ABSTRACT

Gore, Diana Henderson. Factors That Contribute to Talent Development in Elite Female Track and Field Athletes. (Under the direction of Dr. Laura Burton).

Women’s involvement in sport has skyrocketed over the past thirty years, and the number of competitive elite female athletes is on the rise. Between 1972 and 1992, women’s participation in the Olympic Games increased by 130 percent. The number of team sports offered for collegiate athletes has increased from slightly over 2 per school in 1972 to 8.32 teams in 2004. With this increase in the number of elite female athletes participating in sports it is important to explore what factors contribute to their talent development. The purpose of this study was to investigate the four factors of lived body, lived time, lived space and lived relations further by developing and administering a survey to elite female track and field athletes at the collegiate level. The study sought to reach a better understanding of how outside commitments, access to particular services/facilities and teammate roles affect athletic talent development.

The survey instrument was drafted based on the conceptual foundations established in Burton’s (2002) qualitative research, current literature on the topic and consultation of experts in the field. The survey instrument was tested for validity and reliability using a sample population of track and field athletes. The refined survey was distributed to elite female track and field athletes at twenty-six of the top Division I track and field programs. An elite level was assigned to each participant based on her track and field achievements.

Based on the elite female track and field population in this sample, outside commitments do not have an effect on the athletes’ development or performance. Access to facilities and services was important to all the athletes, regardless of elite level.
Teammates were viewed as supporters, motivators and training partners by the athlete at all three elite levels, with the role of training partner considered to be the most important role. The small sample size made it difficult to complete in-depth statistical analysis.
FACTORS THAT CONTRIBUTE TO TALENT DEVELOPMENT IN ELITE FEMALE TRACK AND FIELD ATHLETES

by

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A thesis submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the Degree of Master of Science

PARKS, RECREATION AND TOURISM MANAGEMENT

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Approved by:

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Chair of Advisory Committee
BIOGRAPHY

Diana Henderson Gore is a native of Hendersonville, North Carolina. She resided there in the beautiful mountains of Western North Carolina for the first 18 years of her life. In 1999 Raleigh became her home as she began her college academic and athletic career at North Carolina State University. She was a member of the NC State cross country and track and field teams for four years. It was through her athletic endeavors that she met her husband, Jason Gore a former NC State wrestler and a NC State graduate as well.

Her undergraduate interest was in public relations as well as business. In December of 2002 she received her Bachelor of Arts in Communication with a concentration in Public Relations, graduating Summa Cum Laude. She also received a minor in Business Management. Diana’s interest in Sports Marketing/Public Relations is what led her to investigate the possibility of attending graduate school.

In January of 2003 she began the pursuit for her Master’s degree in the department of Parks, Recreation and Tourism Management concentrating in Sport Management. Through a research assistantship she worked on several projects in the sports field, including market research for the Charlotte Sting as well as survey development for the instrument used in this research.
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Introduction

Women’s involvement in sport has skyrocketed over the past thirty years. Today women participate in sport for a variety of reasons ranging from the health benefits sports offer, to the entertainment and recreational aspect of sport, as well as an interest in the competitive nature of sport. The number of competitive, elite female athletes is on the rise. For example, between 1972 and 1992, women’s participation in the Olympic Games increased by 130 percent (Russell, 1996). In the 1900 Olympics women competed in only two sports and three events. By the 2000 Sydney Olympics women competed in 25 sports and 132 events, amounting to 38.2 percent of the total number of athletes (International Olympic Committee, 2001). In 1970 there was an average of 2.5 varsity women’s intercollegiate NCAA teams per university. Thirty-four years later, the average number of women’s teams has more than tripled to 8.32 (Acosta & Carpenter, 2004).

With an increase in the number of elite female athletes participating in sports it is important to explore what factors contribute to their talent development. Why do particular female track and field athletes reach the elite level? Do differences exist in how these females reached the elite level? Are there particular factors that appear to make a greater impact on one’s likelihood to reach the elite level? As a former collegiate track and field athlete the author is particularly interested in talent development of female athletes, and the various factors that contribute to a woman’s ability to reach the elite level. The author believes there is a void in the research concerning many of the factors that contribute to talent development in women’s athletics. Several of the most current studies have examined Olympic athletes and the variables these athletes believe have contributed to their success (Durand-Bush & Salmela, 2002; Gould, Greenleaf, Chung, &
Guinan, 2002; Gould, Guinan, Greenleaf, Medbery, & Peterson, 1999). It is difficult to take the results from these studies and apply them to the collegiate track and field population because the results of these studies are based exclusively on Olympians.

A significant portion of the current research has examined the influence of family and coach (Colley, Elington, & Elliot, 1992; Cote, 1999; Vealey, Armstrong, Comar, & Greenleaf, 1998), the importance of peak performance (Garfield & Bennett, 1984; Privette, 1982; Privette, 1983; Williams & Krane, 1998), and the effects of overtraining and burnout (Levin, 1991; Radeke, Lunney, & Venables, 2002; Udry, Gould, Bridges, & Tuffey, 1997). Although much of the research does examine the influence of family and coach, few researchers have looked at the role teammates play in an athlete’s talent development. There is little research on the effect that outside commitments such as work, social activities and campus organizations may have on athletic performance.

Another area that has received little attention is the contribution particular facilities and services, such as access to a track, weight room, training room, academic, and nutritional services make to talent development. As researchers continue to discover more about female athlete’s talent development and the factors that contribute to talent development of this specific population, women will gain greater opportunity to further their talent.

Through qualitative research, Burton (2002) explored four factors that contribute to the talent development of elite female athletes. In her research Burton grouped a variety of variables into four factors; lived body, lived time, lived space and lived relations. In her interviews with eight former female Olympians, Burton (2002) examined how these women’s life experiences contributed to their talent development as athletes. Many of the women dealt with issues surrounding the body such as injury, body
perception, and the connection between the mind and body. Burton (2002) also discussed how time was seen as a critical component to the talent development of these women. One’s opportunity to compete and succeed at the elite level is influenced by age and the expectation for peak performances at certain times in one’s career. Access to space to develop their talent was important to these female Olympians. Physical space to train with proper facilities and equipment was essential to their talent development but several of these women also discussed the importance of a space where they could focus completely on their training without outside distractions such as family and/or career obligations. Finally, Burton (2002) explored how these women’s relationships with families, coaches, and their sports affected the development of their talent.

Purpose of the Research

The purpose of this study was to investigate the four factors of lived body, lived time, lived space and lived relations further by developing and administering a survey in order to develop a quantitative analysis of these factors and their contribution to elite female athletes’ talent development. This study seeks to reach a better understanding of how outside commitments (lived time), access to particular services/facilities (lived space), and teammates (lived relations) affect athletic development. This knowledge was gained through surveying a group of elite female track and field athletes from NCAA Division I schools across the country. The three research questions examined in this study relate to the three factors; lived time, lived space and lived relations discussed above.
Research Questions

The research questions for this study were developed based on a review of current literature and the three factors of lived time, lived space and lived relations developed by Burton (2002). All three research questions pertain to female track and field athletes at the college level.

1.) How do outside commitments, such as work, social activities and campus organizations impact athletic performance?

2.) Do particular services/facilities appear to be more important to athletic development and performance?

3.) Which role(s) of a teammate are most important to athletic talent development and performance?

Note: An elite composite score measures the athlete’s level of athletic performance. The elite composite score separates the study participants into three groups; high, mid, and low elite level.

Hypotheses

Null Hypothesis # 1 – Impact of outside commitments

Outside commitments will have no affect on performance and will not be seen as a hindrance to talent development. Outside commitments will not be regarded as less important than the athletes’ sport. The track and field athletes in the high elite composite score group will not have the least amount of outside commitments and will not agree most strongly that their sport is more important than other outside commitments.
**Hypothesis # 1 – Impact of outside commitments**

Outside commitments will have a negative affect on performance and will be seen as a hindrance to talent development. Outside commitments will be regarded as less important than the athletes’ sport. The track and field athletes in the high elite composite score group will have the least amount of outside commitments and will agree most strongly that their sport is more important than other outside commitments.

**Null Hypothesis # 2 – Importance of services and/or facilities**

Access to essential facilities, a track and weight room, will not be seen as more important to athletic talent development. The high elite athletes’ response that access to a track and weight room is important will not be stronger than the mid or low group’s response in regards to the importance of access to a track and weight room. Out of the three groups, the high group will not assign the lowest level of importance to access to academic services and nutritional services.

**Hypothesis # 2 – Importance of services and/or facilities**

Access to essential facilities, a track and weight room, will be seen as more important to athletic talent development. The high elite athletes’ response that access to a track and weight room is important will be stronger than the mid or low group’s response in regards to the importance of access to a track and weight room. Out of the three groups, the high group will assign the lowest level of importance to access to academic services and nutritional services.
Null Hypothesis #3 – Teammate roles

Athletes at the high elite level will not regard their teammate’s role to be mainly that of a training partner. Athletes at the mid and low elite levels will regard teammates as neither training partners, supporters nor motivators.

Hypothesis #3 – Teammate roles

Athletes at the high elite level will regard their teammate’s role to be mainly that of a training partner. Athletes at the mid and low elite levels will regard teammates as not only training partners but as supporters and motivators as well.

Definition of Terms

Listed below are terms used in this study.

Elite: As defined specifically for this study, any female track and field athlete at a participating Division I institution that has earned All-Conference, All-District/Region, and/or All-American status at some point thus far in her collegiate career.

Lived Body: Relating to female athletes’ perception of body, development of body and training of body.

Lived Time: Relating to time constraints a female athlete must face and the manipulation of time in order to peak at the optimal time.

Lived Space: Relating to female athletes access to equipment, facilities and services needed for talent development.

Lived Relations: Relating to the importance of the various relationships female athletes have and how these relationships contribute to talent development.

Burnout: A syndrome of physical/emotional exhaustion, sport devaluation and reduced athletic accomplishment (Raedeke et al., 2002, p.183).

Limitations

The study was limited to twenty-six Division I track and field programs. The programs were selected because they were considered one of the top thirty women’s track and field or cross-country programs in the country according to a 2002-2003 poll found on the National Collegiate Athletic Association website (www.ncaa.com). Several of the top programs in the country were not participants in the study because of the researcher’s inability to contact the coach.

The athletes who participated in the survey were chosen based on their college track and field performance to date. In order to be classified as elite for the purposes of this survey the athlete must have attained All-Conference, All-District/Region, and/or All-American honors at some point in their collegiate career. This stipulation eliminates most female track and field athletes who were freshman.

The Institutional Review Board (IRB) created an additional limitation in this study. The IRB required that the survey be voluntary, thus the coach could not directly administer the survey. The coach could pass out the survey to his/her athletes but it was then up to the individual athlete to complete the survey and return it. This limitation may explain the fairly low response rate.
Literature Review

Background

Psychologists and sociologists have studied talent development extensively but only a modest amount of research has examined talent development as it applies to the arena of sport. There appears to be an even greater void in research that examines female athletic talent development. A better understanding of the specific factors that contribute to talent development in elite female athletes may result in talent development models that could be applied directly to female athletes, rather than having to adjust current talent development models to make them applicable in the arena of sport.

Unique characteristics exist within talent development of female athletes. Women who have achieved elite status as athletes attribute their success to particular factors (Burton, 2002; Durand-Bush & Salmela, 2002; Gould et al., 1999; Gould et al., 2002). Burton (2002) through qualitative research approach, explored four factors that contributed to talent development of eight former U.S. female Olympians. These factors are lived body, lived time, lived space and lived relations. This study focuses on examining the four factors stated above. This review of related literature included discussion of the history of women in sport and the literature related to the factors of lived body, lived time, lived space and lived relations.

History of Women in Sport

Society has witnessed a drastic change in the sport world over the past one hundred years. In the early 1900’s sport activities were intended to be enjoyed exclusively by men. Women made their first appearance in the Paris Olympic Games in
1900. However, they were only allowed to participate in two sports, tennis and golf (International Olympic Committee, 2001; British Olympic Association, 2004). Some women enjoyed a brief acceptance of their participation in certain sports during the early 1920’s because of the introduction of bloomers that made movement easier while still keeping the skin covered. In 1926 American swimmer Gertrude Ederle became the first woman to swim across the English Channel in a time nearly two hours faster than any man had ever achieved (International Olympic Committee, 2001). In the late twenties and early thirties vigorous activities for women were once again truncated. Sport programs for girls and women were viewed as inappropriate (Moyer, 1975).

World War II brought about great changes for American women on the home front. “They diverged from many norms and stepped into important roles vacated by men. Women began working in industrial jobs, wore pants, developed muscles, and began participating in more sports” (Festle, 1996, p. 3). Professional team sports for women were first developed during World War II. The All-American Girls Baseball League was founded in 1943. The league was successful for a decade, but folded in 1954 because of financial problems (Widenhaus, 1995). Following World War II, a large propaganda campaign advocated the return of the traditional idea of middle-class women being housewives. Sports in the 1950s were associated with masculinity and thus were thought to masculinize females (Festle, 1996). Women began to see changes in certain sports that appeared to be ladylike, displaying grace and beauty, such as tennis, swimming and golf. However, women remained excluded from many other sports that included physical contact between the players or major physical exertion (Festle, 1996).
For example, the longest running race for women at the 1968 Olympics was the 800 meters (Hertz, 2000).

The civil rights movement during the mid-1960s opened the door for women to criticize how they were restricted by the assumed female gender role. Women began challenging discrimination in sports and were on a quest for equality (Festle, 1996). In the early seventies views shifted from conservative in regards to women and their participation in athletics, toward increasing opportunities for women’s participation in sport (Moyer, 1975). Much of the change can be attributed to President Nixon’s signing of the Education Amendments Act, a provision known as Title IX in 1972. This act called for equality in all areas of education, including athletic participation. Female participation in sport increased dramatically, more than doubling from 300,000 in 1970 to 800,000 in 1972 (Widenhaus, 1995).

Between 1972 and 1992, women’s participation in the Olympic Games increased by 130 percent (Russell, 1996). In 1991, the International Olympic Committee ruled that any new sport included in the Olympic Games had to include both men’s and women’s events (International Olympic Committee, 2001). By 1990, 1.84 million females participated in high school sports (Widenhaus, 1995). According to Acosta and Carpenter’s longitudinal study concerning women in intercollegiate sport, the number of team sports offered for female collegiate athletes increased from slightly over 2 per school in 1972 to 8.32 teams in 2004. In the past six years, 1155 new women’s teams have been added to athletic departments in the nation’s NCAA universities (Acosta & Carpenter, 2004). Women’s sports have gained attention, popularity and media coverage.
The increased interest in women’s sports has led to the development of a rapidly growing number of elite female athletes.

As more women gain the freedom to participate in sport, it is natural that more women will have the opportunity to become elite athletes. It is imperative to explore the factors that previous researchers as well as elite female athletes feel contribute to a woman’s ability to reach the elite level. In the remaining portion of the literature review, the four factors that Burton (2002) investigated through her qualitative research on eight former U.S. female Olympians will be examined in detail. These factors are lived body, lived time, lived space, and lived relations. Numerous researchers have studied and written literature that contributes to a better understanding of the factors. The majority of the literature reviewed has been published in the past ten years and thus is current and relevant to this study.

Discussion of the Four Factors

Lived Body

Lived body is an important factor to examine because of the enormous contribution that the body makes to achieving talent development. In elite female athletes, talent is revealed through the use of their bodies. Perception of body, development of body, training of body, and injury are all inter-related in their contribution to talent development (Durand-Bush & Salmela, 2002; Greenleaf, 2002; Kolnes, 1995; Lanese, Strauss, Leizman, & Rotondi, 1990; Widenhaus, 1995).

Many elite female athletes struggle with issues that revolve around body perception. Unfortunately, appearance continues to play a major role in women’s athletics. Society defines what is acceptable body composition and what is not
acceptable body composition for women in sport based on a masculine hegemonic influence that exists in sport (Theberger, 2002). Elite female athletes feel that they must satisfy certain expectations, and should appear neither too feminine nor too masculine. Many female athletes struggle to find acceptance because of their muscular bodies. In order to be successful at the elite level, strength is a necessity, and muscle development coincides with strength development (Kolnes, 1995). There is “pressure to meet cultural body ideals while also possessing qualities beneficial to successfully completing physically demanding tasks associated with sports” (Greenleaf, 2002, p. 64).

Female track and field athlete’s body perception varies depending on the event the athlete participates in. Some athletes struggle with the perception that being thinner will result in faster times. This tends to be the case most often with distance runners. The perception that smaller is better leads many women to take extreme measures and eating disorders are often developed (Widenhaus, 1995). Sprinters and jumpers, on the other hand, struggle with how to balance larger than “normal” amounts of muscle mass while maintaining a feminine appeal. Body perception does indeed play a role in the athlete’s desire to be successful yet not lose touch with their femininity at the elite level. One poignant example was Florence Griffith-Joyner, known as Flo-Jo. This Olympic track star’s musculature was a challenge to the dominant image of femininity. Yet, she was able to maintain her feminine image through her long nails and flowing hair (Dworkin & Messner, 2002). An athlete’s body perception plays a role in how she goes about developing and training her body in order to be successful at the elite level. Athletes concerned with increased amounts of muscle may tend to spend less time weight training.
If an athlete believes that more muscle makes her stronger and faster, then weight training will be a routine part of her training regimen.

Development of the body at the elite level entails strict training regimens. Training activities include both physical and mental components. “Mind and body cannot be separated” (Williams & Krane, 1998, p.158). At the elite level, practice sessions are more intense and involve great physical stamina and mental strength. Mental training is taken seriously at the elite level (Durand-Bush & Salmela, 2002). Most athletes and coaches attribute between 40 to 90 percent of success in sport to mental factors (Williams & Krane, 1998). Many elite athletes seek mental training and counseling. They believe that the mental training enables them to be better prepared for competitions. “Certain mental skills and psychological attributes have been associated with superior athletic performance” (Gould et al., 1999, p. 372).

Common types of mental preparation practiced include imagery/visualization, goal setting, and self-talk (Thiese & Huddleston, 1999). Athletes noted the ability to focus attention and control of performance imagery and anxiety as key mental readiness factors. Elite athletes considered mental readiness a key factor that influenced exceptional performance (Gould et al., 1999). In fact, in Orlick and Partington’s study (1988), the physical, technical, and mental readiness of Olympic athletes was evaluated and only mental readiness was found to be a significant predictor of Olympic success. Orlick and Partington (1988) discovered that many of the Olympic athletes in their study attributed their success to high quality training that included daily goal setting, imagery training, and attentional focus strategies.
Confidence was found to have a major effect on performance. Gould et al. (2002) examined variables that Atlanta and Nagano Olympians believed influenced their performance. Despite physical and mental preparation, this study found that injury could affect athletes’ ability to perform at a high level.

Injury is defined as a “traumatic medical problem due to sports participation and resulting in loss of time from practice or competition” (Lanese et al., 1990, p. 1459). Injury is a source of stress and frustration for athletes at any level, but is especially taxing at the elite level. Overtraining often results in injury. Levin’s (1991) discussed the various problems that overtraining causes. A decline in performance, chronic fatigue, injury and illness can all be results of overtraining. Athletes at the elite level have fine-tuned their bodies and minds in order to perform at a high level. Injury, seen as devastating to some, is seen as a challenge or obstacle by others. Some athletes participate through their injury and seek treatment once the competition is over. “Injury and pain are not an excuse for less-than-full effort or best performance” according to some female athletes (Theberger, 2002, p. 311). Other athletes are forced to take time off in order for their bodies to recover and heal from their injuries.

Athletes appear to have a sense of fear regarding injury. Elite female athletes know the negative consequences of injury and are troubled by what an injury would do to their ability to compete at the elite level (Burton, 2002). There have been conflicting results examining whether gender differences exist in the quantity of injury occurrences. Studies comparing injury rates between the two genders often examine secondary and high school sport injuries (Chandy & Grana, 1985; Shively, Grana, & Ellis, 1981). A study conducted with younger athletes showed slight disparities in the quantity of injuries
between male and female participants, and differences in the type of injuries suffered by each gender (Chandy & Grana, 1985). Few studies have been conducted with men and women whose bodies have matured and who are competing in sports that are technically similar. Lanese et al. (1990) examined men and women involved in the same or similar intercollegiate sports and concluded that only small and inconsistent gender differences existed. Sallis, Jones, Sunshine, Smith, and Simon’s (2001) study reported similar findings, stating that the data they collected from 3,767 collegiate male and female athletes showed little difference in the quantity of injury between men and women competing in comparable sports. Injuries can have varying effects on an elite athlete’s performance, but do play an influencing role on the ability of an athlete to develop her talent.

Lived Time

Lived time is another factor that plays a role in elite female athletic talent development. Women face various time constraints in their lives. An increased amount of time must be dedicated to a sport in order to be successful at the elite level. Training, for many elite athletes becomes a full-time job (Durand-Bush & Salmela, 2002). They focus both time and energy on their training. Women are confronted with other activities that also demand their time; relationships and motherhood are two examples. “Balancing career and family remains a largely female issue” (Noble, Subotnik, & Arnold, 1999, p. 146). Some elite female athletes choose to postpone motherhood in order to be able to commit more time to training and competition (Wheaton & Tomlinson, 2002).

Another aspect of time deals with an athlete’s desire to manipulate their performance in order to peak at the optimal time in their competition schedule. Peak
performances occur when “behavior exceeds one’s average performance” (Privette, 1982, p. 242), or is seen as “an episode of superior functioning” (Privette, 1983, p. 1361). Elite athletes want to have their best performance at particular competitions (Gould et al., 1999, Gould et al., 2002). For some elite female track and field athletes this competition may be the Olympic trials, the Olympics, or the world championships. The majority of elite collegiate track and field athletes aim to peak at NCAA qualifying meets or at the NCAA championships. A peak performance occurring at a particular time can determine whether an athlete indeed reaches elite status. Peak performances (as discussed in the previous section) are a result of both physical and mental factors. Charles Garfield interviewed hundreds of elite athletes in the early 1980’s and identified eight mental and physical conditions that athletes used to describe the moments in which they performed particularly well. These conditions were mentally relaxed, physically relaxed, confident/optimistic, focused on the present, highly energized, extraordinary awareness, in control, and in the cocoon (being completely enveloped in the current moment) (Garfield & Bennett, 1984).

According to Gould et al. (1999), some athletes feel that barriers to their success as an elite athlete usually stem from two issues related to lived time. There is either insufficient time to recover between peak performances, and/or a lack of appropriate taper in training as major competitions neared. Overtraining, training too long and/or too hard, often results in an athlete being unable to perform at the highest level possible at the desired time. Elite athletes must realize and believe in the importance of training smart (proper training) and tapering in order to experience a peak performance at major competitions (Gould et al., 1999; Gould et al., 2002).
A final aspect of lived time looks at the current period in which female athletes are training and competing. As described earlier, women have made major breakthroughs in the sport world over the past century. Elite female athletes who are competing in the 21st century have gained access to much of the sports world and have various opportunities to compete (Hertz, 2000; Russell, 1996; Women’s Sports Foundation, 2003). In 1984 the women’s marathon was added to the Olympic Games. For 88 years it was believed that women could not and should not attempt this long, grueling race. That morning in Los Angeles in 1984, Joan Benoit proved the doubters wrong as she won the gold with ease. There are no longer any distances that women are “unable” to handle. In Sydney’s 2001 Olympics Stacy Dragila won the games first pole-vaulting event (Sullivan, 2001). Female track and field athletes now compete at the same distances and in the same events as their male athlete counterparts (International Olympic Committee, 2001).

Title IX has played a major role in the dramatic change in women’s sports. Since Title IX was passed in 1972 there has been an increase in female participation in sport. The number of collegiate women’s varsity teams grew from a 1972 average of 2.5 to 7.2 by the end of the 1980’s. Today, in 2004, the varsity women’s team per campus average is 8.32 (Acosta & Carpenter, 2004). In 1971 only 1 out of 27 high school girls participated in sports. By 1998 the numbers had drastically changed, 1 in 2.5 high school girls participated in sports (Sullivan, 2001). Title IX also promoted an increase in the funding allotted to female sports. The increase in funding has allowed for facility improvements and expansions in order to allocate the needed space and equipment for
women to not only participate, but to also excel in their sports (Women’s Sports Foundation, 2003; Lopiano, 2003).

*Lived Space*

Space is a necessity for elite female athletes. There is a direct relationship between the available space and the opportunities women have to develop their talents. Having access to adequate equipment and facilities is an important component to success at the elite level (Durand-Bush & Salmela, 2002). Lived space can be defined as the “space where the opportunity to develop talent exists” (Burton, 2002, p. 113).

Traditionally, women have been denied full access to both adequate training facilities and training equipment. Some women’s programs were forced to share facilities and equipment with other women and men’s programs resulting in several problems. Time management of the facility was a major obstacle when deciding practice schedules. This can lead to inconvenient and rushed practice times for athletes (Moyer, 1975). As a result of Title IX, female athletes have seen improvements in their accessibility to facilities and equipment. At large universities, many women on nationally ranked teams are enjoying substantial resources that result in adequate equipment and facilities (Festle, 1996). In 2001, UCLA and Connecticut spent more money on travel for women’s basketball than men’s basketball (Women’s Sports Foundation, 2003). Title IX resulted in some improvements; however inequalities in spending still remain.

Historically, men’s sports have acquired the majority of the monetary resources. The resources spent on sport for females have yet to catch up with the resources spent on sport for males (Priest, 2003). Title IX calls for institutions to provide equal benefits for
male and female athletes in the areas of equipment, uniforms and supplies, locker rooms, and practice and competitive facilities (Lopiano, 2003). According to the 1999-2000 NCAA Gender Equity Report, only 36 percent of college sports operating budgets are allocated to women’s sports (Lopiano, 2003). For every new dollar going into athletics at the Division I and Division II level, male sports receive sixty-five cents while female sports only receive thirty-five cents (Women’s Sports Foundation, 2003). The Women’s Sports Foundation Gender Equity Report Card in 1997 reported that men’s teams spent $255 million more on operating expenses than women’s teams spent. Women’s teams were budgeted $150 million (27%) of the total $555 million in operating expenses, while the men’s teams received $405 million (73%) (Lopiano, 2003). There is a large funding gap, but women’s operating budgets are slowly increasing. In 2001 NCAA Division I institutions spent $20,000 per female athlete, an increase of 18 percent from the 1997 study (Women’s Sports Foundation, 2003).

Some elite female athletes are forced to travel substantial distances in order to have access to a high-quality space to train. Elite female track and field athletes need a high quality rubberized track to train on, as well as access to a weight room and training room. Not having access to needed space can be a barrier to women’s talent development. The availability of actual opportunities is partially dependent on a woman’s actual or perceived distance from the needed resources for talent development to occur (Noble et al., 1999). It is not uncommon for an athlete to move to another city, where they have access to higher quality facilities and coaching in order to train (Durand-Bush & Salmela, 2002).
A woman’s background also affects talent development. The environment from which an elite female athlete emerges could have implications on not only the woman’s opportunities, but her perception of possibilities for achievement as well (Noble et al., 1999). Elite female athletes come from a variety of environments and backgrounds. The context of each woman’s life may play a role in the effect it had on her talent development. One component that affects women’s backgrounds and the spaces from which they emerge is relationships. Women build relationships with certain people throughout their lives and many of these people play key roles in the lives of elite female athletes.

Lived Relations

Lived relations is the final factor that will be examined. The relationships elite female athletes have with families, coaches, teammates, competitors and their sport can all influence their talent development.

Family

Most elite athletes, when asked about those who influenced them along their road to success mention their family (Baker, Horton, Robertson-Wilson, & Wall, 2003; Cote, 1999; Durand-Bush & Salmela, 2002; Gould et al., 1999; Ludwig, 1996). The family is seen as a valuable resource and major support system for elite female athletes (Durand-Bush & Salmela, 2002). The role family support plays in talent development cannot be overlooked. Encouragement and support are important components for female athletes aiming to reach the elite level. It is often through others that women discover the magnitude of their gifts and receive the encouragement needed to fulfill their talents (Noble et al., 1999). This holds true in athletics. Parents play a critical role in fostering
athletic talent. Early recognition of a daughter’s physical skills, active involvement in her athletic participation, and emphasizing self-discipline and autonomy are all ways parents can help promote talent development (Widenhaus, 1995). According to Hellstedt (1987) parent’s involvement in their children’s participation in sport fits on a continuum that goes from under involved, to moderate, to over involved. The moderate level of parental involvement represents parents who maintain the best interest of their children.

It is during the early years of a child’s life that parents play the most eminent role in talent development. Bloom (1985) found that during the early years of a child’s development parents tend to be supportive and encouraging, allowing the child the freedom to decide how much time to dedicate to the sport. Cote’s (1999) study found that from the ages of 6 to 13 it was important that “parents provide opportunities for their children to enjoy sport” (p.401). The main emphasis during this period is to have fun and for the child to enjoy whatever sport(s) they are participating in. During this early period of talent development financial and emotional support for the athlete comes almost exclusively from parents (Bloom, 1985; Cote, 1999).

Parents then foster athletic talent development through the adolescence years. According to Cote (1999), from the ages of 13 to 15 the “athlete makes a commitment to one or two sports” (p. 404). Now that the individual athlete is committed to the sport the parents’ role becomes limited. It is important that the parent make a time commitment to their child and their athletic endeavors (Cote, 1999). Another one of the most important roles of the parent is financial support at this point in the athlete’s career (Bloom, 1985).

Parents’ active involvement in the athletes’ lives appears to decline as athletes reach the elite level. Parents begin to play more of a passive, spectator role at this point
(Durand-Bush & Salmela, 2002). Cote (1999) describes this time as the investment years when the athlete is extremely committed to the sport and they are involved in tremendous amounts of practice. According to Cote’s (1999) study parents are extremely interested in the child’s sport and also help the athlete “deal effectively with injury, fatigue pressure, failures and loss of interest” (p. 410).

Some athletes believe their talent development can be partially attributed to their parents’ positive role modeling. Colley et al., (1992) found that parents were in fact seen as role models particularly for female athletes. The talented individual’s work ethic, dedication, determination, motivation and risk taking are characteristics their parents displayed (Reis, 1995). Parental expectations differ from parental role modeling. According to Eccles and Harold (1991), parental expectations can influence a child’s decision to engage in particular activities, the intensity of their effort and their performance level. A child who knows his/her parent(s) expect him/her to win every race he or she participates in is more likely to practice and compete with a high level of intensity (Eccles & Harold, 1991).

Family composition changes throughout a female athlete’s life. As a child, the family is usually composed of a parent(s) or guardian, and perhaps siblings, but as these women age family composition may change to include a significant other and perhaps children. An athlete’s significant other may play a major support role or may be viewed as a barrier to success. “Elite female athletes report that their spouses often do not provide enough support in the home… Consequently, many elite female athletes choose to delay relationships and childbirth rather than carry these responsibilities alone” (Ludwig, 1999, p.32). Lived relations and lived time are closely related in some cases.
Many elite female athletes face time constraints because of additional relational responsibilities such as a significant other and/or children.

Family and significant other interactions can have an incredibly positive influence on an athlete’s performance. They have the potential to be a strong source of social support for an athlete. However, taxing family and significant other interactions, such as these individuals creating a stressful situation for the athlete to deal with in the midst of a competition (asking for extra tickets for the event or asking numerous questions), can have a detrimental effect on the athlete and can be rather distracting as well (Gould et al., 1999; Gould et al., 2002). It is incorrect to assume that all social ties are positive. Negative social ties can be a stressor and result in frustration (Udry et al., 1997).

Udry et al. (1997) examined the social ties of athletes who were coping with burnout and injury stress. In their study involving athletes who suffered burnout Udry et al. (1997) found that parents could have both a positive and negative influence on the athlete. Examples of positive influence were “demonstrating supportive behaviors and providing a low-stress environment” (p. 376). Examples of negative parental influence were “creating a high-stress environment, lack of player control, and sending damaging/depersonalized self-esteem messages” (p. 375). This study also cited both the positive and negative influence of coaches. Positive coach influences were the athlete’s belief that the coach “provided support, believed in me, empathized, and showed me what to do” (p. 378). Examples of negative coach influence included, “pressure, unrealistic expectations, ideas conflicted with the coach and did not convey belief in me” (p. 377).
Coaches

Strong coaching is essential to the development of elite female athletes. Coaches are relied on for their knowledge, feedback and support. Most athletes develop special relationships with their coaches (Durand-Bush & Salmela, 2002). Trust is essential in the relationship. Success at the elite level is partially contingent on the athlete trusting her coach’s wisdom, insight and experience (Gould et al., 2002). A coach’s lack of experience and understanding of the sport, as well as an inability to handle pressure and distractions all undermine the athlete’s trust in her coach (Giacobbi, Whitney, Roper, & Butryn, 2002; Gould et al., 1999). Coaches can be seen as performers and their performance directly affects their athletes (Gould et al., 1999). Elite athletes desire a coach who will implement a clear performance plan, develop an atmosphere that will cultivate optimal learning, and is committed to helping them succeed (Baker et al., 2003; Gould et al., 2002). Elite athletes also believe it is important for their coach to be able to relate to them on a variety of levels. There are situations in which the coach acts as an advisor, a psychologist, a discipliner, and/or as a friend to his/her athlete. Athletes seek a coach who can adjust to their specific individual needs (Giacobbi et al., 2002). Over coaching and unrealistic expectations by a coach can negatively affect an athlete (Gould et al., 2002).

In 1972, over 90 percent of women’s collegiate coaches were female. However, by 1990 only 47.3 percent of women’s collegiate coaches were female. In 2004 only 44.1 percent of the head coaches for women’s teams were female, the lowest representation in history (Acosta & Carpenter, 2004). In 1992, only 36 percent of coaches of girls’ high school teams were women (Festle, 1996). An increase in women’s
participation in sport has facilitated a need for an increase in coaching staff. The exact reason for the decline in female coaches is unknown. Some researchers attribute the decline to discriminatory recruitment and hiring practices (Acosta & Carpenter, 2004; Widenhaus, 1995). Festle (1996) argues that women’s coaching abilities are not respected. Other reasons cited include a lack of preparation provided to female coaches to address the demanding aspects of collegiate athletics such as media relations, recruitment, and budgeting that arose after Title IX was passed (Festle, 1996). As a result, many females left coaching soon after Title IX’s enactment (Widenhaus, 1995). This change in coaching can also be partially attributed to athletic changes that occurred post Title IX. Prior to Title IX, two athletic departments existed on most college campuses, with one athletic director for males and one director for females. After Title IX the majority of departments merged and most of the athletic directors were male. The former female athletic directors were often demoted to assistant positions (Widenhaus, 1995). In 2004, only 18.5 percent of women’s programs were directed by a female head administrator (Acosta & Carpenter, 2004). Today’s elite females are unlikely to pursue a career in coaching at the collegiate and elite level because there are few role models available to teach and mentor them (Widenhaus, 1995).

Female athletes at the elite level often have several support coaches that aid in specific areas of performance enhancement. Athletes emphasize the importance of strength training coaches, exercise physiologists, nutritionists and massage therapists. These specialized coaches provide information in areas where the head coach does not have extensive knowledge (Durand-Bush & Salmela, 2002). Many athletes seek the help of a sport psychology consultant as well (Gould et al., 1999). Sport psychologists are
helpful in enhancing the mental aspect of talent development. Helping the athlete to use particular psychological skills and mental preparation techniques such as, “maintaining confidence and a positive attitude, and having clearly defined goals” (Williams & Krane, 1998, p.165), appears to aid in the athletes achievement of peak performances. In order to be successful it is important that respect exists between the athlete, coach and support coaching staff.

**Teammates and Competitors**

Another important relationship that exists with elite female athletes is between one elite athlete and another, either teammate and/or competitor. Durand-Bush and Salmela (2002), found that many elite athletes considered athletes with whom they trained and competitors as significant to their talent development. Teammates may also serve roles other than training partners; such as encouragers and motivators for many athletes. Teammates trust one another and count on each other for support. This team support has a positive influence on the athletes (Giacobbi et al., 2002; Gould et al., 1999, Gould et al., 2002). Team cohesion is an important factor in the achievement of success (Durand-Bush & Salmela). This sense of support and cohesion can help prevent athlete burnout (Raedeke et al., 2002).

Relationships with competitors tend to be ones that drive athletes to excel. Competitors’ success motivates elite athletes to train harder, be more focused and try to achieve what their competitor has accomplished. The belief that some competitors take drugs to enhance performance is seen as demoralizing by some athletes while it is a driving force to train even harder for others (Gould et al., 1999).
Burnout

Athletes’ have a unique relationship with their sport. It is one of love, passion, dedication and fulfillment (Burton, 2002). Coaches have indicated that an athlete’s love for and dedication to the game is one of the strongest indicators of the athlete’s success in their sport. The unique love an athlete has for his/her sport motivates him/her to aspire to compete at an elite level (Giacobbi et al., 2002).

Some athletes do reach a point where they no longer love their sport. This is usually referred to as athlete burnout. Burnout is linked to “stress, overtraining, social issues and commitment/social exchange theory variables” (Raedeke et al., 2002, p. 182). Burnout can also be seen as a “syndrome of physical/emotional exhaustion, sport devaluation, and reduced athletic accomplishment” (Raedeke et al., 2002, p.183). It is important to note that a difference exists between athlete burnout and athlete dropout. Dropout is associated with a disinterest in or dissatisfaction with an activity. Burnout is characterized by athletes who were at one point enthusiastic about and committed to their sport. Unfortunately, something changed the love relationship that once existed between the athlete and his/her sport (Raedeke et al., 2002).

Athletes who suffer from burnout psychologically, emotionally and physically withdraw from activities they previously enjoyed (Vealey et al., 1998). Burnout often begins with athletes withdrawing from their training and teammates. Another characteristic of burnout is an athlete’s reduced sense of accomplishment (Vealey et al., 1998; Raedeke et al., 2002). Athletes become frustrated and discouraged, unable to deal with a lack of improvement. This sense of failure can be linked to an athlete’s unrealistic performance expectations. Athletes are driven individuals and this often results in them
setting unrealistic goals. When they are unable to accomplish these goals they become disheartened. The athlete then stops caring about his/her sport, he/she devalues it, and becomes apathetic. Some, but not all, athletes who experience burnout may even feel a sense of resentment towards their sport and harbor a hatred for the sport (Raedeke et al., 2002).

Athletes cite severe practice conditions as a major cause of burnout. They also identify intense physical fatigue, a lack of recovery from competitive stress, emotional exhaustion and boredom as causes of burnout (Vealey et al., 1998). A variety of coaching behaviors may contribute to athlete burnout. Vealey et al. (1998) research found that a link between perceived coaching behaviors, and the athletes’ level of satisfaction and burnout does exist. An autocratic style of coaching, the use of dispraise as well as a lack of empathy, and poor communication ability were perceived coaching behaviors found to be related to athlete burnout.

According to Raedeke et al. (2002), the most prominent cause of burnout cited by coaches of athletes was parental pressure. Some parents live vicariously through their children and put substantial amounts of pressure on their children to excel in sports. However, this is not true for all parents. As discussed previously, parents were cited by many athletes as great supporters and one of the major contributors to their successes. “Social interactions can be a complex mix of both enriching and troublesome experiences” (Udry et al., 1992, p. 370).

Burnout can also be attributed to overtraining and inadequate recovery time. Athletes become frustrated when they feel fatigued and are unable to perform at their highest level (Gould et al., 1999; Raedeke et al., 2002). All athletes do not have to
experience burnout. It can be prevented. Supportive and encouraging relationships with parents, coaches and teammates all help reduce an athlete’s likelihood to suffer burnout (Raedeke et. al., 2002). “Social support is generally viewed as an integral part of the stress and coping process” (Udry et al., 1997, p.369). It is also helpful to reduce the pressure put on an athlete. Setting realistic and achievable goals helps to lessen the pressure an athlete feels. A structured and supportive training environment may also help to reduce the possibility of burnout occurring (Raedeke et al., 2002).

Athletes’ relationships play an important role in their success at the elite level. Family, coaches and teammates can all help to establish an environment that allows for optimal talent development. The athlete’s relationship with her sport is also an important component to her success and burnout can impair an athlete’s ability to perform at an elite level.

Summary

Women’s participation in sport has witnessed tremendous growth over the past thirty years. The Women’s Sports Foundation states that females’ participation in collegiate athletics alone more than tripled from 1971 to 1997 (Women’s Sports Foundation, 2003). Roberta Gibb made history as the first woman to run the Boston Marathon in 1966. Her successful completion of the marathon changed society’s perception of women’s ability to participate in sport and “replaced an old false belief with a new reality” (Gibb, 2003). Over the past thirty years it has become apparent that women can compete at the elite level and be incredibly successful.

A wide variety of variables influence elite athletes’ performance and success. There are certain factors to which elite athletes attribute their success. The factors
discussed throughout this literature review are categorized into four groups: lived body, lived time, lived space, and lived relations. It is important to study and gain an understanding of the contribution these factors make to female athletes’ success. This knowledge allows one to better understand how women develop into elite female athletes. An awareness of which factors contribute most strongly to the talent development of elite female athletes will allow women a greater opportunity to reach the elite level.

The research that follows is an attempt to gain insight into how the factors of lived body, lived time, lived space, and lived relations relate to the athletic talent development of elite female track and field athletes. The study aimed to determine the types of differences that existed between athletes at a high elite level versus athletes at a mid and low elite level in regards to the importance of the various factors.
Methods

This chapter provides a description of the research design for this study. The study was conducted in two phases. The first phase involved developing and testing the survey instrument. The survey was developed by meeting with experts in the area of track and field and faculty members with expertise in talent development. A sound review of the current literature also aided in the formation of the survey. Fourteen track and field athletes from North Carolina State University participated in a test-retest of the survey, which was used to evaluate reliability and refine the survey. The second phase dealt with the administration of the survey to a specifically selected population of elite female track and field athletes from nationally ranked Division I universities. The surveys were mailed to twenty-six Division I female track and field programs. The coaches from these programs agreed to distribute the surveys to the female athletes on their team who met the requirements that classified them as elite track and field athletes. The returned surveys were then analyzed using Statistical Package for the Social Sciences (SPSS) software.

Survey Instrument Development

An initial draft of the survey was developed to provide a quantitative assessment of the four factors that influence the development of talent in elite female athletes based on the conceptual foundations established in Burton’s (2002) qualitative research. These factors include lived body, lived time, lived space and lived relations each as unique components to female athlete talent development (Burton, 2002). The questions on the survey were formed based on both Burton’s (2002) research and information found in related literature. Further development of the questions in the survey included an
analysis of face validity through consultation with experts in the field, consisting of elite female track and field coaches and athletes, and faculty with expertise in talent development. After a brief explanation of the intent of the survey and information concerning the four factors was clarified, each survey question was discussed with the experts. The coaches’ expert knowledge of the sport of track and field enabled them to give suggestions concerning the appropriateness of questions. They also had helpful insight as to the most effective way of wording the questions and the appropriate time during the season to distribute the survey.

The research proposal and a copy of the survey instrument were submitted to North Carolina State University’s Institutional Review Board (IRB) for administrative review. It was approved as exempt from the policy in the Code of Federal Regulations and required no further IRB review. For approval, it was required that each research participant receives a separate envelope to return the survey. This would allow for voluntary participation and confidentiality.

The refined instrument was then tested and evaluated for reliability through a test-retest method using a sample population of elite female track and field athletes. The consistency of the participants’ responses over time was estimated by the strength of the correlations between the test and re-test (Hair, Bush & Ortinau, 2000). Fourteen female track and field athletes from the North Carolina State Track and Field team were selected to participate in the test-retest. The athletes were selected based on their performance level. The eleven of the females had been All-Conference, All-Region/District and/or All-American at some point in their collegiate track and field career. In order to have a subject from each event group (distance, jumps, sprints, throws, etc.) in the sample
population, three of the athletes were asked to participate despite not attaining this level of performance. An elite composite score was used to assess the elite status of each female athlete. The elite composite score was determined by a series of questions assessing the levels of competition the athletes have participated in and honors or awards they have received in their track and field career thus far.

The first survey was administered to the sample population on February 3, 2004. Each survey was assigned a number and one of the team’s coaches recorded the survey number each athlete received. This assured that the athlete would receive the same survey number on the retest. In order to be able to complete the data analysis it was important that the test and retest surveys could be matched. The athletes were allowed as much time as they needed to complete the survey. To allow the athlete confidentiality, each athlete placed the completed survey in a large envelope that was located in the room where she completed the survey. Once all of the athletes completed surveys were in the large envelope it was collected. The retest was administered in the same manner, to the same group of female track and field athletes on March 4, 2004. Two participants were not present during the retest. Thus the test-retest analysis was based on a final sample of twelve participants (n=12). Thirty days elapsed between the test and retest. Within the thirty days between the two survey administrations the indoor track and field Atlantic Coast Conference Championships occurred. Several of the survey participants received All-Conference honors at this meet, which explains the variation in their elite composite scores between the two surveys.

Upon the completion of the retest survey, a follow up discussion was held with each athlete in the sample population. The athletes were asked which questions they
found confusing or problematic/difficult to answer. They were also given an opportunity to make suggestions that they felt would contribute to the ease of survey completion. In order to provide clarity, the wording of some questions was changed after discussing the survey one on one with the participants. A not applicable (N/A) option was added to two questions upon evaluating the sample populations’ response to the questions assessing the importance of family, friends and coaches.

The analysis of reliability of the initial instrument was performed and Cronbach’s alpha level of .70 was set as the minimum acceptance level for each item to remain in the survey, with numbers closest to 1 indicating the greatest reliability (Hair et al., 2000). Several components of the lived body factor relating to female athletes’ perception of body, development of body and training of body were examined in the survey. One set of questions was designed to assess the importance of body image. The alpha levels for this set of questions ranged from .382 to .906. Although four of the questions relating to body image needed to be removed due to their low alpha levels, five questions with alpha levels above .7 remained in the survey. Another component of the lived body factor, the importance of mental preparation, was removed from the survey because it did not load well ($\alpha = .679$).

Alpha levels ranged from .664 to .998 for the survey questions assessing the importance of the factor of time as it relates to the time constraints a female athlete faces and the manipulation of time in order to peak at the optimal time. The question that examined the stress that accompanies being both a student and an athlete was removed because it loaded poorly, with an alpha level of .664. For questions assessing the importance of the athletes timing of peak performance the alpha levels ranged from .769
to 1.0. These questions all loaded at a level high enough to warrant remaining in the survey.

The factor lived space relating to female athletes’ access to equipment, facilities and services needed for talent development was examined through a series of questions that assessed the importance of various services and facilities. The alpha levels ranged from .436 to .984. One facility, locker room and one service, sport psychologists were removed because they loaded poorly with alpha levels of .668 and .436 respectively.

Finally, four series of questions were asked about the factor lived relations as it relates to the importance of the various relationships female athletes have and how these relationships contribute to talent development. The first series of questions assessed the importance of family and friends in the athlete’s talent development. The alpha levels ranged from .537 to .987. Teammate and significant other were removed from this question because they loaded poorly, with alpha levels of .537 and .676. The importance of teammate(s) is evaluated later in the survey and loads well in a later question. Next were questions that examined the importance of various coaches throughout the athlete’s career. For questions assessing the importance of coaches the alpha levels ranged from .867 to .977. A question was also asked concerning the importance of a variety of characteristics of coaches. The alpha levels of this question ranged from .461 to 1.0. Two characteristics were removed from this question, supportive (α = .461) and laidback (α = .685). Another component of lived relations that was examined was the importance of teammates. These questions had alpha levels that ranged from .693 to .823. These questions all loaded at a level high enough to warrant them remaining in the survey.

Lastly, for the questions assessing the importance of the relationship between the athlete
and her sport the alpha levels ranged from .415 to .912. The option of other extracurricular activities was removed because it loaded poorly with an alpha level of .415.

The final form of the survey was composed of 31 questions (Appendix A). The first seven questions were designed to help determine the elite composite score of each participant. These questions focused on topics such as the number of times the athlete had received various honors in high school and college and athletic scholarship level. The elite composite score was used to separate the athletes according to their level of performance. The sample of female track and field athletes was divided into three groups based on their elite composite score; high, mid or low elite level. The high elite group is assumed to have a higher level of athletic performance.

The next section of the survey contained eighteen questions that were a yes/no format, a five point Likert scale, or open-ended questions. The first set of questions asked the athlete to identify how important particular individuals were to their athletic talent development. The athlete also identified the importance of various characteristics of a coach and teammate characteristics. Injury and its impact on performance were examined and body perception was measured through a series of questions.

Next the athletes were asked questions regarding the importance of access to particular facilities and services as it related to their athletic development. There was also a question related to equal access between male and female athletes to facilities at their university. The next group of questions was intended to gage the athlete’s love for and dedication to their sport. The participants were asked how likely they were to practice and compete in particular situations, such as rain, with an injury, when tired or
fatigued, etc. The athletes were also asked to identify if they considered their sport more important than certain activities (school, job, social activities and dating) or people (family and friends). Participants were asked about the significance of various factors to their feeling of burnout. A series of questions were asked in regards to the importance of peaking. The athletes were also asked which competition(s) they aim to peak for and whether they have experienced a peak performance other than when they intended. Time constraints, involvement in outside organizations and the effect these things have on the athlete’s performance were also examined. A final series of questions collected demographic information on each participant. These questions assessed age, birth country, racial/ethnic background and marital status.

Selection of Subjects

Forty-two Division I university women’s track and field and cross-country teams were contacted and asked to participate in the study. Teams were selected based on the national ranking of their track and field and/or cross-country program(s). All of the universities had either a cross country or track and field team, or both teams in the 2002-2003 season, ranked in the top 35 in a poll found on the National Collegiate Athletic Association (NCAA) website (www.ncaa.com).

Initial contact phone calls to the coaches of the selected programs were made between March 15-26, 2004. Out of the forty-two universities selected to participate phone contact was made with twenty-six programs. All twenty-six coaches that were contacted agreed to allow their athletes to participate in the research. Each coach was briefed on the nature of the research and the survey. Coaches were then asked if they would be willing to assist in distributing the surveys. They were also instructed that only
elite athletes, those who had achieved All-Conference, All-Region/District, and/or All-American honors thus far in their collegiate career were to participate in the survey. Coaches were asked how many surveys they believed should be sent to include the elite female track and field athletes in their program.

Selecting programs that were nationally ranked programs and limiting the individuals who participated in the survey to those who have received All-Conference, All-Region/District, and/or All-American honors resulted in a sample composed of primarily elite female track and field athletes.

Collection of Data

Following refinement of the survey instrument, it was sent to a specifically selected population of elite female athletes competing in track and field at nationally ranked Division I universities. This sample, though not representative of all female athletes competing in track and field, represents those women who compete at an elite level.

Each mailing included the number of surveys each coach suggested was appropriate for his or her team, a cover letter (Appendix B) and instruction sheet (Appendix C). A self-addressed envelope with pre-paid postage was attached to each survey to encourage participation and allow for confidentiality. To ensure confidentiality the athletes were able to fill out the survey and put it directly in the mail.

The refined surveys were mailed to coaches the week of March 24-31, 2004. Surveys were intentionally distributed at this time of the track and field season; the end of March and beginning of April are before the conference championships begin. Several collegiate track and field coaches suggested it would be best to distribute the surveys
earlier in the outdoor track season because this tends to be a more calm, less stressful
time of the year. Three hundred and fifty-eight surveys (n=358) along with self-
addressed, prepaid envelopes were mailed to the twenty-six participating track and field
programs.

Follow up phone calls to the coaches were made the last week of April and first
week of May to ensure they had distributed the surveys. If they had not yet distributed
the surveys they were encouraged to administer the survey to the selected female track
and field athletes on their team as soon as possible.

The surveys were received back from the participants starting in mid-April and
continuing through early June. As the surveys were received the data was entered into a
Microsoft Excel worksheet created specifically for the survey data. Eighty-six surveys
(n=86) were returned from the athletes, yielding a response rate of twenty-four percent.

The survey data was examined for mistakes to ensure there were no erroneous
entries. Any mistakes found were corrected. Two surveys were removed from the data
set because they were missing large sections of data. Thus, the final data analysis was
completed with 84 participants (n=84). The data was then imported into SPSS from the
Excel worksheet in order to complete the data analysis.

*Data Analysis Procedures*

The data analysis in this study was performed in order to provide answers to the
following three research questions:

Research Question 1: How do outside commitments, such as work, social
activities and campus organizations, impact athletic development and/or
performance?
Research Question 2: Do particular services/facilities appear to be more important to athletic development?

Research Question 3: Which role(s) of a teammate are most important to athletic talent development?

The research questions were tested by analyzing the data using SPSS statistical software. Descriptive statistics and frequencies were reported for the survey questions. In order to answer the research questions, Analysis of Variance (ANOVA) and chi-square tests were employed. The ANOVA tests were used to examine if differences within or between the three elite groups existed. The ANOVA tests allowed for a comparison between the three elite groups’ responses on several of the survey questions. The chi-square test was used to examine how close the expected amount (N) of the athletes’ involvement in other activities falls to the observed amount (N) of the athletes’ involvement in other activities (Agresti & Finlay, 1997).

The data were analyzed as an overall group of elite female track and field athletes to examine the descriptive statistics (mean scores and standard deviations). Then the data were sorted and grouped according to the athletes’ elite composite score into a high, middle, or low group. The data were analyzed a second time in the groups looking for differences within and between each of the elite groups.

**Elite Composite Scores**

A series of questions was asked at the beginning of the survey in order to evaluate each athlete’s elite composite score. The elite composite score was used as the independent variable throughout the data analysis.
Each athlete was asked if she was identified as a gifted athlete in high school. She was then asked to check (from a list of six choices) all the honors that applied to her high school career. The athlete was asked if she currently considered herself to be an elite track and field athlete. The next question asked the participant to indicate the number of times she had received a series of honors (examples; All-Conference, All-Region/District, All-American) in her collegiate career thus far. The athlete was then asked if they have ever qualified or competed at any elite track and field events outside of NCAA collegiate events, and asked the athlete to indicate the number of times they qualified for or competed in a list of elite track and field events including USA Track and Field Championships, Olympic Trials, Junior Nationals, World Championships, and/or another countries national team. The last question that was used to help determine the elite composite score simply asked the athlete their current athletic scholarship level. A response of yes on the above questions was assigned a value of 1 and a response of no was assigned a value of 0. The values of all these questions were summed to generate an elite composite score for each participant. The participants were then divided into three groups based on their elite composite scores; low, mid and high.

It is important to note that the age of each athlete was taken into account when inferring each athlete’s elite composite score. The participants were divided into groups by age. The nineteen year olds in one group, twenty year olds in one group, etc. up to twenty-four years of age. This procedure resulted in six groups. (Nineteen year olds, N=17; Twenty year olds, N=25; Twenty-one year olds, N=24; Twenty-two year olds, N=8; Twenty-three year olds, N=8; Twenty-four year olds, N=1; No response, N=1). Within each age group the participants were divided into one of three groups, either low,
mid, or high depending on their elite composite score. The lower third of the elite composite scores of each age group were assigned to the low group, resulting in 36 participants in the low group (n=36). Next, the middle third of the elite composite scores of each age group were assigned to the mid group, resulting in 29 participants in the mid group (n=29). Finally, the upper third of the elite composite scores of each group were assigned to the high group, resulting in 19 participants in the high group (n=19). The survey participant who did not respond to the age question was put into the high elite group because, no matter which age group she would have fallen into her elite composite score would have been in the upper third.

Summary

The main objective of this study was to analyze how various factors affect the development of talent for elite female track and field athletes. The study was conducted in two phases. The first phase involved developing and testing the survey instrument. The second phase dealt with the administration of the survey to a specifically selected population of elite female track and field athletes from nationally ranked Division I universities, followed by data analysis on the returned surveys. Research questions were used to examine how particular factors may contribute to the development of talent in elite female track and field athletes. After completing the data analysis of the survey responses, the factors that are the strongest predictors of talent development for women competing in track and field at an elite intercollegiate level will be identified.
Results

This chapter presents the results of the data analysis. The chapter begins with a description of the sample based on the demographic information received from the study participants. Following this descriptive section, the results of the data are presented in three parts. The first section examines how outside commitments impact athletic performance. An exploration of the importance of particular services and/or facilities to athletic development follows. The final section addresses the role teammates play in athletic development. The results in all three parts are based on the elite composite score and examine the differences that exist between the three elite levels. The statistical test(s) linked with the results will be provided.

Sample Description

The sampling frame for this survey consisted of 84 elite female track and field athletes (n=84) who competed on nationally ranked Division I track and field and/or cross-country programs across the United States. The 84 participants were separated based on their elite composite score (see Table 1). Approximately twenty-three percent of the participants (n=19) were considered to be in the high elite group. The mid elite group consisted of approximately thirty-four percent of the participants (n=29). Forty-three percent of the participants (n=36) were assigned to the low elite group.

The elite female athlete study participants competed in various track and field events (see Table 1). A majority of the participants (40.5%, n=34) were distance runners (3000 meters and up). About twenty percent (n=17) of the participants were throwers. Fourteen percent (n=12) the female athletes were sprinters (100 to 400 meters) and an additional fourteen percent (n=12) were middle distance runners (800 to 1500 meters).
Three of the participants competed in the heptathlon, three competed in long/triple jump, two competed in the pole vault and one competed in high jump.

The age that these elite female athletes began participating in track and field ranged from 5 to 20 years of age. The mean age at which the athletes began participating in track and field was 12.46 (SD=2.62). The participants’ current age ranged from 19 to 24 years of age as shown in Table 2. The mean age of the sampling frame was 20.61 years of age (SD=1.26). The majority of the participants (79.5%) were between the ages of 19 and 21.

The study participants were asked their country of origin. The United States was the overwhelming majorities’ response (90.5%). There were also female athlete participants from Argentina, Canada, Jamaica, Kenya, Korea and Trinidad and Tobago. Because the sample population was international the options for the racial/ethnic background question were extended to include international options. Table 2 reports the participants’ racial/ethnic backgrounds. The majority of the participants, roughly sixty-eight percent (n=56) identified their racial/ethnic background as White American. Approximately sixteen percent (n=13) of the participants identified themselves as Black American. Five athletes identified themselves as Multi-racial American, five athletes as International White, two athletes as International Black, one athlete as Asian American and two athletes did not respond.

Eighty-three percent (n=70) of the study participants identified their marital status as single. Approximately ten percent (n=8) of the participants were married or engaged. One participant in the study indicated that they had one child, but did not identify the child’s age.
Results of Research Questions

Lived Time - Impact of commitments outside of sport

How do outside commitments, such as work, social activities and campus organizations, impact athletic development and/or performance? The study participants were asked how important their sport was compared to a list of other activities and asked what outside activities they were currently involved in (see question 19 & 24, Appendix A). In order to compare the difference between the high, mid and low elite groups in regards to the impact of outside commitment on their athletic development and performance, an ANOVA and chi-square statistical tests were run.

The descriptive data (see Table 3) assessed the athletes’ importance of their sport versus other activities. The study participants did not consider their sport definitively more or less important than school. On a scale of 1 to 5 with 1 equaling definitely disagree and 5 equaling definitely agree, the mean score for the statement, “My sport is more important to me than school” was 2.65 (SD=1.35). The mean score for importance of sport verses school fell in the middle of the scale. However, the other mean scores showed that the elite female athletes do regard their sport to be more important than a romantic relationship (mean=3.40, SD=1.37), social activities (mean=3.96, SD=1.21), and a job (mean=3.79, SD=1.45). The mean score for importance of school was lower than the mean scores for the other activities, showing that the study participants did feel that out of the given activities school was the most important to them in comparison to their sport.
The ANOVA test conducted indicated that no significant difference existed between or within the three elite groups view on the importance of their sport in comparison to school, romantic relationship, social activities and job (see Table 4). The F-value was less than one and the results were not significant at the .05 level (p ≥ .05) for all four outside commitments regardless of the elite level of the athletes.

A chi-square test was conducted to examine the likelihood of the elite female athletes at each elite level to participate in outside activities at a level compared to the amount of outside activities they actually indicated participating in. The test statistic summarizes how close the expected frequencies fall to the observed frequencies. The chi-square test was based on a question that asked the athletes to identify outside organizations they were involved in by checking the ones that applied to them from a list they were given. The results of the chi-square test examining the athletes’ involvement in outside activities are reported in Table 5.

The chi-square test for the high elite level group revealed that these female track and field athletes were less involved in academic organizations and religious organizations than expected. The chi-square values for all three outside commitments (academic, religious and community) were small, and the p-values that accompanied them were not significant (p ≥ .05).

The results from the chi-square test for the mid elite level group confirmed that the athletes were less involved in academic organizations, religious organizations and community organizations than expected. The mid elite group had the largest difference between expected N and observed N (residual) for involvement in community organizations. The chi-square value for involvement in academic organizations was
fairly large at 7.00 and the corresponding p-value was significant, p=.01. A large difference existed between the expected N and the observed N for this variable; fewer of the study participants were involved in academic organizations than expected.

Finally, the chi-square test for the low elite level group revealed that this group of elite female track and field athletes was less involved in academic organizations and religious organizations than expected. The chi-square value for involvement in religious organizations was 7.11, with a p-value of .01, showing statistical significance. A large difference existed between the expected N and the observed N for the athletes’ involvement in religious organizations.

Lived Space - Importance of services and/or facilities

Do particular services/facilities appear to be more important to athletic development? The athlete was asked to indicate how important her access to a list of services and facilities was to her athletic development (see question 15, Appendix A). Descriptive statistics and an ANOVA test were used to determine the results.

Access to a track was viewed as the most important to athletic development in all three elite level groups (mean=4.65, SD=.81). All three groups also indicated access to a training room (mean=4.35, SD=.91) and weight room (mean=4.29, SD=1.03) as being important to athletic development. Academic services (mean=3.68, SD=1.28) and nutritional services (mean=3.27, SD=1.35) were found to be only moderately important to athletic development in all three elite level groups. (See Table 6.)

The ANOVA test looked for differences between or within the groups in regard to the importance of access to the various facilities and services listed. The results of the ANOVA test are reported in Table 7. The small F-values showed that no difference
existed between or within the groups concerning their access to particular facilities and/or services. Regardless of the athletes’ elite level, they all perceive access to a track, weight room, training room, academic services and nutritional services equally as important. Access is important for everyone.

Lived Relations – Teammate Roles

Which role(s) of a teammate are most important to athletic talent development? Do elite female track and field athletes at the various elite levels view their teammates as supporters, motivators and/or training partners? The importance of various roles of teammates to athletic talent development was examined (see question 11, Appendix A). Both descriptive data and an ANOVA test were used to determine the results. The descriptive data (see Table 8) indicated that teammates are viewed most often as training partners (mean=4.19, SD=.93), followed by supporters (mean=3.99, SD=.77) and motivators (mean=3.99, SD=.84).

The ANOVA test compared the difference within and between the three elite groups in regards to their view on the significance of the three roles of teammates (see Table 9). The ANOVA test resulted in a F-value of 3.49, and a p-value of .04 for the role of motivator, showing statistical significance. The significant p-value (p<.05) revealed that a difference exists between the three elite groups as to how they viewed the teammate role of motivator. The F-values and p-values for the other two roles, supporters and training partners, were not statistically significant, indicating that no significant difference existed within or between the three elite groups.
Summary

Eighty-four elite female track and field athletes from nationally ranked Division I universities across the United States completed the survey that assessed how certain factors contributed to their talent development. The track and field athletes were divided into three elite groups; low, mid and high. Outside commitments were not found to impact the study participants’ athletic development. The female track and field athletes at all three elite levels tended to be involved in a variety of extracurricular activities, but regarded their sport as more important than all of them except school. The athletes at all three elite levels viewed access to a track as the most important to athletic development. They also cited access to a training room and weight room as being important to athletic development. Finally, the elite track and field athletes tended to view their teammates most often as training partners. A difference did exist in how the three elite groups viewed the teammate role of motivator. The implications these findings will be discussed in the next chapter.
Table 1

*Descriptive Statistics (Frequencies and Percents) for the Sample Population (N=84) for elite level and track and field event*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Category</th>
<th>$f$</th>
<th>%</th>
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</thead>
<tbody>
<tr>
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<tr>
<td></td>
<td>Mid</td>
<td>29</td>
<td>34.5</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>19</td>
<td>22.6</td>
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<tr>
<td>Event</td>
<td>Distance</td>
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<tr>
<td></td>
<td>Sprints</td>
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<td>14.3</td>
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<tr>
<td></td>
<td>Pole Vault</td>
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<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Throws</td>
<td>17</td>
<td>20.2</td>
</tr>
<tr>
<td></td>
<td>Heptathlon</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Mid-Distance</td>
<td>12</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>High Jump</td>
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<td>1.2</td>
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<td></td>
<td>Long/ Triple Jump</td>
<td>3</td>
<td>3.6</td>
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Table 2

*Descriptive Statistics (Frequencies and Percents) for the Sample Population (N=84) for age and racial/ethnic background*

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<tbody>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>22</td>
<td>8</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>8</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Racial/Ethnic Background</td>
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<td>15.9</td>
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<tr>
<td></td>
<td>Asian American</td>
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<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Multi-racial American</td>
<td>5</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>International Black</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Hispanic/Latin American</td>
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<td>0</td>
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<td></td>
<td>White American</td>
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<td></td>
<td>Native American</td>
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<td>0</td>
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<tr>
<td></td>
<td>International White</td>
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<td>6.1</td>
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### Table 3

*Means and Standard Deviations for Outside Involvement (N=84)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>2.65</td>
<td>1.35</td>
</tr>
<tr>
<td>Romantic Relationship</td>
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<td>1.37</td>
</tr>
<tr>
<td>Social Activities</td>
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<td>1.21</td>
</tr>
<tr>
<td>Job</td>
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<td>1.45</td>
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### Table 4

*ANOVA Test Results for Outside Involvement (N=84)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>F-Value</th>
<th>Significance (p-value)</th>
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</thead>
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<tr>
<td>Romantic Relationship</td>
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<td>Social Activities</td>
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<td>Job</td>
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Table 5

*Chi-Square Test Results for Outside Involvement (N=84)*

<table>
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<th>Elite Level</th>
<th>Variable</th>
<th>Chi-Square Value</th>
<th>Significance (p-value)</th>
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<tr>
<td>Low</td>
<td>Academic Organizations</td>
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<td>.05</td>
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<tr>
<td></td>
<td>Religious Organization</td>
<td>7.1</td>
<td>.01*</td>
</tr>
<tr>
<td></td>
<td>Community Organizations</td>
<td>.44</td>
<td>.51</td>
</tr>
<tr>
<td>Mid</td>
<td>Academic Organizations</td>
<td>7.0</td>
<td>.01*</td>
</tr>
<tr>
<td></td>
<td>Religious Organizations</td>
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<td>.26</td>
</tr>
<tr>
<td></td>
<td>Community Organizations</td>
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<td>.13</td>
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<tr>
<td>High</td>
<td>Academic Organizations</td>
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<td></td>
<td>Religious Organizations</td>
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<td>.06</td>
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<td></td>
<td>Community Organizations</td>
<td>.22</td>
<td>.64</td>
</tr>
</tbody>
</table>

*<p><.05.*

Table 6

*Means and Standard Deviations for Services and Facilities (N=84)*

<table>
<thead>
<tr>
<th>Variable</th>
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<th>SD</th>
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<tbody>
<tr>
<td>Track</td>
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<td>.81</td>
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<tr>
<td>Weight Room</td>
<td>4.29</td>
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<tr>
<td>Training Room</td>
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<td>.91</td>
</tr>
<tr>
<td>Academic Services</td>
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<tr>
<td>Nutritional Services</td>
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<td>1.35</td>
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</tbody>
</table>
Table 7

*ANOVA Test Results for Services and Facilities (N=84)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>F-Value</th>
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</tr>
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<td>.21</td>
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<tr>
<td>Weight Room</td>
<td>.67</td>
<td>.51</td>
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<td>Training Room</td>
<td>.10</td>
<td>.91</td>
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<td>Academic Services</td>
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<td>Nutritional Services</td>
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Table 8

*Means and Standard Deviations for Teammate Roles (N=84)*

<table>
<thead>
<tr>
<th>Variable</th>
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<th>SD</th>
</tr>
</thead>
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<tr>
<td>Support</td>
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<td>.77</td>
</tr>
<tr>
<td>Motivate</td>
<td>3.99</td>
<td>.84</td>
</tr>
<tr>
<td>Training Partner</td>
<td>4.19</td>
<td>.93</td>
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</table>

Table 9

*ANOVA Test Results for Teammates Roles (N=84)*

<table>
<thead>
<tr>
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<th>F-Value</th>
<th>Significance (p-value)</th>
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<tr>
<td>Support</td>
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<td>.18</td>
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<tr>
<td>Motivate</td>
<td>3.49</td>
<td>.04*</td>
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<tr>
<td>Training Partner</td>
<td>.86</td>
<td>.43</td>
</tr>
</tbody>
</table>

*p<.05.*
Discussion

The purpose of this study was to investigate the factors of lived time, lived space and lived relations further by developing and administering a survey in order to have a quantitative analysis of these factors and their contribution to elite female athlete’s talent development. This study sought to reach a better understanding of how particular factors contribute to the talent development of elite female track and field athletes. The study attempted to answer three specific research questions. The conclusions and recommendations for this study are based on the three research questions and the hypotheses of the study. Limitations of the study, as well as suggestions for future research will also be discussed.

*Lived Time - Impact of commitments outside of sport*

The first research question assessed how the athletes’ outside commitments (commitments outside of their sport) impacted their athletic talent development. Little research has been done to examine the effect that outside activities may have on athletic development and/or performance. The results from this study showed that no significant difference existed between the three elite level groups (low, mid and high) in regards to their beliefs on which activities are more or less important than their sport. The response from the athletes at all three elite levels showed school to be neither definitively more nor less important than their sport. However, romantic relationship, social activities and job were all shown to be less important than their sport. The elite female student athletes who participated in this survey did view school as more important than the other activities. This may have occurred with these track and field athletes because the likelihood of a professional track and field career is much less likely than professional
careers in some other sports. These female athletes realize that school is an important link to their post collegiate success in life, and thus they believe, as a whole school is important. A more in-depth analysis is required to make any additional conclusions regarding the importance of school versus the elite female athlete’s sport of track and field.

Durand-Bush and Salmela’s 2002 study, concerning the development and maintenance of expert athletic performance, found that school was important to the athletes in their study as well. Nine of the ten athletes in their study pursued post-secondary studies. School was a priority to these elite athletes. Several of the athletes whom they interviewed felt that academics and athletics complemented each other, viewing both as important pieces to their success in life. The possibility of a career ending injury was found to be another motivator to getting a good education.

The results of the chi square analysis compared the athlete’s involvement in a variety of extracurricular activities (other than their sport) and looked for differences in involvement in activities outside of track and field, depending on the athlete’s elite level: low, mid, or high. The extracurricular activity this sample of female track and field athletes appeared to be most involved in was community organizations.

Many athletic teams encourage and/or require their athletes to volunteer within the community. Opportunities are provided through many university athletic departments for student athletes to visit elementary schools, read to children, help build homes, and volunteer throughout the community. The athletes’ exposure is a good way for the university and athletic department to build positive relationships with the community.
These factors may contribute to the explanation of the low chi square value, for the athlete’s involvement in community organizations regardless the elite level of the athlete.

The athlete’s in this sample were less involved in both academic and religious organizations than expected. Durand-Bush and Salmela (2002) found that elite athletes’ training is intense and demanding, leaving little time for extra-curricular activities. The majority of elite collegiate track and field athletes spend between ten and twenty hours a week training, as well as being in class and completing homework, resulting in spare time being sparse.

The results of this study found that outside commitments had no effect on the athlete’s athletic development or performance. Athletes in the high elite group were just as likely to participate in outside activities as athletes in the mid or low elite groups. Athletes at all three elite levels were involved in various extracurricular activities.

Based on the study hypothesis, it was expected that all outside commitments would be regarded as less important than the athletes’ sport. However, the study found that school was found to be neither definitively more nor less important than the athletes’ sport. The other outside commitments were found to be less important than the athletes’ sport of track and field as anticipated. These findings held true across all three elite groups. No significant difference was found between the three elite levels as to their opinion on the importance of their sport versus outside commitments. It was also expected that the athletes in the high elite group would have the least amount of outside commitments. This was not found to be true. The athletes in the high elite group were involved in a similar amount of extracurricular activities as the athletes in the other two elite groups. It is probable that the high elite athletes are required to be involved in a
certain amount of community/volunteer work, as discussed previously, to enhance the 
schools affiliation with the community. This particular study sample of elite female track 
and field athletes also believed that school was important. This finding may help explain 
the high elite athletes’ involvement in academic organizations, another outside 
commitment.

*Lived Space – Importance of services and/or facilities*

The second research question evaluated which services and/or facilities appeared 
to be more important to athletic development. No statistically significant difference 
existed between the three elite level groups concerning the services and/or facilities that 
were more important to athletic development. All three of the elite level groups (low, 
mid and high) cited access to a track as the most important. This finding was not 
surprising. All the female athletes participating in track and field at the elite level, 
regardless of what elite level they were competing, perceived access to a track, training 
room, weight room, academic services and nutritional services to be important to their 
success. Access is important to everyone.

This finding corresponds with the findings of several other studies. Access to 
adequate equipment, facilities and funds was found to be significant for the elite athletes 
were perceived to influence the performance of U.S. Atlanta and Nagano Olympians. 
They found that the athletes who had great equipment felt that this had a positive 
performance effect.

The study hypothesis stated that access to essential facilities (track and weight 
room) would be seen as more important to athletic talent development. The study found
that the female track and field athletes at all three elite levels did indeed cite access to a track as the most important. The finding that no difference existed between the groups regarding the services and/or facilities that were important to athletic development was not expected based on the study hypothesis. The high elite group did not assign a significantly higher level of importance to access to a track and weight room, or the lowest level of importance to access to academic services. Once again this reiterates the idea that access to all services and facilities is important to every athlete regardless of her elite level.

Female athletes’ access to a space to develop their athletic talent is essential to their success. This finding has implications in regards to Title IX compliance. Title IX, passed in 1972, called for institutions to provide equal benefits for male and female athletes in the areas of equipment, uniforms and supplies, locker rooms, and practice and competitive facilities (Lopiano, 2003). It is imperative for all universities to provide equivalent facilities and services to all their athletes, both male and female. Female athletes of the 50’s and 60’s were often denied access to facilities needed to develop their talent (Burton, 2002). Improvements have been made to women’s accessibility to facilities and equipment at the university level over the past thirty years (Festle, 1996). However, inequalities in spending between the two genders remain (Women’s Sports Foundation, 2003). Obvious sexism still exists in some sporting areas such as country clubs that deny or restrict women’s access (Festle, 1996). “The United States is not egalitarian, and sports still reflect that reality” (Festle, 1996, p.273).
Lived Relations – Roles of a teammate

The final research question examined the role(s) of a teammate, looking specifically to see if any particular role was more important to athletic talent development. The elite female track and field athletes who participated in this survey viewed their teammates as supporters of their athletic talent development, individuals who motivated them in their athletic development and training partners who helped push them to perform at a high level.

A significant difference existed in how the three elite groups viewed the teammate role of motivator. The low elite group believed it to be more important that teammates helped motivate them in their athletic development than the high elite group. The athletes in the low elite group may look to teammates for motivation while the high elite athletes rely more on internal motivation. The high elite group may find it less important to have teammates to help motivate them because many of the individuals in the high elite group may be extremely self-motivated. These athletes can not depend on teammates, coaches, family or friends to motivate them. The high elite group is composed of athletes performing at a level that requires internal motivation. No significant difference was found between the three elite level groups for the other two roles, supporters and training partners.

It was unexpected to find that the athletes at the high elite level did not consider their teammate’s role as a training partner to be more important than the athletes at the mid and low elite levels. Perhaps the female track and field athletes at the high elite level have few training partners at their university. They could be practicing and competing at such a high level that few if any of their teammates can train with them, thus the high
elite athletes do not perceive their teammates to be in a training partner role. Gould et al. (1999) examined factors affecting Olympic performance and found that Olympic athletes cited teammate trust and confidence, as well as training together to be important factors that influenced performance. The importance of having teammates as training partners and motivators may be different at the Olympic level because the athlete’s are surrounded with individuals who are practicing and competing at the same high level.

The majority of the current research focuses on the role that family and coaches play in athletic talent development. The team and teammate element appear to have received little research thus far. The role of teammates is discussed briefly in a few studies. Durand-Bush and Salmela (2002) found that several of the athletes in their study considered athletes with whom they trained to be significant individuals in their athletic careers. These athletes found it helpful to learn from one another. Giacobbi et al. (2002) examined college coaches’ views about the development of successful athletes. They found that the majority of the coaches they interviewed felt that team support had a positive influence on the athletes.

The finding that the athletes at the high elite level did not consider their teammate’s role, as a training partner to be more important was unexpected based on the study hypothesis. Previous research has cited the role of training partner as important to an athlete’s talent development at the elite level (Durand-Bush & Salmela, 2002; Giacobbi et al., 2002; Gould et al., 1999). A training partner provides the elite athlete someone to workout with, which should have a positive affect on athletic talent development. Having someone to complete workouts with helps push athletes to a higher level. Training partners may also be helpful in competitions, reducing the pre-
competition stress and helping to support and encourage one another. As discussed
previously, perhaps many of the females competing at the high elite level of collegiate
track and field have few individuals at their university who can train and perform at their
level.

Implications

Coaches

The findings from this study can be informative and insightful for coaches, as
well as reinforce things that coaches already know. The elite athletes who participated in
this study found their sport of track and field to be more important than social activities,
relationships, and a job. Coaches at the collegiate level expect their athletes to be
committed to their sport. Training and competing at an elite level requires authentic
devotion to the sport. It is important for coaches to note that athletes at the elite level are
indeed dedicated to their sport.

Access was important to all the elite female athletes in this study. Coaches’
pursuits for equal access to adequate facilities and services should continue. Excellent
facilities draw athletes to particular collegiate athletic programs. Having the opportunity
to offer great facilities could help acquire top elite athletes. Adequate facilities may also
be helpful to an athlete’s talent development. Access to a weight room with high-quality
equipment may help a low elite athlete develop into a mid or high elite athlete.

The athletes in this study looked to their teammates for support and motivation. It
is probable that coaches at the collegiate level are aware that team atmosphere can play a
positive role in athletic development. In their interviews with college coaches, Giacobbi
et al. (2002), found that the majority of coaches believed team support had a positive
influence on their athletes. Coaches should try to create a team environment that promotes teammate support and motivation. Female collegiate athletes, regardless of their elite level, desire to feel that their teammates help make them a better athlete.

**Athletic Directors/Administration**

Findings from this study can be useful to athletic directors and other athletic administrators. The elite female athletes who participated in this study were most involved in community organizations, while being less involved in academic and religious organizations. Collegiate athletic administrations should continue to provide their athletes with opportunities to volunteer in the community. Programs should be set up within the athletic departments of universities that encourage athletes to make an impact in their communities. Although their spare time is sparse, findings from this study show that athletes, regardless of their elite level, are willing to dedicate time to be involved in community organizations. Athletic departments should also work to balance the demands placed on student athletes. This would allow the athletes time to be involved in academic and religious organizations as well. The opportunity to be involved in other activities would help make student athletes more well rounded individuals. Ultimately, this would help the student athletes as they pursue jobs because they will have a variety of experiences, making them the best candidates for a number of different jobs.

The individuals in powerful, decision-making positions should know that access to facilities and equipment is important to everyone. Regardless of elite level, male or female, major or minor sport, having access to adequate facilities and equipment is important to all collegiate athletes. Elite female athletes should be considered as athletic
departments around the country build new facilities or renovate old facilities. It has often been the case that women’s teams have had both mediocre training and competitive facilities. As men’s football and basketball programs around the country are moving into million dollar facilities, there are women’s programs that fight for locker room space. Over the past five years, for every new dollar going into athletics at the Division I and II levels, male sports receive sixty-five cents, while female sports receive thirty-five cents (Women’s Sports Foundation, 2003).

Finally, based on the athletes response that they rely on teammates for support and motivation, athletic directors and administrators should provide training for coaches to educate them regarding team cohesion and how to create an atmosphere that will allow for athletes to train and perform at a high level.

_Athletic Donor Associations_

The significant finding concerning the importance of elite female athletes access to top-notch facilities has implications for athletic donor associations. It is important to provide all athletes with facilities that allow for talent development. As donor associations consider how to contribute to funding various facilities, they should take note that female athletes continue to state that access to facilities is important to their talent development. Creating top-notch facilities for women’s programs could have great benefits to not only the university and its athletic department, but donor associations as well. When great female athletes, of star caliber are associated with universities increased revenue comes from donors. For example, Mia Hamm has made a huge impact in women’s soccer and her ties go back to the University of North Carolina. A new facility was recently constructed to house the women’s soccer team at the University of
North Carolina. The women’s head coach Anson Dorrance stated, "I think this building is a reflection of how much our alumni care about soccer at North Carolina. We have a rabid following, and I think our fans will love this building." This new soccer center will help the University of North Carolina continue to recruit great athletes. Another example of a star female athlete who is likely to have made an impact in donor giving is Diana Taurasi, former University of Connecticut women’s basketball player. Taurasi’s achievements on the basketball court resulted in fan excitement and enthusiasm. Athletic donor associations should take advantage of all the individuals who follow University of Connecticut basketball and encourage them to be a part of “The Uconn Club” (the official booster organization of the University's Division of Athletics) to help support these great athletes. It is definitely worth investing money into facilities to help develop superior women’s programs.

Limitations

This study generated several important findings in regards to factors that contribute to the talent development of elite female collegiate track and field athletes; however, several limitations must be discussed. The study participants were limited. Only individuals who competed at an elite level (as defined earlier) in nationally ranked Division I track and field programs were considered in the survey administration. These stringent criteria may have eliminated many elite athletes at Division II and Division III schools. Many of the top Division I athletes were eliminated as well because of the researchers inability to contact several top programs’ coaches. The use of retrospective, self-reported data is another probable limitation. Respondent bias and faulty memory recall may have also influenced the data (Durand-Bush & Salmela, 2002; Gould et al.,
1999; Hair et al., 2000). A final limitation resulted due to the Institutional Review Board (IRB). The IRB required that the survey be voluntary, thus the coach could not directly administer the survey. The coach could pass out the survey to his/her athletes but it was then up to the individual athlete to complete the survey and return it. This limitation may help explain the small sample size. The low response rate, resulting in eighty-four participants, made it difficult to run more in-depth statistical analysis.

**Future Research Suggestions**

This study was an effort to investigate how the factors of lived time, lived space and lived relations affect the talent development of elite female track and field athletes at the collegiate level. This exploratory study began to examine collegiate female athletic talent development; a topic that has been understudied. This research transpired from a relatively small sample of athletes within the specific sport of track and field, and thus leaves room for future studies to occur.

More studies with a larger sample size need to occur. The study should be expanded into other collegiate female athletic programs to gain a better grasp on how particular factors affect the talent development of all female collegiate athletes. Expanding into other sports may give additional insight into how the different factors contribute to talent development. Certain factors may be more or less important depending on the sport. For example, the role of teammates could be different in a team versus individual sport. The survey instrument would need slight modifications to make it appropriate to each sport. The questions that are used to compose the elite composite score would need to be specific to each sport. The current questions only apply to track and field athletes. The services/facilities question would also need to be adapted so that
the facilities in the question correspond with the facilities each sport uses. The researchers would need to examine each question to ensure that all the questions were appropriate to the particular sport assessed. Examining athletes at different levels of success (elite and non-elite) and at different ages would also provide additional insight into athletic talent development. It is possible that differences will exist between the factors that high school athletes and Olympians believe contribute to their athletic talent development. Particular relational factors (importance of parents, coaches, teammates) may vary, as well as time factors (peaking, time constraints) depending on both the age and success level of each athlete. Once again it may be necessary to modify the survey instrument depending on the level and/or the age of the athlete. Certain questions that would be appropriate to ask a female Olympian are not appropriate to ask a freshman high school athlete.

In future research a larger sample size would allow for a more thorough analysis. As mentioned previously, the small sample size made it difficult to complete in-depth statistical analysis. Mail surveys are noted for poorer response rates (Rae & Parker, 1997). Personal administration of the survey would result in a drastically higher response rate. This would be costly and very time consuming, but would result in a considerably larger sample (Rae & Parker, 1997). With the current technology, it may be fitting and sensible to execute an online survey that the athletes can access via the internet.

Revisions and improvements of the survey instrument need to occur. Several questions appeared problematic to the participants. On several occasions, the questions that asked the athlete to fill in the number of times she received a particular honor or participated in a particular event were filled out incorrectly with simply a check mark put
in the blank beside the honor or event. The questions concerning the athlete’s likelihood of practicing and competing in particular situations also seemed to be problematic to some of the study participants. Some of the participants indicated two answers in the blank on several of the situations listed, meaning they were unsure about the likelihood of practicing and competing in particular situations. The survey design and setup could also be improved to make it more user friendly. The current survey instrument is composed almost entirely of fill in the blanks. This may cause confusion when the study participants are asked to do more than simply put a check on the blank that applies to them. A grid format with the corresponding scale along the top and the questions down the side could be used for several of the questions. This would allow the survey participant to simply check the box that applies to them, rather than having to fill the appropriate number in a blank. A fill in the circle format could possibly make some of the questions simpler to answer.

Researchers should continue to examine the factors that contribute to the athletic talent development of elite collegiate female athletes. A great deal of information can be learned from these talented young athletes in regards to how they made it to one of the highest levels of athleticism, elite collegiate competitors. This needs to be investigated further because many areas of athletic talent development remain virtually untouched. This study only examined three aspects of talent development from the survey: the impact of commitments outside of sport, importance of particular facilities/services and the roles of teammates. There are many other facets of athletic talent development that were not addressed in this study, such as the impact that peak performance and injury
may have on talent development, as well as how burnout may affect an athlete’s talent development.

Conclusions

Results from this study provide an important addition to the current body of knowledge regarding the talent development of elite female athletes. In general these athletes were less involved in extracurricular activities than expected. The athletes face time constraints that force them to limit the amount of outside activities in which they are involved. The athletes must prioritize their activities in order to be successful in their sport (Durand-Bush & Salmela, 2002). In comparison with the other outside activities, school was perceived as important to the athletes in this study. The study found that no statistically significant differences existed between the three elite groups involvement in outside activities. According to this study, outside commitments do not have an effect on the athlete’s development or performance.

Access to a track, training room, weight room, academic services and nutritional services was important to all the female track and field athletes. The elite level of the athlete made no significant difference in the athlete’s perception of the importance of access to these facilities and services. Access is important to everyone. High quality facilities and equipment are imperative in order to train and compete at any elite level. It is crucial for universities to provide all athletes access to high quality facilities and needed services. Great equipment can result in positive performances (Gould et al., 2002), and positive performances allow women to further their talent development.

Teammates were viewed as supporters, motivators and training partners by the athletes at all three elite levels. The study participants agreed that the teammate role,
training partner, was the role considered to be the most important. An athlete’s trust and confidence in a teammate and being able to train together were regarded as important factors that influenced performance of Olympic athletes (Gould et al., 1999). The low elite group did deem it to be more important that their teammates were motivators than the high elite group, perhaps revealing that collegiate track and field athletes at a high elite level do not find it as important to have teammates to help motivate them. However, previous research has shown that many elite athletes at the Olympic level do consider other athletes with whom they train to be significant individuals in their athletic careers (Durand-Bush & Salmela, 20002).

Women’s participation in sport has grown tremendously. As more females participate in sport it is imperative to understand the various factors that contribute to a woman’s ability to reach the elite level. Over the past twenty years researchers have begun to examine the female athlete and her talent development. It is important to note that both genetic contributions and environmental factors, such as the ones discussed in this research, play a role in women’s athletic development. Thus, continued research in both domains will aid in increasing public knowledge regarding the promotion of women’s achievement in sport. As researchers continue to discover more about female athlete’s talent development and the factors that contribute to talent development of this specific population, women of all ages and athletic levels will gain greater opportunity to further their talent. The knowledge and insight gained will help female athletes create an environment that is more ideal for fully developing their athletic talent.
References


Appendix A: Survey Questionnaire
1. What is your main collegiate track and field event?
   - ___ Distance (3000 meters and up)
   - ___ Mid Distance (800 to 1500 meters)
   - ___ Sprints (100 to 400 meters)
   - ___ High Jump
   - ___ Pole Vault
   - ___ Long/Triple Jump
   - ___ Throws
   - ___ Decathlon
   - ___ Heptathlon

2. How old were you when you began participating in track and field? ______

3. a. Were you identified as a gifted athlete in high school?  ___ Yes         ___ No
   If yes, check all that apply to your high school career
   - ___ All conference team
   - ___ All region team
   - ___ All state team
   - ___ Junior Olympic Team
   - ___ All-American
   - ___ State Champion

4. Do you currently consider yourself to be an elite track and field athlete?
   ___ Yes  ___ No

5. Please indicate the number of times you have received each of the following honors in your collegiate career in the blank provided (individual and relay team)
   - ___ Track and Field All-Conference
   - ___ Cross Country All-Conference
   - ___ Track and Field All-Region
   - ___ Cross Country All-District
   - ___ Track and Field All-American
   - ___ Cross Country All-American

6. a. Have you qualified or competed at any elite track and field events? (Outside of NCAA collegiate events)
   ___ Yes  ___ No
   If yes, please indicate the number of times in the blank provided
   - ___ USA Track and Field National Championships
   - ___ Junior Nationals
   - ___ Olympic Trials
   - ___ World Championships
   - ___ Another Countries National Team
   - ___ Other (please specify) __________________________________________

7. What is your current athletic scholarship level?
   - ___ Full (Tuition, Room & Board)
   - ___ Partial
   - ___ None
   - ___ Other (please specify) __________________________________________

8. Please identify how important the persons below have been in your development as an athlete. Please respond using the following scale:

   Not Important       Very Important
   1  2  3  4  5
   If an individual is not applicable please indicate that by putting N/A in the blank.
   - ___ Mother
   - ___ Father
   - ___ Guardian (s)
   - ___ Sibling (s)
   - ___ Friend (s)
   - ___ Significant Other (s)
   - ___ Other (please specify) __________________________________________
9. How important were each of the following coaches in your development as an athlete? Please respond using the following scale:

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

If an individual is not applicable please indicate that by putting N/A in the blank.

___ High School Coach
___ Junior Olympic/AAU Coach
___ College Coach
___ Outside/Personal Coach
___ Other (please specify) _________________________________________

10. How important is it for the coach you consider most important to your development as an athlete to be the following. Please respond using the following scale:

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

___ Knowledgeable (about training, competition, etc.)
___ Good motivator
___ Strict (disciplined)
___ Easy to talk to

11. Circle the number that best applies to you:

Never | True | Always True

1 | 2 | 3 | 4 | 5

My teammates are supportive of my athletic development.

1 | 2 | 3 | 4 | 5

My teammates help motivate me in my athletic development.

1 | 2 | 3 | 4 | 5

My teammates are training partners who help push me to perform at a high level.

1 | 2 | 3 | 4 | 5

12. How significant are the following barriers to your athletic development. Please respond using the following scale:

<table>
<thead>
<tr>
<th>Insignificant</th>
<th>Very Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

___ Financial considerations/hardships
___ Negative lesbian stereotype
___ Being female
___ Lack of role models
___ Absence of quality athletic competition
___ Time pressures (school/other interests)
___ Other (please specify) ____________________________________________

13. a. Have you suffered from a serious injury or illness that forced you to take significant time off during your collegiate career?

___ Yes  ___ No

b. If Yes, approximately how long did you take off? ____________________

c. What impact did this injury have on your level of performance?

Circle the number that best indicates your answer:

<table>
<thead>
<tr>
<th>Insignificant</th>
<th>Very Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
14. Please respond to the following statements using the scale:

<table>
<thead>
<tr>
<th>Definitely Disagree</th>
<th>Definitely Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

___ I wish I looked different
___ I wish I had more muscle
___ I wish I was skinnier
___ Stronger is better
___ Smaller is better

15. How important is your access to the following services/facilities in your athletic development? Circle the number that best indicates your answer

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Weight Training</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Training Room</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Academic Services</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Nutritional Services</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

16. a. At your university, do you agree that as an elite female track and field athlete you are provided the same access to facilities as male athletes? Circle the number that best indicates your answer

<table>
<thead>
<tr>
<th>Definitely Disagree</th>
<th>Definitely Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

b. If you disagree, please explain where you feel the discrepancies exist.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

17. How likely are you to practice in the following situations, regardless of what a coach would say? Please use the following scale to respond:

<table>
<thead>
<tr>
<th>Not Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

**If the situation is not applicable please indicate that by putting N/A in the blank.**

___ Rain
___ Snow
___ Wind
___ Temperatures below freezing
___ With an injury
___ If sick
___ When tired or fatigued
___ When stressed
___ When busy (excessive school work, other commitments, paid or volunteer work, etc.)
18. How likely are you to compete in the following situations, regardless of what a coach would say? Please use the following scale to respond:

Not Likely 1 2 3 4 5 Very Likely

If the situation is not applicable please indicate that by putting N/A in the blank.

___ Rain ___ Snow
___ Wind ___ Temperatures below freezing
___ With an injury ___ If sick
___ When tired or fatigued ___ When stressed
___ When busy (excessive school work, other commitments, paid or volunteer work, etc.)

19. Please use the following scale to respond:

Definitely Disagree 1 2 3 4 5 Definitely Agree

My sport is more important to me than:

___ School ___ Friends
___ Romantic Relationship ___ Job
___ Social Activities ___ Family
___ Other (please specify) ____________________________________________

20. a. I believe I have experienced sport burnout. ___ Yes ___ No
   b. If Yes, how significant were the following factors to your feeling of burnout? Please respond using the following scale:

Insiginificant 1 2 3 4 5 Very Significant

___ Extreme fatigue ___ Frustrated with sport
___ Lack of motivation ___ Severe practice conditions
___ Injury ___ Overtraining
___ Lack of support from coach (es) ___ Lack of support from parent (s)
___ Lack of support from teammate (s) ___ Excessive amounts of pressure
___ Unrealistic expectations ___ A lack of improvement
___ Reduced sense of accomplishment ___ A sense of failure
___ Stress ___ Boredom
___ Other (please specify) ____________________________________________

21. Circle the number that best indicates your answer to the following questions:
   a. How important is the concept of peaking, as you understand it, in reaching the elite level?
      Not Important 1 2 3 4 5 Very Important
   b. How important is it that you have a coach who knows how to train you so that you will peak at the right points in your season?
      Not Important 1 2 3 4 5 Very Important
22. Which competition(s) do you aim to peak for? (Check all that apply)
   ___ Conference    ___ Districts/Regionals
   ___ NCAA Nationals    ___ Olympic Trials
   ___ USA Track and Field Nationals
   ___ Other (please specify) _______________________________________________

23. a. I have experienced a peak performance at a meet other than when I intended to.
   Circle the number that best indicates your answer.
   | Definitely Disagree | Definitely Agree |
   | 1 | 2 | 3 | 4 | 5 |

b. If you have, when? _______________________________________________

c. Why do you think you peaked then?
   ___________________________________________________________________
   ___________________________________________________________________

24. I am involved in: (Check all that apply)
   ___ Academic organizations (ex. PRSSA, Engineering Club, Golden Key Honor Society, etc.)
   ___ Religious organizations
   ___ Community organizations (ie. Volunteer work)
   ___ No other organizations
   ___ Other (please specify) _______________________________________________

25. a. I often feel the time constraints I face affect my performance.
   (Circle the number that best applies)
   | Definitely Disagree | Definitely Agree |
   | 1 | 2 | 3 | 4 | 5 |

b. If I were less involved in other activities I would be a better athlete.
   | Definitely Disagree | Definitely Agree |
   | 1 | 2 | 3 | 4 | 5 |

26. Your age: ________

27. In what country were you born? ____________________________________

28. Which selection below best describes your racial/ethnic background?
   ___ Black American   ___ Hispanic / Latin American
   ___ Asian American   ___ White American
   ___ Multi-racial American   ___ Native American
   ___ International Black   ___ International White
   ___ Other (please specify) _______________________________________________

29. What is your marital status?
   ___ Married/Engaged   ___ Single
   ___ Divorced   ___ Domestic Partner
   ___ Widowed   ___ Cohabiting
   ___ Other (please specify) _______________________________________________
30. Do you have any children? ___ Yes  ___ No
   If yes, how many? ____________  Ages? ________________

31. Additional Comments:

__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

Thank you for your participation in this survey. I appreciate your time!

Diana H. Gore
Appendix B: Letter to Coaches

Dear (selected coach),

My name is Diana Gore. I am a graduate student at NC State in the Parks, Recreation and Tourism Management program. I am currently working on my thesis that is exploring talent development in elite female track and field athletes. I appreciate you and your athletes’ willingness to aid in my thesis research on talent development in elite female track and field athletes.

The professor I am working with, Dr. Burton has done qualitative research through interviews with elite female athletes examining the factors that contribute to talent development. Four factors emerged from her research and now I am examining those four factors in more detail. The factors that are being examined through my survey are lived body (dealing with injury and preparation of body), lived relations (family, coaches, team-mates, competitors and the sport itself), lived time (time constraints faced and concept of peaking) and lived space (facilities). Together we have constructed a survey that has been pre-tested and refined to its current state. I have selected approximately forty of the top Division I track and field and cross-country programs that I would like to participate in my research.

I am a former cross-country and track and field athlete at NC State and my time as a female collegiate athlete has spurred my interest in this area of research. There appears to be a void in research that examines female athletic talent development. A better understanding of the specific factors that contribute to talent development in elite female athletes would result in talent development models that could be applied directly to female athletes, rather than having to adjust current talent development models to try and make them applicable in the sport arena.

It is my hope that the results of this research will provide insightful information that will be helpful to the development of all elite female track and field athletes. I will be more than happy to share the results of my research with you if you are interested.

If you have any questions or comments please do not hesitate to contact me at dlhender@ncsu.edu. Thank you again for your time and participation.

Sincerely,

Diana H. Gore
Appendix C: Survey Instruction Sheet

Survey Instructions

*I would suggest trying to gather the participating athletes and allow them to fill out the survey at the same time prior to or after a practice. This keeps you from trying to track them all down individually to give them the survey.

*Please distribute to only those of your female track and field athletes who have achieved All-Conference, All-District/Region, or All-American honors thus far during their collegiate career.

*Inform the participants that the survey is voluntary.

*Instruct them to fill out the survey as completely as possible. If they feel uncomfortable with a question they may skip it and leave it blank.

*The athletes do not put their name on the survey.

*Each athlete will receive a prepaid return envelope to place their survey in once it is completed. It is the responsibility of the athlete to place the completed survey in the mail. This ensures confidentiality to the athletes.

*Thank you again for your help with this important and insightful study.