COMPARISONS BETWEEN FAMILY PROFILES OF LEVEL 10 AND ELITE FEMALE GYMNASTS AND THE UNITED STATES NATIONAL FEMALE GYMNASTIC TEAM

by

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STATEMENT OF DISSERTATION APPROVAL

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ABSTRACT

The purpose of this study was to determine if there were differences in family profiles between female gymnasts at the Level 10, Elite level, and those on the United States National Gymnastic Team. The variables that were examined included socioeconomic status, parental education, ordinal position of birth of the gymnasts and their parents, family size, sibling and parental involvement in sport, geographic location, parental style of discipline, locus of control, and the 10 subscales of the Family Environment Scale.

The participants in this study were female gymnasts rated Level 10, Elite, and National Team by the United States Gymnastic Federation (USGF; $N = 26$) and their families. The age of the gymnasts was 14-22 years at the time of their competitive years. However, the actual age of the competing gymnasts was 14-18 years of age.

The instruments used for this study included the Family Environment Scale (FES) and two gymnastic-specific demographic questionnaires, one constructed specifically for the gymnasts, and one constructed for parents.

The results of the study revealed that the information obtained from this study can not be generalized to any population other than those studied here. Statistically, there were relatively few differences across levels of athletic achievement (Level 10, Elite, and NT gymnasts) as originally hypothesized; however, some interesting trends suggest that additional research be pursued.

Although the results were not statistically significant, the pattern of results for the conflict and control subscales did confirm that the National Team had a more authoritative parental style than the non-National teams. The National Team families were high in cohesion and much lower in control. Parental style appeared to have an impact on the overall success of the athlete.

Initially, the thought was that the birth order of the gymnast was an important factor; however, a better predictor of the success of the athlete may lie in the birth order of the parents, and more specifically the father. The fact that none of the fathers of the gymnasts were first-born and came from larger families may have something to do with the success of the gymnasts. Perhaps they encouraged their child to achieve at a higher level because they were not first-born.

Finally, even though the results were not what was expected due to the low response rate and relatively few differences between the top three levels of gymnasts, some interesting results were obtained and provide a foundation for further exploration.

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CHAPTER 1

INTRODUCTION

In 1995, an alarming book was published regarding the sport of female gymnastics. The book entitled, *Little Girls, in Pretty Boxes*, recounted shocking allegations concerning families' and coaches' influence over the fragile, malleable elite level gymnasts and figure skaters (Ryan, 1995). The general public was so concerned and infatuated with this topic that a movie, *Little Girls, in Pretty Boxes*, was made depicting the life events of related athletes.

United States Gymnastics Federation statistics indicate that approximately 55,000 female gymnasts participate in competitive gymnastics below the collegiate level on a yearly basis in the year that data collection began. Of those 55,000, only 52 of them qualified for the three levels (elite, national, and Olympic team members) of the United States National Team each year (Sands, 1992). This indicates that only one athlete out of more than a thousand makes it to the National Team. What characteristics, besides skill level, differentiates those athletes who make it to the elite level from those who continue on to one level higher and become a member of the National Team?

Considerable data have been collected on female national gymnasts, as well as on those athletes who were not selected to the National Team but are classified as elite level. In the United States, a gymnast's numerical rating is determined by successful

completion of very specific skills and abilities. The level of competition for gymnasts is determined by the degree of difficulty the gymnast is able to perform, such as the amount of rotations, the difficulty of the trick, and the level positioning of the body (Pike, Open, Tuck). As gymnasts progress in skill acquisition, their level of classification increases. The numerical rating begins with number 1 and progresses to level 10. Only after a gymnast has been rated at level 10 are they eligible for the elite classification. The elite gymnasts compete at national meets throughout the country hoping to be considered for the National Team.

The data that have been collected with regard to the women's gymnastic arena are extensive. An example of areas that have been researched are: injury occurrence (Kerr & Minden, 1988), psychological skills and characteristics relevant to exercise efficiency (Lufi, Porat, & Tenenbaum, 1986; Mahoney, Gabriel, & Perkins, 1987), emotion involved in the sport (Snyder, 1990), gymnastic attrition (Klint & Weiss, 1986), and physiological indices of elite gymnasts (Mahoney & Avener, 1977; Tremayne & Barry, 1990). In addition to the work already done with the athletes, several investigators have alluded to the fact that there may be some other factor(s) not yet investigated that contributes to the success of these athletes. The athletes themselves have been studied extensively but the areas that are sociological in nature have not been investigated as thoroughly as needed. One potential factor might be the influence that the family and coaching staff has on the development of the gymnast. Another important factor might be that elite level gymnasts attain the elite status much earlier than other sports, and do so when they are still highly influenced by their family. There has been little work reported with either male or female athletes from any sport regarding familial influences

on athletic participation. One study reported by Blankenbaker (1973) addressed various sociological issues such as birth order, socioeconomic status, and family size with noncombative versus combative sports in an athletic male high school population. The findings of this study revealed that those individuals who participated in noncombative sports such as swimming, tennis, and golf came from families of higher social status than those who participated in combative sports such as football, hockey, and rugby. Blankenbaker also found that those who participated in noncombative sports were more likely to be first-born children, generally coming from smaller families. The noncombative sports were further separated into club sports and nonclub sports. Those that were considered club sports were swimming, golf, and tennis, whereas other sports such as cross country and basketball were considered nonclub sports. Those involved with club sports came from the highest socioeconomic status.

Gymnastics is generally considered a club sport with a large expense required for participation. The cost of coaching, travel, and facilities usage contributes to the expense of becoming an elite gymnast. I expected that those individuals who excel and become a member of the National Team may come from higher socioeconomic statuses than do their non-National Team colleagues. The family members of the National Team gymnasts may have sacrificed relocation of their family, changed their occupation, and incurred extensive costs for training and costuming of the athletes. This investment on the potential opportunity for the gymnasts to make the National Team may have impacted the entire family.

There are many variables that contribute to the prediction of a successful family. Throughout family literature (Moos & Moos, 1976), various models of family

functioning exist with corresponding assessment batteries. Some variables that have been identified that impact the family, and the families' ability to function, in the sociological literature are the socioeconomic status of the family (Walberg & Majoribanks, 1976), the family structure and family size (Steelman & Doby, 1983), the cohesiveness of the family, communication, and the parent-child interaction.

In order to assess families and the success of the family members, it is important to understand how families function and understand how they may go awry (Barker, 1986). Moos and Moos (1976) examined various studies that identified methods to assess family functioning and one of these methods was developed by Pless and Satterwhite (1973). Pless and Satherwhite developed a semistructured interview process that identified five dimensions of family functioning. These dimensions were communication, togetherness, closeness, decision-making, and child orientation.

Another method examined by Moos and Moos (1976) was the work of Deykin (1972), who found six major areas of family functioning: (a) decision-making; (b) marital interaction; (c) child-rearing; (d) emotional gratification; (e) perception of, and response to, crisis; and, (f) perception of, and response to community.

Drawing upon the work of Deykin (1972) and Pless and Satterwhite (1973), Moos and Moos (1976) identified variables that appeared to be included in the majority of these models and then used cluster analysis to develop an empirical instrument based on the taxonomy of the families. In so doing, Moos and Moos (1976) found there to be 10 salient dimensions that influenced a family's functioning. An assessment battery was developed that included these 10 subscales: (a) cohesion, (b) expressiveness, (c) conflict, (d) independence, (e) achievement orientation, (f) intellectual-cultural orientation,

(g)active-recreational, (h) moral-religious, (i) organization, and (j) control (Figure 1, Table 1). These 10 subscales were further categorized into three second-order factors, namely the Relationship Dimension, which included conflict, cohesion, and expressiveness; the Personal Growth Dimension, which included the active recreational, achievement orientation, intellectual cultural orientation, independence, and moral religious; and, finally the System Maintenance Dimension, which included organization and control (Moos, 1981). Because there has been little research conducted on elite gymnasts regarding sociological variables, we must draw upon other areas of achievement that effect family functioning and have been studied extensively. If we can make the assumption that the variables that effect and shape academic achievement are similar in nature to sport specific achievement, we may postulate that the elite gymnasts' family environment is similar to those profiled in academics who have a high achievement orientation as well as high levels of independence.

Problem Statement

The purpose of this study was to determine if there were any differences between the family profiles of Level 10 and Elite level female gymnasts in the United States and the female National Team gymnasts (who are also elite gymnasts) based on various sociological variables. The variables that were included in the family profile were socioeconomic status, parental education, ordinal birth position of the gymnasts as well as the parents, family size, sibling and parental involvement in sport, geographic location, parental style of discipline, locus of control, as measured by the Athlete and Parent Sport-Specific questionnaire, and the 10 subscales of the FES. The dimensions of the FES included relationship, personal growth, and system maintenance dimensions. Within the

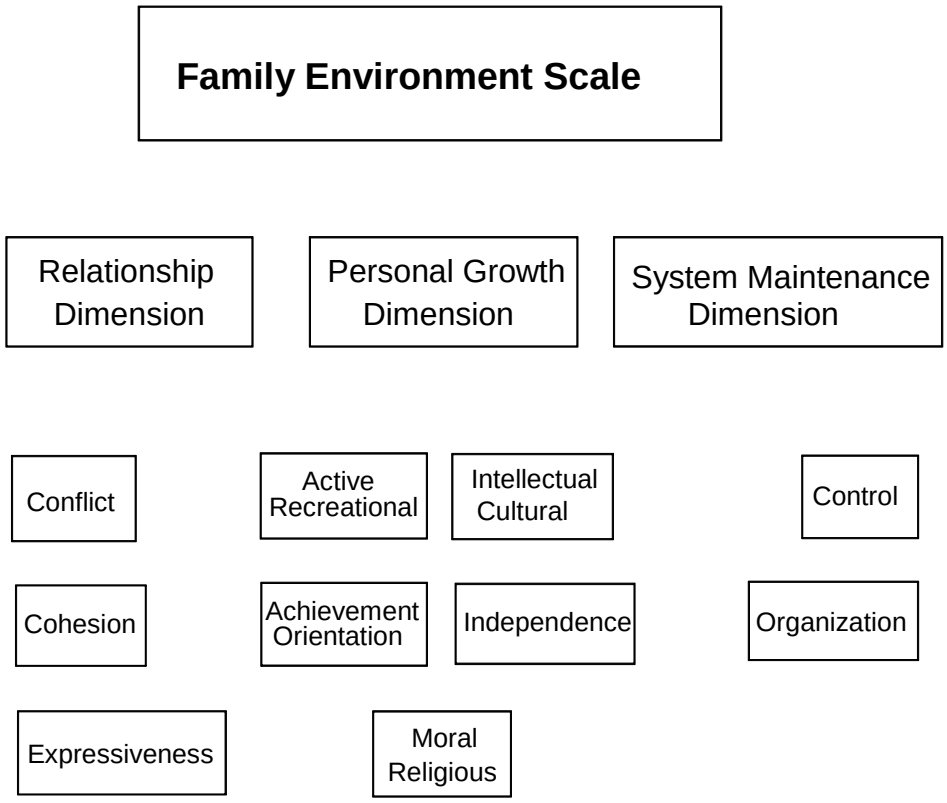

Figure 1
Model of Family Environment Scale showing the second order dimension and 10 subscales affecting family functioning.
Based on Moos and Moos (1981).

Table 1

Subscales and Descriptions for Family Environment Scale

Relationship Dimensions: Defined by Cohesion, Expression, and Conflict
1. Cohesion: the degree of commitment, help and support family members provide for one another.
2. Expressiveness: the extent to which family members are encouraged to express their feelings directly.
3. Conflict: the amount of openly expressed anger and conflict among family members.
Personal Growth Dimensions: Defined as Independence, Achievement Orientation, Intellectual–Cultural Orientation, Active Recreational Orientation, and Moral Religious
4. Independence: the extent to which family members are assertive, are self-sufficient, and make their own decisions.
5. Achievement Orientation: how much activities (such as school and work) are cast into an achievement-oriented or competitive framework.
6. Intellectual-Cultural Orientation: the level of interest in political, intellectual, and cultural activities.
7. Active-Recreational: the amount of participation in social and recreational activities.
8. Moral-Religious: the emphasis on ethical and religious issues and values.
System Maintenance Dimensions: Organization
9. Organization: the degree of importance of clear organization and structure in planning family activities and responsibilities.
10. Control: how much set rules and procedures are used to run family life.

Note. Modified from FES Manual (Moos & Moos, 1991)

dimensions are subtopics shown in Figure 1. The Real form of the FES instrument was used to determine congruity between the family members.

Operational Definitions

In addition to the 10 subscales of the FES, several derived scale scores were generated because they had special meaning for this study. Optimal family functioning was considered as being above the score for the 50th percentile on the subscales of cohesion, expressiveness, independence, achievement orientation, and intellectual-cultural orientation as measured by the Family Environment Scale (Moos & Moos, 1981). A dysfunctional family, on the other hand, consistently scored high (above the 50th percentile) on the subscales of conflict, organization, and control and low (below the 50th percentile) on the subscales of cohesion, expressiveness, independence, intellectual-cultural orientation, and active-recreation orientation. For the purposes of this study, all family members were included, with no prior determination if the family was dysfunctional or functional.

Socioeconomic status (SES) was measured by the family's combined income as well as the mother and father's occupational status. Parental discipline was considered to be authoritative if the subscale that measured control (relationship dimension) was low and the conflict subscale (system maintenance dimension) was considered low as measured on the FES. An authoritative parental style was considered to be one that was high on democracy, support, and discipline and was consistent but not generally punitive. The Sport-specific questionnaires for the athletes and parents were used to determine who had the greatest influence on them, as well as who provided discipline in their household. In addition to the demographic questions, the FES questioned how support was handled in

their household. The birth order of the gymnast was the ordinal position in which the gymnasts and parents were born. Family size was determined by the number of children and parents in the nuclear family. Locus of control was determined by the scores on the conflict, cohesion, and independence subscales from the FES.

Delimitations

The delimitations of this study included the specialized sample of the highest level of gymnastic achievement (Level 10 and Elite) for female gymnasts in the United States, as determined by the United States Gymnastics Federation. This study was further delimited to those girls and young women, ranging from 14-22 years of age at the time of their competition and their parents. Gymnasts ranked Level 10 and Elite in the years 1986-1996 were considered for inclusion in this study.

Limitations

A total of 26 out a possible 300 queried families agreed to participate in this study; this included 26 gymnasts, 26 of the gymnasts' mothers, and 25 of the gymnasts' fathers (N = 77). In addition, the sample of participants was highly specialized therefore limiting the generalizability of the study beyond the female elite gymnastic population.

Some of the information was reported historically, which was also a limitation. When the self-report items required recall of activities and events that took place months or years ago, the accuracy of the reported information cannot be taken for granted, regardless of the participants' motivation to provide accurate information (Cote', Ericsson, & Law, 2005).

Assumptions

The interpretation of the outcome of this study, required that certain assumptions be made. For the purposes of this study, the following assumptions were made:

1. It was assumed that all respondents would answer the questionnaires honestly and accurately about their home environments.
2. The assumption was made that people would be willing to share their personal information.
3. The assumption was also made that all participants were literate enough to read and understand the questionnaires.
4. The assumption was also made that all gymnasts reported their highest level of participation in gymnastics honestly. No validation was conducted to determine the actual level of gymnastic competition.
5. The assumption was made that most of the gymnasts were active during data collection and therefore may have moved up to a higher level of performance after the data collection.

Significance of the Study

National team athlete's lives and actions are very public. A great deal of money is spent each year on the development of national champions and the American public manifests a sense of national pride when they send their athletes to compete internationally. With the exception of the last four summer Olympics, the United States national female gymnastics team has not done nearly as well (when determining success by the amount of medals won) as our European and eastern colleagues. The former Soviet Union, for example, selected children who demonstrated the potential for

considerable sport skills, and who had particular physical and psychological qualities. They were given the opportunity to become involved in an elaborate system that has been created to develop specific talents. It is important to recognize that when the assessment was made in the former Soviet Union, the familial component was among the factors considered. They not only assessed the physiological qualities of the child but examined sociological variables as well (Markov, 1999). When comparing the success of some of the other nations in medal acquisition, we must consider the reasons for our lack of success. The United States has the international reputation of being economically strong, which aids in our ability to develop strong nutritional habits. In addition, our gymnastics sporting facilities have been developed to provide the best training available; however, our international success in gymnastics does not echo that strength. The component that has been consistently omitted in the training and selection of our American athletes' has been in the sociological arena of familial variables.

This study added to the paucity of research regarding sociological variables that contribute to the making of the successful athlete as measured by medal acquisition, by providing a possible combination of variables necessary for selection of athletes who have made it to the highest level in the sport of gymnastics.

Hypotheses Statements

For the purpose of this study, seven research hypotheses were tested.

Hypothesis One

Self-reports of the National Team members will exhibit a family profile that is higher in family cohesion, independence, achievement orientation, intellectual cultural

orientation, active recreational orientation, and moral religious emphasis than their non-National Team Elite level counterparts as measured by the FES. The cluster of subscales is consistent with high levels of achievement as measured primarily by the Achievement Orientation dimension of the FES.

Hypothesis Two

Evidence of an authoritative parental style will be highest for the National Team members as measured by the control and conflict subscales of the FES compared to their non-National Team gymnasts. Baumrind's (1971) research on academic achievement suggested that the authoritarian parental style is the most effective for academic success.

Hypothesis Three

The members of the National Team will be first-born or only children compared to later-born children of the non-National Team gymnasts. Only children and first-born children tend to have a higher amount of parental resources than children that come from large families; therefore, the high cost and time commitment needed to train extensively may be a factor in determining the level of achievement.

Hypothesis Four

The National Team members will come from smaller families than their non-National Team Elite counterparts. A small family was defined as those families in which there were three or fewer children. Smaller families have the ability to address the high demands of training and travel for the National Team athletes than a family that has more children.

Hypothesis Five

The parents of the National Team members will exhibit higher socioeconomic and educational levels compared to parents of non-National Team members**.** Gymnastics is a very expensive sport in terms of training, traveling, and the possibility of relocating to train with a different coach. Therefore, those gymnasts who have more disposable income may have more opportunity to excel because of increased resources due to financial stability.

Hypothesis Six

The mothers of the National Team members will have a stronger influence, as measured by the Athlete Family Questionnaire, than the mothers of the non-National Team Elite and Level 10 gymnasts as compared to the gymnast's fathers.

Hypothesis Seven

The National Team athletes will have a greater internal locus of control (LOC) as compared to their non-National Team counterparts. They will be more responsible for their actions as measured by the gymnastics questionnaire (LOC = low conflict, high cohesion, and high independence as measured on FES).

CHAPTER 2

REVIEW OF RELATED LITERATURE

There has been a paucity of research on the sociological factors that might potentially influence success in gymnastic's; therefore, we must draw upon the more general achievement research in the academic and educational arena. The factors identified that affect achievement in general are as follows: (a) academic achievement, (b) parental influence, (c) birth order, (d) family characteristics, and (e) locus of control. The review of literature in this chapter will follow the same order given above with the inclusion of an introduction section preceding the parental influence section.

Introduction

The early identification of talent has been of interest to the athletic community for many years. Although the research identifying variables that influence academic achievement has been abundant, there is a paucity of research identifying those sociological variables that contribute to success in an athletic population and more specifically, the elite level female gymnast.

Human behavior is fundamentally conditioned by two factors: the organism—or rather the biological component and the society where we live (Lamontanara, 1987). The stereotype of the successful female competitive gymnast includes various developmental characteristics such as stature, sexual immaturity, mental and attitudinal precociousness,

and various performance characteristics such as extraordinary strength, flexibility, coordination, and balance (Lindner & Caine, 1989). These biological components are similar for all of the elite level gymnasts on the National Team as well as those elite gymnasts not making the National Team. What does differ, however, are the motivational forces that encourage the athletes to attain the highest level of achievement in their sport, going one step beyond the elite classification and achieving the ultimate goal of becoming a member of the National Team. Because the physiological and psychological variables are very similar, there must be other factors that contribute to the athlete's ultimate success. The combination of sociological variables that influenced the athletes has not been addressed in the gymnastic population and therefore was examined in this study.

Bloom's (1985) study of talented people provided strong evidence that no matter what the initial characteristics of the individuals were, unless there is a long and intensive process of encouragement, nurturance, education, and training, the individuals would not attain extreme levels of success in their particular fields. Bloom (1985) proposed to study the most successful individuals in distinct areas of talent. They were athletic or psychomotor fields; musical or artistic fields; and cognitive or intellectual development. In the athletic arena, swimmers and tennis players were chosen. In the aesthetic field, concert pianists and sculptors were chosen. Research mathematicians and research neurologists were the population identified for the intellectual fields. There was another area that was initially proposed for study; however, the field of interpersonal relations originally identified was eliminated because the attributes were very difficult to quantify. For the purposes of Bloom's study, all members studied were identified by their

respective communities as the best in their chosen field. In the scientific field, the qualification was a Nobel Prize whereas in the swimming field, selection to the US Olympic team was the chosen criterion. The result achieved at the Olympics was not important for inclusion in this study. It was assumed by the Olympic selection process that the best athletes were chosen to represent their country at the Olympic games.

Bloom's (1985) research found that the most important component of the young swimmers was that successful swimmers grew up in a household where discipline, responsibility, and values were emphasized. The researcher also found that all of the families were intact with an average of two children. Seventy-five percent of the 21 parental pairs had a least some college education. Thirty percent of the parents had four or more years of college and 12% had professional training such as dental, medical, or law school (Bloom, 1985). The father was the predominant breadwinner of the family. When the individuals were interviewed for Bloom's study, none of the parents admitted that they wanted to create an Olympic swimmer. Contrary to what most people would expect, the Olympic swimmers did not come from homes in which swimming was constantly emphasized. The quality that was most emphasized was self-sufficiency. The parents demonstrated the need for not wasting time and also showed the swimmers that the parents had a personal commitment to them and their welfare. Only about 30% of the parents had a background in competitive swimming, but more than 75% of the swimmers had parents who were interested in athletics in some capacity.

The average age of the first exposure to swimming was four and a half years old and the first teacher was generally not a master teacher. The first teacher was often a high school or college student holding a summer job. The emphasis was not necessarily on

skill acquisition other than freestyle, but on having fun and instilling a love for the water. Early success in competition crystallized the love of the sport for the swimmers. They won often, with perceived little effort. The participation on a team was especially important to those swimmers. The coaches played an important role in the life of the swimmers. When the transition from parental responsibility was handed over to the coach, the coach required a personal bi-directional commitment between the coach and the athlete.

Cote' (2003) further carried on the study of talent identification, which supported the notion that access to essential resources is one of the most important factors in determining expertise. It was also found that the most consistent variable distinguishing those who achieved the highest levels of success in sports and their less successful counterparts was hours of training (Baker, Cote', & Abernathy, 2003).

High levels of sport achievement require a sense of commitment and discipline. The sport of gymnastics is no exception. The challenging quality of the sport of gymnastics appears to attract young females at the club level who are disciplined and task oriented (Johns, Lindner, & Wolko, 1990). The top gymnasts are typified by the fact that they are very young and that they train intensively (Lindner & Caine, 1989). Training for more than 20 hours a week, almost year-round, is not uncommon for aspiring gymnasts between 8 and 14 years of age (Caine, 1988; Sands et al., 1987). Apart from the biological differences, which have been identified between elite and nonelite athletes, what is the motivating factor that compels these girls to the highest level of success in their sport? Johns et al. (1990) conducted a study that supported Harter's (1981) model of competence. The results suggested that gymnasts are involved because they find

rewards in learning the skills and the feelings of mastering particular tasks in which they can feel competent. This supports Bloom's work regarding the reason for participation in sport. Woolger and Power (1994) also found that parental influence on sport socialization consisted of accepting the participation of the child in sport; modeling values, attitudes, and behaviors; identifying expectations for the child in sport, providing rewards and punishments; and parental instruction of directness. Johns et al. (1990) found that parental influence was important, whereas Cote', Ericsson, and Abernathy (2005) found that the availability of master coaches and superior training resources is likely to facilitate the quality of development of performance for highly motivated individuals. However, the population studied by Cote' et al. was different than the young gymnasts studied in this study.

Achievement is similar in many arenas, whether it be in sports, academics, music, or other areas that can be measured. The literature linking parental influence on academic achievement is extensive (Baker, 1996). The same characteristics identified by the academic achievement research are variables that influence achievement in the sport setting. Chisholm (1987) demonstrated that successful gymnasts scored significantly higher in drive, conscientiousness, and exhibitionism than their lower skilled counterparts. Academic achievement research has identified the same variables, such as drive and conscientiousness, to be higher than those students who do not excel academically (Adams & Ryan, 1998).

The biological components of the elite gymnasts, both on the National Team and those not on the team, are similar. However, it is the sociological components that need to be addressed. Although it is commonly observed that parents and coaches have a substantial

impact on children's sport experience, very little research has been conducted regarding their role in this milieu (Scanlan & Lewthwaite, 1986).

The importance of the familial influence is noted throughout the literature on excellence in sport; however, empirically it has not been substantiated. Cote', Ericsson, and Law (2005) found that as long as we are not able to predict accurately which young athlete's will eventually reach the highest level, these outstanding athletes can only be distinguished after the fact. Lewko and Greendorfer (1978), in a review of the not altogether consistent literature on sport socialization, concluded that the family is the most influential socializing agent for children. The construct of family factors that contribute to the making of an exceptional athlete is difficult to operationally define because of inadequate methods of assessment; however, it is one area that has not been adequately addressed. Because of the absence of literature in the athletic arena concerning contributory factors of success, we must draw from other areas of achievement that have focused on the familial influences, such as (a) academic achievement, (b) parental influence, (c) birth order of the parent as well as the child, (d) family size, (e) family cohesiveness and interaction, and (f) locus of control, to more fully understand the influences that contribute to success in the sport of gymnastics.

Academic Achievement

Many studies have focused on the relationship between athletic participation and academic achievement among adolescents (Higginson, 1985; Snyder & Spreitzer, 1992). In general, the relationship between athletic participation and academic achievement is positive at the high school level. Using a sample population of boys, Snyder and Spreitzer (1992) found that scholarship and athletic participation are positively correlated with self-

esteem. The athletes who received scholarships were more apt to score high on indicators of self-esteem before they received the scholarships.

Hess and Holloway (1984) analyzed various results from different populations ranging from preschool through middle-school and identified five processes linking family influence and school achievement: (a) verbal interaction between mother and children, (b) expectation of parents for achievement, (c) positive affective relationships between parents and children, (d) parental beliefs and attributions about the child, and (e) discipline and control strategies. Of the five processes mentioned, discipline and control strategies appeared to have the strongest influence on school achievement. Grolnick and Ryan (1989) examined how relevant parental practices were associated with achievement as well as with the development of attitudes, motives, and self-evaluative outcomes that enhance the cognitive and social component of school achievement.

An interesting and recurrent finding throughout the literature on parental influence on academic achievement was the relationship of maternal involvement to achievement. McBroom (1985) found the importance of the mother's involvement and verbalization as well as the mother's status strongly influenced the status of their daughters, whereas their sons were not significantly affected by the status of either the mother or the father. In addition, it was found that objective status characteristics are less important than the youth's own subjective definitions of status of parents. Status is defined here as the employment status, educational level, and the income earned.

Most reviews of literature on parent-child interactions noted that the relationship is bi-directional and Dornbusch, Ritter, Leiderman, Roberts, and Fraleigh (1987) pointed out the ambiguousness of whether poor achievement leads to parental authoritarianism (or

permissiveness). Because of the nature of the sport of gymnastics and the physical and psychological demands placed upon the athlete, one would expect that parental support be coveted in the form of an authoritative parental style.

Baumrind identified three parenting styles: authoritarian, permissive, and authoritative. The authoritarian parental style was low in warmth and child to parent communication. It is high in parent to child communication and strict with discipline. The permissive parental style is high in warmth and child to parent communication. Discipline is rare and parent to child communication is low. The authoritative parent is high in warmth, parent to child communication, and child to parent communication. There is moderate discipline; however, it is not physical and is discussed as to the reason why the child is being disciplined (Baumrind, 1971).

Chapin and Vito (1988) conducted a study examining the patterns of family interactional styles and how those processes affected academic achievement; they concluded there were three important ways in which family dynamics may affect school functioning in adolescents. The first way was whether the family exhibited chronic emotional disturbance among the family members. This emotional disturbance appears to have the most negative influence on the adolescent's competencies in the academic domain. The adolescents who exhibit emotional insecurity regarding interacting with teachers and peers, and expressed a lack of interest in schoolwork generally received low grades.

The second area of family dynamics that may affect academic achievement is the family's rigidity regarding enforcement of family rules. The adolescents who came from families in which the rules were very strictly enforced may excel academically but they

do not have the internalized sense of competence, autonomy, or an interest in learning. In addition, their self-esteem and emotional security with others is lower than other adolescents who did not come from such a family structured home environment. Although these adolescents generally succeed in an academic environment, their interpersonal skills inhibit their functioning later in life.

Finally, Chapin and Vito (1988) found that both chaotic family functioning and family enmeshment appear to have a major negative effect on adolescents' sense of emotional security with peers. Chaotic family functioning can be characterized as the lack of consistent family rules and roles whereas family enmeshment is the over-involvement of family members in each other's lives.

In terms of academic achievement, we can conclude that the amount of influence the parents have, more specifically the mother, is of the utmost importance to the academic success of the students. The mother, according to a sociological perspective, serves as a central female role model, defines the meaning of femininity and womanhood, and often provides the most solid and longest lasting woman-to-woman relationship that the daughter experiences **(**Notar & McDaniel, 1986**).** The amount of discipline rendered, as well as the emotional climate of the family, will also influence the level of achievement attained in an academic environment. Those same socializing influences are thought to affect the athletic achievement in the gymnastic population.

Parental Influence

To understand the impact of the family on gymnastic success, it is important to review what is known about the familial influence on academic achievement. The amount of literature identifying the factors that influence academic achievement is voluminous.

However, the literature in the sporting arena is not as prolific. The characteristics required for success in the academic arena are similar to those in the athletic arena and more specifically the elite gymnastics population. These characteristics include the learning of new skills or material, the practicing of that material, and finally the mastering of that skill or material. In addition to the mechanics of acquisition, the psychological component is similar. The learning of the skill or material is dependent on the feedback from others. The ability to adjust and cope to this feedback is important. In addition, the feedback may come not only from the coach or teacher but evaluation by peers as well. The extensive time requirement is expected and the motivation and persistence to consistently pursue the goal is evident in both the academic and gymnastics arena. Much as a young child builds hierarchically upon his/her academic achievements, the aspiring gymnasts must have the exposure and ability to set the short, medium, and long-term goals needed to obtain the highest level. The ability to set the long-term goal of a national team is often a parental function. It is also important to understand how birth order, family size, and various characteristics of successful families affect achievement if we want to capture what influences the success of a national team gymnast.

In an attempt to determine what makes an athlete an athlete, Stevenson (1990) examined the variables that contributed to the making of international athletes in field hockey, rugby, and water polo teams. He concluded that the primary means of introduction to their prospective sport was by sponsored recruitment from parents, siblings, friends, and others. This is not unlike the findings of Bloom's work (1985).

The athletes' siblings and friends also sponsored their introduction to the sport by acting as role models and by drawing them to the sport through the ties of friendship.

This sponsorship by siblings and friends generally occurred at a later age, corresponding more with secondary school, than did the parental influence (Stevenson, 1990).

Stevenson (1990) also found an effect of gender on the patterns of introduction to sport. Mothers more often introduced their daughters to field hockey whereas fathers were more involved with the introduction of rugby and water polo. Because of the female population, which I am studying, it was interesting to note who had the most influence in these young girls' athletic lives.

Smith (1981) studied 2,236 students to determine empirically if an adolescent's educational expectations were strongly associated with their perceptions of parental educational goals for the adolescent. He found that adolescents were more inclined to agree with parent's educational goals when adolescents were successful in school, parents were well educated, and parents appeared to agree with each other on goals (Smith, 1981). He concluded that the relationship between the perceived educational goal of the parent is positively associated with parental formal education, more specifically, in the case of the mother. A 4-year college degree seems to be required before the mother's educational attainment affects the adolescent's agreement with the perceived maternal goal. One finding indicated that if the mother had a college degree and the father had high occupational status, the parent's educational goals for the adolescent is so thoroughly understood that frequent mention of the goal comes to be perceived as nagging. There seems to be a fine line between encouragement that promotes success and encouragement that discourages the child. Some studies also have stressed the deleterious effect of excessive control and how an overly structured environment can undermine motivation (Deci & Ryan, 1985).

The results of The National Education Longitudinal Study of 1988 suggested that educational aspirations of parents had a powerful influence on eighth-grade student's educational achievement. The study found a small negative effect of home structure on achievement and no effect of parent-child communication and parental participation in school-related activities, once the other variables in the model were controlled (NCES 1994), whereas other studies have indicated higher student academic achievement when parents participated in school activities, mentored children's homework, and otherwise supported the work and values of school (Epstein, 1984).

Participation in the field of gymnastics begins at a very early age. The reasons for continued participation are varied but all initially began because of parental support. For many families, the parental support initially exists primarily of financial and logistical support. As the child becomes more involved and successful, the emphasis shifts from the parental support to coach/peers and various significant others. This was evidenced in Bloom's (1985) study with swimmers. The initial exposure was by the family and during the middle competitive years, the focus of influence changed to the various coaches under whom the athletes worked. The importance of the coach and their ability to identify talent was found by Cote' et al. (1995). They used the analysis of experienced gymnastic coaches to develop a model of the process that coaches use to identify talent. Research into the behavior of coaches has explored the social configurations of coaching practice including talent identification (Christensen, 2009).

Higginson (1985) found that the major influence for both male and female athletes, who had yet to reach the age of 13 years old, regarding sport participation were their parents. The study conducted by Higginson (1985) concerning parental influences was in

agreement with Greendorfer and Lewko (1978), who also revealed that the family unit demonstrated the most significant influence on sport participation. However, Higginson (1985) found that the coach and or teacher became the most influential person during the age of socialization for the junior and senior high school years. One explanation for this phenomenon may be that other aspects of social learning theory prevail when accounting for sport participation, namely social class background, personality traits, and opportunity set (Higginson, 1985). The social learning paradigm (Bandura, 1977), when explained in the sporting context, suggests that sport participation is dependent upon (a) the personal attributes of the athletes; (b) the influence of socializing agents such as parents, coaches, and peers; and, (c) the influence of opportunity set, namely is there an opportunity for an athlete to participate (Higginson, 1985). Educators and researchers have speculated on the nature of relations between parental involvement and student academic performance but empirical results are equivocal. Generally, the stronger the parental influence, the better the student is academically prepared.

The influence of parental support and involvement is often disputed; however, one area that has consistently influenced the area of academic achievement is socioeconomic status (SES). The most commonly used measures of SES in research studies are family income, father's education level, mother's education level, and father's occupational status or type. In a meta-analysis of the effects of SES on various kinds of cognitive test scores, White (1982) found that the average correlation between SES and mathematics scores was .2. SES was found to account for only 5% of the variance in academic achievement, although research has traditionally focused on SES in general, White (1982) found that income was the greatest single correlate of academic achievement. It is

interesting to note that siblings from high SES families would engage in more positive, managing, teaching, and helping behaviors than siblings from lower SES families (MacKinnon, Brody, & Stoneman, 1986).

Parents who are more involved with their children's lives and come from higher SES families tend to have children who score higher on tests of reading and mathematics. It is important to note that differences in sibling interactions in married and divorced families were not exacerbated by socioeconomic status. It may be that if socioeconomic status had been measured by income, rather than mother's education, an interaction would have emerged.

Birth Order

Birth order has been studied extensively, beginning with Adler (1931), in search of a possible explanation between a child's ordinal position and academic achievement. The two explanations most often offered are (a) the confluence hypothesis, and (b) the resource-dilution hypothesis.

Zajonc and Markus (1975) formulated the confluence model to explain the impact that birth order had on cognitive achievement. Their explanation further differentiated the confluence model into two factors: family intellectual environment (average mental age of the parents and children) and a teaching function effect. The model used was a mathematical one. Each parent's mental age is calculated and averaged. The mental age of the new infant is then added and averaged with the parents. The prediction is the lower the number of the children, the lower the denominator, which means the higher the number of the intelligence quotient. With subsequent additions, the number of the intelligence quotient is lowered.

The resource-dilution hypothesis emphasized the critical importance of socioeconomic location and emphasized the unequal allocation of resources among children as an intervening variable between sibling structure and educational consequences. If a child is raised in a family as an only child, the parents have more resources to spend on that child. As the size of the family grows, the allocation of resources must be dispersed among a greater number of family members. In reality, there is less time, money, and overall resources per child as the number of children increase.

The relationship between birth order and academic achievement of school children has been widely researched throughout most parts of the world (Kaur & Dheer, 1982; King & Lilliard, 1983; Majoribanks, 1987; Travis & Kohli, 1995). The importance of birth order as a factor in the academic performance of school children lies in the fact that children's experiences are influenced by their ordinal position in the family (Cherian, 1990). The first-born child has been reported to have the highest intelligence and with an increase in the size of the family, the level of intelligence, as measured by standardized intelligence tests as well as academic achievement in a school setting, declines.

Majoribanks' (1990) study indicated that sibling variables are not generally related to academic achievement when defined by social status and social-psychological dimensions. Majoribanks operationalized family social status and parent socialization into four groups ranging from middle status/strong academic socialization to lower status/weak academic socialization. Although the results were not conclusive enough to equate high academic achievement with birth order, the girls in the middle status/strong academic socialization group reflected the presence of a significant interaction effect between ability, birth order, and mathematics performance. Marjoribanks emphasized

the need to examine relationships between sibling variables and other outcome variables for children from different family environments. However, Belmont and Marolla (1973) and Belmont, Stein, and White (1976) found that as the birth-order position becomes greater, there is a decline in the level of the ability of the child, which adversely affects the academic achievement of children. As evidenced in the inconclusive results of the literature reported above, further inquiry is warranted to determine what component(s) separate these high level-achieving gymnasts into national and non-National Team members.

In addition to the increased level of intelligence of first-born children, they are inclined to greater social conformity, they fall into line more readily when rewards are offered, and they are more responsive to social pressures. They generally show a greater need for achievement than do later-born children (Cherian, 1990). Other characteristics of first-born as noted by Leman (1998) are that they are perfectionist in nature and seem to struggle with an inner rebellion. This need to be perfect is compatible with the sport of gymnastics. Gymnastics begins with a perfect score and continually strives to maintain that perfection. Generally speaking, they are noted to have fewer friends, and tend to be intolerant and impatient.

Finally, a first-born thrives on being in control, on time, and very organized. If a situation arises that they cannot control, their anxiety rises and they seek reassurance from other people. They tend to be more afraid than others do and they feel that they are more dependent and affiliated (Adams & Ryan, 1998). In a study done by Eisele, Hertsgaard, and Light (1985), examining factors related to eating disorders in young adolescent girls, they found that those girls who scored the highest on the perfectionism

scores of the Eating Disorder Inventory had the highest grade point average. Although investigating eating disorders in this population is not the focus of this study, perfectionism has been associated with eating disorders and because of the prevalent eating disorder problem in the sport of gymnastics, it will be interesting to note the characteristics of the high level gymnasts.

Work done by Schlacter (1963) found that first-born's appeared to be more fearful and less able to withstand pain than are later-born children. Because of this finding, one would hypothesize that a higher percentage of first-born athletes participate in non-combative sports than in combative sports (Blankenbaker, 1973). Gymnastics is a very difficult and demanding sport in which the individual must train for hours daily, often withstanding intolerable amounts of pain. Although it is definitely not a combative sport, it does offer a considerable opportunity to withstand high levels of pain. The research suggested first-born children have low pain tolerance levels that would preclude them from participation in the sport of gymnastics; however, research suggested overwhelmingly that first-born children are generally high achievers and very willing to please adults.

First-born or only children occupy a unique position in the family structure for various reasons: parents have more time to devote to their first or only child and therefore, they tend to be more cautious, indulgent, and protective. The first-born does not have to compete with older siblings and, for a while, has only adult models to copy and adult standards of conduct to emulate, whereas siblings born later on have other siblings with which to identify (Cherian, 1990). Middle children are generally easy to recognize as they behave as if they were in a race to catch up with the older sibling. Middle children

generally enjoy competition because they generally have to compete with their older or younger sibling. Perhaps that is why athletes are often the middle child, because they enjoy competition. The level of athletic achievement has not been documented with regard to middle children, only the frequency of participation. More research needs to be conducted to determine if the level of achievement is affected by the athlete's birth order. The middle position child generally is more self-reliant and responsible. In the birth order literature, the difference between middle and later-born children is defined as the middle child reportedly being the most difficult position of all of the birth order positions. Being stuck in the middle may foster competitiveness and contribute to high levels of success in the occupational setting. The outward effect of these characteristics may in itself be spurious.

Family Characteristics

Although empirical evidence is inconclusive in equating first-born children with higher academic achievement, the size of the family does appear to contribute to the academic performance (Hanushek, 1992). Those individuals who come from small families achieve greater amounts in the school setting. Often times, a parent's success is measured by the success of their child and therefore, they are very willing to devote time and energy to a smaller number of children. This hypothesis would likewise transfer to the child's athletic participation, because the sport setting is primarily a microcosm of society itself.

Family characteristics greatly influence the opportunity for success of the family members. Various characteristics that have been identified were parental attention,

cohesiveness of the family, achievement stressed in the family, structured home routine, and motivation and effort.

Not surprisingly, a child's academic achievement can be affected by the amount of parental attention he or she receives. The amount of attention available is related to the number of children there are in a family. This may be the reason that "only" children have equally high levels of achievement, as do first-born children.

One characteristic that emerged in the families of professional tennis players was the fact that they were very close, or operationally defined in this study as cohesive (Bloom, 1985). The parents of tennis players spent a great deal of time with their children and to a large extent could be described as child-oriented (Bloom, 1985).

Another characteristic of the families of the professional tennis players, as well as professional swimmers, was in the majority of the homes, the parents placed a great amount of stress on achievement, on success, and doing one's best at all times. The parents reinforced the work ethic and were models of hard work themselves. The children were expected to share household responsibilities and to perform them prior to play. The routine of the home was fairly structured to encourage self-discipline; however, a rigid authoritarian parental style was not indicated.

The final characteristic evidenced initially in the families of successful athletes was that motivation and effort were far more important than the particular talents the athletes possessed. In the initial stages of skill acquisition, the parents provided the majority of expectations and support. In the middle years, the emphasis in setting expectations and demands was assumed by the teacher or coach (Bloom, 1985). Several sport-specific talent detection models have been developed over the last 30 years and all have failed on

one important standard of judgments--accurately predicting who will develop into an elite level athlete. Although Baker and Cote' (2003) believed that regardless of the level of wisdom, intelligence, and or creativity a person has, if they are not properly committed to perform the thousands of hours of training required (motivated), they will not achieve greatness.

Parental Style

Parental style is defined as the interaction between the parent and child used by the parent(s) when raising a child. Many variables impact this style such as the amount of discipline used in the home, the interaction between the parent and child, the autonomous granting or democratic decision-making process used in the home, and the amount of acceptance and warmth shown between the parent and the child.

The literature linking parent involvement, or for the purposes of this study parental style, to student achievement is extensive (Baker, 1996; Henderson & Berla, 1994; Thorkildsen & Stein, 1998; U.S. Department of Education, 1994). Children's academic achievement has been shown to be influenced by many family factors, including parental style (Lam, 1997). Lam investigated the relationship of family structure, SES, authoritative parental style, and the child's academic achievement. The results of the study indicated that there was a positive correlation between authoritative parenting and a child's academic achievement.

Baumrind's (1971) work has been instrumental in examining the relationship between parental style and school performance. Authoritative parenting (balanced parenting) is treated as a general style of child rearing that characterizes the parents' behavior toward the child in a wide variety of situations. Typically, it is defined by the combination of

high levels of parental responsiveness and high levels of demandingness (Maccoby & Martin, 1983). To further define the construct of authoritative parenting, Steinberg (1990) and his colleagues have suggested that, in adolescence, three specific components contribute to healthy psychological development. They are parental acceptance and warmth, behavioral supervision and strictness, and psychological autonomy granting or democracy (Steinberg, 1990). The warmer and more accepting a parent is to the child and the less authoritarian (strict parenting) the parent is, the healthier the child will be, which substantiates Baumrind's (1971) work on authoritative style and psychological well-being.

Work done by deMan (1990) examined parental control and conservatism and noted that women from controlling families tend to report feelings of alienation, powerlessness, and social isolation, as well as low self-esteem. Accordingly, families that are excessively strict and not close to one another do not promote a foundation enabling high levels of achievement.

An examination of the home environments of children from single parent, mother-led families revealed that the quantity and quality of cognitive and social stimulation was less than in married families (Mackinnon, et al., 1986). Divorce alters the subsystems within a family for various reasons such as the amount of time allocated to each child and the fluctuating emotional states of each member within the subsystem (Asmusson, 1991). Because a single-parent female has less time to spend with the child in entertaining activities, they are primarily concerned with maintenance activities. If a couple is divorced, the chance that the mother has the resources, time and money, to enable her daughter to participate in the expensive sport of gymnastics is reduced. In addition to the

time element is the "economic deprivation" variable. This is so because, when two parents live apart, economic resources are not equally distributed between the two separate households (Pong & Lu, 2000). Single mothers tend to be lower on the socioeconomic scale than the fathers in a divorce settlement. Nuclear families, as defined by having both parents living together, would be more likely to encourage aspiring young gymnasts than their single parent counterparts, especially if the daughter is living with the mother.

Locus of Control

It is important to assess whether or not gymnasts' participation in the sport of gymnastics was of their own volition, or whether they were externally influenced. Locus of control is defined as a generalized expectancy to perceive reinforcement as contingent upon one's control (internal), or related to luck, chance, fate, or powerful others (external; Rotter, 1966). The athletic arena has numerous research articles assessing various motivational reasons for sport participation (Kerr & Goss, 1997). Prus referred to individuals who are motivated to seek out involvements as "seekership": the striving to achieve a goal or satisfy a need by becoming involved in a specific sport (Prus, 1984). This motivation generally is external initially but transfers to the individual as the level of accomplishment increases.

Interestingly enough, the athletes did not seem to initiate the involvement in their sport. Rather, the athletes were willing to allow themselves to be sponsored into an introduction to their sport because of (a) the importance they attributed to a relationship with the sponsor, or (b) their recognition of the value this sponsor placed on the sole-identities associated with that sport (Stevenson, 1990).

A different variation of the family environment was extended to include the specific country in which you lived, and what influence that society had on the development of locus of control generally in your life (Jensen, Olsen, & Hughes, 1990). This particular study was not sport-specific, however, and had a large sample drawn from nine European countries investigating what shaped one's internal or external perspective. The results of this study confirmed the authors' hypotheses that women and members of the lower class would have greater external locus of control. Also, those who were in a cohesive nuclear family were found to have greater internal orientation than those who had single parents. This is an important finding because family structure, which includes parental style, was thought to have an impact on an adolescent's academic achievement (McCartin & Meyer, 1988).

Gymnastic participation is an extremely disciplined activity that requires dedication and constant criticism from those involved with the sport. If the gymnasts were external in orientation, they may be more likely to succumb to the pressures placed upon them. Another consideration is the fact that often times, a young promising gymnast is geographically transplanted to study with a more prominent coach, perhaps in another state or even country. The geographical relocation of a gymnast to work with the highest level of coach is not uncommon. The environmental influence that is imposed at this point has a great deal to do with that particular athlete's orientation. As stated earlier in Bloom's work (1985), the initial orientation of an athlete was external. As the athlete progresses in achievement, generally the more internal their focus becomes.

Although there is a considerable amount of literature on locus of control in sport, Lynn, Phelan, and Kiker (1969) conducted the first study on locus of control in sport.

Lynn et al. (1969) administered Rotter's (1966) internal-external scale to 30 basketball players, 30 gymnasts, and 30 nonparticipants in sports who were adolescents between the ages of 12 and 15 years old. The findings indicated that those in the group sport of basketball were more internal in the orientation than the other two groups: gymnasts and nonparticipants. It is of interest to note the discrepancy among the research with regard to locus of control of the gymnastic population.

Summary

In summary, the areas that have most influenced achievement in the academic arena were reviewed. Researchers suggested that parental influence overwhelmingly influenced the success of individuals throughout academic achievement, which leads one to wonder if the same effect occurs in the sport of gymnastics. Lewko and Greendorfer (1978) concluded that the family was the most influential factor for children's participation in sport and an early introduction to sports traditionally played by females such as field hockey was by the mother. The fathers traditionally encouraged their sons to play rugby and polo. The size of the family has been shown to effect academic achievement with the smallest families being the most involved. The more involved the parent is in the child's activity, the higher levels of achievement were obtained both in an athletic and academic setting. This was evidenced in the National Center for Education Statistics (1994) as well as in Bloom's study (1985).

Not only does the family size and structure affect the achievement levels of the children in the family, but the parental style and work ethic also affects the achievement level of the child. The more controlling and strict the parent is, the less apt the child is to achieve. An overly controlling and strict parent would be known as authoritarian by

Baumrind's (1977) parental classification system. The identification of an authoritative parental style was shown to increase achievement among adolescents. The less control and conflict in a family, the higher the possibility one has for academic achievement. The rationale used initially for selecting the Family Environment Scale as the instrument to be used in this study was that the 10 subscales of the Family Environment Scale highlighted the areas that have been identified as being related to academic achievement such as cohesion, control, parental style, and conflict.

CHAPTER 3

METHODS

The methods chapter has been organized into five sections. Each of these sections contains a description of the procedures employed in the study. These sections are participant selection, instrumentation, measurement of family factors, procedures, and design and analysis.

Participant Selection

The participants in this study (N = 77) included female Level 10 (n = 9), Elite (n = 9), and National Team (N = 8) artistic gymnasts from the United States of America and their immediate families. The unit of analysis was 26 families. Each gymnast and both parents, with the exception of 1 elite gymnast whose divorced mother participated but not the father, constituted the sample for the study. The participants were selected because of their competitive status as recorded by the United States Gymnastic Federation. The age of the gymnasts was 14-22 years old at the time of their competitive career. Each parent independently completed a set of questionnaires.

All participants in this study did so, on a voluntary basis and signed an informed consent form (Appendix A) prior to their participation in the study. Individuals who were under 18 years of age also signed an assent form.

Instrumentation

The three instruments selected for this study included (a) the Family Environment Scale (Moos & Moos, 1981; Appendix B), which was used to gain a naturalistic understanding of the social environment of each family; (b) a gymnastic-specific demographic questionnaire (Appendix C); and (c) a parent-specific demographic questionnaire (Appendix D).

The researcher constructed these two sport-specific instruments, one for the gymnast and one for the parents, to obtain demographic and socioeconomic information. The variables included in the sport specific demographic questionnaires were identified as having had an influence in the academic achievement literature.

The Family Environment Scale (FES) is an individually administered, paper-and-pencil self-report instrument aimed at tapping into the family's "personality". It is composed of 10 relationship subscales that can be divided into three main dimensions; relationship, personal growth, and system maintenance, plus an incongruence dimension that measured the extent of discrepancy among separate family members' responses (Oliveri & Reiss, 1984).

For the purposes of this study, the Real Form (R) was used, which measured perceptions of their *actual* environment versus the Ideal Form (I), which measured the way a family *prefers* their family setting to be. A third and final scale was used, which is the Expectation Form (E), that measured peoples' *expectations* about the family settings. The FES is frequently used to assess family dysfunction. The extent of how the gymnast and parents would ideally like their family to function was not relevant for the purposes of this study.

The relationship variables assessed how involved the family members were with each other and how openly they expressed both negative and positive feelings. They comprised the first three subscales of the FES: (a) cohesion, (b) expressiveness, and (c) conflict. The personal growth dimension focused on the family goals and assessed how a family encourages or discourages personal growth. They comprised subscales 4-8 and are (d) independence, (e) achievement orientation, (f) the intellectual-cultural orientation, (g) active-recreational orientation, and (h) moral-religious emphasis. The final dimension is the system maintenance dimension that is designed to assess the family's emphasis on clear organization, structure, rules, and procedures about how the family is run. The final two subscales are (i) organization and (j) control. Each of the subscales was scored on a 10-point scale with scores ranging from 0-9. The total number of points for the entire FES is 90. There were 90 questions that pertain to the family and the participants are instructed to answer true or false for each of the 90 statements. Each of the subscale scores was reported as a raw score and a conversion is made to the standard score (Appendix E).

The 10 subscales have adequate internal consistency (ranging from .64 to .79), have shown good, test-retest reliability (ranging from .68 to .86), and have shown average subscale intercorrelations around .20 (see Table 2). The subscale that occasionally showed relatively low internal consistency was the independence subscale. In addition, other benefits of FES included the fact that:

1. No more than 80% of the respondents would answer an item in one direction (either true or false). These criteria eliminated items that were characteristic of atypical families.

Table 2

Reliability Information for Family Environmental Scale - Form R

Subscale	Internal Consistency Reliability (N = 1067)	Corrected Average Item Correlation (N = 1067)	2-Month Test-Retest Reliability (N = 47)	4-Month Test Retest Reliability (N = 35)
		Relationship Dimension		
Cohesion	.78	.44	.86	.72
Expressiveness	.69	.34	.73	.70
Conflict	.75	.43	.85	.66
		Personal Growth Dimensions		
Independence	.61	.27	.68	.54
Achievement Orientation	.64	.32	.74	.66
Intellectual Cultural Orientation	.78	.44	.82	.86
Active Recreational Orientation	.67	.33	.77	.83
Moral Religious Orientation	.78	.43	.80	.91
		System Maintenance Dimensions		
Organization	.76	.42	.76	.73
Control	.67	.34	.77	.78

2. Items would correlate more highly with their own subscale than with any other.
3. Each subscale would have a nearly equal number of items to control for acquiescence response set.
4. The subscales would have low to moderate intercorrelations < .25, indicating that the subscales measure different characteristics of the families.
5. Each subscale would discriminate significantly among the families (Moos & Moos, 1991).

Moos and Moos (1981) controlled for content and face validity by formulating definitions of specific constructs, then preparing items that fit the specific construct definition, and selecting items that were conceptually related to a dimension as agreed upon by independent raters (Sandler & Barrera, 1984; Swindle, 1983).

Measurement of Family Factors

Adult partners in a family may report scores that are agreeable when describing their family environment. However, historically, families vary in how closely individual family members agree about the characteristics of their family. In some families, individuals are in close agreement, but in others, there is considerable disagreement. Generally, the closer a family is in agreement about the perception of family climate, the more cohesive a family is. Typically, dysfunctional families have higher scores on the incongruence scores of the Family Environment Scale (Moos & Moos, 1981).

As mentioned earlier, the scores of the FES may range from 0-90 with each of the subscales having a score of 0-9. The responses, either true or false, scored 1 or 0, were noted for each of the 10 subscales. An overall score resulted from adding up each of the 10 subscales. The raw scores were then converted to standard scores. These scores

reflect how the individual family member perceives the family environment. To determine if the family saw the family the same, an incongruence score was calculated.

The Family Incongruence Score was computed by completing the following steps:

1. For each of the 10 subscales, the absolute difference between two family members, such as mother and father, mother and gymnast, and father and gymnast, was calculated.
2. These 10 numbers were added for each group (mother, father, and gymnast) and a mean calculated to obtain a measure as to the extent to which the dyads disagreed about the family climate.
3. The mean of the incongruence scores was calculated for all other possible pairings of family members, namely mother-daughter, father-daughter, and mother-father, to obtain the raw incongruence score. No sibling scores were tabulated.
4. Finally, the table of raw incongruence scores was used to determine the standard score of family incongruence. See Appendix E for the table to convert raw scores to the standard scores (Moos & Moos, 1981).

The Family Incongruence Score may range from a score of 0-90. A score of 0 on the incongruence scale would indicate that all family members show perfect agreement on all 10 of the FES subscale scores. All scores were initially reported as raw scores, meaning the number initially scored on the subscales and then converted to the Standard Score Conversion (Appendix E).

The demographic questionnaires for the athletes and parents assessed geographic location, parental involvement in sport, birth order, self-reported SES, parental influence, and locus of control. These variables were determined important through a review of the

literature in academic achievement. The gymnasts studied have attained a very high level of achievement in their chosen sport. Several indicators of achievement were present from both the academic literature as well as the athletic literature.

Simple nominal reports were determined for variables such as parental involvement, birth order, and geographic location. Locus of control was determined by the following questions on the athlete questionnaire: How influential were your coaches in your life? If you changed coaches, who made the decision? Who has been most responsible for transportation to and from practices and meets? Who is the most influential person in your life and what was his/her occupation?

Procedures

The gymnastics clubs in the United States were identified that had Level 10, Elite, or National Team members. The list of potential gymnastic clubs was provided both by the elite coaches association and a college gymnastic coach. One hundred packets were compiled and mailed via the U. S. Mail, to the clubs identified as having the appropriate population. In addition to the initial mailings, personal contact was made at two national qualifying meets. Dr. Bill Sands disseminated approximately 35 packets of questionnaires at two of those national qualifying meets. In addition, local clubs were visited that had potential participants. The researcher visited local clubs several times, as well as the University of Utah gymnasts, to distribute questionnaire packets to gymnasts who qualified for participation in this study.

The return rate from the initial mailing and personal contact was poor with only 15 gymnasts and their parents responding. At this point, Dr. Sands sent out an email to the elite coaches identifying the legitimacy of the study and the need to cooperate. Those

coaches who responded with interest in the study were contacted. A letter was sent to the coaches of the elite gymnasts, explaining the study and requested a specific number of questionnaires needed for the qualifying girls. Follow-up phone calls were made to the coaches to further explain the study and encourage their gymnast's participation. When the club identified the number of Level 10, Elite, or National athletes, a corresponding number of questionnaires were sent to the head coach of the club. An additional 50 packets were sent to various clubs throughout the United States. Each questionnaire packet included a letter of explanation, the FES, the informed consent form, self-addressed stamped envelope, and two sport-specific demographic questionnaires constructed for the purposes of this study. Two forms of the sport-specific questionnaires were developed, an athlete questionnaire and a parent questionnaire. The questionnaires took approximately 30 minutes to complete.

Instructions for both the athletes and each parent directed them to return the questionnaires in the self-addressed stamped envelope provided by the researcher within 2 weeks upon receipt of the questionnaires. The parents and athletes filled out the questionnaires independently of each other and they were assured confidentiality. Follow-up telephone calls were made to those clubs that identified individuals who did not respond initially to the questionnaires, asking if they had any questions regarding the questionnaires or procedures. It was not possible to contact the participants individually because the questionnaires were mailed randomly to the gymnastic clubs. The participants did not include contact information such as name, address, and phone number, because all participants responded anonymously.

Design and Analysis

All participants in this study were Level 10, Elite, and National Team female gymnasts as determined by the United States Gymnastics Federation. Appropriate data cleaning procedures were used and distributional assumptions were checked. For the purpose of comparison, Level 10 and Elite were compared, Level 10 and National Team were compared, and Elite and National Team gymnasts were compared. Multiple one-way ANOVAs and *t*-tests were used to assess the differences in means for various subgroups and subscales. If an ANOVA was significant, Kendall Tau's B (which is a measure of association for ordinal data) was used to identify the magnitude of effect. A 3X3 ANOVA was used for each subscale of the FES. For Hypothesis 3, a chi-square was used for data analysis, as the birth order data were ordinal, thereby requiring use of a non-parametric statistic. Descriptive and inferential statistics were used to further describe the various populations. The level of significance was set at $\alpha = .05$ and due to the exploratory nature of this study no alpha-adjustment procedures were used.

CHAPTER 4

RESULTS AND DISCUSSION

In the previous chapter, the procedures for data collection were described. This chapter reports the results of the 26 families who participated in this study. For the purpose of presenting, analyzing, and interpreting these data, the raw scores were used and compiled.

The following chapter is subdivided by a presentation of the results for each of the variables for each hypothesis. The order of the results is (a) results of the FES for the athletes; (b) results of the FES for the mother and father, respectively; (c) the results of the sport specific questionnaires beginning with the athletes; and then (d) mother's and (e) father's questionnaires, respectively. The results are presented in the form of bar graphs. Descriptive and inferential statistics for each measure can be found in the appendices (see Appendix F). Finally, the chapter concludes with a discussion of the results.

Results

The population studied were on average between 14 and 22 years at their designated gymnastics participation. Two of the participants were historical in nature, meaning that they were no longer competing at the Elite level but had previously been at the level

designated. None of the Level 10 or National Team members participants were historical in nature.

The FES is an instrument that has been used extensively in the sociological field for the last 20 years. It is a social climate scale used to assess the actual, preferred, and expected social environment of families. Social climate was conceptually defined as the feelings and opinions about various aspects of the family and how it operates, as perceived by the gymnasts and their parents.

To date, it has not been used extensively in the sport arena but was selected for this study to describe and compare the family environment of an elite athlete. For the purposes of this study, the Real Form (R) was used, which measured perceptions of the participants *actual* environment as described in Chapter 3.

Before detailing the results of each of the hypotheses, it is important to note the low response rate. Two hundred questionnaire packets were distributed and only 26 packets were returned. The response rate was 13%, which is low. Several factors may have contributed to the fact that the response rate was low. The publication of the book and release of the movie based on the book, *Little Girls in Pretty Boxes*: *The Making and Breaking of Elite Gymnasts and Figure Skaters* (Ryan, 1995) occurred months earlier and may have led to the apprehension of the gymnasts and their families about describing their lives. Another factor that may have contributed to the low response rate was the frequency with which researchers and reporters query that population. They are frequently researched both physiologically and psychologically. In an Olympic year, the intensity increases also, which may have contributed to their choosing not to participate. Another reason that may have affected the response rate was the personal nature of the

questions that were asked. If the gymnast's family perceived themselves to be dysfunctional, they may have chosen not to respond because of potential embarrassment. Because of this apprehension, a sampling bias may have occurred. The entire population of Level 10, Elite, and National Team gymnasts is small with approximately 2000 girls participating at Level 10, Elite, and National Team status; therefore, a decision was made to initially offer the questionnaire to all that qualified as Level 10, Elite, or National Team gymnasts. The fact that so few responded greatly affects the generalizability of the study to the entire gymnastic population. The results cannot discriminate between the profiles of a National Team member and the Level 10 gymnast but delivers a descriptive snapshot of the families of the various levels of those gymnasts studied at that moment in time.

Hypothesis One

Hypothesis One stated that the self-reports of the National Team (NT) members would exhibit a profile that is considered to be a supportive family environment. A supportive environment was defined as a family that is higher in family cohesion, independence, achievement orientation, intellectual-cultural orientation, active recreational orientation, and moral religious emphasis than their non-National Team, Level 10, and Elite level counterparts. For the purposes of this study, it is a combination of the personal growth dimension as well as the relationship dimension of the Family Environment Scale.

A demanding, yet supportive, family environment was defined as one that is low on the conflict subscale of the FES and high on the achievement orientation subscale. Structure in the home environment was associated with more effort in school and better educational achievement (Rosenthal & Feldman, 1991). Structure in this regard means

how flexible and involved the parents are in keeping their children on task and setting parameters for their children. In addition to the inverse relationship of conflict and achievement subscales, Steiner (1992) found that youth who came from supportive families measured high on the independence subscale.

Statistically, there was no significant difference between the National Team and their non-National Team counterparts. However, all of the NT gymnasts rated cohesion higher than their non-National Team counterparts. All numbers are reflected on a 9-point scale. The raw scores could range from 0-9 on each subscale. Using the standard score conversion table revealed that the means ranged from a percentile rank of 42nd to a percentile rank of 76th.

The mothers and fathers of all three groups perceived cohesion as being higher than the athletes. This is especially true for the mothers and fathers of the elite gynmnasts. It is also interesting to note that the mothers of the elite gymnasts rated the family cohesion higher than the athletes themselves. Again, there were no statistically significant differences between the three levels of competition for either the mothers or fathers.

The National Team athletes, mothers, and fathers rated cohesion highest when compared to the other two groups. The small sample size may have precluded statistical significance.

Another measure worth noting is the incongruence score for the cohesion subscale. By calculating this incongruence score, one can describe the level of disagreement shown within the family. Adult family members usually show good agreement with each other when describing their family environment (Moos & Moos, 1981). The incongruence score for cohesion between the mother and father was 0. This implies that they agreed on

the climate of the family and rated the score similarily. The closer the scores are together, resulting in a smaller final number, the more congruent the responses of the individual family members are.

The incongruence score for the entire family of the National Team was 17. Theoretically, this score may vary from 0-90**.** If a family agrees entirely on the family climate, and rates each of the subscales exactly alike, the incongruence score would be 0. If they are in total disagreement about the climate of the family and one family member scores a 9 on all of the subscales and the other family member scores a 0, the total score would be 90. The cohesion subscale is a good indicator of the general family climate (Appendix F).

The remainder of this section focuses on the personal growth dimension of the FES and is discussed as it pertains to the supportive family environment. There is an inverse quality to the relationship dimension.

The literature suggests high levels of achievement equates with an increase in the independence scores. The National Team scored a mean of 6.50 on the independence subscale of the FES. The highest mean for this subscale was for the Level 10 group who had a 6.89. As noted above, the National Team had the lowest mean subscale score of the entire population of athletes on the independence subscale with a score of 6.50. The National Team athletes indicated that independence was not as evident to them, as their families reported. The mothers of the National Team rated independence at 7.50, which was the highest personal growth subscale rating for the mothers. Apparently, the National Team (NT) mothers and fathers felt that their family fostered independence; however, the NT gymnasts did not share that sentiment scoring lower on the

independence subscale. However, the gymnasts score was not statistically lower.

The fathers followed a similar pattern for the independence subscale. The National Team fathers scored 7.75 whereas the Elite father's reported a mean of 6.75. The Level 10 fathers reported a 7.44. This was consistent with the mothers of the athletes. It is interesting to note that the athletes themselves felt differently about independence than their parents did. The pattern of results for the independence subscale was similar to cohesion and again, there were no statisically significant differences between the group of Level 10 parents and the gymnasts.

For the purposes of this study, the variables that impact achievement were examined. Because the gynmasts in this study were at the top of their sport, it was assumed that they had reached a high level of achievement in the sporting context. I examined how they percieved their level of achievement with regard to gymnastics.

Descriptively, the National Team athletes reported a mean of 5.13 on the achievement subscale compared to the Elite gymnast, who reported a mean of 5.44. The Level 10 gymnasts reported the highest mean of 6.44 on achievement orientation. When performing a multiple comparison between athletic groups, the mean difference approached significance between the National Team and the Level 10 at a *p*-value of .071. The mean difference between the National Team and the Elite gymnasts was .651 on the achievement orientation subscale. One would think that the group that achieved the highest level of qualification in their sport would perceive that their level of achievement was the highest; however, the findings on this subscale did not support this.

The mother's of the National Team gymnasts reported a mean of 5.88 on the achievement orientation subscale. The mother's of the Elite gymnast reported a mean of

5.44. The mother's of the Level 10 gymnasts reported the highest mean on achievement orientation with a 6.67. The Level 10 athlete, mother, and father consistently scored the highest on this dimension when compared to the other groups. When performing multiple comparisons between the groups on the achievement orientation subscale, the mother's of the National Team and the Level 10 gymnasts approached significance with a $p = .071$. The difference in means between the Elite level and the Level 10 gymnasts was significant at $p = .006$.

The father's reported the strongest statistically significant difference in achievement orientation. Descriptively, the father's of the National Team reported a mean of 6.50 on acheivement orientation. The father's of the Elite gymnasts reported a 4.75, which was the lowest of all of the subscales reported. The father's of the Level 10 gymnasts reported the highest mean with a 6.67. The father's of the National Team reported a significant difference in achievement orientation at the $p = .003$ level between the Elite gymnasts and the Level 10 gymnasts. The difference reported between the Elite level and the National Team was $p = .006$ (Appendix F).

The National Team athletes reported a mean of 4.75 on the intellectual-cultural orientation compared to a 5.78 for the Elite athletes and a 4.44 for the Level 10 athletes. The mothers of the National Team reported a mean of 5.75 ($SD = 1.83$), the Level 10 mothers reported a mean of 5.33 ($SD = 2.50$), and the Elite mothers scored the highest with a mean of 6.56 ($SD = 1.13$), although these differences were not statistically significant. Refer to Appendix F. It is interesting to note the similarities of the perceived family structure regarding intellectual-cultural orientation. The Level 10 gymnasts remained the lowest with the Elite population reporting the highest. The fathers were no

exception on the intellectual cultural-orientation subscale. The Elite fathers maintained the highest score of a 6.50. The lowest score was of the Level 10 at the 4.56 and the National Team reported a 5.25. When performing an ANOVA on the intellectual dimension, the fathers FES scores were statistically significant at the .054 level. The post hoc test indicated that father's of elite gymnasts perceived the intellectual-cultural orienation to be higher than father's of level 10 gymnasts. The father's of the National Team gymnasts did not differ from either goup and contrary to the hypothesis had a mean score below the elite gymnast. It is interesting to report that the mothers and athletes scores of the three groups did not approach statistical significance.

The active recreational subscale mean reported by the National Team gymnasts was 6.25. Both the Elite and Level 10 gymnasts reported a score of 6.22. The mothers of the National Team reported the same score as the gymnasts, 6.25. The mothers of the Elite gymnasts reported 6.44 and the Level 10 gymnasts reported the highest score of 7.11. The means were not statistically different. The fathers of the National Team reported a mean of 5.88, whereas the fathers of the Elite gymnasts scored 6.00. The Level 10 fathers reported the lowest score of all three groups, 5.56. It is interesting to note that all three groups of the fathers reported lower scores than the mothers and the athletes, which is a change in the pattern of their reporting. The mothers and gymnasts reported similar scores.

The National Team athletes reported the highest score of the athletes with a score of 6.25 on the active recreational subscale. Both the Elite and Level 10 gymnasts reported 5.22 (Figure 2).

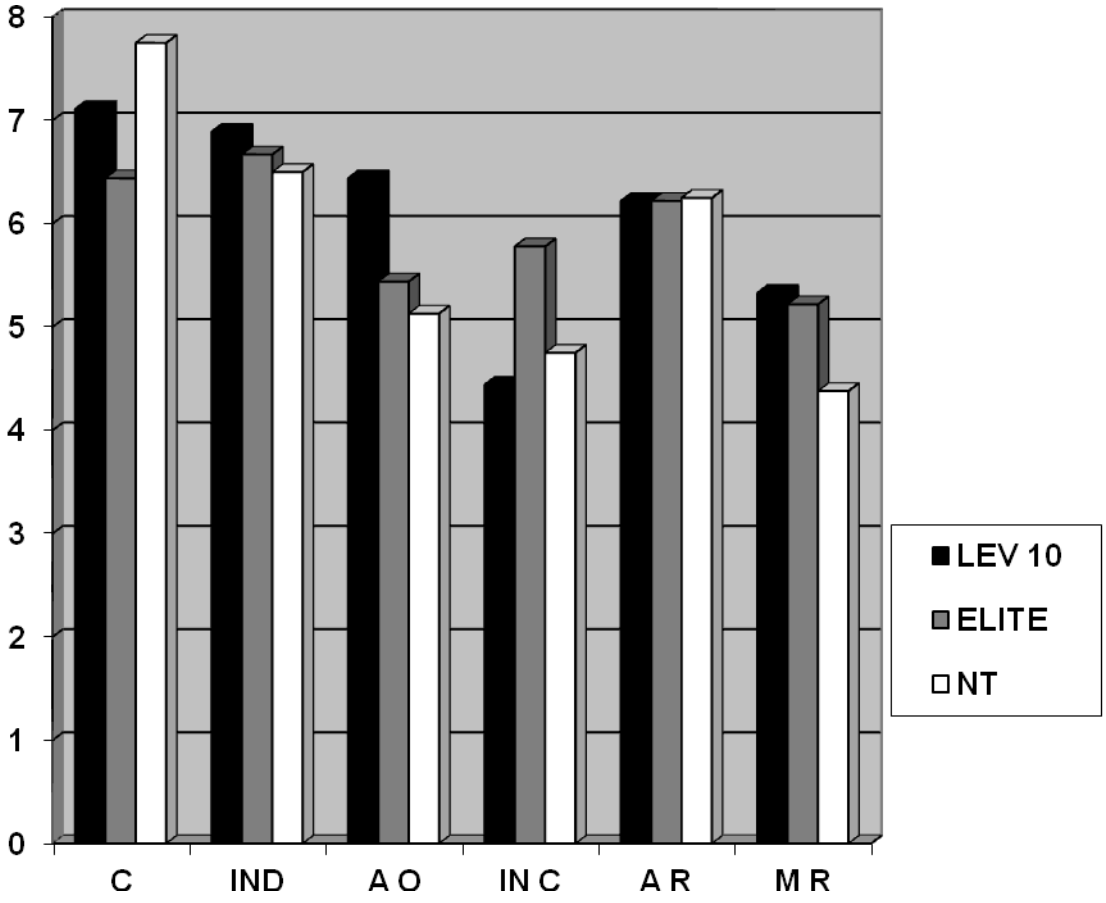

Figure 2. Average family cohesion and personal growth scores as perceived by the athletes across three levels of competition. Cohesion (C), Independence (IND), Achievement Orientation (AO), Intellectual-Cultural Orientation (In C), Active-Recreational (AR) and Moral Religious (MR) Subscales on FES.

The moral religious subscale reported by the mothers was not similar to their daughters. The mothers of the National Team reported 5.25, which was the lowest score in contrast to their daughters, who had the highest score. The Elite gymnasts reported a somewhat higher score (5.56) and finally the Level 10 mothers (6.00) reported the highest score for the moral religious subscale.

The National Team fathers reported the lowest score of all of the groups, 4.00. The Elite fathers reported the highest at 5.38, and finally the Level 10 fathers reported 5.33. The results were not statistically different between the three competitive teams for the moral religious subscale. However, it is interesting to note that both the mothers and fathers of the National Team scored lower on the moral religious subscale then their gymnast daughters. It appeared that the fathers and the gymnasts were the closest, which was just the opposite of the Active Recreational subscale scores.

Hypothesis Two

Hypothesis Two was concerned with parenting style and proposed that an authoritative parental style would be highest for the National Team members as measured by lower control and lower conflict subscales of the Family Environment Scale compared to their non-National Team Elite gymnasts. The control and conflict subscales are part of the relationship and system maintenance dimensions of the Family Environment Scale.

Parents' attitudes and practices influence the family climate. Authoritative parental style has been identified with high levels of achievement (Baumrind, 1971), whereas the democratic parenting style typically has mothers reporting families with high recreational orientation scores and low control scores as measured by the Family Environment Scale. Families that had mothers demonstrating authoritarian parental style developed less

expressiveness and had more emphasis on achievement (Ollendick, La Berteaux, & Horne, 1978). There appears to be a positive relationship between the expressiveness dimension and the achievement orientation dimension. Parental style has been an influential factor when studying other high achieving populations, such as highly successful students based on academic achievement. The parental style is generally conceptualized along two dimensions: parental demandingness (control) and parental responsiveness (warmth), which can be combined to create four categories of parenting: authoritative (high demandingness and high responsiveness), authoritarian (high demandingness and low responsiveness), and neglecting or indifferent (low demandingness and low responsiveness; Baumrind, 1971).

The FES did not have a responsiveness dimension; however, the dimension that adapted the qualities of responsiveness was expressiveness. The way in which you respond to each other in the family was noted by expressiveness. There was some discrepancy between the self-reports on expressiveness of the athletes and their parents. The National Team gymnasts reported a score of 7.00 on the expressiveness subscale whereas the mothers and fathers of those gymnasts reported a 6.5. Although the mean of 7.00 was the highest of all scores for the gymnasts, both the National Team mothers and fathers reported 6.5, respectively. This was not a statistically significant difference.

The control subscale displayed an interesting finding. The National Team members rated control at a mean of 2.38. The Elite gymnasts reported a mean of 4.00 on control. The Level 10 athletes reported a mean of 5.11, which was the highest value. The control subscale was statistically significance at the .005 level between the National Team and the Elite Gymnasts as well as the Level 10. The mothers of the National Team athletes

also reported the control subscale as the lowest with a mean of 3.38 out of a possible 9 points. The Elite gymnast's mothers reported a mean of 4.67 and the Level 10 mothers reported a mean of 4.44. There was no statistically significant difference between the mothers reported scores. Interestingly, both conflict and control means were below the 50^{th} percentage; thus, the perception is that there is little control and conflict issues within the family of the gymnasts.

The fathers of the National Team also reported control to be the lowest with a mean of 3.38, which was exactly the same mean as their spouse. The Elite fathers reported the mean as 4.88 and the fathers of the Level 10 gymnasts also rated the mean as 4.88. The results approached statistical significance at *p*-value equal to .08 (see Figure 3).

Research has been inconclusive as to whether high levels of conflict impacts parental style or if parental style affects the level of conflict in a family. Thus, conflict was examined to determine if it impacted parental style and the success of the gymnast as measured by the conflict subscale on the FES. The National Team gymnasts reported the conflict subscale as 1.75, the lowest mean value for all 10 subscales by the gymnasts. The Elite level gymnasts reported a mean of 2.11, and the Level 10 gymnasts reported conflict as the highest within the gymnasts at a mean value of 2.44. This was not a statistically significant finding, but the reported order of the scores were expected, as stated in the hypothesis.

The mothers and fathers of the National Team gymnasts reported the highest mean values for conflict for the three competition levels. The Elite mothers and fathers reported the lowest means of the parents; thus, the Level 10 parents were in the middle. This is not consistent with the athletes themselves.

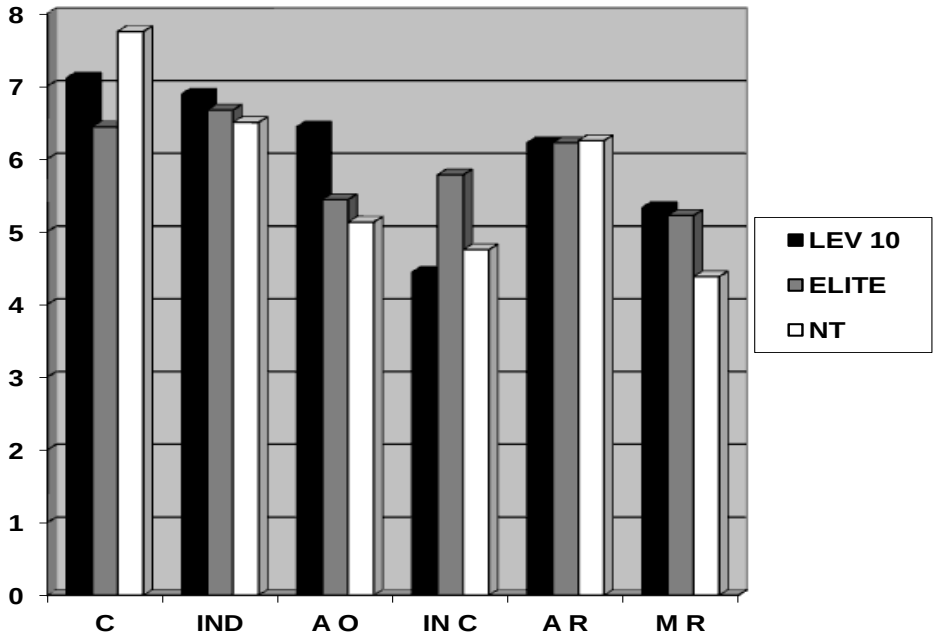

Figure 3. Average control scores for family members across three levels of competition

For some reason, the mothers of the Elite gymnasts felt conflict in their family to be low. It is interesting to note the discrepancy between the mothers and the gymnasts.

It was not a statistically significant finding but interesting to note that the National Team mothers and gymnasts felt conflict to be low in the family and their father's reported a somewhat higher score. It is important to realize that all of the reported scores of conflict were within the normal range of the Family Environment Scale (Moos & Moos, 1981; Figure 4).

Although not statistically significant, the pattern of results for the conflict and control subscales (see Figure 4) did confirm that the National Team had a more authoritative parental style than the non-National Teams.

Hypothesis Three

The concept of birth order and how predictive it is of a child's behavior has been studied heavily with regard to achievement, but not the sporting population. Although it is not always definitive, there is a dearth of research within the sporting population regarding birth order and especially its relationship to achievement. The idea of all of the children beginning in a gymnastic program with the hopes of making it to the National Team and eventually the Olympics is common. Physiological factors such as physical characteristics and injury eliminate some of the children naturally; however, there must be some indicator that enables a child to attain the highest level of achievement. Academic achievement literature has suggested that birth order may have an impact on what number child would be the most successful. The third hypothesis suggested that the members of the National Team would have a higher proportion of first-born or only children compared to the non-National Teams, specifically, Elite and Level 10 gymnasts.

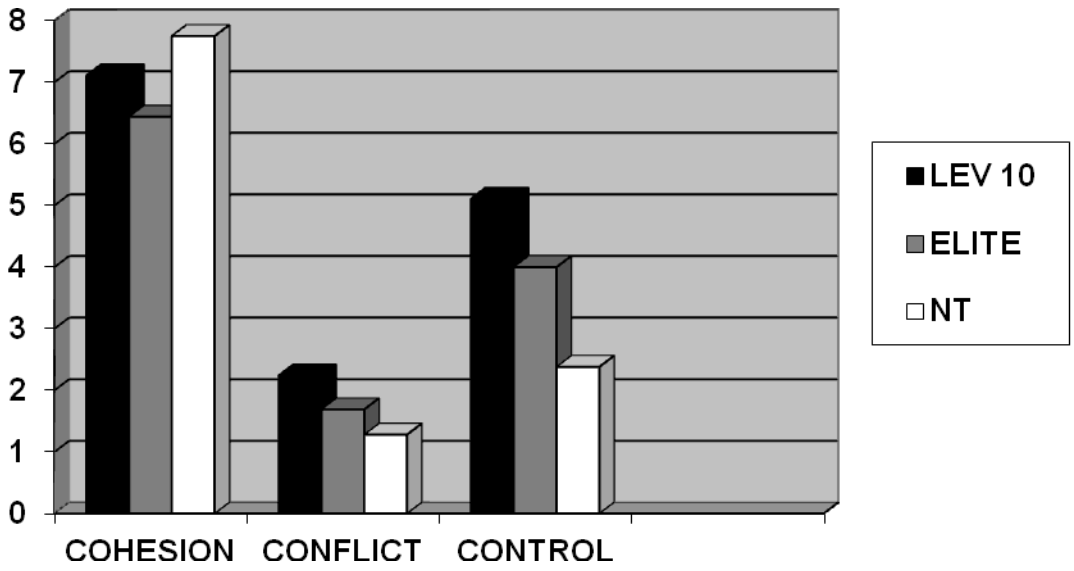

Figure 4. Average scores reflecting an authoritative parenting style as perceived by the gymnasts.

Twenty-six gymnasts responded to this question and 11 of them were first-born children. No National Team members reported being first-born children. The Elite gymnasts reported 5 (56%) being first-born children and the remaining 4 being later-born children. The largest proportion of first-born children were in the Level 10 group, which reported 6 out of 9 (67%) gymnasts being first-born with the remaining 3 being later-born children.

Mother's had a different birth order configuration. The National Team had only 3 mothers (33%), who were first-born children. One Elite mother reported being an only child, whereas none of the mothers in the other groups reported being an only child. Two of the Level 10 (22%) mothers were first-born and the Elite gymnasts' mothers reported that 4 (44%) were first-born.

Initially, the thought was that the birth order of the gymnast was an important factor; however, a better predictor of the success of the athlete may lie in the birth order of the parents, and more specifically the father (Table 3). Although none of the questions reported any statistical impact of birth order having influenced the competitive level of the gymnast, the father's birth order did indicate an interesting result. Using Kendall's Tau B, 5 of the 8 (63%) athletes of the National Team and 4 out of the 9 (44%) Level 10 gymnasts had fathers who were second-born. Although none of the National Team gymnasts' fathers were first-born, 3 or 33% of the Elite fathers and 3 or 33.3% of the Level 10 fathers were first-born. First-borns generally strive for achievement and success, both in an educational situation as well as in their occupations; however, later-borns often strive equally as diligently to overcome their later-born position (Adams,2001).

Table 3

Family Birth Order Data

	Ordinal Position of the Gymnast		
Level	First-Born	Later-Born	Total
Level 10	6	3	9
Elite	5	4	9
National Team	0	8	8
Total	11	15	26
	Ordinal Position of the Mother		
Level	First-Born	Later-Born	Total
Level 10	2	7	9
Elite	4	5	9
National Team	3	5	8
Total	9	17	26
	Ordinal Position of the Father		
Level	First-Born	Later-Born	Total
Level 10	3	6	9
Elite	3	5	8
National Team	0	8	8
Total	6	20	25

First-borns generally try to avoid conflict and are motivated toward achievement (Adams, 2001). They are often consumed with doing the right thing and the need to please. They tend to be more afraid than others, which confirms Schlacter's (1963) earlier work. Adams (2001) found that first-borns are concerned with precision and are more likely to join social organizations than their later-born siblings. Gymnastics requires a high level of precision, which supported the rationale for this hypothesis.

Because parents of first-born children are experiencing parenthood for the first time, they may be tentative and inconsistent. Yet they also are tentative and diligent because they want to do the right thing. It has been shown that first-born children tend to walk

and talk earlier than their later-born counterparts. This led to the hypothesis that the highest achievers in the gymnastic population would be the first-born.

Hypothesis Four

At the highest levels, gymnastics is a sport that requires travel and large expenses. As the athletes progress in competencies, the need to compete at different venues throughout the United States and World occurs. It was hypothesized that because of the time and cost involved in gymnastic training, the National Team members would come from smaller families compared to their non-National Team counterparts. For the purposes of this study, a small family was defined as those families in which there were three or fewer children in the family.

Only one of the 26 athletes measured was an only child**.** Seven of the national team responded that there were three or fewer children in their families, the other National Team member reported that they had four children in their family. The Level 10 gymnasts all reported that they came from smaller families. In the Elite gymnast population, all but one athlete reported coming from a smaller family.

When examining the data further, it is interesting to note that family constellation of the parents of each group of gymnasts was somewhat different. The majority of fathers reported coming from small families. More specifically, of the 8 Elite gymnasts fathers who responded, 6 of them had three or fewer children in their families. The National Team fathers had only 1 father who came from a smaller family. The other 7 fathers had four or more children in their households growing up. The largest proportion of fathers reporting growing up in a small family was the Level 10 fathers. Eight reported that they

grew up in a smaller family. None of the fathers reported being an only child. This was the same as the athletes.

The majority of National Team mothers resided in homes primarily with smaller families, whereas 7 of the nine Level 10 mothers reported growing up in a family with three or fewer children in their families. Two of the mothers had five children in their immediate family. The mother's families of the Elite gymnasts were nearly evenly divided between small and large famlilies, as 4 of the 9 came from small families.

Hypothesis Five

The fifth hypothesis proposed that the parents of the National Team members would exhibit higher socioeconomic status and educational levels than parents of non-National Team members. The National Team families did not have a statistically higher income level than their counterparts. Of the 26 families who responded to the survey, 14 stated their household income was greater than $81,000 a year. Of these 14, 4 were National Team members and 10 were non-National Team members. Seven familes reported that their combined yearly income was between $60,000-$80,000. Only 2 of those familes were National Team members and 5 were non-National Team members.

Two families responded that their household income was between $41,000-$59,000 a year. One family was from the National Team and 1 was a non-National Team member. Three families responded that their combined household income was between $21,000-$40,000 a year, 1 National Team member and 2 non-National Team members. It is interesting to note the occupations of the parents of the various groups of gymnasts. The occupations of the mothers and fathers were very diverse and ranged from entrepreneurs,

to homemakers, and teachers. The National Team mothers had the highest percentage of mother's who remained at home, which was 2 out of the 8. They classified their occupational status as homemaker. This occupational status was not indicative of educational level. The remaining National Team mothers were 2 teachers, 2 artists, a medical assistant, and a bookeeper. The Elite mothers reported the following occupations: 4 reported being teachers, 1 worked in a bank, 1 was a gymnastic's coach, 1 was a homemaker, 1 a medical assistant, and 1 a microbiologist. The occupations of the Level 10 mothers were as follows: a teacher, a director, a computer specialist, and an administrative assistant. It appears that the occupational status of the three gymnast's groups was very similar in nature, having teachers, coaches, homemakers, and vice president's represented in each of the gymnast's groups.

The occupations of the father's of the National Team members were as follows: 1 electronic specialist, 1 insurance executive, 1 in the computer industry, 1 entrepreneur, 1 salesman, and 1 health care administrator, 1 engineer, and 1 builder. The Elite gymnasts father's had an occupational status of 1 vice president of a trucking company, 1 electronic specialist, 1 entrepeneur, 2 attorneys, 1 engineer, 1 scientist, and 1 controller. The Level 10 father's reported 2 transportation specialists, 2 environmental consultants, 1 purchasing manager, 1 insurance executive, 1 lobbyist, 1 in sales, and 1 coach.

The assumption was made that the occupation of the parents would correspond with educational level; however, this could not be quantified. There was not a question that specifically addressed the specific educational level achieved or the verficiation of such a level of education. Many of the occupations could be considered highly successful from a monetary standpoint, without having a degree and vice versa. The only occupations that

required special certifications such as teachers or attorneys supported the higher level of education.

Hypothesis Six

It was postulated that the mothers of the NT members would have a stronger influence, as measured by the athlete family questionnaire, than the non-NT elite and Level 10 gymnasts mothers. Research has suggested that mothers have a closer relationship with their daughters with respect to sport introduction. Observationally, there are more mothers chauffering their daughters to practice and meets than fathers and therefore, both empirically and observationally, it was thought that mothers would have a greater influence over their daughters. The fact that more mothers introduce their daughters to the sport of gymnastics also supports the thought that the mothers would have a stronger overall influence on their daughters as measured by the sport specific questionnaire.

The parents' perception of who had the strongest influence on their child was very interesting. Half of the NT fathers said that the mother was the most influential person in the gymnasts life (4 out of 8 respondents). The Elite gymnasts fathers' believed that the coach was the most influential person in the gymnast's life. Only 1 NT father felt that the coach was the most influential person in the gymnasts life. Neither the Elite nor the NT fathers felt that the fathers were the most influential person in the gymnasts life. None of the NT fathers responded to this question. The mothers reported a different scenario. Fifty–four percent of all of the mothers felt that the coach was the most influential person in their gymnasts' life (14 out of 26 respondents). Four of the Elite gymnasts mothers felt the coach was most influential, whereas the remaining 5 thought that they (the

mother) were the most influential person in the gymnasts' life. Six of the NT mothers reported that the coach was the most influential person in their gymnasts' life (6 out of 8). Two of the NT mothers thought that they were the most influential person and none reported the fathers to have the most influence on the gymnasts' life.

Neither the Elite mothers nor fathers reported the fathers as most influential in their life. None of the NT mothers or fathers reported the fathers as most influential (Table 4). The hypothesis was not supported.

The gymnasts reported a different impression. The Elite and Level 10 gymnasts reported that the coach was not the most influential person in their life. One fourth of the national team gymnasts reported that their mothers were the most important person in their life (2 out of 8 respondents). The majority (6 out of 8) of the National Team gymnasts reported that the coach was the most important person in their life. No NT gymnast reported the father to have the most influence on the gymnast's life. Five of the 9 Elite gymnasts thought that their mother had the strongest influence and 4 of the gymnasts felt that the coach was the most influential person in their life. Of the Level 10 athletes, 3 felt that the mother had the strongest influence on the athlete, and 4 thought that the coach had the strongest influence. One level 10 gymnast reported a sibling to have the strongest influence and 2 reported having been equally influenced by both the mother and the father. The hypothesis was not supported.

Table 4

Most Influential Person in Gymnasts' Life

Athletes			
Most Important	Level 10	Elite	National Team
Mother	3	5	2
Father	0	0	0
Coach	4	4	6
Other	2	0	0
Mothers			
Most Important	Level 10	Elite	National Team
Mother	5	4	0
Father	0	0	0
Coach	4	4	1
Other	0	0	0
Fathers			
Most Important	Level 10	Elite	National Team
Mother	0	0	4
Father	0	0	0
Coach	4	9	1
Other	0	0	0

Note. Several of mothers and fathers rated two or more individuals as being most important and are not included in this table.

Hypothesis Seven

The final hypothesis suggested that the National Team athletes would have a greater internal locus of control as compared to their non-National Team counterparts. They would be more responsible for their actions as measured by the low scores on the control subscale on the FES as well as several questions asking about coaching decisions, and transportation on the gymnast questionnaire. In addition to the control subscale on the FES, the cohesion subscale on the FES was used as well. A family that has high scores on the control subscale will generally have a converse relationship with the cohesion subscale on the FES. A family that exhibits high levels of control are not as concerned

with how well the family interacts together. For this reason, both the cohesion and control subscale were used as well as several questions about coaching decisions and transportation. In addition to the control and cohesion subscales, the independence subscale was used to determine how independent the gymnasts were.

There is an inverse relationship between control and independence. The more the parents controlled the gymnasts, the less independent they are. It is important to note that these scores are self-reported; therefore, it is the perception that was recorded.

As mentioned in Hypothesis One, the greatest mean was found for the National Team gymnasts on the cohesion subscale reporting a 7.75. The mean for the Elite gymnasts was 6.44, and the Level 10 was 7.11. The critical value for the athletes on the cohesion subscale was .457. Although this is not statistically significant, the small sample size precluded the possibility of determining if cohesion was indeed a variable affecting internal locus of control with this population. The mothers of the National Team gymnasts also rated cohesion as the highest with an 8.25 out of a possible 9. The Elite gymnast's mothers reported a 7.89 and the Level 10 reported a 7.33 on cohesion. The significance test critical value was .474. Again, not statitistically significant but it is interesting to note that cohesion is the highest with both the NT gymnast and the mother, but not so for the fathers of the National Team population. The fathers reported the cohesion subscale differently. The Elite gymnasts fathers reported the highest with a 8.13 on cohesion, whereas the National team fathers reported 7.88 and the Level 10 fathers remained the lowest on cohesion with a 7.33.

The control subscale indicated that the perceived control in the family was very low for the National Team gymnasts. They scored a 2.38 compared to a 4.00 for the Elite

gymnasts. The Level 10 gymnasts had the highest reported control score with a 2.06. This was statistically significant at the .017 level. The mothers of the National Team gymnasts also reported the lowest control score with a 3.38. The Elite gymnasts mothers reported the highest on control with a 4.67 and the Level 10 mothers reported a 4.44. This was not statistically significant. The fathers of the National Team gymnasts also reported the lowest score on control with a 3.38. The Elite father's also reported a 4.88 and the highest again was the Level 10 fathers with a 3.38. This was not statistically significant at the .170 level.

Five of the 9 mother's of the Elite gymnasts reported that they had trouble motivating their child. Only 2 out of the 7 Elite father's reported having difficulty motivating their child in the sport of gymnastics.

For the Level 10 gymnasts' fathers, only 1 reported having difficulty motivating his child. Three of the mother's of the Level 10 gymnasts reported having to motivate their child with the remaining 6 reporting no difficulty motivating their gymnasts. The inference here is the more the gymnast needs external motivation the less likely they would exhibit a high degree of internal locus of control.

For all of the gymnasts queried about who was the most responsible for transportation to and from the practice and the meets, all of the National Team gymnasts maintained responsibility for themselves. Of the 9 elite gymnasts, only 8 reported having the majority of the responsibility for themselves. Two of the 9 Level 10 gymnasts were not responsible for themselves at practice and meets.

Discussion

As originally predicted in Hyothesis One, the National Team gymnasts would exhibit a profile that was higher in family cohesion, independence, achievement orientation, intellectual orientation, active recreational, and moral religious emphasis, than the Elite and Level 10 gymnasts. The National Team gymnasts rated cohesion the highest of the athletes, which is consisent with the literature on academic achievement. The higher the level of cohesion is in the family, the higher the level of achievement is. The results did not approach statistical significance; however, the small sample size may have precluded that possibility. When examining the results of the parents, the findings were consistent with the gymnasts. The National Team mothers and fathers rated cohesion the highest for all three groups and the incongruence score was 17, which means that the athletes and the parents perceived the family environment to be within the normal range and the perception of the family was the same for both the parents and the athlete (see Appendix F).

The high demands of the sport and the required travel impacts the family environment. The fact that the National Team rated their families as the most cohesive may indicate the importance of the nuclear family to the success of the athlete. Further study is warranted to determine the impact of this subscale.

The independence subscale did not follow the expected trend. Steiner (1992) found that the higher the level of independence reported, the higher is the level of academic achievement. As noted above, independence generally fosters higher academic achievement. The National Team gymnasts did not report independence any higher than the non-National Team athletes; however, both of their parents perceived their daughters

to be very independent. The lowest rating of independence was for the Elite mothers and fathers. None of the findings approached statistical significance and it would be interesting to note more specifically how independence impacted the success of the athletes. This finding is not consistent with the literature on academic achievement. Work done by deMan (1990) reported that children who experienced high levels of control (and conversely low levels of independence) in their lives generally did not fare well academically. The combination of feelings of powerlessness or lack of control, and parental interaction that is overly strict, generally suppresses the ability to build a foundation that promotes high levels of achievement. Control was not measured in Hypothesis One; however, the inverse relationship between independence, control, and achievement is worth noting.

The lowest mean for the National Team gymnasts was 5.13 on the achievement orientation subscale. The Level 10 gymnasts had a reported mean of 6.44, which was the highest. The mothers and fathers of the Level 10 gymnasts rated achievement orientation the highest of the three groups. Perhaps the discrepancy in achievement orientation lies in the fact that the gymnasts and families of the National Team have attained the highest level of competition in the field of gymnastics; therefore, the scores were not indicative of the need to further achieve because they have already accomplished this**.** This finding is contrary to the hypothesis; however, it is not inconsistent with the literature on academic achievement.

Chapin and Vito (1988) examined the interaction within the family to determine exactly what and how various processes affect academic achievement. The first way cited was the chronic disturbances that occur within a family. The fact that none of the

families fell within the dysfunctional range as self-reported on the FES is surprising and that the achievement scores were not higher. The fact that the mother was noted as a central role in the gymnasts' life both in terms of initial socialization to the sport as well as having the greatest influence on the sport was consistent with literature on academic achievement.

It is interesting to analyze the findings on the intellectual subscale. The National Team members did not exhibit higher intellectual cultural scores when compared to the Elite gymnasts. However, their (NT) scores were higher than their Level 10 counterparts. There was some discrepancy in the reports of the gymnasts, mothers, and fathers. The mean scores reported by the gymnasts on the intellectual subscale were 4.44 for Level 10. The Elite gymnasts reported a 5.78, and the NT reported a 4.75. Both the mothers and the Elite fathers felt that intellectual cultural orientation was the highest for their group. The Level 10 gymnasts, mothers, and fathers all reported that the intellectual cultural orientation was lower than their Elite and NT counterparts.

Chapin and Vito (1988) found that high levels of cohesion as well as low levels of conflict were known to impact academic achievement. It should be noted that all of the gymnasts reported a grade point average of above a 3.00, thus indicating high levels of academic achievement as well. Four of the athletes self-reported having earned a 4.0. Two were from the elite population, 1 was a National Team gymnast, and 1 a Level 10 gymnast. Ten of the gymnasts had a 3.5 or better. If the sample was not as finite, the differences in the intellectual scales may have been highlighted. All of the athletes at Level 10 and above juggle the demands of training, competition, as well as school obligations. To maintain a 3.5 or above is outstanding considering the fact that many of

the athletes have a shortened school schedule and frequent absences from school for competition.

Both the active recreational and moral religious dimensions had no statistically significant findings. It is interesting to note that the National Team gymnasts and both parents rated the moral religious subscale the lowest of the three groups. The Level 10 gymnasts and mothers rated the moral-religious subscale highest of the three groups but the fathers of the Level 10 gymnasts rated the moral-religious in the middle of the Level 10 and National Team fathers.

Research on child socialization over the past few years has consistently demonstrated that parenting styles has been one of the strongest influences on the psychological and behavioral well-being of an adolescent (Fletcher-Steinberg, 1999). Although the influence that a parent has on the child has been demonstrated repeatedly in the academic literature, it has not been researched as frequently in the sporting arena (Woolger & Power, 1994). The similarities between the academic and sporting contexts are many such as mastery of skill, goal setting, development of successful coping mechanisms, assimiliating feedback, and high levels of motivation and drive for achievement. The results for the National Team were consistent with the literature on authoritative parental style, which indicated low scores for control and conflict for the parents and high scores on the cohesion subscale. The relationship and maintenance of the family unit impacts the opportunity for success of each of the family members and generally, there is an inverse relationship between levels of control and conflict with cohesion. As Bloom (1985) stated in his research, a family that was cohesive and determined to establish rules and responsibility without stifling the independence of the athlete generally promotes a

climate for achievement. The National Team members appear to regard their family as one that is cohesive and not conflicted and controlling, which is consistent with Bloom's (1985) research. There is a fine line between a parent-child relationship that is highly controlling and one that provides enough support and structure to cultivate achievement.

The control subscale was statistically significant with $p = .017$ between the National Team gymnasts and Level 10 gymnasts. Another interesting finding was that the mothers and fathers of the National Team gymnasts also reported control as the lowest of the three groups. It appears that the family environment for the National Team members was one that was consistently cohesive and not overly controlling (Figure 1).

None of the reported independence scores were significant; however, it was unexpected to note the lowest scores of independence were reported by the National Team. The strict regime of practice and competition leave little time for the athlete to make decisions on how they spend their time. This may in turn lead to feelings of dependence on their coaches or their families. The fact that the parents of the National Team athletes rated independence higher is interesting and should warrant further study.

Family and school settings often amplify each other in the promotion of a student's self-worth. More specifically, cohesive, socially integrated, and well-organized families tend to promote students' scholastic and peer self-concepts, whereas highly conflicted and controlling families do not (Nelson, 1984). The higher the conflict and control scores reported on the FES, the lower is the level of achievement attained.

The results support the research that the National Team had the highest levels of cohesion (which was significant) and lowest levels of control. However, there was no distinction between the groups of athletes on the self-reported measurement of achievement-

orientation; however, there was a distinction between the parents.

A demanding, yet supportive, family environment appears to be low on conflict and higher on achievement orientation. A supportive environment was associated with more effort in school and better educational achievement (Rosenthal & Feldman, 1991). High cohesion, expressiveness, and intellectual orientation are consistently linked with academic achievement (Chapin & Vito, 1988).

It is interesting to note that all of the team members were low in conflict and higher in achievement. This may have been because all of the participants were at the highest level of their sport and there was not enough distinction between the levels to identify the differences.

The members of the National Team did not report being first-born or only children as originally stated in Hypothesis 3. The findings for birth order were quite different than expected. None of the National Team members reported being first-born and none of the National Team fathers reported being first-born. It is interesting to observe this measure, as academic achievement indicates a strong influence of first-born's success, whereas the research on pain (Schlacter, 1963) suggests that there would not be a large portion of first-borns among the highest level of gymnasts because of their intolerance to pain. Cherian (1990) found that the highest level of achievement, as measured by intelligence tests and success in school, is often associated with being first-born. The NT gymnasts were consistent with Cherian's findings of achieving high levels of academic achievement as well as in the gym, even though they were not first-born.

Birth order was not statistically significant for this sample of gymnasts; however, the parental ordinal position may have impacted the success of the gymnasts. Parental birth

order, when coupled with the family size of the parents, may be an indicator of success. The research on birth order is inconsistent with regard to academic achievement. Cherian (1990) found birth order to impact academic achievement; however, Marjoribanks (1990) did not find conclusive results equating academic achievement with birth order.

Perhaps the fact that none of the fathers were first-born could have an impact on the success of the athlete. If the fathers came from larger families and were later-born children, they may have encouraged their children more strongly to participate in gymnastics or to be successful in some endeavor. However, the athletes themselves did not report that their fathers had the greatest influence on their lives.

Further research needs to be conducted to determine if birth order is an indicator when controlling for other variables. The fact that none of the fathers of the gymnasts were first-born either and came from larger families may have something to do with the success of the gymnasts.

Perhaps the Level 10, Elite, and National Team athletes were at the highest level already and therefore the percentage of first-born athletes was not great because the discrimination between the levels was too limited. If the entire population of gymnastics had been studied, it might have been found that the largest percentage of first-borns may may have been on the National Team. It is also possible that with the passage of time, the Level 10 gymnasts moved up to either the elite level or the National Team and therefore, all of the participants were at Level 10 at one time or another. If gymnasts had been classified according to the highest level of competition that they achieved, the results may have been different. In addition, the low return rate may have produced a biased sample and therefore making inferences to the population was problematical.

Birth order and family size seem to be more important as a predictor of success for the gymnasts than their parents. The parents may have developed attitudes from being in a small family. The assumption was also made that parents parented their children the way that they were parented.

Hypothesis Four stated that the National Team members would come from smaller families. The majority of the National Team members (7 out of 8) reported hailing from small families; however, the Level 10 gymnasts all reported coming from a family with three or fewer children. Therefore, family size did not discriminate between levels of athletic achievement.

Not only were none of the National Team fathers first-born in their family constellation, only 1 father had fewer than three children in his family. The other 7 fathers of the National Team gymnasts grew up in families with four or more children in them. The majority of the parents had three or fewer children in their family in both the Level 10 and Elite gymnasts. Perhaps the fathers of the National Team gymnasts were committed to providing more opportunity for their children having grown up in large families, therefore they had fewer children themselves. The level of involvement for the fathers was not significant and the majority responded that they had little involvement in their child's gymnastic career with the exception of the fathers who were gymnastic coaches.

An unexpected finding was that only 1 mother reported being an only child and one athlete reported being an only child. None of the National Team gymnasts were either only or first-born children, which is directly opposite of the initial hypothesis. The rationale of pain tolerance in first-borns (Schlacter, 1963) may impact the attraction of

later-born gymnasts to the intense sport of gymnastics.

Hypothesis Five postulated that the parents of the National Team would exhibit higher socioeconomic status (SES) than their counterparts. The National Team did not have a higher socioeconomic status than their non-National Team counterparts. It was interesting to note that the highest percentage of mothers who remained at home was on the National Team, with 55% of them staying at home. MacKinnon et al. (1986) found that families that had a higher SES were more inclined to engage in behaviors that enable a student or athlete to be successful. This was not evidenced in this study. Perhaps the availability of the mother for the gymnast was apparent for all of the athletes regardless of their level. The highest level of gymnastic competition is achieved at younger ages than some other sports. Because of the young age of participation, the focus and dependence on parents is more important for the younger athletes.

Many of the mothers (23 out of 26) reported being usually involved with the officiating or administration of the sport of gymnastics. The other mothers reported their professions as nonprofessional. The sacrifice needed to provide support and transportation to the athlete may preclude the mother from having a "professional" career, which would not provide the flexibility needed to accommodate the travel and training schedule of a national athlete.

In addition, 25 out of 26 of the athletes came from homes that were intact. Only 1 of the parents were divorced, which may have impacted the socioeconomic status of the families.

White (1982) found that rather than focus on SES in totality, the single greatest correlate of academic achievement was income. This was evidenced in the self-reported

income of the participants. MacKinnon et al. (1986) found that the families that had a higher SES would engage in behaviors that made the student or athlete successful. All of the participants in this study would be categorized as successful based on the rating of the USGF. The differences betweent the adjacent levels of skill may have been too small to detect, especially with a small sample size.

More than half of the participants reported an income of over $81,000 and only 4 of them were from the National Team, yet only 1 National Team family reported an income between $21,000 and $40,000. No family reported having a combined household income of less than $21,000. The one condition that was worthy of note was the fact that the National Team mothers had the highest percentage of mothers that remained at home (25%). The demanding training and travel schedule of the National Team gymnasts may contribute to the fact that the mothers remained at home. Further inquiry would have to confirm the reason for the mother's homemaker status.

Hypothesis Six suggested that the most influential person in the gymnast's life was consistent with the research on academic achievement, which suggests that the mother has the most influence on the athlete (Notar & McDaniel, 1986). However, the coach was also an important influence in the gymnast's life. When asked who introduced the gymnast to the field of gymnastics, the National Team members unanimously stated that their mothers introduced them to the sport of gymnastics. This is consistent with the work done by Stevenson (1990), who found an effect of gender on the patterns of introduction to sport. Mothers more frequently introduced their daughters to the sport than fathers. Six of those athletes reported being the closest to their mother and the remaining 2 reported being equally as close to their mother as their father. The Elite

gymnast's were also introduced unanimously to the sport of gymnastics by their mothers. Two thirds of them (6 out of 9) reported being closest to their mother and the remaining one third reported both parents as their closest family member. The Level 10 gymnasts reported that 7 of the 9 were introduced to the sport of gymnastics by their mother and the remaining 2 reported a father's introduction.

Stevenson (1990) found that girls were more frequently introduced to the sport of field hockey by their mothers perhaps because field hockey is played primarily by females. This is consistent with the fact that the mother would be the most likely individual to introduce her daughter to the sport of female gymnastics. Stevenson also found that the fathers were more likely to introduce their sons to sports such as water polo and rugby, which are traditionally male sports. These findings were consistent with those of Higginson (1985) and Greendorfer and Lewko (1978) demonstrated that the family was the most important influence on the decision to participate in sport.

Developmentally, as the athlete matures, the focus of parental involvement is shifted from the parent to the coach or teacher. This occurred with this group of athletes as well. The mothers and fathers felt that the coach was the most influential person in their gymnasts lives. This is also consistent with the research findings on academic achievement (Bloom, 1985).

The mothers introduced their daughters to the sport of gymnastics; however, it is interesting to find that of all of the mothers queried, only 2 reported being gymnasts themselves, 1 Level 10 mother and 1 Elite level mother. It is interesting that none of the National Team mothers were gymnasts previously. This is consistent with the work done by Bloom (1985), who suggested that none of the parents of the swimmers started out

making an Olympic athlete. The parents were also not competitive swimmers themselves.

The majority of the family members (23 out of 26) were not gymnasts themselves; however, the parents did become involved in some capacity within the sport of gymnastics, either by officiating or administration of the sport. This may have been a function of financial need to barter the services of the parent for tuition remission of the gymnasts. It is interesting that the parents were involved *after* the gymnasts reached a specific level of achievement rather than the opposite occurence.

The final hypothesis suggested that the National Team athletes would have a greater internal locus of control as compared to their non-National Team counterparts. They would be more responsible for their actions as measured by the conflict, control, cohesion, and independence subscale on the FES as well as the several questions regarding responsibility for transportation and coaching decisions on the sport-specific questionnaire.

It can be determined by examining the cohesion subscale of the FES which families are the most cohesive. A high level of cohesiveness generally indicates an internal locus of control (McCartin & Meyer, 1988). It appears from the results reported earlier that the National Team athletes were the lowest on the independence subscale but high on the cohesion subscale, indicating that the National Team gymnasts were more external in their locus of control, which is contrary to what most literature suggests. This is contrary to what Steiner (1992) found with regard to achievement. The higher the independence scores are, the higher is the level of achievement attained. Unlike Steiner (1992), Kerr and Goss (1997) found that the elite gymnasts they studied had an external locus of control. This is consistent with the findings of this study. The explanation given by the

gymnasts in Kerr and Goss (1997) was the lack of control that they felt with regard to their training schedules and performance variables. Some of the other concerns noted by the gymnasts were the subjectiveness of the judging and other varaibles for which they had no control. The National Team gymnasts noted the control subscale as the lowest and perhaps the reason for their control being lowest of all is intensified by the lack of input on their training and competitive schedule for the National Team athlete.

The hypotheses selected were based on the review of literature of various athletes, both nationally ranked athletes and lower level athletes, that have been previously studied. The lack of support for the various hypotheses was due to various circumstances beyond the athletes and parent's control. The small sample size contributed to the lack of predictive information and the fact that this particular population of gymnasts had been heavily studied for other variables recently in the past, lowered the responsiveness rate. All of the participants were volunteers and the sample was taken as a snapshot of their level of participation in sport. The declared Level 10 athletes were at that level at the time of the study, yet may very well continue on to achieve the highest level of National Team. Further study must be done to note if this occurred. For the purposes of this study, there were no plans to follow up on the study participants to determine if the participants moved up to higher levels.

The age disparity was not as apparent a factor as one would assume. The age of participation in the study was from 14-22 years of age, yet the time of participation at the age of competition was between 14-18 years of age.

Some of the measures of the FES scales were somewhat of a compromise as they did not directly measure the constructs that were considered necessary. The FES instruments

was designed to look at family functioning in general rather than sport-specific achievement. Several of the measures, such as cohesion, conflict, and independence, did not directly address the construct of locus of control and parental style but were used as surrogate measures of these constructs.

The response rate may have been negatively impacted because of the book and movie release at the time of data collection. Perhaps a follow up study should be conducted to determine the effect of this variable. In addition, the relatively small differences in skill and ability level between the Level 10, Elite, and National Team members could not discriminate between the family and parental styles. Perhaps if the National Team was compared to lower levels, such as level 8 or 9 gymnasts who dropped out of the sport before achieving Level 10, differences may have been found.

The contribution of sociological factors in general, or family factors in particular, probably account for a modest percent of variance in predicting (achievement) success in gymnastics. Because this variance is so low, it is very difficult to separate the Elite from National Team gymnasts.

In many of the activities required to be a successful gymnast, there is a strong correlation between physical and physiological factors and measures of success or achievement, 50-60% (r = .7 to .8), but the athletes are very similar and thus these measures are not very good at discriminating between adjacent skill levels. Psychological or psychosocial factors may only account for 20-30% of variance, but they may be very good in disciminating between different levels of success. Finally, a discriminant analysis should have been conducted to determine what factors might help predict success.

CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

In the preceding chapters, the problem was introduced, related literature was reviewed, procedures were discussed, and analysis of the data was presented. This chapter includes a summary of the study, the findings derived from the anaylsis of the data collected, conclusions, and recommendations for further study.

Summary

The purpose of this study was to determine if the family profiles differed between the Level 10 and Elite female gymnasts in the United States and the female National Team gymnasts who are also Elite gymnasts. The variables that were included in the family profile were socioeconomic status based on combined income, parental education, ordinal birth position of the gymnasts as well as the parents, family size and influence, internal versus external locus of control, family environment, and parental style of discipline.

Twenty-six female gymnasts and their families responded to two questionnaires. There were 9 Level 10 gymnasts, 9 Elite gymnasts, 8 National Team gymnasts, and their parents. I developed a sport-specific demographic questionnaire for the gymnasts and a sport-specific questionnaire for the parents. The mothers, fathers, and gymnasts completed the questionnaires independently. The other questionnaire was the Family Environment Scale (Real Form; Moos & Moos, 1981).

The Family Environment Scale (Real Form) is comprised of 90 questions that had 10 subscales. The subscales were (a) Cohesion, (b) Expressiveness, (c) Conflict, (d) Independence, (e) Achievement Orientation, (f) Intellectual Cultural Orientation, (g) Active-recreational Orientation (h) Moral-religious emphasis, (i) Organization, and (j) Control. These subscales are organized into three dimensions: (a) relationship dimension, (b) personal growth dimension, and (c) system maintenance dimension. A fourth dimension, incongruity, was also calculated to determine if the family members perceive the family environment similarly.

A list of gymnastic clubs in the United States was identified by the USA gymnastic organization. In addition to the clubs, the Elite Gymnastics coaches association provided a list of qualified gymnasts. The gymnasts were contacted personally, through coaches, and through the U.S. Mail, whereas the clubs were contacted by telephone and via the U.S. Mail. Individual gymnasts who were identified as meeting the minimum qualifications for inclusion in the study were mailed packets of information that included a description of the study, a consent/assent form, and the questionnaires. The coaches determined who met the minimum qualifications for inclusion in the study.

The participants were either sent questionnaires via the U.S. Mail or were personally contacted at several of the U.S. national team-qualifying meets. All participants completed informed consent forms. The gymnasts filled out the questionnaires independently of their family members. The Real Form of the Family Environment Scale was given to both the gymnasts and both parents. The Real Form was developed to determine if the individual's perceptions of their nuclear family was in conjunction with other members of the family. Once the questionnaires were completed anonymously,

they were mailed to the experimenter for tabulation.

Findings

The data collected in this study were analyzed, and the following findings were obtained:

1. The National Team (NT) gymnasts did not exhibit a profile that fostered personal growth and was higher in independence, achievement orientation, and intellectual cultural orientation, than non-National Team gymnasts as originally predicted. Each of the variables was analyzed separately and a profile was developed to indicate the variables for each respective group.
2. Cohesion was the highest for the National Team families as originally predicted**.** The NT gymnasts rated cohesion higher than their non-National Team counterparts. It appears that the more cohesive a family is, the greater is the chance for higher levels of achievement. However, although it appeared to be true, it did not reach a statistically significant difference.
3. Control, as averaged across the family unit, was reported the lowest for the National Team gymnasts as originally predicted. Control was found to be significantly different between the athletes at the .017 level. Control was found to be important in influencing the level of achievement academically, as well as athletically.
4. Contrary to the original hypothesis, all athletes from all three groups, with the exception of one of the Elite gymnasts, reported coming from smaller families. An interesting finding occurred in the fathers of the National Team members. Only 1 father of the National Team reported coming from a smaller family.

Seven of the 8 fathers of the National Team reported coming from families with four or more children.

5. No National Team members reported being first-born, which was contradictory to the hypothesis. The role of birth order in athletic achievement is somewhat controversial. No fathers of the National Team reported being first-born either.
6. Fourteen of the 26 families reported having a combined income of $81,000 or greater. Income did not appear to affect the level of achievement for the athlete. Income did not discriminate between the three groups of athletes.
7. The most important person in the National Team gymnast's life was the coach as reported by the athletes themselves. A distinction was made between a person's importance to the athlete and the individual most influential to the athlete.
8. The Elite gymnasts reported that their mother was the most influential person in their life. The majority of the National Team gymnasts reported the coach as the most influential person in their life.
9. The mothers introduced the athletes to the sport of gymnastics for 24 out of the 26 athletes.

Conclusions

Based upon the findings and limitations of this study, the following conclusions seem warranted:

1. When examining athletic achievement in women's gymnastics, sociological and family factors did not seem to consistently and predictably distinguish athletes in the three highest levels of competition. There were some

differences between the three groups of gymnasts and their families; however, there were no consistent statistical differences separating the National Team gymnasts and the Level 10 gymnasts when looking at the variables separately.

2. There were no trends indicating that the determining factor for selection to the National Team was sociological in nature as originally hypothesized. Only a few sociological variables were studied and they were studied separately and not collectively.
3. The National Team athletes and parents scored the highest on the cohesion subscales of the FES, which confirms the closeness of the family unit of the National Team as indicated on the FES. The parental style did appear to be a contributing factor in the success of the National Team gymnasts. However, the cohesion scores were not statistically significant.
4. The birth order of the gymnasts themselves was not significant. Because of the small sample size of the study, "only" children were not represented well in the entire population. This was an interesting factor with a competing hypothesis. On the one hand, "only" or first-born children would benefit from additional attention and resources. However, these advantages would persist only if the family size remained small or the SES remained high. On the other hand, birth order has been linked to pain tolerance (Schacter, 1963) and later-born children would seem to be more prone to excel in athletics that were somewhat painful and might profit from early exposure.

5. An unexpected finding of the study was the relationship between the father's birth order and family size. These variables appeared to impact the selection to the National Team.
6. The majority of the gymnasts came from small families. Perhaps the cost of gymnastics precluded children from large families to participate at the highest level of gymnastics.

In summation, this study pointed out the need for further longitudinal sociological research of this specific gymnastic population. There are many variables that have not been identified that impact the success of these gymnasts. The dearth of sport-specific sociological questionnaires was clear and development of such instruments as an expansion of the sociological literature would be beneficial.

Recommendations for Future Research

The results of this study suggest the following recommendations for further study:

1. Another study should be conducted with a larger number of participants to increase the power of the study. Sending out repeated mailings and follow-up phone calls to the individuals identified by the coaches may yield greater response rates. Obtaining the support and collaboration of the National Gymnastics Federation prior to data collection may increase the response rate. Including retired gymnasts may help increase the sample size as well; however, the historical perspective may further confound the results.
2. Another study should be conducted comparing lower level gymnasts with the National Team gymnasts. The ability levels may have been too similar to determine statistical differences. The composition of the gymnasts at the

highest level is similar both psychologically and physiologically; however, this study did not determine that there was a sociological difference between the various team members. The point is well taken that many of these Level 10 gymnasts may eventually become NT or elite level gymnasts, and if the sociological variables are predictive of success, they should also possess these qualities. However, the sample size was not large enough to identify these variables. Perhaps the target group should be athletes who have dropped out of the sport after achieving Level 10. The distinction between those that continued to strive for higher levels of success with those that retired at Level 10 may provide further clarity on the differences between the Level 10 gymnasts and those on the National Team.

3. Further inquiry needs to be conducted to examine if pain tolerance impacts the selection of athletes at the national level of gymnastics to substantiate the research on first-born children. Pain tolerance is but one issue that might contribute to the overall success of the athlete.
4. A longitudinal study should be conducted to eliminate any complications encountered from recalling events historically. Perhaps using a predictive model of young gymnasts that possessed the physiological characteristics identified by the TOPS program as potential successful gymnasts would allow for longitudinal research.
5. Rotter's Internal-External Scale for locus of control should be included to determine which locus of control is more evident with the various populations. A better selection of valid, reliable instruments should be

included in the packet to further query some of the identified risk factors.

6. Qualitative versus quantitative research, such as personal interviews (either telephonically or in personal) with the participants, would be effective, albeit costly, to determine if the results of the questionnaires captured the climate of the family. The geographical separation of the gymnasts at the time made personal interviews difficult. In addition, many of the coaches were only willing to provide the surveys to the athlete's and their families, if they could remain anonymous, thus the difficulty in follow-up communication. The packets were sent it their entirety to the various clubs throughout the United States. The participants were given numerical designations with no reference to any personal names. There was no incentive for participation in the study for the gymnasts or their families.
7. Only current gymnasts should be included in the study to eliminate a historical perspective, thereby increasing the reliability of the information for the gymnasts at that moment in time realizing that a current Level 10 gymnast may eventually become a National Team member.
8. Another study needs to be conducted with other Olympic athletes to determine if there are similar attributes that yield specific sociological traits regardless of the sport at that level of competition. This would allow for generalizability of the results.
9. A variable that identifies the differences between motivation of the level of athletes needs to be determined if that is the distinguishing variable. The assumption was made that those gymnasts who made Level 10, Elite, and

National Team were all highly motivated. Perhaps the motivation levels of the athletes or the parents, influenced the success of the athlete.

10. A multivariate statistical approach rather than a univariate approach should be used. The statistical approach initially conducted was not discriminate enough between the gymnastic populations studied, but the small sample size meant they were underpowered The analysis of covariance structure or structured equation modeling could have been used to determine if the various matrices were consistent with each other, which would provide an explanation of the relationship between the various measures.

    The psychological and physiological variables of the three levels of gymnast's were so similar that a more specific statistical technique such as discriminate analysis should be used. This would help better understand the data set and provide insight into what the relationship between the Level 10, Elite, and National Team gymnasts and their families membership would be, and identify the variables used to predict each groups membership.

APPENDIX A

INFORMED CONSENT FORMS

Informed Consent and Assent Form

Voluntary Participation

Your signature below indicates that you have decided to participate in this study and that you have read and understand the information in this consent form. Your decision to participate in this study will not prejudice your present or future association with the University of Utah. If you decide to participate, you are free to withdraw consent and discontinue participation at any time without prejudice.

Agreement

I hereby acknowledge that I have read and understand the procedures required for participation in this study and that all questions were answered to my satisfaction. I have been given a copy of this consent form. I consent to participate in this study.

If the participant is under 18 years of age, I give my consent, as legal guardian, for participation of this minor in the study.

Participant's Signature _____ Date _____

Signature of Witness _____ Date _____

As a minor, I hereby acknowledge that I have read and understand the procedures required for participation in this study and that all questions were answered to my satisfaction. I give assent to participate in this study.

Participant's Signature _____ Date _____

Signature of Witness _____ Date_____

APPENDIX B

FAMILY ENVIRONMENT SCALE

FAMILY ENVIRONMENT SCALE

FORM R

Rudolf H. Moos

Instructions

There are 90 statements in this booklet. They are statements about families. You are to decide which of these statements are true of your family and which are false. Make all your marks on the separate answer sheet. If you think the statement is *True* or mostly *True* of your family, make an X in the box labeled T (true). If you think the statement is *False* or mostly *False* of your family, make an X in the box labeled F (false).

You may feel that some of the statements are true for some family members and false for others. Mark T if the statement is *true* for most members. Mark F if the statement is *false* for most members. If the members are evenly divided, decide what is the stronger overall impression and answer accordingly.

Remember, we would like to know what your family seems like to *you*. So *do not* try to figure out how other members see your family, but *do* give us your general impression of your family for each statement.

Consulting Psychologists Press, Inc.
3803 E. Bayshore Road, Palo Alto, CA 94303

1. Family members really help and support one another.
2. Family members often keep their feelings to themselves.
3. We fight a lot in our family.
4. We don't do things on our own very often in our family.
5. We feel it is important to be the best at whatever you do.
6. We often talk about political and social problems.
7. We spend most weekends and evenings at home.
8. Family members attend church, synagogue, or Sunday School fairly often.
9. Activities in our family are pretty carefully planned.
10. Family members are rarely ordered around.
11. We often seem to be killing time at home.
12. We say anything we want to around home.
13. Family members rarely become openly angry.
14. In our family, we are strongly encouraged to be independent.
15. Getting ahead in life is very important in our family.
16. We rarely go to lectures, plays or concerts.
17. Friends often come over for dinner or to visit.
18. We don't say prayers in our family.
19. We are generally very neat and orderly.
20. There are very few rules to follow in our family.
21. We put a lot of energy into what we do at home.
22. It's hard to "blow off steam" at home without upsetting somebody.
23. Family members sometimes get so angry they throw things.
24. We think things out for ourselves in our family.
25. How much money a person makes is not very important to us.
26. Learning about new and different things is very important in our family.
27. Noboby in our family is active in sports, Little League, bowling, etc.
28. We often talk about the religious meaning of Christmas, Passover, or other holidays.
29. It's often hard to find things when you need them in our household.
30. There is one family member who makes most of the decisions.
31. There is a feeling of togetherness in our family.
32. We tell each other about our personal problems.
33. Family members hardly ever lose their tempers.
34. We come and go as we want to in our family.
35. We believe in competition and "may the best man win."

36. We are not that interested in cultural activities.
37. We often go to movies, sports events, camping, etc.
38. We don't believe in heaven or hell.
39. Being on time is very important in our family.
40. There are set ways of doing things at home.
41. We rarely volunteer when something has to be done at home.
42. If we feel like doing something on the spur of the moment we often just pick up and go.
43. Family members often criticize each other.
44. There is very little privacy in our family.
45. We always strive to do things just a little better the next time.
46. We rarely have intellectual discussions.
47. Everyone in our family has a hobby or two.
48. Family members have strict ideas about what is right and wrong.
49. People change their minds often in our family.
50. There is a strong emphasis on following rules in our family.
51. Family members really back each other up.
52. Someone usually gets upset if you complain in our family.
53. Family members sometimes hit each other.
54. Family members almost always rely on themselves when a problem comes up.
55. Family members rarely worry about job promotions, school grades, etc.
56. Someone in our family plays a musical instrument.
57. Family members are not very involved in recreational activities outside work or school.
58. We believe there are some things you just have to take on faith.
59. Family members make sure their rooms are neat.
60. Everyone has an equal say in family decisions.
61. There is very little group spirit in our family.
62. Money and paying bills is openly talked about in our family.
63. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.
64. Family members strongly encourage each other to stand up for their rights.
65. In our family, we don't try that hard to succeed.
66. Family members often go to the library.
67. Family members sometimes attend courses or take lessons for some hobby or interest (outside of school).

68. In our family each person has different ideas about what is right and wrong.
69. Each person's duties are clearly defined in our family.
70. We can do whatever we want to in our family.
71. We really get along well with each other.
72. We are usually careful about what we say to each other.
73. Family members often try to one-up or out-do each other.
74. It's hard to be by yourself without hurting someone's feelings in our household.
75. "Work before play" is the rule in our family.
76. Watching T.V. is more important than reading in our family.
77. Family members go out a lot.
78. The Bible is a very important book in our home.
79. Money is not handled very carefully in our family.
80. Rules are pretty inflexible in our household.
81. There is plenty of time and attention for everyone in our family.
82. There are a lot of spontaneous discussions in our family.
83. In our family, we believe you don't ever get anywhere by raising your voice.
84. We are not really encouraged to speak up for ourselves in our family.
85. Family members are often compared with others as to how well they are doing at work or school.
86. Family members really like music, art and literature.
87. Our main form of entertainment is watching T.V. or listening to the radio.
88. Family members believe that if you sin you will be punished.
89. Dishes are usually done immediately after eating.
90. You can't get away with much in our family.

APPENDIX C

GYMNAST FAMILY ENVIRONMENT QUESTIONNAIRE

Gymnastic Family Environment Questionnaire

(Athlete Questionnaire)

General Directions: This questionnaire, as well as the Family Environment Scale (Moos & Moos, 1991) has been designed to reflect the environment in which you grew up. There are no right or wrong answers, so please respond as honestly as you can. Please fill out the informed consent form and if under the age of 18, the assent form. All responses will be kept confidential.

The answers are either fill in the blank, or circle the appropriate response. Please feel free to add any comments where you feel it is necessary or the appropriate answer does not appear.

Background information:

1. Designate a NUMBER identifying you and your family_____

2. Age: _____ 3. Height: _____ 4. Weight: _____

5. City and State in which you reside? _____

6. What is your marital status?

   a). Single

   b). Married

   c). Divorced

   d). Widowed

7. What is your father's occupation? _____

8. What is your mother's occupation? _____

9. What is/was your highest level of education?

   a). 9^{th} grade d). 12^{th} grade g). Technical school

b). 10th grade e). University

c). 11th grade f). Graduate school

10. What is/was you grade point average based on a 4.0 scale or upon completion of high school? _____

11. What number child were you born?

a). 1st born e). 5th born

b). 2nd born f). 6th born

c). 3rd born g). 7th born

d). 4th born h). 8th born

12. How many brothers do you have? _____

13. How many sisters do you have? _____

14. How many older brothers do you have? _____

15. How many older sisters do you have? _____

16. How many younger brothers do you have? _____

17. How many younger sisters do you have? _____

18. Indicate if other family members participate (d) in gymnastics.

a). Older brother e). Cousins

b). Younger brother f). Mother

c). Older sister g). Father

d). Younger sister h) other_____

19. At what level do/did your siblings participate?

a). 1 d). 4 g). 7 j). 10 m). College

b). 2 e). 5 h). 8 k). Elite n). High school

c). 3 f). 6 I). 9 l). National team

20. At what age did you begin participating in gymnastics?

21. Who first introduced you to the sport of gymnastics?

a). Mother d). Brother g). Friend

b). Father e). Relative (Specify) _____

c). Sister f). Teacher

22. What other sports do you participate in? Please list_____

23. Do you live at home if currently competing, or did you live at home while you were competing?

a). Yes b). No

24. If you did not or do not live at home, at what age did you leave home?

_____

25. What was the reason that you left home?_____

26. Who was the most influential person in your life and what was his/her occupation?

_____

27. How many coaches have you had in your career? _____

28. If you changed coaches who made the decision? _____

29. Was your mother or father more influential in introducing you to your sport?

a). Mother b). Father

30. Are you closer to our mother, father, stepmother or stepfather?

a). Mother c). Step-mother

b). Father d). Step-father

31. Which best describes your family's constellation (make up)?

a). Intact d). Living with mother only

b). Divorced but remarried e). Living with father only

c). Divorced but not remarried

32. How influential were your coach(es) in your life?

a). Not at all d). Very much

b). Marginally e). Extremely

c). Somewhat

33. Who has been most responsible for transportation to and from practices and meets?

a). Mother d). Friend

b). Father e). Self

c). Coach f). Other

34. What hand do you write with and perform most daily tasks?

a). Right b). Left

35. Have you ever been diagnosed as having an eating disorder?

a). Yes b). No c). Unknown

36. Do you feel that you have an eating disorder problem?

a). Yes b). No c). Unknown

37. What was our highest level of gymnastic competition?

a). Elite b). Level 10 c). Member of National team

APPENDIX D

PARENT FAMILY ENVIRONMENT QUESTIONNAIRE

Parent Family Environment Questionnaire

(Parent Questionnaire)

General Directions: This questionnaire, as well as the Family Environment Scale (Moos, 1981) has been designed to assess the environment in which your gymnast has grown up. There are no right or wrong answers so please respond as honestly as possible. All responses will be kept confidential.

Some answers are multiple choice, fill in the blank, while others are simply yes or no. Please circle the appropriate response and feel free to fill in additional responses where you feel it necessary. This questionnaire should be filled out by both of the parents if possible.

1. Designate a NUMBER that will be used by both you and your gymnast_____

   The numbers for the entire family should be the same for comparative purposes.

2. Age at the time of your gymnast's competitive years_____
3. Your weight at the time of HER competitive years_____
4. City and state in which you reside? _____
5. What is your profession? _____
6. What is your spouse's profession? _____
7. Would you classify your combined household income as?

   a). 7,000-12,000 d). 41,000-60,000

   b). 13,000-20,000 e). 61,000-80,000

   c). 21,000-40,000 f). >81,000

8. How old were you when your first child was born? _____

9. What age were you when your gymnast daughter was born? _____

10. How many children reside in your household? _____

11. What are the ages and sex of each child?

Boy_____age_____ Girl_____age_____

Boy_____age_____ Girl_____age_____

Boy_____age_____ Girl_____age_____

12. What is/was your marital status at the time your daughter participated?

a). Married c). Divorced, remarried

b). Divorced, nonremarried d). Separated

13. If divorced, what age was the gymnast when this occurred? _____

14. How involved would you say you are/were in your child's sport?

a). Not involved d). Usually involved

b). Occasionally involved e). Very involved

c). Somewhat involved f). Extremely involved

15. How many brothers and sisters do you have? _____

16. What are there sexes and ages?

Male_____age_____ Female_____age_____

Male_____age_____ Female_____age_____

Male_____age_____ Female_____age_____

17. What number child were you born?

a). 1st d). 4th g). 7th

b). 2nd e). 5th h). 8th

c). 3rd f). 6th I). 9th

18. How involved are or were you in officiating or administration for your child's club?

    a). Not at all
    b). Occasionally involved
    c). Involved Weekly
    d). Moderately
    e). Very involved
    f). Ran the program

19. What level athlete were you?

    a). None
    b). Novice
    c). Advanced Beginner
    d). Intermediate
    e). Advanced
    f). Elite

20. What was your primary sport? _____

21. What is your level of sport/exercise participation currently?

    a). Not at all
    b). Occasionally
    c). 1 X month
    d). 2 X a month
    e). Weekly
    f). Daily

22. Who was responsible for discipline in your home with the gymnast was young?

    a). Mother
    b). Father
    c). Both
    d) Neither
    e). Other_____
    Explain_____

23. Who was the most influential person in YOUR life?

    a). Mother
    b). Father
    c). Coach
    d). Friend
    e). Clergy
    f). Other_____

24. In your opinion, who had the most influence on your daughter's gymnastic career?

    a). Mother
    d). Friend

b). Father e). Clergy

c). Coach f). Other_____

25. Did you feel that motivation was ever a problem for your gymnast?

a). Yes b). No c). Unknown

26. How did you motivate her?

_____

_____

_____

_____

27. If there are any other additional comments or circumstances you would like to make concerning your family environment please feel free to add them here.

_____

_____

_____

_____

28. Would you like a to receive a copy of the results of this study?

a). yes b). no

APPENDIX E

RAW SCORE TO STANDARD SCORE CONVERSION TABLES

Table 5

Family Environment Scale – Form R Raw Score to Standard Score Conversion Table

Raw Score	Coh	Exp	Conf	Ind	Ach
9.0	65	71	80	69	72
8.5	62	68	78	65	69
8.0	59	65	75	61	66
7.5	55	62	73	57	63
7.0	52	59	70	53	59
6.5	48	56	67	49	56
6.0	45	53	65	45	53
5.5	42	50	62	41	50
5.0	38	47	60	37	47
4.5	35	44	57	33	44
4.0	31	40	54	29	41
3.5	28	37	52	25	38
3.0	25	34	49	21	35
2.5	21	31	46	17	32
2.0	18	28	44	13	29
1.5	14	25	41	9	25
1.0	11	22	39	5	22
0.5	8	19	36	1	19
0.0	4	16	33	-	16

Table 5 (cont.)

Family Environment Scale – Form R Raw Score to Standard Score Conversion Table

Raw Score	Int	Act	Mor	Org	Con
9.0	69	69	71	69	76
8.5	66	66	68	66	73
8.0	63	64	66	63	70
7.5	61	61	64	61	68
7.0	58	59	61	58	65
6.5	55	56	59	55	62
6.0	52	53	56	53	59
5.5	50	51	54	50	57
5.0	47	48	51	48	54
4.5	44	46	49	45	51
4.0	41	43	46	42	49
3.5	39	41	44	40	46
3.0	36	38	41	37	43
2.5	33	36	39	34	40
2.0	30	33	36	32	38
1.5	28	30	34	29	35
1.0	25	28	32	26	32
0.5	22	25	29	24	30
0.0	19	23	27	21	27

Note. Cohesion (Coh), Expressiveness (Exp), Conflict (Conf), Independence (Ind), Achievement Orientation (Ach), Intellectual-Cultural Orientation (Int), Active-Recreational (Act), Moral Religious (Mor), Organization (Org), and Control (Cont) Subscales on FES.

APPENDIX F

DESCRIPTIVE AND INFERENTIAL SUMMARIES

Table 6

Means, Standard Deviations, and Effects of Team Designation on Family Cohesion as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	7.11	1.83	6.44	2.70	7.75	1.58	0.811	0.457	.066
Mother	7.33	1.94	7.89	1.45	8.25	1.04	0.772	0.474	.063
Father	7.33	1.87	8.13	1.13	7.88	1.25	0.647	0.533	.056

Table 7

Means, Standard Deviations, and Effects of Team Designation on Family Expressiveness as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	4.56[a]	1.59	6.56	1.67	7.00	1.93	4.996	0.016	.302
Mother	6.44	1.74	7.11	1.54	6.50	1.31	0.507	0.609	.042
Father	4.89[b]	1.45	7.13	1.25	6.50	2.45	3.607	0.044	.247

[a] Level 10 differs from elite and national
[b] Level 10 differs from elite

Table 8

Means, Standard Deviations, and Effects of Team Designation on Family Conflict as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	2.44	2.24	2.11	1.69	1.75	1.28	0.315	0.733	.027
Mother	2.56	2.55	2.22	1.79	2.87	1.36	0.229	0.797	.020
Father	2.56	2.51	2.50	1.60	3.00	2.00	0.139	0.871	.012

Table 9

Means, Standard Deviations, and Effects of Team Designation on Family Independence as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	6.89	0.60	6.67	1.50	6.50	1.41	0.214	0.809	.018
Mother	7.11	1.60	7.00	1.00	7.50	1.20	0.323	0.727	.027
Father	7.44	1.59	6.75	0.89	7.75	1.49	1.125	0.342	.093

Table 10

Means, Standard Deviations, and Effects of Team Designation on Family Achievement Orientation as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	6.44	1.13	5.44	1.88	5.13	1.13	1.997	0.159	.148
Mother	6.67	0.71	5.44[a]	1.13	5.88	0.64	4.643	0.020	.288
Father	6.67	0.87	4.75[b]	1.39	6.50	1.20	6.898	0.005	.385

[a] Elite differs from level 10

[b] Elite differs from level 10 and national team

Table 11

Means, Standard Deviations, and Effects of Team Designation on Family Intellectual Cultural Orientation as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	4.44	1.88	5.78	1.20	4.75	1.98	1.497	0.246	.115
Mother	5.33	2.50	6.56	1.13	5.75	1.83	0.952	0.401	.076
Father	4.56	1.94	6.50[a]	0.93	5.25	1.58	3.333	0.054	.233

[a] Elite differs from level 10

Table 12

Means, Standard Deviations, and Effects of Team Designation on Family Active Recreational Orientation as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	6.22	1.72	6.22	0.97	6.25	2.12	0.001	0.999	.000
Mother	7.11	1.36	6.44	1.81	6.25	2.19	0.772	0.474	.045
Father	5.56	1.67	6.00	1.51	5.88	2.17	0.647	0.533	.013

Table 13

Means, Standard Deviations, and Effects of Team Designation on Family Moral Religious Orientation as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	5.33	1.94	5.22	3.19	4.38	2.45	0.342	0.714	.029
Mother	6.00	2.12	5.56	2.35	5.25	2.76	0.209	0.813	.018
Father	5.33	2.35	5.38	2.20	4.00	2.39	0.930	0.410	.078

Table 14

Means, Standard Deviations, and Effects of Team Designation on Family Organization as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	2.24	0.88	4.56	2.24	4.63	2.33	3.109	0.064	.213
Mother	6.11	1.83	3.89	2.62	5.50	1.51	2.776	0.080	.194
Father	6.56	1.51	3.75	2.87	5.75	1.49	4.194	0.029	.276

Table 15

Means, Standard Deviations, and Effects of Team Designation on Family Control as Perceived by the Gymnast, Mother, and Father

Family	Level 10		Elite		National		ANOVA Summary		
Member	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2,23)	*sig.*	eta^2
Athlete	2.06	2.03	4.00[a]	2.06	2.38	1.06	4.905	0.017	.299
Mother	4.44	2.24	4.67	1.80	3.38	1.30	1.169	0.328	.092
Father	5.00	1.80	4.88	1.64	3.38	2.13	1.922	0.170	.142

[a] Elite differs from level 10 and national team

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