to everybody what their jobs are.
25. a Many times I feel that I have little influence over the things that happen to me.
b It is impossible for me to believe that chance or luck plays an important role in my life.
26. a People are lonely because they don't try to be friendly.
b There's not much use in trying too hard to please people, if they like you, they like you.
27. a There is too much emphasis on athletics in high school.
b Team sports are an excellent way to build character.
28. a What happens to me is my own doing.
b Sometimes I feel that I don't have enough control over the direction my life is taking.
29. a Most of the time I can't understand why politicians behave the way they do.
b In the long run the people are responsible for bad government on a national as well as on a local level.

INTERNAL-EXTERNAL LOCUS OF CONTROL AND ATTITUDES
TOWARD PHYSICAL ACTIVITY AMONG FEMALE
COLLEGE ATHLETES AND NON-ATHLETES

by

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ABSTRACT

This study was designed to determine the interrelationships among locus of control, attitudes toward physical activity, and the athletic experience of college women. The 44 subjects who comprised the two test groups were 22 female athletes and 22 female non-athletes enrolled at Kansas State University in the Spring, 1977 semester. Each of the subjects was asked to respond to a four-part questionnaire which included the Kenyon Attitude Toward Physical Activity Inventory (ATPA), the Rotter Internal-External Control Scale, an informed consent document, and a background information sheet. Analysis of the data revealed that female athletes were significantly more internal in locus of control than female non-athletes and scored significantly higher on the social and catharsis subscales of the Kenyon ATPA Inventory than female non-athletes. Internal subjects, in general, scored higher on the social and catharsis subscales of the Kenyon ATPA Inventory. There was also a significant correlation with high ascetic subscale scores and internal scores. The conclusions reached were that female college athletes compete for primarily social and catharsis reasons, viewing physical activity as a means of social interaction and an emotional release. Other test results indicate that internal female college athletes and non-athletes participate for ascetic reasons, receiving enjoyment from the rigorous training and intense competition.

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