7-14-2008

A Survey of NCAA Division 1 Strength and Conditioning Coaches- Characteristics and Opinions

Jeremy Powers
University of South Florida

A Survey of NCAA Division 1 Strength and Conditioning Coaches-

Characteristics and Opinions

By

Jeremy Powers

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
Department of Physical Education and Exercise Science
College of Education
University of South Florida

Major Professor: Marcus Kilpatrick, Ph.D.
Robert Dedrick, Ph.D.
Candi Ashley, Ph.D.
Bill Campbell, Ph.D.

Date of Approval:
July 14, 2008

Keywords: training, weights, coaching, athletics, college

Table of Contents

List of Tables

A Survey of NCAA Division I Strength & Conditioning Coaches- Characteristics and Opinions

Jeremy Powers

ABSTRACT

The role of the Strength & Conditioning coach (SCC) has increased dramatically in collegiate athletics over the past 30 years. The SCC now spends more time with the athletes than even the individual sport coaches do because of NCAA rules. Despite the importance of the SCC, little is known as to what makes a good SCC and what a typical SCC is like currently. Limited amounts of research have been conducted to determine the characteristics and opinions of this specific population.

The main role of a SCC is to enhance athletic performance of the athletes at a university. They achieve this goal by enhancing strength, power, speed, agility, conditioning, flexibility, among other things. In addition, a good SCC will also help "toughen" up a team mentally, consult athletes on nutrition facts, and serve a variety of roles during team practices.

The purpose of this study was to survey NCAA Division I (bowl subdivision) SCCs to assess what characteristics they possess as well as what characteristics they deem to be important for other SCCs to possess. The questions asked ranged from education level to current activity level.

The results of the current study supported the hypotheses. SCCs come from a variety of backgrounds in regards to their education, certifications, past experiences, physical activity level, and physical size. The coaches also tended to favor other coaches similar to themselves.

With the findings from this study, prospective SCCs will have a better understanding of the hiring practices of prospective employers. Current SCCs will gain a better knowledge of their peers and the field in general. Future research is needed in the field regarding race and gender, two topics only briefly discussed in the current investigation.

Chapter One

Introduction

Rationale

Division 1-A athletics have become a billion dollar business. Overflowing stadiums, huge TV contracts, merchandise revenue, and sponsors have all contributed to the financial boom in this amateur sport. Because of the money at stake, especially in high profile sports such as football and basketball, there is intense pressure to win and win now. Head coaches realize that the physical development of their players is a key determinant in the success of the team. In contact sports, like football, where physical strength and speed are of such high importance the physical development of players is even more crucial.

Over the last 30 years, the field of Strength & Conditioning has gone from a bold initiative taken by a few schools to an accepted part of literally every Division 1-A football program. In its infancy, the weight room was monitored mainly by assistant football coaches and/or athletic trainers. Full time strength coaches were a luxury that very few schools enjoyed. Currently, the strength coach has more day to day contact with the football team than any other coach on the staff. In college athletics, the summer months are many times the most important for establishing a strong base that will carry the athlete through the entire competitive season. During this time, assistant coaches are restricted on how much and what kind of contact they are allowed with the athletes. It is up to the strength coach to keep the athletes accountable for their training activities during this time. The strength coach is a

multifaceted role that can include duties of exercise physiologist, sports nutritionist, sports psychologist, and often times disciplinarian.

Strength coaches come from a diverse background of experiences, certifications, and education levels. Many have played football or other sports at the college or professional level. Some have extensive experience in strength sports (weightlifting, powerlifting, bodybuilding). Others possess advanced degrees in the science of strength training and/or are certified by national organizations. The majority of coaches are a combination of the above characteristics.

With the hiring of a good strength coach it is possible to instill discipline in athletes, help reduce injury rate, and most importantly help the athlete develop physically through weight training and conditioning. A good strength coach can also be an asset in recruiting and gameday management. It is clear that having a qualified strength coach is of vital importance to the success of a good athletics program, but how we do we determine the qualities of a successful strength coach?

Purpose

The purpose of this study is to identify the characteristics of Division 1-A strength coaches from around the country. The research project will look at a broad range of variables including: physical activity level, educational background, certifications possessed, past competitive and coaching experiences, physical appearance, and race. Once it is established who these individuals are we want to find out what they, as strength and conditioning professionals, value in their peers. Which attributes do they value and which are less important when it comes to potential success as a strength coach? With our data we will be able to determine the qualities

of current strength coaches and what they believe is essential for success in the profession.

Objectives

The following objectives will be assessed in this study:

1. Determine what characteristics (e.g. Education level) current NCAA Division 1-A strength coaches possess.
2. Determine what current NCAA Division 1-A strength coaches view as important characteristics in their peers.
3. Determine how current NCAA Division 1-A strength coaches background relate to their perceptions of important characteristics.

Hypotheses

The following hypotheses will be considered during this study:

1. Current Division 1-A strength coaches come from a diverse range of education levels, physical activity levels, sizes, and experiences.
2. The majority of surveyed strength coaches will rate education and past playing experience as the most important characteristics.
3. The majority of strength coaches will rate characteristics they possess as being the most important characteristics for strength coaches.

Limitations

The limitations of this study include the difficulty of defining one of the key characteristics, physical appearance or size. Each individual will have a slightly different perception of physical size and muscularity. Other limitations include having very busy strength & conditioning professionals take the time out of their day

to answer survey questions. We hope that most will decide to participate because of their interest in the topic and how it relates to them. The final limitation is the diverse range of strength & conditioning staff positions that were surveyed. Past research has surveyed only head strength & conditioning coaches who were males. This study surveyed assistants, and females as well.

Chapter Two

Review of Literature

History of Strength & Conditioning

The National Strength Coaches Association, later renamed the National Strength & Conditioning Association (NSCA), was founded in 1978 launching the advent of a new age in sports performance enhancement. Previously, athletic trainers, assistant coaches, or even outside consultants were in charge of the weight room activities for a given team. Many times these individuals did not have advanced knowledge in the field of strength training or conditioning (Sutherland & Wiley, 1997). With the NSCA providing support, the field of Strength & Conditioning (SC) began to gain notoriety in the early 1980's and the Strength and Conditioning coach's (SCC) impact on athletes on field performance became noticeable. Increasingly, universities across the nation began hiring full-time SCC and eventually began to add assistants, graduate assistants, and in some cases paid student assistants or interns. Today, the SCC is seen as an indispensable role within the athletic department and is seen as one of the primary reasons for on field success (Layden, 1998).

College athletics can be quite simply described as "big business". In 2007 The Ohio State University's athletic budget was a record $109,382,222. In 2006, thanks in part to being national runner's up, Ohio State's football and basketball teams profited $36 million and $9 million respectively (Weinbach, 2007). With that kind of money involved it's easy to see that there is pressure to win, especially in big

revenue sports like football and basketball. Millions of dollars are poured into state-of-the-art weight rooms used to enhance athletes' performance and reduce the rate and severity of injuries. These shrines of physical performance are many times the cornerstones of recruiting pitches aimed at attracting top talent and are bragged upon by boosters and coaches alike. Talent and the physical development of that talent are the lifeblood of quality athletic programs. Well-designed and implemented S&C programs have been shown to produce gains in physical performance that can lead to victories on the field and subsequently money in the pockets of the athletic department.

To demonstrate the profound effect a comprehensive SC program can have on athletes, Olson et al. (1985) examined the differences between Division 1 NCAA football players from 1974 and 1984 in regards to speed and strength capabilities. The 10 years between 1974 and 1984 represent the years that SC gained much of it's popularity in the collegiate setting. The study showed that there were marked improvements in 40 yard dash times among all position groups, but especially offensive lineman. All player positions increased in absolute strength during this time period. The gains in relative strength were perhaps the most interesting finding in the study. Most of the players gained significant body mass, but were still stronger pound for pound than the players from 1974 (Olson, 1985). It could be hypothesized that the gains in mass could be due in large part to hypertrophy of muscles as a result of advances in weight training programs. This study showed that as SC became increasingly more mainstream among collegiate athletics those athletes became

bigger, stronger, and faster. It would appear that SC played a large role in these changes.

There is no doubt that today's athletes are more physically advanced than their counterparts of years ago. In 1950 the average collegiate football lineman was 6 feet 2.5 inches tall and 220 lbs. Only 34 years later, the average lineman had grown to 6 feet 4.5 inches and 268 lbs (Epley, 2002). These differences are certainly not due entirely to weight training, as genetics and advances in nutrition undoubtedly play a role, but it's difficult to ignore the relationship between weight training popularity and the increase in size of athletes.

A Profile of Strength & Conditioning Coaches

Strength and Conditioning coaches have been defined as "individuals who directly work with athletes to develop all physical qualities" (Kontor, 1989 p.75). These attributes include speed, strength, power, agility, cardiovascular and muscular endurance, and flexibility. Additionally, a good program will include nutritional information, rehabilitation services, and motivation to enhance performance (Kontor, 1989). Kraemer (1990) proposed that the primary skill and fundamental job of the S&C professional was to prescribe appropriate exercises for training athletes so that it aided in the prevention of sports injuries and enhanced athletic performance. The SCC must also possess skills in administration, organization, motivational techniques, public relations, and exercise techniques (Kraemer, 1990).

It is important to understand what the job responsibilities of SCCs are. Obviously, training athletes is the main responsibility, but the literature has shown SCCs to have a variety of roles and duties. A 2004 study by Massey et al. surveyed

six Division 1-A football SCCs from the southeast United States. The coaches reported working 6-10 hours a day training athletes from all different sports, despite football being their primary responsibility. During the football season the coaches worked on average 71 hours per week. This was spent training athletes, going to practices, and attending football games where they had a variety of roles. On gameday all of the surveyed coaches were in charge of the pre-game stretching routine, two of the six were responsible for the entire pre-game warm-up. Other duties included being sideline managers, making sure enough men were on the field, and typing up the itinerary. While the hours were not as strenuous during the offseason the coaches still averaged 60 hours per week. Other than being responsible for the training of athletes, strength coaches had to develop and implement a budget, speak to scouts about individual players, help with recruiting of potential student-athletes, and handle much of the discipline for the team. Despite the long hours most of the surveyed coaches were satisfied with their jobs. They cited the relationships with players and the influence they could have on them and their careers as being particularly satisfying. This survey is the only research that details all of the different roles a SCC can play. It demonstrates very clearly that the SCC is so much more than a supervisor of the weight room.

The profiling of SCCs has focused primarily on employment opportunities of SCCs, salary ranges, educational backgrounds, and administrative support. This research has been conducted through the pivotal years of SC development and has lent some important insight into how the field has progressed. The findings from

these studies allow us to compare and contrast to the more recent literature and gain an idea on how much SC has grown in such a short time.

Even with the field of SC in its infancy 96% of institutions surveyed in 1986 employed at least one SCC. Of the same schools, 32% had at least one full time assistant. In 1983-1984 eight of the ten better-supported and equipped SC programs saw their football teams invited to bowl games (McClellan & Stone, 1986). This is more evidence confirming the importance of the SCC in addition to having quality facilities for the SCC to operate out of. Interestingly, SC seems to have not been as much of a priority at the professional level. As recently as 1997, only 55 out of 74 surveyed professional football, basketball, baseball, or hockey teams had a full time SCC (Sutherland & Wiley, 1997). These findings are puzzling, but may be based on the physical development of athletes that is often times concluded during college years. It's conceivable that a professional athlete who had 4 years of structured weight training may not need someone to supervise their weight training habits at the professional level. Another factor that has not been addressed in formal research is the prevalence of private SCCs employed by professional athletes. Their presence would reduce the need for the organization to employ their own SCCs. While there is no recent research to confirm the assumption, it's reasonable to think that since 1997 a greater percentage of professional teams have added full time SCC because of the financial investment these organizations are making in the players and their bodies.

Other surveys have been aimed at determining the qualifications and experiences of current strength coaches. It would appear that a bachelor's degree in either physical education or exercise science is a minimum requirement to gain

employment as a SCC (Dooman & Titlebaum, 1998; McClellan & Stone, 1986). A 1992 study by Pullo found that 63.4% of SCCs at the Division 1-A level had a bachelor's in either physical education or exercise science (Pullo, 1992). As of 2001 less than 20% of Division 1-A and 1-AA coaches had masters in the field of exercise physiology/science (Martinez, 2001). This is not a surprising statistic because formal training in this field is still a relatively recent phenomenon. The current percentage of SCCs with a master's degree in this area is likely to be greater than the population surveyed in 2001. The undergraduate majors were similar between the professional SCC and the collegiate SCC (Sutherland & Wiley, 1997). Physical education and exercise science are majors that would provide the best educational background for a potential strength coach. Because of the increasing role of science based research in SC, a bachelor's degree in exercise science may be more beneficial. Classes in exercise physiology, kinesiology, biomechanics, sport psychology, nutrition, and research and design are common in exercise science curriculums and are vital for SCCs (Dooman & Titlebaum, 1998).

In terms of certifications, the NSCA's Certified Strength & Conditioning Specialist (CSCS) Certification seems to be the favorite among current SCCs (Dooman & Titlebaum, 1998). The CSCS has gained significant popularity over the years. In 1988 only 48% of D-1A SCCs were certified whereas in 2001 the same population had a 72.5% rate of certification (Martinez, 2001). This demonstrates the commitment the NSCA has shown to creating a more standardized role for the SCC and a legitimate governing body for the profession. Other organizations that offer certifications often held by SCC are USA Weightlifting (USAW), American College

of Sports Medicine (ACSM), and Collegiate Strength & Conditioning Coaches Association (CSCCa). USAW is the national governing body for the sport of Olympic Weightlifting (www.usaw.org). The ACSM is focused more on the health benefits of fitness as opposed to performance enhancement (www.acsm.org). The CSCCa was created for SCCs who work in the collegiate setting and deals with issues unique to these individuals (www.cscca.org). There is no available data showing how many current SCCs possess certifications from any of these organizations.

Practical experience in athletics and weight training can pay dividends for a future SCC. Football, track & field, and baseball are the most popular former sports for current SCCs (Martinez, 2001). With a background in athletics, a potential SCC will likely have been exposed to SC and advanced weight training techniques that are used primarily in sporting situations. Those who have not participated in athletics at the college level are at a disadvantage, but there are opportunities to gain experience. Taking volunteer positions or internships are often the only way to gain practical experience (Dooman & Titlebaum, 1998). These experiences will allow an individual time to learn about the day-to-day activities of the profession. This knowledge is something that cannot be gained from a book or certification. More and more, collegiate SCCs do not have athletic backgrounds. In 1988 only 1.2% of surveyed Division 1-A SCCs did not possess a background in collegiate athletics; that number had increased drastically to 8.75% in 2001. The numbers were even more dramatic for Division 1-AA SCCs which saw the percentage of coaches with no collegiate athletic experience grow from 5 to 20.7% (Martinez, 2001). This could be another example of how the science of strength training is being placed at the forefront in the

field. SCCs have become a more specialized group. In 1988 more SCCs had coaching backgrounds in weightlifting, powerlifting, or football (Pullo, 1989). By 2001 more SCCs had extensive experiences as assistants and/or graduate assistants (Martinez, 2001). This seems to indicate that coaches in hiring positions are looking for candidates with extensive experience in the specific field of SC and not just in sports or weight training. The literature suggests that over the years, hands on SC experience and a strong scientific background are becoming more and more important for potential SCCs.

To date, only two studies (Martinez, 2001; Pullo, 1989) have surveyed SCCs on what they believe to be important characteristics for potential and current SCCs to succeed. These two studies advanced the literature by not only determining the characteristics displayed by current professionals, but by also finding out their opinions. Pullo began the research in 1988 by asking current SC coaches how essential or non-essential certain characteristics are for potential SC coach job applicants. Martinez followed this study up with a more recent investigation in 2001 which asked many of the same questions that the Pullo study addressed, while also adding in some of his own to expand on the research. By using similar research instruments and methodology direct comparisons could be made between the two studies and a sense of just how much the profession has changed over the 13 year time span was very evident.

The work by Pullo (1989) surveyed participants and obtained their opinions on: educational background, competitive experiences, coaching experiences, and duties as a SCC. The results were divided between coaches in Division 1-A and

Division 1-AA. Martinez asked two separate questions that went into more depth. Question 1 focused on rating how essential certain items were for a SCC to be successful at that coach's school. These included educational background, certifications, experiences, and duties as a coach. Question 2 focused more specifically on the educational backgrounds and a wide range of experiences of potential SCCs. Martinez also divided his participants into 4 divisions. Division 1-A, 1-AA, and 1-AAA (school with no football program).

The results of the Martinez (2001) study showed SCCs to be a very homogenous population of mostly white males in their 30's. Most had master's degrees in either Exercise Science or Physical Education and had obtained the distinction as a CSCS. Many had played college football before their career as SCCs. Perhaps the biggest differences seen over the 13 year period were that of salary, a $20k per year increase on average, and size of the weight room the SCC had to work out of, about 7,000 square feet bigger on average. The drastic increases in salary and square footage of the facility demonstrate the commitment athletic departments were making towards SC and its staffing. The surveyed SC coaches in 1988 were very similar to those from 2001 in their opinions on the qualifications and duties of a SCC. One main difference was in obtaining the CSCS. Coaches from 1988 rated that as nonessential while in 2001 it was rated as essential. This is not surprising as the CSCS and the NSCA were not as established at that time compared to today. Another major discrepancy was in regards to conducting research. Coaches in 1988 thought of this as essential, while the coaches from 2001 considered it to be somewhat nonessential. Despite these few differences the SC coaches surveyed in 1988 and

those from 2001 were very similar in both their opinions and backgrounds. We aim to determine the differences between those two groups and our current group while adding other survey items not addressed by the previous research.

Perceptions of Physical Attributes

One area that the research has failed to address are the physical aspects of SCCs. Does the overall size or muscularity of SCCs impact how they are perceived by their peers or the athletes they coach? While this research has not been done in the field of SC, it has been done in other professions, notably physical education. Due to the physical nature of the material being taught, the modeling of motor skills is of primary importance in physical education, much more so than in traditional educational environments (Spencer, 1998). Because of the need to demonstrate physical activities to students, leaders in physical education have agreed that instructors in these classes become models for their students to imitate and learn from (Whitley, Sage, & Bucher, 1988). The National Association of Sport and Physical Education defined the characteristics of a physically educated person as: being physically fit due to regular physical activity, possessing skills for such participation, and valuing the effects of activity for a healthy lifestyle (Shoemaker, 2000)

The physical education instructors who model good health behavior have been shown to have a more positive impact on their students, whereas, those who exhibit poor health habits may act as negative role models (Bucher & Thaxton, 1981). An instructor teaching good health habits who does not appear to "practice what they preach" will likely lose some credibility with their students. A 2005 study by Dean, Adams, and Comeau showed student performance in physical education classes was

related to the physical appearance and apparent fitness level of the instructor. The authors hypothesized that this could be due to the students not valuing information when it's presented by an instructor who does not model it themselves. The students were more likely to accept info and advice from a "fit" instructor. As the study progressed the students realized that the instructor was not limited by his/her obesity. As a result, the students began to focus more on instructor qualities and personal characteristics instead of physical appearance. This finding would seem to indicate that the ability to demonstrate the material is a more important factor to the students than the instructor's appearance. It should be made clear that the research is not conclusive in this area. Another study found that a lack of fitness did not impair teachers' job performance. The level of fitness was found to be an insignificant factor in teacher student interaction (Bischoff, Plowman, & Lindeman, 1988). These findings are difficult to explain and demonstrate that more research on the topic is necessary before any firm conclusions can be drawn.

Another area that the physical education research has focused on is biases in the hiring process of physical education teachers. The studies aimed at determining how fitness level or physical characteristics of applicants affected their ability to be hired. When provided with hypothetical profiles of job applicants of varying physical description, principals were shown to have biases against physical education teachers who were overweight (Melville & Cardinal, 1997). Significantly overweight applicants (20lbs or more overweight) were 33.9% more likely to be eliminated from a final applicant pool than those of normal weight (Jenkins, Caputo, & Farley, 2005). Whether these findings will transfer over to SC is difficult to predict. Both

professions involve the modeling and promotion of physical activity and therefore might show some similarities in terms of physical biases and perceptions.

Independent of fitness level or body weight, body height has also been determined to affect hiring practices of employers. In a survey of job recruiters 75% would hire a 6'1" applicant over a 5'9" applicant when all other factors were equal (Snider, 1972). This research supports the findings of earlier studies regarding the issue of body type and height. Studies of school-age groups have shown that height and the mesomorphic, or athletic physique are strongly associated with leadership (Stogdill, 1974). A study published by Gascaly and Borges found that we associate desirable traits, particularly leadership, with males who are tall and well built (Gascaly & Borges, 1979). The military which prides itself on the generic appearance of it's members has shown former athletes are able to gain moderately higher rankings throughout their careers than non-athletes. Height was also found to slightly hinder the shortest men, and enhance the careers of the taller men (Mazur, Mazur, & Keating, 1984).

It's unclear on how important it is to "look the part" in the field of SC. Do SCCs need to be bulky and extremely muscular or just fit looking? Do looks even matter at all? These are things that have currently not been addressed by the literature. The findings from physical education settings and in the military indicate that it might be a factor. In addition, how important is it for SCCs to "practice what they preach" in their own daily lives? With our survey of current SCC at the collegiate level we plan to update the research of Pullo and Martinez, while addressing additional topics relating to physical appearance and activity level. We

are hopeful that with our results potential SCC will have an idea of what their potential employers are looking for. These findings will also educate current professionals about their chosen field and the opinions and values of their peers.

Chapter Three

Methods

Participants

The participants for this study were current Division 1- Bowl Subdivision (formerly Division 1-A) Strength & Conditioning coaches. This included 119 universities nationwide. The participants included any full time employees of these universities excluding graduate assistants. By surveying not just football Strength & Conditioning coaches or just males, the study was able to draw general conclusions about the field of Strength & Conditioning. Previous research has not surveyed women or Olympic sports Strength & Conditioning coaches. Therefore it was important to see what differences existed between the populations.

The goal of the project was to obtain 150 completed surveys with a variety of specializations in regards to education level, certifications, and experiences. Additionally, both males and females were included in the survey.

Measurement

The research compared all of the relevant obtained results with those of the previous researchers on the topic. Data detailing results of survey items not a part of the previous research were included in the data analysis. The survey was comprised of two sections.

Part I was a survey asking current strength coaches about themselves. Within this section was information on the following: demographics, job information,

education/certifications, competitive experiences, coaching experiences, and current activity level. The demographics portion of Part I asked about the following: sex, age, salary, height, weight, and how the coaches would rate themselves in regards to muscularity and body fat, and race. There were two questions under Job Information, four under Education/Certifications, five under Competitive Experiences, three under Coaching Experiences, and nine under Current Activity level. All questions were either multiple choice where one answer was to be selected, multiple choice where multiple answers could be selected, drop down menus, or a blank where the participant could fill in their own response.

Part II included questions assessing opinions of current strength coaches. The questions were grouped by: Education/certifications, Competitive Experiences, Coaching Experiences, Current activity level, and Physical attributes. The survey questions in this section were answered on a 1-5 scale with (1) *absolutely non-essential* for a strength coach to possess, (3) *somewhat essential*, and (5) *absolutely essential*. The questionnaire contained 21 survey items (eight under Education/Certification, three under Competitive Experiences, three under Coaching Experiences, three under Current Activity Level, and four under Physical attributes. The last two questions under physical attributes were measured on a different 1-5 scale with (1) *No, never*, (3) *Sometimes*, and (5) *Yes, always*.

The selection of survey items was based partially on the research previously conducted by Pullo and Martinez (Martinez, 2001; Pullo, 1989). Additional survey items were chosen based on their relevance to the topic and the population being studied. The main differences between this survey and the previous research are in

the areas of physical activity and physical attributes. Pullo (1989) and Martinez (2001) did not address these items in their studies. Other items have been left out of the survey that the primary investigator did not feel were necessary for the current study.

Procedures

After receiving approval from the Institutional Review Board, the primary investigator sent 438 emails to coaches at 114 of 119 Division 1- Bowl Subdivision university Strength & Conditioning coaches. The email addresses were obtained using staff directories on official athletic websites. For those coaches not listed in the directory the primary investigator attempted to find their email addresses from the contact list for CSCCa (Collegiate Strength & Conditioning Coaches Association) conference attendees. Email addresses were not available for five of the schools. Because some staff directories are not always up to date, several emails were automatically returned indicating the email address did not exist anymore. The email contained a cover letter discussing the current study, the implications, and instructions for how to take the survey. Within the email was a link to the survey at www.surveymonkey.com. Survey Monkey is an online survey wizard which allows individuals to create surveys that can easily be taken by anyone given the proper web link. After a period of one week, a reminder/thank you email was sent to all 438 original email addresses. Because there was no way to track who had completed the survey, everyone received the email which thanked those who had completed the study and encouraged those who had not, to do so. An additional week was provided

to complete the survey at which time the survey was closed and statistical analysis of the data began.

Statistical Analysis

Data analysis was conducted on 158 of the 162 completed surveys. Four were eliminated because their data set did not include enough information. The data analyses first looked at basic descriptive statistics both about the SCCs themselves as well as their opinions. Mean and standard deviation were used on all relevant items, other information was reported simply as frequencies. Once this portion of the analyses was completed, we moved onto the second portion which was aimed at comparisons between groups as well as determining biases among the surveyed population

Independent t-tests were conducted to determine the differences between surveyed males and females, as well as differences between surveyed Head/Directors of SC and Assistant/Associate SCCs. Comparisons were made on age, salary, self rating of muscle, self rating of fat, years in college SC, years SC total, average days, time, and intensity of both resistance and cardiovascular training, and then all opinion based questions. The significance level was set at .05.

The survey contained an item asking the participant to rate their muscularity compared to other SCCs on a scale of 1-5; (1) *very low*, (3) *average*, and (5) *very high*. For analysis the responses were divided into two groups: 1-3= low muscle and ≥ 4=high muscle. An independent t-test was run to determine the differences between these groups and what, if any, biases existed in the high muscle group on their opinions pertaining to muscularity. The significance level was set at .05.

Additional analysis was done to determine what biases, if any, existed as a result of past playing experience. The survey contained multiple questions pertaining to level of playing experience. For analysis the responses were grouped into three groups: no college playing experience, Division II, III, or NAIA experience, and NCAA Division 1 or 1AA experience. A one way ANOVA was conducted on these three variables. Post hoc analyses were conducted using Least Significant Difference (LSD) and Bonferroni. As with the other portions, the significance level was set at .05.

The final portion of the analysis was aimed at determining how undergraduate major affected opinions. Participants were placed into three groups: Exercise Majors (Exercise Science/Exercise Physiology, Kinesiology, Other Health/Wellness), Physical Education, and Other major. A one way ANOVA was used to determine significant differences on opinions. LSD was the post hoc test used to compare groups against one another. As with the other analyses, the significance level was at a .05

Chapter 4

Results

Demographic Data and Descriptives of Surveyed Population

Descriptive statistics were conducted on categorical survey items to determine the total number of participants who selected each answer and the percentage of the overall population. These results include the entire population to get an idea of SCCs in general, without consideration of gender, job title, etc. The demographic data are presented in Table 4.1. The results indicate that 75.9% of those surveyed make less than $60,000 per year. In terms of "Job Title" 73.7% of the participants are considered to be Assistant/Associate SCCs. These percentages match up very closely suggesting that most Assistant/Associate SCCs can expect to make <$60,000 per year. There is a rather large number (n=13) of participants who made >$100,000 per year. A vast majority of SCCs are white (89.2%) with approximately 5% African American and another 5% made up of Hispanic, Asian, or other races. A bachelor's degree was the minimum obtained education level, while the majority possessed a master's degree (72.2%). Exercise Science was the most widely reported major in both undergraduate and graduate school (51.9% and 44.1% respectively). In regards to certifications, the National Strength & Conditioning Association's (NSCA) Certified Strength & Conditioning Specialist (CSCS) was far and away the most widely possessed certification (77.8%) with both the Collegiate Strength & Conditioning Coaches Association (CSCCa) and USA Weightlifting (USAW) around

50%. Football was the most popular sport played at all levels (high school, Division II, III, or NAIA, Division 1A or 1AA, or professional). The percentage of males who played football would actually be higher than the overall population which included female participants who often do not have the opportunity to play football. Very few of the participants did not participate in any sport at the high school level (3.8%), but that number grew as the level of competition increased as only 13.9% reported playing sports at the professional or Olympic level. Competing in Powerlifting was the most popular resistance sport (23.4%) with Olympic Weightlifting not far behind (17.7%).

Overall Study Population Means

For continuous variables, means and standard deviations are presented to show average responses as well as how much variability existed in the population. These are presented for the overall population in the last column of Table 4.2. For the items Self Rated Muscle and Fat the participants were asked to rate their muscularity and body fat compared to other SCCs on a 1-5 scale with *very low* (1), *average* (3), and *very high* (5). The chart includes all opinion items which were also answered on a 1-5 scale; *absolutely non-essential* (1), *somewhat essential* (3), and *absolutely essential* (5). The data showed that SCCs are still able to find time to workout on a regular basis, both resistance and cardio training. On average the coaches are resistance training over 4 days/week (4.56 ± 1.12) and participating in cardio training over 3 days/week (3.69 ± 1.59). The results show that among the items rated most essential by SCCs is possessing a bachelors degree (4.87 ± 0.44), majoring in exercise

science (3.71 ± 1.12), participating in athletics at the high school level (4.17 ± 1.03), and currently participating in a resistance program (4.23 ± 1.05).

Males SCCs compared with female SCCs

To determine the differences between male (n=122) and female SCCs (n=34), means and standard deviations were calculated on continuous survey items. The data is reported in Table 4.2. There were some significant differences between the two groups. Males as a group were 4 years older than the females surveyed (33.5 ± 7.4 v. 29.5 ± 3.7 years old, $p<.01$). Males also had almost three years more of experience in the field of collegiate SC (10.5 ± 6.0 v. 7.9 ± 4.1 years, $p<.05$). Males resistance trained more often than females (4.69 ± 1.09 v. 4.09 ± 1.16 days/week, $p<.01$), however, their duration and intensity of resistance training was similar to females. Cardio training was favored by the females both in frequency and duration (4.58 ± 1.75 v. 3.45 ± 1.47 days/week, $p<.01$; 41.3 ± 19.4 v. 32.2 ± 17.6 minutes/session, $p<.05$). In regards to their opinions of what other SCCs should possess, the two groups were mostly similar, there were, however, a few significant differences. Females thought it was more important to major in Exercise Science (4.18 ± 1.03 v. 3.57 ± 1.11, $p<.01$) and be certified with the CSCS (3.62 ± 1.21 v. 3.10 ± 1.33, $p<.05$) and CSCCa (3.41 ± 1.16 v. 2.85 ± 1.34, $p<.05$). These differences were rather small, but still statistically significant. Finally, the females surveyed in this study reported that it was more essential for current or prospective SCCs to participate in a cardio training program. This falls in line with the increased frequency and duration of cardio they reported themselves.

Heads/Directors of SC compared with Assistant/Associate SCCs

Unlike with the comparison between males and females, the Head/Directors of SC (n=41) v. Assistant/Associate SCCs (n=115) produced very few statistically significant differences. Table 4.2 provides a side by side comparison of the means and standard deviations of the two job titles. Age was an area with a large difference between the two groups with Head/Directors of SC more than 7 years older on average than the Assistant/Associate SCCs (38.1 ± 8.7 v. 30.9 ± 5.2 years old, $p<.01$). Another area that produced a significant discrepancy between the two groups was "Years in College SC" and "Years total in SC". The Head/Directors of SC had almost five more years experience on average for both questions (13.9 ± 6.4 v. 8.6 ± 4.7 years of college experience, $p<.01$; 13.7 ± 7.8 v. 8.9 ± 5.2 years of total experience, $p<.01$). It is unclear why Head/Directors of SC indicated they had more collegiate experience than overall experience. Assistant/Associate SCCs showed a greater propensity towards resistance training. They resistance trained more frequently and for a longer duration than did the Head/Directors of SC (4.70 ± 1.05 v. 4.17 ± 1.26 days/week, $p<.01$; 68.0 ± 24.6 v. 52.8 ± 23.7 minutes/session, $p<.01$). Cardio training was similar between the two groups for all variables (frequency, duration, and intensity). Among opinions of characteristics current or prospective SCCs should possess, only one response varied significantly. Assistant/Associate SCCs believe it is more important for current or prospective SCCs to participate in a resistance training than Head/Directors of SC do (4.34 ± 0.97 v. 3.93 ± 1.23, $p<.05$). It should be noted that this difference was small, and while it had statistical

significance, may not have much practical significance. All other opinion items were rated similarly between the two job title groups.

Past Playing Experience and Opinions

The sample was divided into three groups to examine what biases were based on past playing experience. The first group was comprised of all individuals who did not compete in any level of college athletics (n=44). The second group was all participants who competed in college athletics at the Division II, III or NAIA levels (n=52). And the final group was made up of all those who participated in college athletics at Division 1-A, or 1-AA levels (n=60). There was no distinction made between different sports. The results can be found in Table 4.3. The most significant difference between the three groups was how essential they rated both high school and college playing experience for current or prospective SCCs. Those with no collegiate playing experience rated high school playing experience and college playing experience much lower in terms of essentiality (3.73 ± 1.13 and 2.41 ± 0.87) when compared to the groups who had played college sports (4.33 ± 0.92 and 3.40 ± 1.02 for lower level college athletics; 4.35 ± 0.97 and 3.61 ± 1.02 for higher level college athletics, $p<.05$). Those who played lower level college athletics and those who played at a higher level showed no differences in opinions of past playing experience. In regards to hiring practices the three groups were all very similar except for one survey item. Lower level college athletes are more likely to hire a physically fit applicant over a less physically fit applicant when compared to higher level college athletes (3.68 ± 1.04 v. 3.21 ± 1.19, $p<.05$).

Muscularity and Opinions

The survey population was placed into two groups depending on their answer to the self-rated muscularity question. Those who answered ≥4 were placed into the "high muscle" group (n=77). Those who answered ≤3 were placed into the "low muscle" group (n=79). Table 4.4 details the differences between the two groups in terms of self workout habits and opinions. The "high muscle" group reported significantly higher frequency (4.95 ± 1.07 v. 4.18 ± 1.05 days/week, $p<.01$), duration (71.4 ± 27.3 v. 57.2 ± 20.7 minutes/session, $p<.01$), and intensity (4.23 ± 0.61 v. 3.87 ± 0.94, $p<.01$) of their resistance training workouts compared to the low muscle group. They also valued past experience coaching in resistance sports such as Powerlifting (2.34 ± 1.12 for high muscle with 1.74 ± 0.95 for low muscle, $p<.01$) and Olympic Weightlifting (2.57 ± 1.19 for high muscle with 2.04 ± 1.04 for low muscle, $p<.01$). Coaches with higher levels of muscle considered the overall size of a current or prospective SCC to be more essential than their peers with lower levels of muscle (2.60 ± 1.10 for high muscle and 2.08 ± 0.98 for low muscle, $p<.01$) and they are more likely to hire someone based on their physical size (2.42 ± 1.28 v. 1.99 ± 1.12, $p<.05$). Both groups equally value the importance of resistance training and put equal essentiality on the fitness level of job applicants.

Undergraduate Major and Opinions

The final portion of the results focused on how SCCs undergraduate major was related to their opinions. Exercise Science/Exercise Physiology, Kinesiology, and Other Health/Wellness Majors were grouped together (n=111) and compared against Physical Education (n=17), and any Other major (n=26). Table 4.5 outlines

the results of the ANOVA conducted on these three groups. All three groups showed nearly identical ratings of essentiality for both having a Bachelors and Graduate Degree. The most significant differences occurred in the essentiality of having a degree in Exercise Science/Exercise Physiology. Those with the degree in Exercise Science/Exercise Physiology, Kinesiology, or Other Health/Wellness Major rated it as 3.96 ± 0.97 on the 1-5 scale compared to 3.22 ± 1.21, ($p<.05$) for Physical Education majors, and 3.00 ± 1.27, ($p<.01$) for Other majors. Physical Education majors also valued having a degree in Physical Education significantly higher than those with Other majors (3.17 ± 1.10 v. 2.42 ± 0.86, $p<.05$). Finally, SCCs with degrees in Other majors are more likely to hire a person based on their physical size when compared with SCCs with degrees in Exercise Science/Exercise Physiology, Kinesiology, or Other Health Wellness Majors (2.62 ± 1.44 v. 2.07 ± 1.12, $p<.05$).

Table 4.1 Demographics of Population with Averages

	N	%		N	%
Salary			**Certifications**		
$20-29,999	13	8.2	CSCS	123	77.8
$30-39,999	49	31.4	USAW	78	49.4
$40-49,999	30	19.2	CSCCa	80	50.6
$50-59,999	27	17.1	CPT	1	0.6
$60-69,999	12	7.7	ACSM	6	3.8
$70-79,999	5	3.2	NASM	1	0.6
$80-89,999	6	3.8	**High School Playing Experience**		
$90-99,999	1	0.6	Football	102	64.6
>$100,000	13	8.3	Basketball	63	39.9
Race			Baseball/Softball	55	34.8
White	141	89.2	Track	76	48.1
African American	9	5.7	Soccer	17	10.8
Hispanic	5	3.2	Lax	3	1.9
Asian	1	0.6	Swimming/Diving	4	2.5
Other	2	1.3	Hockey	7	4.4
Sport Responsibility			Wrestling	36	22.8
Football	64	40.8	Other	27	17.1
Basketball	39	24.8	None	6	3.8
Other (Olympic Sports)	54	34.4	**D1 or D1AA Playing Experience**		
Job Title			Football	34	21.5
Director/Head of SC	41	26.3	Basketball	7	4.4
Assist/Assoc. SCC	115	73.7	Baseball/Softball	3	1.9
Other	2	1.3	Track	14	8.9
Education Level			Soccer	0	0
Bachelors	43	27.2	Lax	0	0
Masters	114	72.2	Swimming/Diving	0	0
Doctoral	1	0.6	Hockey	1	0.6
Undergrad Major			Wrestling	2	1.3
Exercise Science/Phys.	82	51.9	Other	10	6.3
Physical Education	21	13.3	None	70	44.3
Kinesiology	23	14.6	**DII, DIII, or NAIA Playing Experience**		
Health/Wellness	19	12	Football	29	18.4
Other	29	18.4	Basketball	6	3.8
Graduate Major			Baseball/Softball	5	3.2
Exercise Science/Phys.	67	44.1	Track	10	6.3
Physical Education	11	7.2	Soccer	3	1.9
Kinesiology	11	7.2	Lax	1	0.6
Health/Wellness	10	6.6	Swimming/Diving	1	0.6
Other	33	21.7	Hockey	0	0
			Wrestling	0	0
			Other	5	3.2
			None	75	47.5

	N	%
Pro or Olympic Playing Experience		
Football	8	5.1
Basketball	0	0
Baseball/Softball	0	0
Track	3	1.9
Soccer	0	0
Lax	0	0
Swimming/Diving	1	0.6
Hockey	0	0
Wrestling	1	0.6
Other	9	5.7
None	107	67.7
Resistance sports competed in sanctioned meet		
Powerlifting	37	23.4
Olympic Weightlifting	28	17.7
Bodybuilding	9	5.7
Strongman	6	3.8
Other	1	0.6
None	78	49.4

Table 4.2 Overall Group Descriptives and Comparisons Between Males and Females and Head/Director and Assistant/Associate SCC

All reported stats are Mean ± Std.Dev.	Males (n=122)	Females (n=34)	Head/ Director (n=41)	Assistant/ Associate (n=115)	Overall (n=158)
Age	33.5 ± 7.4[#]	29.5 ± 3.7[#]	38.1 ± 8.7[#]	30.9 ± 5.2[#]	32.7 ± 7.0
Height (inches)	71.7 ± 3.23[#]	66.72 ± 4.71[#]			70.6 ± 4.12
Weight (lbs)	223.0 ± 35.2[#]	152.9 ± 20.4[#]			207.6 ± 43.5
Self Rated Muscle (1-5)	3.52 ± 0.82	3.24 ± 0.92	3.46 ± 0.81	3.48 ± 0.86	3.47 ± 0.84
Self Rated Fat (1-5)	2.49 ± 0.85	2.68 ± 0.72	2.63 ± 0.83	2.52 ± 0.81	2.54 ± 0.82
Years in College SC	10.5 ± 6.0[*]	7.9 ± 4.1[*]	13.88 ± 6.37[#]	8.61 ± 4.72[#]	9.94 ± 5.69
Total Years in SC	10.6 ± 6.7[*]	8.1 ± 4.3[*]	13.72 ± 7.75[#]	8.94 ± 5.21[#]	10.08 ± 6.27
Avg. Days of Resist. Training/Week	4.69 ± 1.09[#]	4.09 ± 1.16[#]	4.17 ± 1.26[#]	4.7 ± 1.05[#]	4.56 ± 1.12
Avg. Duration of Resist. Training/Session	65.3 ± 26.5	59.4 ± 19.5	52.8 ± 23.7[#]	68.0 ± 24.6[#]	64.2 ± 25.1
Avg. Intensity of Resist. Training (1-5)	4.11 ± 0.82	3.82 ± 0.73	3.95 ± 1.04	4.09 ± 0.72	4.05 ± 0.81
Avg. Days of Cardio/Week	3.45 ± 1.47[#]	4.58 ± 1.75[#]	3.9 ± 1.82	3.62 ± 1.51	3.69 ± 1.59
Avg. Duration of Cardio/Session	32.2 ± 17.6[*]	41.3 ± 19.4[*]	36.0 ± 22.7	33.6 ± 16.7	34.1 ± 18.3
Avg. Intensity of Cardio (1-5)	3.74 ±1.19	3.88 ± 0.79	3.68 ± 1.27	3.81 ± 1.06	3.76 ± 1.11

Note *p<0.05 #p<0.01

Table 4.2 (cont.)

	Males	Females	Head/ Director	Assistant/ Associate	Overall
In your opinion how essential is it for a current or prospective SCC to…					
Have a bachelors degree?	4.87 ± 0.44	4.85 ± 0.44	4.9 ± 0.44	4.86 ± 0.44	4.87 ± 0.44
Have a graduate degree?	3.46 ± 1.14	3.59 ± 1.26	3.51 ± 1.34	3.49 ± 1.11	3.49 ± 1.17
Have majored in Ex. Sci.?	3.57 ± 1.11#	4.18 ± 1.03#	3.46 ± 1.10	3.81 ± 1.13	3.71 ± 1.12
Have majored in P.E.?	2.9 ± 1.08	2.5 ± 1.05	2.76 ± 1.11	2.83 ± 1.08	2.81 ± 1.08
Have obtained the CSCS?	3.1 ± 1.33*	3.62 ± 1.21*	3.37 ± 1.41	3.14 ± 1.29	3.21 ± 1.31
Be certified through USAW?	2.8 ± 1.17	2.94 ± 1.30	2.68 ± 1.15	2.88 ± 1.21	2.83 ± 1.19
Be certified through CSCCa?	2.85 ± 1.34*	3.41 ± 1.16*	2.95 ± 1.38	2.98 ± 1.31	2.99 ± 1.32
Be certified though ACSM?					1.64 ± 0.70
In your opinion how essential is it for a current or prospective SCC to have participated in athletics at the…					
High school level?	4.14 ± 1.09	4.29 ± 0.84	4.05 ± 1.20	4.21 ± 0.97	4.17 ± 1.03
College level?	3.14 ± 1.10	3.41 ± 1.10	3.22 ± 1.07	3.2 ± 1.11	3.20 ± 1.10
Professional level?	1.48 ± 0.84	1.53 ± 0.71	1.52 ± 0.85	1.5 ± 0.81	1.50 ± 0.81
In your opinion how essential is it for a current or prospective SCC to have previously coached…					
Powerlifting athletes?	2.06 ± 1.09	1.85 ± 0.91	1.95 ± 1.05	2.07 ± 1.09	2.04 ± 1.07
Olympic weightlifting athletes?	2.28 ± 1.12	2.3 ± 1.19	2.22 ± 1.19	2.33 ± 1.12	2.31 ± 1.15
Another sport- independent of SC?					2.41 ± 1.16

Note *p<0.05 #p<0.01

Table 4.2 (cont.)

	Males	Females	Head/ Director	Assistant/ Associate	Overall
In your opinion how essential is it for a current or prospective SCC to themselves participate in …					
A resistance training program?	4.18 ± 1.08	4.35 ± 0.95	3.93 ± 1.23*	4.34 ± 0.97*	4.23 ± 1.05
A cardio training program?	3.5 ± 1.19*	3.94 ± 1.10*	3.58 ± 1.20	3.62 ± 1.18	3.61 ± 1.18
Recreational sports?					2.27 ± 1.03
In your opinion how essential is the _____ of a current or prospective SCC?					
Physical size (overall size, not just muscle)	2.44 ± 1.07	2.09 ± 1.08	2.41 ± 1.16	2.3 ± 1.05	2.35 ± 1.08
Apparent fitness level (body fat, muscle)	3.62 ± 0.95	3.82 ± 0.83	3.53 ± 1.13	3.73 ± 0.86	3.68 ± 0.93
With all other things being equal would you hire a…					
Physically larger applicant over a physically smaller applicant?	2.32 ± 1.29	1.87 ± 0.89	2.27 ± 1.41	2.18 ± 1.16	2.21 ± 1.22
More physically fit applicant over a less fit applicant?	3.47 ± 1.21	3.35 ± 1.11	3.3 ± 1.54	3.5 ± 1.05	3.45 ± 1.19

Note *p<0.05 #p<0.01

Table 4.3 Playing Experience and Opinions

All reported stats are Mean ± Std. Dev.	No Collegiate Playing Experience (n=44)	D2,D3, or NAIA Playing Experience (n=52)	D1-A or D1-AA Playing Experience (n=60)
Years in College SC	9.8 ± 5.2	9.1 ± 4.9	10.8 ± 6.6
In your opinion how essential is it for a current or prospective SCC to have…			
Majored in Ex. Sci.?	3.86 ± 1.13	3.71 ± 1.09	3.60 ± 1.14
Played sports in HS?	3.73 ± 1.13*	4.33 ± 0.92*	4.35 ± 0.97*
Played sports in college?	2.41 ± 0.87*	3.40 ± 1.02*	3.61 ± 1.02*
In your opinion how essential is the _____ of a current or prospective SCC?			
Physical size (overall size, not just muscle)	2.26 ± 1.20	2.37 ± 1.06	2.39 ± 1.02
Apparent fitness level (body fat, muscle)	3.74 ± 0.91	3.82 ± 0.93	3.52 ± 0.93
With all other things being equal would you hire a…			
Physically larger applicant over a physically smaller applicant?	2.14 ± 1.12	2.42 ± 1.25	2.07 ± 1.27
More physically fit applicant over a less fit applicant?	3.50 ± 1.31	3.68 ± 1.04*	3.21 ± 1.19*

Note *p<0.05 #p<0.01

Table 4.4 Differences between SCCs based on self reported muscle

All reported stats are Mean ± Std. Dev.	Low Muscle (n=77)	High Muscle (n=79)
Avg. Days of Resist. Training/Week	4.18 ± 1.05#	4.95 ± 1.07#
Avg. Time of Resist. Training/Session	57.2 ± 20.7#	71.4 ± 27.3#
Avg. Intensity of Resist. Training (1-5)	3.87 ± 0.94#	4.23 ± 0.61#
Avg. Days of Cardio/Week	3.87 ± 1.61	3.51 ± 1.55
Avg. Duration of Cardio/Session	35.1 ± 18.5	33.0 ± 18.2
Avg. Intensity of Cardio (1-5)	3.83 ± 1.09	3.69 ± 1.14
In your opinion how essential is it for a current or prospective SCC to…		
Have previously coached Powerlifting athletes?	1.74 ± 0.95#	2.34 ± 1.12#
Have previously coached Olympic Weightlifting athletes?	2.04 ± 1.04#	2.57 ± 1.19#
Participate in a resist. training program?	4.12 ± 1.17	4.34 ± 0.91
In your opinion how essential is the _____ of a current or prospective SCC?		
Physical size (overall size, not just muscle)	2.08 ± 0.98#	2.60 ± 1.10#
Apparent fitness level (body fat, muscle)	3.54 ± 0.90	3.82 ± 0.94
With all other things being equal would you hire a…		
Physically larger applicant over a physically smaller applicant?	1.99 ± 1.12*	2.42 ± 1.28*
More physically fit applicant over a less fit applicant?	3.34 ± 1.18	3.56 ± 1.19

Note *p<0.05 #p<0.01

Table 4.5 Undergraduate Major and Opinions

All reported stats are Mean ± Std. Dev.	Ex.Sci, Kines., Other Health/Wellness (n=111)	P.E. (n=17)	Other (n=26)
In your opinion how essential is it for a current or prospective SCC to…			
Have a Bachelors Degree?	4.89 ± 0.41	4.82 ± 0.53	4.81 ± 0.49
Have a graduate degree?	3.49 ± 1.15	3.50 ± 1.30	3.46 ± 1.21
Have majored in Ex. Sci.?	3.96*# ± 0.97	3.22* ± 1.21	3.00# ± 1.27
Have majored in P.E.?	2.86 ± 1.10	3.17* ± 1.10	2.42* ± 0.86
In your opinion how essential is the _____ of a current or prospective SCC?			
Physical size (overall size, not just muscle)	2.25 ± 1.07	2.47 ± 0.87	2.60 ± 1.12
Apparent fitness level (body fat, muscle)	3.67 ± 0.95	3.59 ± 0.71	3.72 ± 0.98
With all other things being equal would you hire a…			
Physically larger applicant over a physically smaller applicant?	2.07* ± 1.12	2.50 ± 1.41	2.62* ± 1.44
More physically fit applicant over a less fit applicant?	3.36 ± 1.16	3.81 ± 1.17	3.54 ± 1.29

Note *p<0.05 #p<0.01

Chapter Five

Discussion

Introduction

The purpose of this study was to shine some light on the field of SC and the professionals who make up its ranks. Personal characteristics, backgrounds, experiences, and opinions of current NCAA Division 1 (Bowl subdivision) SCCs were identified through a comprehensive questionnaire. The data were analyzed using descriptive statistics, T-tests, and ANOVAs and tested the hypotheses described in the introduction. The hypotheses of this study were that SCCs come from diverse backgrounds of education levels, physical activity, physical stature, and experiences. It was also hypothesized that education level and past playing experience would be considered the most essential characteristics for current and prospective SCCs and that the coaches would favor characteristics they possess themselves. The amount of data accumulated allowed for some significant and interesting findings.

Characteristics of Current SCCs

The results of this study show that SCCs do in fact come from a variety of backgrounds and experiences. A few survey items were answered similarly among the participants, but for the most part the answers and opinions were quite varied. The range of salaries was vast with almost the identical amount of participants making $20-$29,999, as were making >$100,000 per year. This can easily be explained when you consider job title. The individuals who indicated they were either the Director or Head of SC most likely made up the sample of higher salaries. Even with that explanation there is still a

large discrepancy between salaries which highlights even further the advantages some schools enjoy over others. While the salaries in this field are still fairly low, they have gone up considerably since 1992 when zero full time SCCs surveyed made over $60,000 annually (Pullo, 1992). Compensation is often the driving force in the hiring of quality coaches. As SC as a whole becomes more widely recognized and appreciated among athletic departments, salaries are likely to continue to rise.

In regards to the racial make up of SCCs, the findings were particularly surprising and bothersome. Almost 90% of the surveyed SCCs were white. In the field of collegiate athletics where often the majority, or at least a good number, of the athletes are minorities it's surprising that more minorities have not found their way into this growing field. The findings in this study agree with those found in another similar study (Martinez, 2001) which saw approximately 90% of it's respondents to be white. It was suspected that in the seven years between studies more minorities would have been employed as SCCs; this did not seem to the case. It should be noted that in the case of Martinez's study, the sample population only included Head SCCs, whereas the current study incorporated both Head/Directors of SC and Assistant/Associate SCCs. The issue of race in SC is one that needs to be addressed by athletic departments nationwide.

One area in which the population trended strongly towards one response was in level of education. Over 70% of participants reported having obtained a graduate degree with nearly everyone else having a bachelors. Again, these results are consistent with those of the most similar study to date (Martinez, 2001) that found 67.5% of Head Division 1-A SCCs to have a graduate degree.

In regards to undergraduate and graduate major, Exercise Science/Physiology was the most highly reported major for both. There was slightly more diversity among graduate majors which showed over 20% of participants having a masters in a field other than Exercise Science/Physiology, Physical Education, Kinesiology, or another health/wellness related major. This could be due to many SCCs getting their masters while being a full time employee or graduate assistant working extensive hours. As a result, a less challenging major is often selected to decrease the class workload. These findings differ from Pullo (1992) who found that the majority of SCCs have degrees in Physical Education. Once again, the shift from "old school" football coach playing the role of SCC to more specialized and scientifically trained SCCs is evident.

As in Martinez's study (2001) the most widely held certification was the NSCA's CSCS (77.8%). Around 50% of the participants held certifications with USAW and CSCCa. The percentage of SCCs certified by these two organizations is up dramatically from 2001 when only 36% had the CSCCa certification and only 16% had the USAW certifications. This is likely due to how much the field is growing and how much more specialized it is becoming. More certifications are becoming available and are even more specialized.

The study population revealed most SCCs to be former athletes themselves. Almost every coach had at least a background in high school athletics and the majority played a sport in college. Football was the most popular sport at all levels of competition for the overall population despite the presence of women who generally do not have the opportunity to compete in high school football. Other popular sports were baseball/softball, basketball, track, and wrestling. These are all sports one might suspect a

SCC would have played because of these sports' dependence on physical attributes such as strength, speed, power, and agility. Around 20% of the participants participated in Powerlifting and/or Olympic Weightlifting. This is not surprising when you consider how much modern day SC leans on these two disciplines for training protocols. A background in resistance sports once again shows how much more specialized the field is becoming. Former football coaches with little to no background in the science of resistance training are becoming less and less common in the field.

Despite their hectic schedules, SCCs are still able to find plenty of time to work out, on average over four days a week of resistance training and over three days of week participating in cardio training. This was somewhat surprising, but as the opinion section of the results shows, SCCs place great importance on their peers working out themselves. SCCs seem to live by the saying "practice what you preach". Their continued dedication to staying fit is reflected in their self rated scores of muscularity and body fat. SCCs rate themselves as having slightly more muscle and slightly less fat than their peers in the field. Due to an inability to conduct body composition assessments on each participant these results reflect perceptions and are not derived from actual fitness assessments

Opinions of Current SCCs

One of the main goals of this study was to determine what current SCCs thought were essential or unessential characteristics for current or prospective SCCs to possess. A variety of questions were asked regarding education, certifications, past playing experience, past coaching experience, workout habits, and hiring practices.

Clearly, having a bachelor's degree is considered almost unanimously essential for a SCC to have obtained. Most universities will not hire a full time staff member who has

not achieved minimally a bachelor's degree. A graduate degree is not considered nearly as essential as a bachelor's, but is still something that most SCCs consider to be important and worth acquiring. Exercise Science/Exercise Physiology is favored by most as the undergraduate major most fitting a SCC. The extent to which having a degree in Exercise Science/Exercise Physiology is related to SCC opinions about its essentiality will be discussed later.

The CSCS is not only the most widely held certification, but it's also rated as being the most essential for a SCC to possess. USAW and CSCCa are both rated as being somewhat essential with the ACSM certification rated much lower. None of the ACSM certifications were designed specifically for SC. They are generally for those interested in the clinical side of exercise or personal training. USAW is very specialized and teaches coaches the correct way to teach Olympic lifts and design programs based on them. Some coaches who do not believe in Olympic lifts or place little emphasis on them may not feel the need to obtain this certification. The CSCCa is a certification that will likely continue to become more popular with college SCCs as the years go on.

As the level of competition increased from high school to college and finally to professional or Olympic level the essentiality of playing at that level decreased. This follows right in line with the decreasing percentage of SCCs who participated at each level. Nearly every coach participated at the high school level and subsequently considered it to be essential, while very few participated at the professional or Olympic level which resulted in it being considered non-essential. By having participated in athletics themselves, it might be easier for a coach to relate to his or her athletes. For someone serving the role of collegiate SCC, having an athletic background at that level could serve

as an advantage when designing programs throughout the year, communicating with athletes, and designing certain drills to maximize potential. An athletic background can also give the coach certain credibility with the athletes.

SCCs should participate in both resistance training and cardio training on a regular basis according to the participants of this study. Resistance training is considered more essential, but both were rated above "somewhat essential" on the scale. SC requires a coach to be able to demonstrate proper technique on all lifts in a program. If the coach cannot execute the lift properly, coaching it will be that much more difficult as will motivating the athlete. In addition, before beginning a new program with his or her athletes, it could be advantageous for a SCC to try the program out themselves to determine its effectiveness and what weaknesses might be present.

Based on the results from this study, SCCs put significantly more value on their peers' level of fitness as opposed to their sheer physical size. Fitness level (combination of body fat and muscle) was rated well over a three on the 1-5 scale, while physical size (overall size, not just muscle) was rated much lower than a three. A more fit applicant is also much more likely to be hired than an unfit applicant when all other factors are equal. This is not the case with physical size where the surveyed coaches showed no more willingness to hire a larger applicant than a smaller one. The physical size of a person has been shown to elicit biases in hiring practices (Snider, 1972). These findings suggest that the field of SC is very similar to that of Physical Education where overweight applicants are less likely to be hired than more fit applicants (Jenkins, Caputo, & Farley, 2005). Because of the nature of their profession, SCCs are likely to be judged more closely by their appearance than most other careers. A SCC must demand respect from athletes and

initially, the size and musculature of the coach is the first characteristic to do that. The present survey did not include athletes, so it's difficult to know exactly how much importance they put on size and fitness level, but the responses produced by current SCCs show that fitness level is considered to be much more essential than just physical size.

Male SCCs Compared With Female SCCs

The previous research into SCCs has failed to address gender and how males and females in the field differ in regards to personal characteristics and opinions. Males tend to have more experience in the field than do females. This may be due to the relative youth of the field as a whole. Only recently have females become a fixture in college athletics across the country. This has resulted in their lack of practical experience compared with males who previously made up the entire population.

Females resistance trained significantly less often, but participated in cardiovascular training significantly more often. This is likely due to societal influences of what's attractive. Males are focused more on building muscle while females are often more concerned with staying lean and toned. This is again evidence in the opinion section where women rate participating in a cardiovascular training program as being significantly more essential than men.

Female SCCs put more emphasis on education and certification than men. Having a degree in Exercise Science/Exercise Physiology, and having the CSCS and CSCCa certifications were considered significantly more essential by women than by men. This is a difficult finding to explain. It could be that a larger portion of the male population comes from the "old school" football coach mold where certifications and education aren't as valued as experience. However, this theory may be faulty when you consider both genders

similar ratings of past competitive experiences. There are no significant differences in ratings of essentiality for past playing experience in high school, college, or pro or Olympics.

No differences were seen in hiring practices. Females on average rated the importance of physical size as being less than males, but this difference was not statistically significant. This finding does not fall in line with the earlier explanation that women are more focused on the education and certifications of a SCC as opposed to their physical appearance.

Head/Directors of SC Compared to Assistant/Associate SCCs

The previous research into SCCs focused primarily on Head/Directors of SC and not on their assistants (Pullo, 1992; Martinez, 2001; Massey, Vincent, & Maneval, 2004; Teichelman, 1998). The results of this previous research failed to give an accurate representation of the average SCC when you consider that the majority, nearly 75% of our surveyed coaches, are not Head/Directors of SCC but rather Assistant/Associate SCCs.

The differences between the two groups were actually very minimal. Not surprisingly Head/Directors of SC were older and had more experience when compared to their Assistant/Associate SCCs. Assistant/Associate SCCs are able to focus more time on their own workouts. They resistance trained more frequently and for longer duration than their bosses. This could be due to the increased age of Head/Directors of SC who are not as focused on their appearance or it could be a result of more responsibilities resulting in less time to work out. All other opinion items were rated similarly among the coaches except for essentiality of SCCs participating in resistance training. Falling in line with their own increased frequency and duration of training, Assistant/Associate SCCs consider

it to be more important for SCCs to participate in resistance training. The findings from this study show that for most characteristics and opinions Head/Directors of SC are very similar to their employees.

Playing Experience Relation to Opinions

Past playing experience and how it was related to opinions was a main focus of the present study. Some coaches swear by the importance of having that experience to draw from while others feel that there are ways to make up for the lack of experience. One of the most important portions of this study was to determine if there were different opinions among our population. The hypothesis was that coaches would more highly value characteristics they themselves possess. To do this, the population was broken down into three groups: No college playing experience, DII, DIII, or NAIA experience, and D1-A or D1-AA experience.

Those who did not have any collegiate playing experience rated the essentiality of both high school and college playing experience to be significantly lower than their peers who had played college athletics. The difference was especially dramatic for essentiality of college experience. There were no differences between lower level college athletes and higher level athletes. These results confirm a portion of the hypotheses relating to opinions where coaches believe their background best suits an individual for the profession.

Muscularity and Opinions

The differences between those who rated themselves as high in muscle compared to their peers and those who rated themselves low in muscle are dramatic. The high muscle group participated in resistance training more often, for longer duration, and at a higher intensity than the low muscle group. They were also reported have similar cardiovascular

training habits as their low muscle counterparts which suggests they exercise quite a bit more.

Coaches with higher muscle also value having coached both Powerlifting and Olympic weightlifting as more essential than those with low muscle. Additionally, they rate the physical size of a SCC and the likelihood they would hire a physically larger applicant as being more essential and more likely than lower muscle coaches. It appears that those who rate themselves as being more muscular also consider that to be extremely important for other coaches. This again confirms the hypothesis that coaches will look towards other coaches similar to themselves, whether that be physically or in personal background.

Undergraduate Major and its Relation to Opinions

As has been previously mentioned, the results of this study seem to show a divide between two types of SCCs. The more "old school" coach with a Physical Education background who puts more emphasis on sporting background, and the "new school" coach with the Exercise Science/Exercise Physiology background who puts more emphasis on knowledge and objective factors.

The variable "undergraduate major" was used to determine preferences based on major. Exercise Science/Exercise Physiology, Kinesiology, and Other Health/Wellness related majors were grouped together because of their similarities and compared to those with degrees in Physical Education or with degrees in any Other major. What is immediately evident is how much more essential the group of Exercise majors considers a degree in Exercise Science/Exercise Physiology to be compared to Physical Education majors and even more so with Other majors. Those with Other majors do not really value

a degree in this field nor do they consider a degree in Physical Education to be of high importance. What was particularly interesting was that Physical Education majors actually consider a degree in Exercise Science/Exercise Physiology to be more essential than a degree in their field. One explanation for this could be that many SCCs did not go to school with the intention of becoming a SCC. As they have gotten older and have been in the field for a few years they likely realize the advantages of having a degree in Exercise Science/Exercise Physiology as it pertains to certifications, program design, and other practical applications.

Coaches with Other majors put more stock into the physical size of a SCC compared to those with Exercise majors. This may be another example of the divide that has been the trend throughout. Coaches with Other majors might consider size and appearance to be more important than "book smarts" while the Exercise majors may tend to take the more scholarly approach where size does not matter.

Strengths of the Present Investigation

The strengths of this study are undoubtedly the great range of data collected and the population from which it was collected. Every participant in the survey was a full time coach at Division I (Bowl Subdivision) University. The participants were not nearly as homogenous as in other studies on the topic. This is due to the inclusion of females and Assistant/Associate SCCs. The focus was placed on only NCAA Division I (Bowl Subdivision) coaches and did not include other divisions that might have skewed the results and have already been studied (Martinez, 2001; Pullo, 1989). Data were collected not only on what the typical coach is like in 2008, but also what their opinions are and what differences exist among the population. Issues that have never been addressed in SC

research such as: muscularity of coaches, exercise habits of coaches, and a whole range of opinions were measured in this study. The results confirmed the hypotheses presented previously but also open the door for continued research into the field.

Weaknesses

The design was self-report and therefore relied heavily on the honesty of coaches. This was very evident on subjective measures such as self rated muscle and fat. They were asked to rate themselves in terms of muscularity and body fat. Undoubtedly many coaches gave themselves the benefit of the doubt, but it's hoped that within the 158 respondents a fairly accurate representation was presented. It was also a struggle to describe "physical size" and "fitness level". Somatomorphic matrixes were considered, but ultimately decided against because of their unrealistic representations of the human body. This study also only focused on one level of collegiate athletics. Future research may aim to determine differences between the divisions of intercollegiate athletics. Another area that could be considered a weakness is also a strength. So much data were obtained that no one area was looked at in great depth. As a result this study paints more of a broad picture of the profession instead of an depth analysis of one issue.

Implications for Further Research

Further research in this field can go numerous directions. A more in depth analysis of gender in the field is an important step. Women are still the vast minority of SCCs, but it might be interesting to delve more into the process of their hiring and ascension up the SC ladder. This study only touched the surface of the issues that could be presented on the subject. Another fascinating avenue would be to survey athletes and determine their preferences in a coach. Their opinions, after all, are the most important because they are

the ones reaping the benefits or suffering the consequences as a result of SCCs' ability to do their jobs. Finally, SC and race should most certainly be addressed. The remarkably low percentage of minority SCCs is something that cannot be overlooked and a comprehensive study focusing solely on this one issue could bring it to light in athletic departments nationwide.

Practical Applications and Conclusion

The findings from this study should provide young SCCs with some insight into what current SCCs are looking for and value. They may use the results of this study as a guide to help them become attractive candidates for positions as a SCC. For instance, a graduate degree and specifically one in Exercise Science/Exercise Physiology is valued very highly by coaches. The findings here also show that an applicant has the best chance to be hired by someone similar to themselves. Former athletes are going to favor others with athletic backgrounds, coaches with high levels of muscle are more likely to hire other more muscular coaches, and those with Exercise Science/Exercise Physiology backgrounds will look more closely at individuals similar to themselves.

Additionally, it will provide current coaches with an idea of what their peers nationwide are like in terms of education, certifications, workout habits, playing experience, coaching experience, and opinions. This is not knowledge that can easily be gained conversing at national conferences or through job recommendations. Hopefully some misconceptions of the field were cleared up and a more factual representation of the profession is now available.

This research study has shown SCCs to be a relatively diverse group of individuals. SC, much like any other field, allows for a variety of styles to be successful. There is no

definite mold a SCC should fall into. Some will tend to be more "old school" with sports backgrounds and limited "book smarts," others will have degree upon degree but lack the background in athletics. Yet others are a mix of all different backgrounds. The important thing is the ultimate goal; to enhance performance and decrease injuries among student athletes. How the coach achieves this goal is ultimately the least essential aspect of a SCC.

References

(2007). American College of Sports Medicine. Retrieved November 10, 2007, Web site: http://www.acsm.org//AM/Template.cfm?Section=Home_Page

Bischoff, J., Plowman, S., & Lindenman, L. (1988). The relationship of teacher fitness to teacher/student interaction. *Journal of Teaching in physical education, 7*, 142-151.

Bucher, J., & Thaxton, N. (1981). *Physical education and sport: Change and challenge*. St. Louis, MO: The C.V. Mosby.

(2007). Collegiate Strength and Conditioning Coaches Association. Retrieved November 10, 2007, Web site: http://www.cscca.org/

Dean, M., Adams, T., & Comeau, M. (2005). The effect of a female physical educator's physical appearance on physical fitness knowledge and attitudes of junior high students. *The Physical Educator, 62*(1), 14-25.

Dooman, C., & Titlebaum, P. (1998). More weight on the bar: Being a strength and conditioning coach today. *Strength and Conditioning, 20*(5), 31-34.

Epley, B. (2002) The Path to Athletic Power. Champaign, IL: Human Kinetics

Gascaly, S., & Borges, C. (1970). The male physique and behavioral expectancies. *The Journal of Psychology, 101*, 97-102.

Jenkins, A., Caputo, J., & Farley, R. (2005). Physical description and job attainment in physical education. *The Physical Educator, 62*(2), 96-102.

Kontor, K. (1989). Defining a profession. *National Strength and Conditioning Association Journal, 2*(4), 75.

Kraemer, W. (1990). Education and learning. *National Strength and Conditioning Association Journal, 12*(2), 72-73.

Kraemer, W. (1990). A fundamental skill of the profession. *National Strength and Conditioning Association Journal, 12*(6), 72-73.

Layden, T. (1998, Power play. *Sports Illustrated, 89*(4) 61-65.

Martinez, D. (2004). Study of the key determining factors for the NCAA division I head strength and conditioning coach. *Journal of Strength and Conditioning Research, 18*(1), 5-18.

Massey, C., Vincent, J., & Maneval, M. (2004). Job analysis of college division I-A football strength & conditioning coaches. *Journal of Strength and Conditioning Research, 18*(1), 19-25.

Mazur, A., Mazur, J., & Keating, C. (1984). Military rank attainment of a west point class: Effects of cadets' physical features. *The American Journal of Sociology, 90*(1), 125-150.

McClellan, T., & Stone, W. (1986). A survey of football strength and conditioning programs for division I NCAA universities. *National Strength and Conditioning Association Journal, 8*(2), 34-36.

Melville, D., & Cardinal, B. (1997). Are overweight physical educators at a disadvantage in the labor market? A random survey of hiring personnel. *The Physical Educator, 54*, 216-221.

Olson, J., & Hunter, G. (1985). A comparison of 1974 and 1984 player sizes, and maximal strength and speed efforts for division I NCAA universities. *National Strength and Conditioning Association Journal, 7*(6), 26-28.

Pullo, F. (1989). The qualifications, duties, and opinions of national collegiate athletic association division I football strength and conditioning coaches [doctoral dissertation, temple university]. *Dissertation Abstracts International, 50*

Pullo, F. (1992). A profile of NCAA division I strength and conditioning coaches. *Journal of Applied Sport Science Research, 6*(1), 55-62.

Shoemaker, M. (2000). Issues: Should physical education majors be required to pass a physical fitness test before graduation? *Journal of Physical Education, Recreation, and Dance, 72*, 14-18.

Snider, A. (1972). Tall and short of success. *Science Digest*, 48-49.

Stogdill, R . (1974). *Handbook of leadership*. New York: Free Press.

Spencer, A. (1998). Physical educator: Role model or role the ball out? *Journal of Physical Education, Recreation, and Dance, 69*(6), 58-63.

Sutherland, T., & Wiley, J. (1997). Survey of strength and conditioning services for professional athletes in four sports. *Journal of Strength and Conditioning Research, 11*(4), 266-268.

Teichelman, T. (1998) Trends in the strength and conditioning profession in Division I schools. *Strength and Conditioning, 4, 70-72*

(2007). USA Weightlifting. Retrieved November 10, 2007, Web site: http://weightlifting.teamusa.org/

Whitley, J., Sage, L., & Bucher, M. (1988). Cardiorespiratory fitness: Role modeling by physical education instructors. *Journal of Physical Education, Recreation, and Dance, 59*, 81-84.

Appendices

Appendix A- Survey

PART 1- STRENGTH COACH BACKGROUND

DEMOGRAPHICS

Male ___ Female ____ Age _____

Height (inches) _____ Weight (lbs) _____

Race:_____ Salary: _____

Answer following questions based on 1-5 scale (1- Low; 3- Average; 5- High)

How would you rate your level of muscularity compared to other Strength Coaches?

How would you rate your level of body fat compared to other Strength Coaches?

JOB INFORMATION:

Primary sport responsibility (please choose 1): Football ____ Basketball ____ Other (Olympic) Sports _____

Job Title:

Director of Strength & Conditioning/Head Strength & Conditioning Coach _____

Assistant/Associate Strength & Conditioning Coach _____ Other _____

EDUCATION/CERTIFICATIONS

Education level (please choose highest level completed): High School _____

Bachelors degree _____ Masters degree _____ Doctoral degree _____

Undergraduate Major: Exercise Science/Physiology _____ Physical Education _____

Other Wellness/Health related major _____ Other: _____ N/A _____

Graduate Major: Exercise Science/Physiology _____ Physical Education _____

Other Wellness/Health related major _____ Other _____ N/A _____

Certifications (please choose all applicable): NSCA- CSCS _____ NSCA- CPT _____ USAW _____ CSCCa _____ ACSM _____ NASM _____ Other _____

COMPETITIVE EXPERIENCES

Sports played at high school level (please check all that apply): Football _____ Basketball _____ Baseball/Softball _____ Track & Field ____ Soccer _____ Lacrosse _____ Swimming/Diving ____ Hockey ____Other ____ None ____

Sports lettered in at Division 1-A or 1-AA collegiate level (please check all that apply): Football _____ Basketball ____ Baseball/Softball ____ Track & Field _____ Soccer _____ Lacrosse _____ Swimming/Diving ____ Hockey _____ Other _____ None _____

Sports lettered in at Division II, III, or NAIA collegiate level (please check all that apply):

Football _____ Basketball ____ Baseball/Softball ____ Track & Field _____ Soccer ____ Lacrosse _____ Swimming/Diving ____ Hockey _____ Other _____ None _____

Sports played at professional level (please check all that apply): Football ____ Basketball _____ Baseball/Softball _____Track & Field _____ Soccer _____ Lacrosse _____ Swimming/Diving _____ Hockey _____ Other _____ None _____

COACHING EXPERIENCES

Sports coached at any level (please check all that apply: Football _____ Track & Field _____ Baseball/Softball ____ Basketball _____ Olympic Weightlifting _____ Powerlifting _____ Bodybuilding _____ Other _____

Collegiate Strength & Conditioning experience (years): _____

Total number of years in Strength & Conditioning (college, pro, high school, other): _____

CURRENT PERSONAL ACTIVITY LEVEL

Average days per week you participate in resistance training: _____

Average time per session of resistance training (in minutes): _____

Average intensity per session resistance training (On a scale of 1-5; 1- light, 3- moderate, 5- vigorous): _____

Average days per week you participate in cardio training: _____

Average time per session of cardio training (minutes): _____

Average intensity per session of your cardio training (On a scale of 1-5; 1- light, 3- moderate, 5- vigorous): _____

Average days per week you participate in recreational sports: _____

Average time per session of recreational sports (minutes): _____

Average intensity per session of recreational sports (On a scale of 1-5; 1- light, 3- moderate, 5- vigorous): ____

PART II- STRENGTH COACH OPINIONS

Answer all questions on a 1-5 scale (1- absolutely non-essential; 3- somewhat essential; 5- absolutely essential)

EDUCATION/CERTIFICATIONS

How essential is it for a current or prospective SCC to have Bachelors Degree?

How essential is it for a current or prospective SCC to have a Masters Degree?

How essential is it for a current or prospective SCC to have majored in physical education or exercise science/exercise physiology?

How essential is it for a current or prospective SCC to have attained certification as a Certified Strength & Conditioning Specialist through the NSCA?

How essential is it for a current or prospective SCC to have attained a certification through USAW?

How essential is it for a current or prospective SCC to have attained a certification through the CSCCa?

How essential is it for a current or prospective SCC to have attained certification with the ACSM?

COMPETITIVE EXPERIENCES

Answer all questions on a 1-5 scale (1- absolutely non-essential; 3- somewhat essential; 5- absolutely essential)

How essential is it for a current or prospective SCC to have participated in athletics at the high school level?

How essential is it for a current or prospective SCC to have participated in athletics at the collegiate level?

How essential is it for a current or prospective SCC to have participated in athletics at the professional level?

COACHING EXPERIENCES

Answer all questions on a 1-5 scale (1- absolutely non-essential; 3- somewhat essential; 5- absolutely essential)

How essential is it for a current or prospective SCC to have previously coached powerlifting athletes?

How essential is it for a current or prospective SCC to have previously coached Olympic weightlifting athletes?

How essential is it for a current or prospective SCC to have previously coached another (e.g. football or track and field) sport?

CURRENT PERSONAL ACTIVITY LEVEL

Answer all questions on a 1-5 scale (1- absolutely non-essential; 3- somewhat essential; 5- absolutely essential)

How essential is it for a current or prospective SCC to participate in a weight training program themselves?

How essential is it for a current or prospective SCC to themselves participate in a cardiovascular training program themselves?

How essential is it for a current or prospective SCC to themselves participate in recreational sports themselves?

PHYSICAL ATTRIBUTES

Answer all questions on a 1-5 scale (1- absolutely non-essential; 3- somewhat essential; 5- absolutely essential)

How essential is the physical size (overall size, not just muscle) of a SCC in their potential to be hired by you?

How essential is the apparent fitness level (body fat, musculature) of a SCC in their potential to be hired by you?

Answer all questions on a 1-5 scale (1- No, Never; 3- Sometimes; 5- Yes, always)

With all other things being equal would you hire a physically larger applicant over a physically smaller applicant? Yes ____ No ____ Unsure ____

With all other things being equal would you hire a more physically fit applicant over a less fit applicant? Yes ____ No ____ Unsure ____

Appendix B- Recruitment Email

Subject: Strength Coach Opinions and Characteristics- Research Study!

Hello all,

Have you ever wondered about your peers in the field of Strength & Conditioning? What is their educational background? Are they a former athlete? Do they workout themselves? What do they think are important characteristics to possess as a Strength & Conditioning coach? These are some of the questions I'm trying to answer in my master's thesis. I'm surveying coaches from Division I (Bowl Subdivision) universities all around the country in an attempt shine some light on the field of Strength & Conditioning and the coaches who make up it's ranks.

I realize that the summer is often the busiest time for Strength & Conditioning coaches, but if you could take 10 minutes out of your day to fill out a quick anonymous electronic survey you will be helping me out greatly and contributing to a study that will accurately represent the diverse nature of coaches nationwide. The link below will direct you to Survey Monkey, an online survey tool, taking the survey is quick and easy. Once the data is obtained and analyzed you will receive an email detailing the findings and it's implications for you, the coach. I thank you in advance and wish you well with your summer training.

http://www.surveymonkey.com/s.aspx?sm=A6cO4FlGv9RHs3TUt76Caw_3d_3d

Sincerely,

Jeremy Powers, CSCS, USAW
University of South Florida
Department of Physical Education and Exercise Science

Appendix C- Reminder Email

Subject: Strength Coach Characteristics and Opinions- Reminder!

Hello all,

This email is meant to be a reminder and to provide an update on the status of my survey. So far I have over 115 responses to my Strength & Conditioning survey which is much better than I anticipated. If you have not completed the survey, please take 10 minutes out of your day to fill it out at the link below. The survey will only be available for 1 more week. If you have already completed it, thank you again, and I hope to have all the results analyzed within 3-4 weeks.

http://www.surveymonkey.com/s.aspx?sm=A6cO4FlGv9RHs3TUt76Caw_3d_3d

Jeremy Powers CSCS, USAW
University of South Florida
Department of Physical Education and Exercise Science