

**CARDIFF METROPOLITAN UNIVERSITY
Prifysgol Fetropolitan Caerdydd**

CARDIFF SCHOOL OF SPORT

DEGREE OF BACHELOR OF SCIENCE (HONOURS)

SPORT CONDITIONING, REHABILITATION AND MASSAGE

**WHAT MAKES A GOOD PRACTITIONER IN
STRENGTH AND CONDITIONING?**

(Dissertation submitted under the discipline of _____SCRAM_____)

ROBERT CHESTERS

ST10001843

ROBERT GRANT CHESTERS

10001843

CARDIFF SCHOOL OF SPORT

CARDIFF METROPOLITAN UNIVERSITY

WHAT MAKES A GOOD PRACTITIONER IN
STRENGTH AND CONDITIONING?

Cardiff School of Sport
DISSERTATION ASSESSMENT PROFORMA:
 Empirical ¹

Student name:	<input type="text" value="Robert Grant Chesters"/>	Student ID:	<input type="text" value="St10001843"/>
Programme:	<input type="text" value="SCRAM"/>		
Dissertation title:	<input type="text" value="What Makes a Good Practitioner in Strength and Conditioning?"/>		
Supervisor:	<input type="text" value="Andrew Miles"/>		
Comments	Section		
	Title and Abstract Title to include: A concise indication of the research question/problem. Abstract to include: A concise summary of the empirical study undertaken.		
	Introduction and literature review To include: outline of context (theoretical/conceptual/applied) for the question; analysis of findings of previous related research including gaps in the literature and relevant contributions; logical flow to, and clear presentation of the research problem/ question; an indication of any research expectations, (i.e., hypotheses if applicable).		
	Methods and Research Design To include: details of the research design and justification for the methods applied; participant details; comprehensive replicable protocol.		
	Results and Analysis ² To include: description and justification of data treatment/ data analysis procedures; appropriate presentation of analysed data within text and in tables or figures; description of critical findings.		
	Discussion and Conclusions ² To include: collation of information and ideas and evaluation of those ideas relative to the extant literature/concept/theory and research question/problem; adoption of a personal position on the study by linking and combining different elements of the data reported; discussion of the real-life impact of your research findings for coaches and/or practitioners (i.e. practical implications); discussion of the limitations and a critical reflection of the approach/process adopted; and indication of potential improvements and future developments building on the study; and a conclusion which summarises the relationship between the research question and the major findings.		
	Presentation To include: academic writing style; depth, scope and accuracy of referencing in the text and final reference list; clarity in organisation, formatting and visual presentation		

¹ This form should be used for both quantitative and qualitative dissertations. The descriptors associated with both quantitative and qualitative dissertations should be referred to by both students and markers.

² There is scope within qualitative dissertations for the RESULTS and DISCUSSION sections to be presented as a combined section followed by an appropriate CONCLUSION. The mark distribution and criteria across these two sections should be aggregated in those circumstances.

CONTENTS:

ACKNOWLEDGEMENTS.....i

ABSTRACT.....ii

CHAPTER 1

1.0 INTRODUCTION.....1

CHAPTER 2

2.0 LITERATURE REVIEW.....4
 2.1 History of Strength and Conditioning Coaches5
 2.2 Perceived Types of Strength and Conditioning Coaches6
 2.3 Females in Strength and Conditioning7
 2.4 Strength and Conditioning Coaches Physical Attributes8
 2.5 Characteristics of Strength and Conditioning Coaches11
 2.6 Methodology Research12

CHAPTER 3

3.0 METHOD.....14
 3.1 Participants.....15
 3.2 The Questionnaire15
 3.3 Procedure - Pilot Study.....16
 3.4 Procedure - Main Data Collection.....17
 3.5 Analysis.....18

CHAPTER 4

4.0 RESULTS.....19

CHAPTER 5

5.0 ANALYSIS AND DISCUSSION.....	33
----------------------------------	----

CHAPTER 6

6.0 CONCLUSION.....	37
---------------------	----

REFERENCES.....	40
-----------------	----

APPENDICES

Appendix A.....	A-1
Appendix B.....	A-2
Appendix C.....	A-3
Appendix D.....	A-4
Appendix E.....	A-5
Appendix F.....	A-6
Appendix G.....	A-7

LIST OF TABLES:

TABLE 1

Questionnaire Participants20

TABLE 2

Sessions Per Week (on average) and Years Experience with a
Strength and Conditioning Coach.....23

TABLE 3

Opinions of Each Population23

TABLE 4

Order of Desired Attributes for a Strength and Conditioning Coach
to have Across Two Sports.....26

TABLE 5

Order of Preferred Attributes for Football and Rugby Clubs.....27

TABLE 6

Results of each population (on average) about SCC characteristics..28

TABLE 7

How Participants Scored for Question Nine (out of 5 on average)30

LIST OF FIGURES

FIGURE 1

Where Players are Contracted too and their Gender 21

FIGURE 2

Where Sport Scientists are Contracted too and their Gender 22

ACKNOWLEDGMENTS:

I would like to thank the following for the help they have provided through the dissertation process:

All the participants who participated in the study and helped produce a set of results which will go on to further knowledge in this area.

My dissertation mentor for putting up with and supporting me through the whole process right to the end.

Finally, my family and friends who supported and encouraged me to get the work done.

ABSTRACT

The aims of the study were to identify the key characteristics and physical attributes perceived to make a good British based practitioner in strength and conditioning in rugby and football from the perspective of players and other sport science (SS) team members. The study has been prompted due to lack of British interpretation of the strength and conditioning coach (SCC) and a stigma suggesting they must have a certain image of being 'big' muscular and intimidating. The research begins by looking to the history of strength and conditioning (SC) to find where the stereotypical image occurred. From there it is described how the SCC has evolved to science and theory as it became the backbone of conditioning. The study was carried out online via surveys which involved quantitative and qualitative approaches to come to a conclusion of what athletes and SSs felt would make an 'ideal' SCC in the areas of characteristics, physical image, fitness and gender. The results showed knowledge and experience over physical presence was what athletes desired from a SCC. The coach should also show experience through their own conditioning as it was deemed somewhat essential for a SCC to have a good fitness level and athletic look. It was also established that gender of the SCC was not important and participants would work with a male or female SCC contrary to past American research. The final conclusion was a SCC does not have to be male, have a large physique or be intense to get the most from their athletes but it was desired for them to be knowledgeable and adaptable to each athletes demands.

CHAPTER 1

1.0 INTRODUCTION

1.0 INTRODUCTION:

The purpose of this study is to develop and identify characteristics and personal image needed to become employed in a British based Strength and Conditioning (SC) job in Football and Rugby. This will be understood through the perceptions of athletes and sport science support team members. The need for research in this area is driven by an unclear view how Strength and Conditioning Coaches (SCCs) should come across in this ever developing industry.

The study will be commenced by discovering where the SCC has come from and where it is today. A hypothesis will be created through research to predict athletes and Sports Scientists (SS) perceptions of the 'ideal' SCC though describing a specific physical appearance and key characteristic attributes. There is no current research suggesting a SCC has to be a certain 'size' although the industry has a stigma around it which suggests the coaches are large physically and intimidating (Powers, 2008). Also mentioned by Powers was the increased level of instant respect gained for a larger coach, muscular coach as well as a better first impression in interviews.

Previous studies have questioned SCCs about other SCCs to find certain characteristics important to be successful in this industry (Pullo, 1989; Martinez, 2001; Powers, 2008). Never before has the athlete or the other members of the SST been asked for their opinion. Particular interest in SCCs optimal attributes is due to the significant role they play in the team. Kontor (1989) was one of the first to define the role of the SCC as in the team, it was too take sporting individuals or teams to develop all physical qualities such as; speed, power, strength, agility, cardiovascular, muscular endurance and flexibility (p.75) The involvement of coaches working with an interdisciplinary team to achieve this from players is critical in modern sport (Burwitz, et al., 1994) due to the rapid development of the industry. The need to develop sporting performance is now greater than ever. This is due to competition and financial benefits increasing every year (Jones, 2008). Burwitz describes an interdisciplinary team as different areas of exercise science working together in a combined, co-ordinated manner to meet the need of the athlete (p.93). It has been well documented the involvement of a SC practitioner can improve teams performance Meir and Sadler (2012) and this study will aim to improve relationship between SCC and athletes. This study aims to shed some light on the role of SCCs

and how that role and its incumbents are perceived. Previous studies on Sports Science Team (SST) members have discovered certain attributes which enable them to work well with players (Hawkes and Miles, 2002), something this study looks to elicit in SCCs.

It is predicted the SST and players will have similar opinions for a SCC as the modern day SCC is very scientifically based therefore knowledge and experience will count for a lot. With regards to image preferred it will be interesting to see if the stigma of SCC is true or have players and SST members purely got the opinion it is about what the coach knows rather than their physical size, build, fitness or gender. It is also thought a certain image and attributes may suit certain populations. For example a larger SCC will suit Rugby due to the general size of rugby players being larger. With regards to characteristics it is thought Males may react better to a more aggressive stimulus than Females. This is based on a certain frailty females have according to Norman (2010). To underpin the research it will be looked into where the SCC has come from and how the stigma of a large muscular intimidating image occurred.

This research will look to benefit all involved in the study. The SCC will gain knowledge of how to adapt to certain populations they will work with making a better relationship and more effective practice. It will also give a model to base themselves upon to be successful in attaining a job. If it is found you do not have to have a certain 'large' image and this stigma is broken down it could open up opportunities to those who felt they could not fit this look. The athletes and SST members will benefit through having a SCC who will be more adaptable to their needs.

CHAPTER 2

2.0 LITERATURE REVIEW

2.0 LITERATURE REVIEW

The literature review aims to find research to support the investigation as to what makes a good practitioner in strength and conditioning . The key areas to be discovered are; characteristics, attributes and personal image of the SCC. The review will show there is a lack of SC knowledge around this subject. It will also shine light on why research is needed in this area. Looking outside of SC to other coaches will be beneficial to further knowledge due to the lack of SC specific research. The idea of how some characteristics and physical image are specifically required to be successful in certain employments will assist in creating a model for SCCs. To begin the review, how the SCC has evolved will be investigated.

2.1 History of the Strength and Conditioning Coach

The National Strength and Conditioning Association (NSCA) were formed in 1978. Previously the National Strength Coaches Associations primary aim was to condition athletes to be the best level of fitness for their role in their sport (nsca.com). Prior to the NSCA's formation, athletic trainers, other coaches and sometimes outside consultants were used but did not have specific scientific based knowledge behind their methods of training (Sutherland & Wiley, 1997; Powers, 2008). Powers goes on to say through the early eighties SC became a clear route to success for teams as on field performance became noticeably better.

Research by Olsen et al. (1985) comparing colligate performances from 1974 to 1984 showed remarkable improvement in the Ohio football teams performance with reference to strength and speed abilities as well as match results. It was said the introduction of a SCC had improved the team dramatically. It is now thought SCCs are a main part of the professional and university teams, not only in America where it first took off, but also now in Britain, hence the need for a greater British interpretation of SCCs attributes.

SC has continually developed since the National Strength and Conditioning Association (NSCA) inception in 1978 growing from seventy-six members to well over thirty thousand. The British branch of the (NSCA), the United Kingdom Strength and Conditioning Association (UKSCA) is a good measure of how popular SC is become in Britain. The UKSCA Since its inception in May 2004 now has 2500

members, 490 of which are accredited (UKSCA, 2012).The work of British SCCs is also becoming evident in sport in Britain. A study by Sanctuary, Meir and Sadler (2012) showed the improvements in players of the English Rugby League over the last decade due to the introduction of a SCC to the team. It was found injury rates became less due to prehabilitative exercises as well as overall strength in sport specific movements being improved on. The use of specifically educated SCCs in British sport is relatively recent history. Prior to accredited coaches being employed, clubs would have a fitness coach. This coach would have general knowledge of how to make the players fit but lacked the modern scientific backing. Confusion between the dated fitness coach and strength and conditioning coaches has led to some perceiving the two being the same person.

2.2 Perceived Types of SCC

To date, only three previous studies (Pullo, 1989; Martinez, 2001; Powers, 2008) have surveyed the opinions of SCCs on what they feel are essential attributes to have to be successful in this industry. These studies furthered knowledge by not only identifying attributes of current coaches, but also found their opinions of each other. No studies like this have been done in the UK. The studies by both Pullo (1989) and Martinez (2001) have similarities in their eventual aim as this new study. By using similar methodologies and questions, with a few added by Martinez, it created a comparison of early and modern day SCCs. This has also given awareness of how much the industry has changed. This can give insight as to why there is a perceived stereotype in conditioning coaches.

The original study by Pullo set out to find the educational, sporting and coaching experiences of SCCs at that time. The results discovered SCCs of 1989 had the same beliefs as those in 2001 on the need to have a Masters or Bachelor's degree in sports science or other physical education based degrees. They also had similar backgrounds in competitive sport as they both played college level football before becoming football SCCs. A dis-similar opinion came when asked about certifications. SCCs in 2001 believed it was important to have obtained CSCS (Certified Strength and Conditioning Specialist) accreditation unlike the opinion of the 1989 study. It was rated as non-essential. Reasoning for this may be due to the NSCA and CSCS being under developed at this time. Another difference in opinion was found when

questioned on the job entailing to conduct research. In 1989, Pullo's participants again rated this as non-essential unlike SCCs in 2001 which rated it highly essential. This information is very important to separate the coaches into an 'old school' and modern day SCC.

Powers (2008) wrote there are two types of SCC. An "Old school" type coach from the physical education background (fitness coach). It is thought they place emphasis on sporting background rather more than exercise science. For example, it is perceived the "old school" SCC feels to be successful as a Rugby SCC you must have history with that sport. It is also said the 'old school' SCC feels there is no real need to investigate new training methods as this type of coach does not look to new scientific discoveries for player development (Powers, 2008). The second type of SCC is a result of the ever increasing research into science behind conditioning. The old style physical education SCC has obtained a theoretical stereotype for having a loud, arrogant and intimidating nature. Future research will look to answer this theoretical assumption. It may be due to a stereotype people have gathered from judging users of gyms they have seen or even a thought they may be from military background. The aim of this research is to look at what are desired characteristics of the SCC from other member of the sports science team (SST) and the athletes' opinion. This has never been addressed in past research.

2.3 Females in SC

Historically, men dominate the industry of sport coaching, resulting in female participation in sport management being limited (Cashmore, 2000; Coakley, 2010) especially in SC. Shaw and Slack (2002) say women's history in sport is long embedded in sport organizations therefore these ideologies have been hard to change. It is rare to see females coaching male sports teams but an American study by Blom et al. (2011) interviewed women who do coach male teams. What she and her colleagues found was when coaching the opposite sex a barrier must be put up between herself and the players. This barrier is described to hide the fact they are a female coach and a more masculine approach is put across to the players. One participant states they need to "portray an unshakable presence". To do so they act more aggressively. This relates to the previously stated theoretical stereotype SCCs who to be successful use intimidation as a way to gain respect from their athletes.

In relation to Blom's research, there is a SC specific investigation by Magnusen and Rhea (2009). Their research looked to find the opinion of the athletes and whether they prefer male or female SCCs. Overall it was found male athletes were less comfortable with female conditioning coaches and female athletes had no particular preference. It was made very clear the male athletes would not get a good experience from a female SCC. They felt they would be distracting, un-motivational, and non-relatable and would be unable to take criticism from them. Again this links to the hypothesis a SCC must be a dominating force over the athletes and demand respect from them. It suggests if a perfect model for a SCC was made then it would be preferably male. The study by Magnusen and Rhea in 2009 relates well to a study done previously by Todd, Lovett and Todd (1991). It provides us with a view that in nearly twenty years the opinion of females coaching males Strength and Conditioning has not changed. Todd, Lovett and Todd found in 99% of schools, the head coach was male and where women had been employed it was to supervise the conditioning of female athletes. These studies show a vast period in time which shows no significant change has happened in the SC industry. In America, this may be due to male SCC being greater coaches in their own right, or a sexist industry unwilling to change. There is no current British interpretation of athletes opinion of preferred SCCs gender. This investigation will look to give an insight into athletes preferred gender when it comes to British opinion. The results will be limited and further research will be needed to discover the reasoning behind such opinions. General opinion found of female sport coaches (non-strength and conditioning specific) in Britain is noted by Norman (2010). Norman found there is feeling in women of being 'second best' and they have to work harder to prove themselves in their field. Future research will look to see if players and other members of the SST have the same point of view and would the ideal SCC have to be male?

2.4 SCCs Physical Attributes

There are many factors during the employment process that may have an effect on success. Age, ethnic origin, sex or personal images are good examples. The importance of image in the work place and having the correct appearance is fundamental and one of the most important factors to obtaining and retaining a job (Blasco, et al., 2002). A study by Powers (2008) was the first to approach in SCC

this through research. The research asked 156 SCCs to rate them self on a scale of 1-5 on how they felt their overall body muscularity was compared to other SCCs. Those who gave themselves ≥ 4 were ranked in the 'high muscle' group (n=77). Those who rated themselves as ≤ 3 were placed in the 'low muscle' group (n=79). The results of the 'high muscle' group found that SCCs of a more muscular body type would hire a prospective SCC with greater physical size over one of less muscular size. Compared with the 'low muscle' group which answered it was non-essential to obtaining a job. This knowledge is useful as it gives an idea of how many coaches pre judge a SCC before knowing their actual capabilities as a coach. It is important to note, both groups equally value the use of resistance training as essential. This research is limited by the fact it does not ask the opinions of the athletes they work with which is what this study will look to understand. It further only asks opinions from one sport. It is hypothesized that different sports, depending on different body types, will prefer different physical size SCCs. For example rugby players may wish to have a larger SCC as they feel they will relate to someone of similar build. It is also predicted British opinion will vary from American due to different cultures. The multi-disciplinary teams decisions on who is the conditioning coach should meet the needs of the athletes as they are the most important element of the clubs (Baechle and Earle, 2008).

The research by Pullo (1989), Martinez (2001) and Powers (2008) performed research into American Football SCCs with a variety of diverse educational backgrounds. Those with backgrounds in degrees in Exercise Science/Exercise Physiology, Kinesiology, or other Health Wellness Majors had less preference on physical size of conditioning coaches than of SCCs who have degrees in other majors. It is apparent these coaches with other degrees in other majors have a background of the specific sport and are referred to being the stereo typical, harsher aggressive 'old-fashioned' SCCs. These coaches also rated power lifting techniques to be more important than weightlifting techniques in resistance training. Again this suggest they are not open to the new research available as movements such as Snatch and Cleans are the best developers of strength through functional movements in sport (Waller et al., 2007; Pennington et al., 2010) putting them in this 'old fashioned' SCC coaching style. Another report carried out by Duehring and Ebben (2010) found majority of coaches had obtained a degree or masters in sport

science or similar, the same as Powers (2008). This suggests the 'Old School' style coach is a minority and most are now certified.

It is thought if you are to coach something you must have done it a lot, and the more you train the greater hypertrophy your body will go through (Baechle and Earle, 2008). Although this is scientifically true the theoretical stereotype opinion of a SCC is suggesting they have trained to body build, it is assumed this is an area where some may have been impleaded to think this is what SCCs do. Body building does link to the origins of SC as it is resistance training and has similarities in some exercises, but conditioning is not about building muscle. The American Kinesiology Association (2012) describes the SCCs main job:

'The clients they work with are focused on improving their performance or skill in a sport. This is why SCCs work primarily with athletes'

'The second primary goal is to reduce athletic injuries. To that end, conditioning coaches often design regimens to strengthen body parts that are prone to injury in a particular sport'

The relevance of these statements is that the SCC is there to train athletes. Should the coach have to have a muscular physique to have experience in such protocols? The planned research will look to answer this through questioning the relevant muscular physiques and general fitness a SCC should have to be a good practitioner.

Although there is little available research on the physical appearance expected of SCCs by those they coach, there is on similar occupancies in sport. A good example is physical educators. Spencer (1998) explains physical education teachers have an expected muscularity or fit look due to the nature of the education being primarily physical. Whitley, Sage and Bucher (1988) further explain a physical educator must demonstrate physically demanding activities and programs as a learning tool for students, thus obtaining such a figure. They further go on to mention the educator should look and act like a role model for students to follow. This statement brings back the idea an SCC should be the optimum fitness to demonstrate a good example to their athletes, but not necessarily an overly muscular physique. It also

suggests the SCC should have a background of that particular sport which is not necessarily true as conditioning coaches should be able to apply their knowledge to any sport. This new research will explore whether a specific look from being experienced in training is enough to gain employment or is knowledge of conditioning more important. Furthermore what is preferred by the athletes and SST members in both Rugby and Football? Research into thoughts of how image can affect employability and being successful in an area of work will show how an SCC may or may not have to meet a perfect model when it comes to their appearance. The study by Powers (2008) showed half of American SCCs asked would rather a physically larger coach employed. The research will discover if this is the same opinion of British athletes and head coaches.

2.5 Characteristics of SCCs

Personality is what makes us all different (Jarvis, 2006) but to give a simple explanation of personality Pervin (2006) described it as a representation of characteristics that account for consistent patterns of behaviour. This will help in the making the questionnaire as the desired characteristics shall be asked from both the SST and athletes. Powers (2008) also used specific characteristics in his research obtained from talking to the actual SCC. Leading from this definition of personality it is understood characteristics make up a personality. Previous studies investigating into coaches characteristics can give an idea of some attributes which look to come from this future research. A study done by Dowdell (2010) looked into gymnastics coaches personal traits to be successful. Dowdell found coaches need to be well planned and adaptable, have commitment and good knowledge of the subject. Time management and motivational were also high on the list of good characteristics to have as a coach. Although coaching gymnastics is not the same as SC work, it does give a good idea of what characteristics make a good coach. Hawkes and Miles (2003) found key characteristics of sports scientists to be very similar to that found by Dowdell. As conditioning coaches are thought to be sports science put into a practical element it is relevant to merge these two studies to predict the outcomes of the future research question. Furthermore the aims of applied sports scientist are to facilitate physical and behavioural adaptations in athletes to develop performance, the quality of the sport experience and the personal growth of the sportsperson

(Anderson et al. 2002; Vealey, 1994 and Williams & Straub, 1993). This phrase groups all sport scientists together and makes the work by Anderson et al. (2002) on psychologists also relevant to SCCs. Anderson and her associates found certain personalities arising frequently when doing interviews with athletes about their relationship with their psychologists and the sports science practitioners themselves. The results of these tests will be used to design the questionnaires and shape model for a SCC with the safety of knowing they are already desired personalities of both athletes and other sport scientists already.

2.6 Methodology Research

The way in which this investigation will be carried out is based on previous studies. Investigating methodology of previous studies will lead to the best possible method for this research project. During Dowdell's (2010) study he used semi structured interviews to gain the feedback he was looking for. Similar information was found between the different coaches interviews. The study was the third of three pilot studies. Dowdell found this use of semi structured interviews was the most effective in getting the knowledge needed from the coaches. Hawkes and Miles (2002) also used this type of technique to gain knowledge. Both these studies help the future study on conditioning coaches by proving the use of semi structured interviews works, but are limited by only a few opinions. Using a method like Dowdell (2010) or Hawkes and Miles (2002) would look to gain an in depth point of view but from only a few participants. Therefore aspects of these studies helped structure questionnaires. Having large sample of questionnaires will allow us to get a various amount of different groups opinion, for example opinions from different genders in different sports and from players and SSs alike. The use of questionnaires to gain a wider opinion works well (Gratton and Jones, 2010).

A very similar study to the proposed study on athletes and SSs is by Powers (2008). Powers reached out to all NCAA Division I SCCs through the use of Survey Monkey. SurveyMonkey.com is an online survey site which allows anyone to create a survey and then pass on a link of that survey whatever way they feel necessary. The uses of such websites have been well documented as a useful tool to get questionnaires easily accessible to all allowing minimal effort on the participants behalf therefore

receiving more replies (Wright, 2006). With this knowledge Survey Monkey will be used to maximise ease and participant reply numbers, the more replies will give the results greater validity (Gratton and Jones, 2010).

CHAPTER 3

3.0 METHOD

3.0 METHOD

The method has been created and structured by the research found in the literature review and methodology research section. Survey questions were constructed from the issues found in past literature and also by current knowledge already available but asked to a new population. The survey involved both qualitative and quantitative data to using both closed and open ended questions to get a personal opinion from participants (Gratton and Jones, 2010). The participant choice, questionnaire design and survey procedure is explained below.

3.1 Participants

Participants for this study were professional or semi-professional sportsmen and women from football or rugby clubs. Also participated were other members of the SST that had contact time with the SCC. By not singling out one specific sport the research has provided a spectrum of athletes and sports scientists from different sports to get an idea if different sports have different demands from SCCs. Opinions also include both male and female opinion. The aim was to receive 50 replies from varied backgrounds to gain a wide insight into opinions of SCCs.

The results were analysed and if defined relevant, they would be utilised to gain a general view of what makes a good practitioner in SC. No previous studies have measured the opinions of other members of the SST and athletes so was not able to compare results directly although previous studies with a similar approach and questioning were compared. The survey was made up three sections.

3.2 The Questionnaire

Part one was a participant information sheet asking gender, occupation and current club the sport scientist or athlete was contracted too. This would allow analysis later to group answers and compare males to female, players to coaches and the different sports opinions and experiences.

Part two (question 4 and 5) involved finding out how much experience each participant has with a SCC per week and for how many years. This allowed judged the validity of the opinions. If the participant had very little contact time with a SCC

then it would not be a part of the study as they would not have gained enough experience with the practitioner.

Question six queried the relationship the participant has with the strength and conditioning coach. An example of 'We have a close relationship, I can approach him/her on personal matters' was given to give an insight to what kind of reply was needed. Benefits of this was it gave the participant an angle to think about and guide there thinking although it could have had an effect on narrowing their thoughts to just that statement.

Question seven worked on a scale of one to five with (1) *Not Important* in a SCC, (3) *Not Necessary* and (5) *Important*. The question asked to rank importance of certain attributes and characteristics they felt a SCC should have a level of. The attributes questioned were based on past literature investigating key characteristics to have in a sports science job (Hawkes and Miles, 2001). The attributes were; *Good Listener, Likable, Relatable, Energetic, Hard Working, Knowledgeable, Accessible, Experiences, Honest, Trustworthy, Approachable, Intense, Positive, Perceptive* and *Welcoming*. The question following looked to elicit on question 7 by asking for any more characteristics they felt they wanted from a SCC.

The final part (3) questioned the participants view of how a SCC should physically look. The *Physical Attributes* section asked, in their own opinion, how important is: *It to have a physically large rather than small (general size, not just muscle) SCC you work with? The physical appearance (muscularity, body fat) of a SCC you work with?, The S&C coaches physical fitness? and The SCC to be male*. Each question was asked to be ranked on a scale of 1-5 with (1) *Non-essential*, (3) *Somewhat Essential* and (5) *Absolutely Essential* depending on their own un-bias opinion. This group of questions was based partially on previous studies by Pullo, Martinez and Powers (Pullo, 1989; Martinez, 2001 and Powers, 2008). Any changes from the original question were based upon specificity to this project.

3.3 Procedure – Pilot Study

A pilot study was conducted prior to the questionnaire being made available for the actual research. The purpose of the pilot study was to make sure participants could easily understand all the questions and that there was no mistakes in the questionnaire as well as getting feedback on the layout (Davies, 2007). It was sent

out to ten university students who had good experience of working with SCCs or coached by one. Such participants were used due to accessibility of getting contact to them as well as them being similar to proposed participants. The pilot proved successful and resulted in some minor re-wording of questions. Once the survey was made correct it was ready to be made live.

3.4 Procedure – Main Data Collection

Post pilot study and dissertation tutor approval, 60 emails were sent to appropriate participants. Contacts were obtained from dissertation tutor and personal contacts of primary researcher. The use of social network sites like Facebook (2013) and Twitter (2013) were used to send a link to questionnaire on surveymonkey.com (2013) (Appendix A). Survey Monkey is an online survey website which allows individuals to create and disperse questionnaires online with ease. The messages were made private so only the participant addressed would be able to participate. If link was to be posted in public it would hinder the results received.

Each participant received cover letter (Appendix B) containing information on why they have been selected for the research and made aware all data will remain confidential and they were under no obligation to continue in the research if they did not want to. The cover letter also gave details of the primary researcher in case there were any issues or questions which needed answering.

After a period of one week a reminder message was sent to all approached to participate reminding/thanking them for taking part in the project (Appendix C). This had intent to show thanks to those who had completed the survey and encourage those to do so if had not. After this the questionnaire stayed live for one more week before being closed for statistical analysis.

3.5 Analysis

All surveys meeting the correct criteria were analysed using mixed methods of analysis. Quantitative data is displayed and explained through the use of tables allowing comparison between different groups on their opinions of SCCs. Qualitative data from open ended questions explained the reasoning behind the opinions. This approach can show conflicting feedback between groups as well as similarities. An eventual conclusion will be as of a result from discussing the findings. (Gilbert, 2001).

CHAPTER 4

4.0 RESULTS

Results

Results were accumulated over a two week period. A blank written survey of the electronic version sent out is available in appendix A.

Seventy surveys were sent out to appropriate participants with sixty-three starting the questionnaire and fifty-two completing it (74.2%). Two participants were deemed not relevant to the research due to different sporting backgrounds. Only those who completed the survey were included in the results. Participant information is provided in Table 1. Questionnaires were filled out by twenty-four females and twenty-six males. The results include forty players (80%) and 10 sport scientists (SS) (20%).

Table.1: The Questionnaire Participants

Participant Group	Number of Participants
Male Rugby Players	14
Male Rugby SS	5
Female Rugby Players	20
Female Rugby SS	1
Male Football Players	4
Male Football SS	3
Female Football Players	2
Female Football SS	1

The clubs the players were contracted too are available in Figure 1. Figure 2 shows the information about the SST participants. Limitations of this research were previously discussed. Further limitations were found when finding enough participants for each population.

Firstly rugby players will have their opinions measured against football players. Following this, members of the SST will be compared. It will then be identified if there are similarities between players and SSs and with these comparisons it will be seen

if gender plays a role in preferred attributes of SCCs. The results will be analysed using numerical data obtained from opinions put into tables to identify the most important to least important attributes. The qualitative data will be discussed arguing any opposing arguments.

In terms of gender differentiation, Butler (2004) writes gender does not play a role in how one will feel about a certain topic. In this study it is predicted the opposite will occur as the hypothesis is females will have different opinions to males in what attributes they prefer in SCCs. It is useful to investigate whether this is true in sport. Do women prefer a male over female SCC. Is there a pattern of female preferences in a SCC? The opinions of both male and females in this industry has not heard or compared on this subject before. Both males and females hold equally powerful roles as SCCs therefore both opinions should be heard to further knowledge.

Questions 1-3 were the applicant’s personal information; this is present in figures 1 and 2.

A Chart to Show Where Players are Contracted and Their Gender.

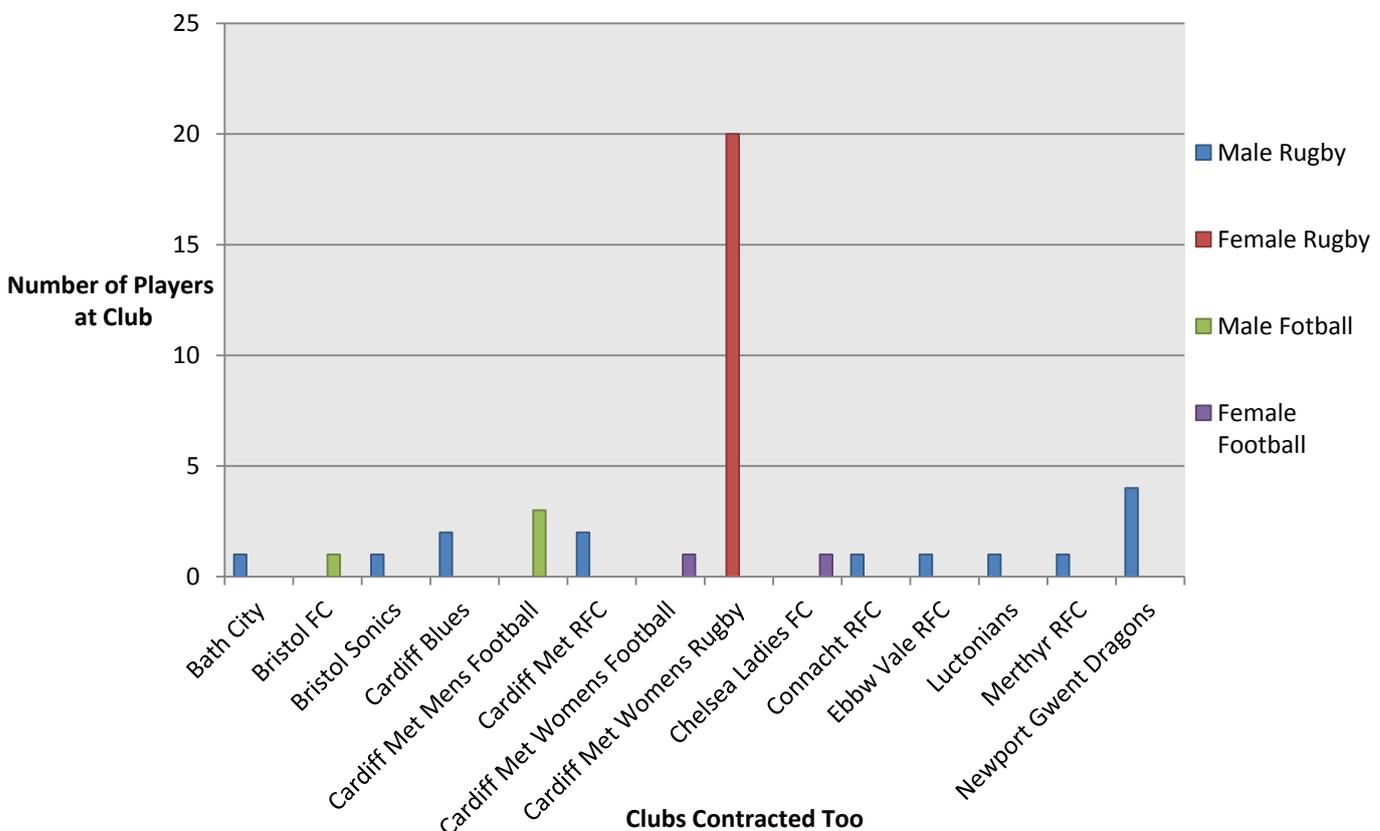


Figure 1. Where players are contracted too and their gender.

**A Chart to Show Where Members of the SST are Contracted
and Their Gender**

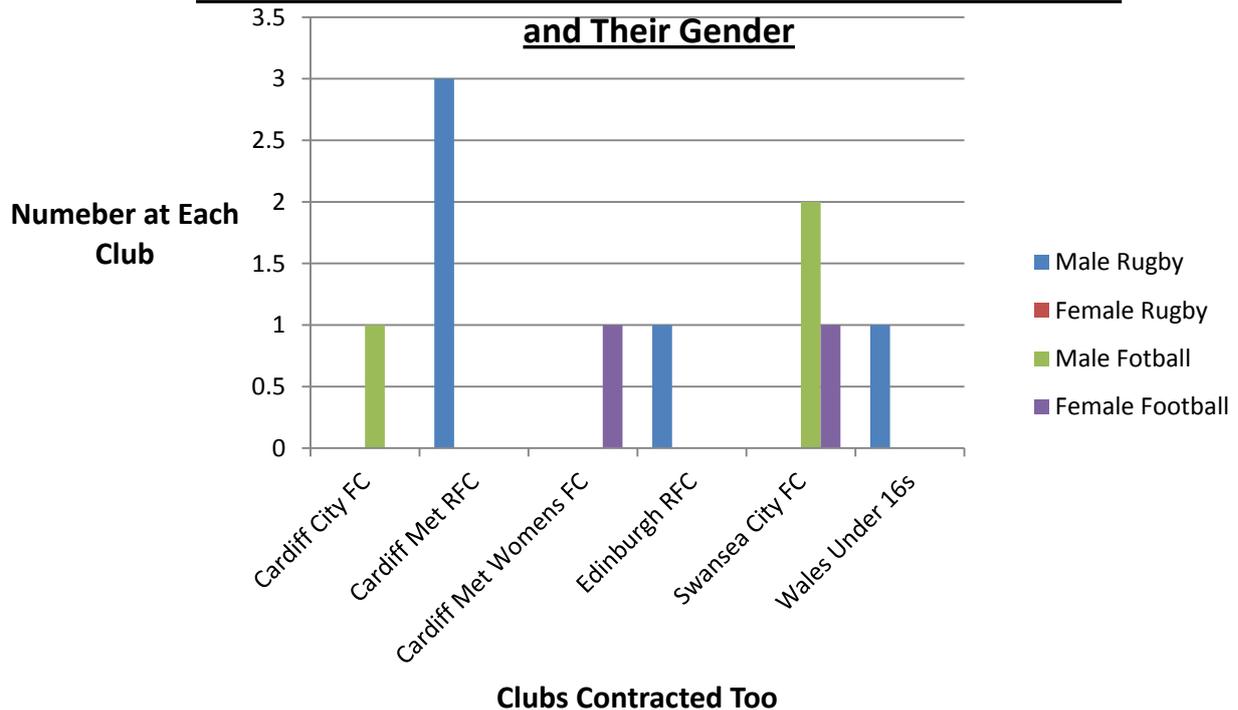


Figure 2. Where Members of the Sports Science Team are contracted too and their Gender

Question 4 asks, ‘How many sessions per week (on average) do you (Your club) use services of a Strength and Conditioning Coach? (SCC)’ This was used to show validity of the players and SSs opinions of SCCs as more time with SCCs would allow better answers. If they had not received any time with a SCC then they were not used in the study. Linked with this was question five asking the number of years experience of the participant with the SCC. This again was to gain clarity that a player or SS had a valid opinion as they had spent considerable time with a SCC. Average time spent with SCCs overall was 4 sessions a week for 3 years (to the nearest whole number). Anyone who had less than six months experience would not take part in the study. None of the 50 taking part in the study fell into the category of having invalid opinions as they had all spent the relevant time with a SCC. Table 2 provides this data.

Table 2. Session per week (on average) and years they have had experience of a SCC

Group	Average time spent with SCC (1dp) (per week/ how many years)
Male Rugby Players	4.6/3
Male Rugby SS	4.2/1.8
Female Rugby Players	2.3/1.8
Female Rugby SS	3/3
Male Football Players	4.3/4
Male Football SS	4.4/2.7
Female Football Players	2/3
Female Football SS	6/2

Question 6 asked, 'How would you describe the level of relationship with your SCC? E.g.: We have a close relationship, I can approach him/her on personal matters'. An example answer was given to give the participant direction of where the question was leading without the hope it would tell them to just agree or disagree with the statement. As the question was open ended the results were interpreted into their groups to compare against each other. Table 3 shows these categories with the opinions made by the participants. Each category is made up to get each populations opinion.

Table. 3. Opinions of Each Population

Player/SSs, Male/Female, Football/Rugby	Opinion of Level of Relationship with SCC
Male Players Rugby	<ul style="list-style-type: none"> I. Professional rather than Friends II. Distant. We talk about conditioning. It would never be a sensible personal conversation. More taking the mick III. Professional IV. Close relationship, easy to approach him and discuss countless topics V. Agree with statement VI. Professional but approachable VII. Close, can approach them. VIII. Close enough to openly talk to him IX. I approach them only to speak about training. X. Yeah good, can approach after hours also XI. Not particularly close XII. Very Approachable but not personal matters XIII. Very Approachable and personal see each other outside of the gym etc..

Male Players Football	<ul style="list-style-type: none"> I. Great Mates II. Not very close, getting closer in the 3rd year of training with him. But this I think is due to me becoming one of the more experienced players in S+C training. Wouldn't speak to him about anything other than S+C. III. Find him aggressive. Do not have a close relationship and would not feel comfortable talking to him about anything other than conditioning IV. Approachable for advice on conditioning. Do not feel I could joke around with him
Male Rugby Sport Scientists	<ul style="list-style-type: none"> I. Professional, only discuss coaching Matters II. Close III. Good relationship, strictly professional
Male Football Sport Scientists	<ul style="list-style-type: none"> I. Very close working relationship with a crossover of roles at times. II. Approachable and knowledgeable, shares opinions and methods. III. We have a very good relationship - both attended the same college before attending different universities. we share an office and have an open dialogue daily
Female Rugby Players	<ul style="list-style-type: none"> I. Okay II. Very good - sessions are tailored for our goals and extra sessions individually or as a team are available III. He is quite aggressive and demanding but caters for us individually if we need different training IV. Not very close but still approachable V. Alright he is very hard to approach VI. Not really close but I can approach If there's a problem or need help VII. I wouldn't feel comfortable approaching him VIII. Approachable IX. Not close, just for S&C X. Can approach him XI. Player coach relationship. Not close XII. Don't really speak to him. but he pushes us to do what we need to. We have an average relationship, it's getting better though XIII. We have a professional relationship and he helps to achieve personal goals. XIV. We have a pretty good relationship; sometimes can be difficult to approach and speak to. XV. I do not know him very well, find him intimidating XVI. Don't really have a close relationship. XVII. We have an okay relationship XVIII. I'm able to approach them if I need any help with weights.

	XIX. Professional only.
Female Football Players	<ul style="list-style-type: none"> I. Fairly close. We all have a good relationship with him and could turn to him for anything II. Strictly professional. We do not talk about anything other than SC.
Female Rugby Sport Scientists	<ul style="list-style-type: none"> I. Distant. He is Just someone who is there to motivate the players, not make conversation with
Female Football Sport Scientists	<ul style="list-style-type: none"> I. Liaise with the SCC coaches on a daily basis and we have a very effective working relationship.

From the results in table.3 it was found that different populations have different opinions of their relationships with SCCs. Even within the same population there was an array of opinions. Some results were not deemed relevant enough to the question so therefore were not included. Football and rugby players had similarities in the areas of having close relationships with their SCC as well as some who said they had distant relationships. The majority of Rugby opinion hinted towards the players having a professional relationship where they can approach about SC topics but the relationship is based purely on training although there were a few exceptions where the SCC and player had a more personal relationship. The difference between male and female opinion was quite clear. Although they generally agreed it was a professional working relationship, females felt it was hard to approach him, especially on a personal level. In none of the cases was there a female SCC. On some occasions it was mentioned as they got to know the SCC more, their working and personal relationships improved. Females in general found the SCC to be aggressive and unapproachable. Similar results were found in male football players. Overall, Male rugby players were found to have the best working relationship as they had the least negative opinions. Male football players had the least positive opinions of their SCC as they tended to find them intimidating and hard to approach.

The SST members have a consistently good opinion of their relationships with their clubs SCC. Only the Female Rugby SS mentioned they have a poor relationship. Generally the opinion is a good professional working relationship and they work well together across the interdisciplinary team at the club although some may have a less

positive opinion of the SCC. More results from the same club would be needed to clarify if this is a sound point.

Question 7 asked, 'Please rank how important each characteristic is for S&C coaches.' The characteristics asked to rate were; Good Listener, Likable, Relatable, Energetic, Hard, Working, Knowledgeable, Accessible, Experienced, Honest, Trustworthy, Approachable, Aggressive, Positive, Perceptive and Welcoming. Each participant was asked to rate on a scale of one to five (1) *Not Important* (3) *Not-Necessary* (5) *Important* on how much they felt a SCC should have such qualities to be successful in this profession. The full results can be seen in Appendix D. Table 4 show the preferred attributes on average a SCC would be desired to have. Table. 5 shows preferred attributes for Rugby Football clubs.

Table.4: Order of Desired Attributes for a SCC to have Across 2 Sports

Attributes: From desirable to less desirable	Rating Average /5
Knowledgeable	4.82
Hard Working	4.68
Accessible	4.56
Trustworthy	4.52
Energetic	4.5
Approachable	4.48
Positive	4.48
Good Listener	4.46
Experienced	4.44
Welcoming	4.12
Honest	4.12
Relatable	4
Perceptive	3.96
Likable	3.82
Intense	3.42

Table 5: Order of Preferred Attributes for Football and Rugby Clubs

Preferred By Football Clubs		Preferred By Rugby Clubs	
Attributes: From desirable to less desirable	Rating Average /5	Attributes: From desirable to less desirable	Rating Average /5
Knowledgeable	4.9	Knowledgeable	4.9
Hard Working	4.7	Hard Working	4.8
Trustworthy	4.7	Accessible	4.8
Approachable	4.6	Good Listener	4.7
Accessible	4.6	Energetic	4.5
Honest	4.6	Honest	4.5
Experienced	4.5	Experienced	4.4
Positive	4.5	Positive	4.2
Likable	4.5	Trustworthy	4.2
Energetic	4.5	Welcoming	4.1
Relatable	4.4	Approachable	4.0
Good Listener	4.3	Relatable	3.8
Welcoming	4.0	Perceptive	3.8
Perceptive	3.9	Likable	3.6
Intense	2.3	Intense	3.0

The results of question seven have showed some differences in preferences between the two sports. It has been made clear that both sports desire a SCC who is knowledgeable, has prior experience and a general positive open approachable relationship with players and SSs. Noticeable differences between the two sports are that rugby clubs tend to not need a more caring approach from their SCC as results suggest they don't desire an as likable, relatable SCC and can deal with a more intense approach than Football clubs. Overall these results give us the impression a closer, friendlier relationship is needed to be made at a football club to make sure staff and players can work with their SCC. Although Rugby players feel a SCC

should be somewhat welcoming and likable, they do not feel it as necessary as other attributes which they rate higher (Table 6).

Key for Table 6 and 7:

MFP: Male Football Player

MRP: Male Rugby Player

FFP: Female Football Player

FRP: Female Rugby Player

MSSF: Male SS Football

MSSR: Male SS Rugby

FSSF: Female SS Football

FSSR: Female SS Rugby

Table. 6. Results of each population (on average) about SCC characteristics

	Rugby Results					Football Results				
	MRP	FRP	MSSR	FSSR	Average	MFP	FFP	MSSP	MSSF	Average
Good Listener	4.5	4.6	4.8	5.0	4.7	3.5	5.0	3.7	5.0	4.3
Likable	3.7	3.7	4.0	3.0	3.6	4.0	5.0	4.0	5.0	4.5
Relatable	3.9	3.9	4.4	3.0	3.8	4.3	4.0	4.3	5.0	4.4
Energetic	4.4	4.7	5.0	4.0	4.5	4.3	5.0	3.7	5.0	4.5
Hard Working	4.6	4.8	5.0	5.0	4.8	4.3	5.0	4.7	5.0	4.7
Knowledgeable	4.7	4.9	5.0	5.0	4.9	4.5	5.0	5.0	5.0	4.9
Accessible	4.3	4.7	5.0	5.0	4.8	4.0	5.0	4.3	5.0	4.6
Experienced	4.4	4.5	4.8	4.0	4.4	4.5	5.0	3.7	5.0	4.5
Honest	4.5	4.6	4.8	4.0	4.5	4.3	5.0	4.0	5.0	4.6
Trustworthy	4.4	4.7	4.8	3.0	4.2	3.8	5.0	5.0	5.0	4.7
Approachable	4.5	4.6	4.8	2.0	4.0	3.5	5.0	5.0	5.0	4.6
Intense	3.5	4.1	3.6	1.0	3.0	2.5	2.5	2.0	2.0	2.3
Positive	4.5	4.5	5.0	3.0	4.2	4.5	5.0	3.7	5.0	4.5
Perceptive	4.0	4.0	4.2	3.0	3.8	3.8	5.0	3.0	4.0	3.9
Welcoming	3.9	4.4	4.2	4.0	4.1	3.5	4.5	4.0	4.0	4.0

There was no significant difference in SST to player opinions within the two sports. Male to female opinion varied within rugby on how relevant it is for an intense SCC. Female Rugby players had the same opinion as football players. Some extra attributes were named and some re-iterated by participants in question 8 which asked, 'Are there any other characteristics you would expect from an S&C coach?'. The main comments across all populations questioned were for the SCC to have the ability to hold a professional relationship with whom they work with. One participant suggested 'they should be professional, but not overly friendly with us'. Another participant builds on this by saying "*they should have good interpersonal and social skills*". Alternative attributes which were mentioned were for the SCC to "*Be able to adjust to how individuals react, i.e. whether being shouted at works or doesn't work for athletes*". This statement is the predicted hypothesis of the research and is mentioned by many other participants across both sports. A full list of comments is available in appendix E.

Question Nine (Results in Table 7 and appendix F) looked to find the preferred physical attributes a SCC should have. Part one asked, '*In your own opinion, how important is it to have a physically large rather than small (general size, not just muscle) SCC you work with?*'. The average most popular opinion was that this was a non-essential attribute to have with 58% of participants answering this way. The majority of participants who felt larger physical size does somewhat play a role in being an effective SCC came from female rugby players (n=7). Comments from female rugby players read "If an S&C coach isn't in shape themselves, I would doubt their ability to train me/my team" and "would be wary of listening to a coach not in decent shape". From this it would seem they have answered the question thinking size was talking about muscularity therefore the question has not been answered correctly. The overall result of this question is no, a SCC does not have to be physically large to conduct SCC jobs or have respect from their team because it was scored low out of five.(Table 7: 9.1).

Comments repeating this statement are across all types of participants. These particular comments are from professional clubs giving even greater validity that the SCC does not have to be a large person; "*This is massive, people think the bigger the coach the better - not true*", "*why should appearance matter it's their knowledge*

you want.” and “*Experience rather than size.*”. All comments can be seen in appendix G.

Table 7. How participants scored for question nine (out of 5 on average)

	Football Results Overall /5					Rugby Overall Results /5				
	MFP	FFP	MSSF	FSSF	Average	MRP	FRP	MSSR	FSSR	Average
Question 9.1	2.3	1.0	1.0	1.0	1.3	1.0	2.1	1.4	2.0	1.6
Question 9.2	2.5	4.0	2.7	3.0	3.0	2.8	3.3	3.0	3.0	3.0
Question 9.3	3.3	4.5	3.3	3.0	3.5	3.4	3.7	3.6	4.0	3.7
Question 9.4	2.8	1.5	1.0	1.0	1.6	1.8	1.4	1.6	1.0	1.5

Following asking physical size, physical appearance (muscularity, body fat) of the SCC was asked (Table 7: 9.2). The most popular average reply across the whole survey was for the SCC to have certain muscularity as it was rated somewhat essential by 46% of the participants. Comments expanded this by mentioning multiple times a SCC must practice what they preach. “*With experience would come their own training therefore they should have a certain amount of muscle mass*”, “*To be a role model and practice what you preach is essential. A good physique is very important*”. The average rating was above half suggesting it is more essential than not to have a certain amount of muscularity. The comments suggest someone like a SCC who maintains their body through their own conditioning would have athletic stature. Again participants suggested such physical appearance should not affect SCCs ability as it is due to knowledge and experience. A SS from a professional football team wrote, “*A confident and knowledgeable coach who motivates and gets an outcome is essential, physical appearance is not necessary if the coach has these three attributes*”. Comments like this from a professional sports team are the best insight to any SCC would have the aim of gaining employment in a professional club.

Within group differences saw mixed opinions and no clear need for this certain attribute in a particular sport or preferred by a certain gender. It is therefore suggested it is down to a personal opinion. The results also suggest it is not massively necessary to be muscular as no one group surveyed selected three and

above in the rating scale for this question although all groups commented suggesting the SCC should have practiced and tried out training programs. This suggests a certain muscular physique may have developed over time.

The third part of the question (Table 7: 9.3) looked to see if a SCCs physical fitness was an attribute needed to be successful in the profession. This is important to for SCCs as fitness is what they look too perfect in the players. The average rating of the whole survey was 3.52. This was the highest rating out of the four questions signifying its importance to players and SS alike. It also compliments the study by Powers (2008) by agreeing on what SCC believed to be important. Although opinions were broad on this subject, majority scored it high. Comments from players said "Practice what you preach", "To demonstrate. They should be a good role model". These players backed the idea a coach should be fit to be good at their job, the level of fitness is not described but it is mentioned if they are to be a role model to rugby and football players then they should have a high level of fitness. Others only felt the SCC needed to be fit enough too "Only to demonstrate technique". Further questioning would need to be made to define what exact level of fitness. The SST point of view is they need to be fit enough "To motivate clients, SCC should display good level of physical fitness". The overall picture made is a good level of fitness needed, the level being roughly the same as the athletes themselves or to at least demonstrate well with good technique.

The final question was, 'In your own opinion, how important is the SCC to be male?' It was hypothesized this would be a diverse opinion between gender, players and SST. It was found in the review of literature that in America, male Football players struggled to be conditioned by a women, 'distracting, un-motivational, and non-relatable and would be unable to take criticism from them' (Magnusen and Rhea, 2009). Contrary to this past study it has been found no participants felt a SCC has to be male and only eleven (22%) felt it was somewhat essential to have a male SCC. The decision to say it was 'somewhat essential' was grounded on the thought "*In a male team it would be hard for a female to motivate the boys. A women could coach females easier*", "*Both men and women suited to S&C. Different environments may suit one or another more*" and "*The delivery of physical sessions should not depend on gender, however , a female SCC may not be accepted as readily in all male working environment*". It is important to note these opinions were from both sports and from male and female perspective. The idea a woman cannot manage a

conditioning session (for males or females) is not mentioned and overall there is 100% response that a SCC does not have to be male from all populations questioned. This in mind, no participants mentioned they are currently conditioned by a women but one participant stated, "*Some of the best S&C coaches I have worked with have been female*". This statement was from rugby player who plays at the top level in their sport and has had many years of experience with SCC giving the comment great validity.

In conclusion, there has been a difference in opinion on what attributes are more important for a SCC to have across a range of different groups. It is found male rugby players can deal with a more intense experience with their SCC. This suggests the shouting approach is more accepted by male rugby players but is still not rated highly. Although it was found more frequently with football players and females that they prefer a more welcoming and less intense atmosphere it was agreed across all groups that knowledge, experience and trustworthy were the most important attributes. As opinion between different groups and internally within groups is vast it can be summed up by one comment by a participant, The SCC should "*Be able to adjust to how individuals react, i.e. whether being shouted at works or doesn't work for athletes*". With reference to physical attributes it was originally hypothesized participants would lean towards a SCC having to be big, muscular and male. What was found was innovative and will give confidence to those wishing to become SCCs who do not have such physical qualities, as well as further opening up the conditioning industry to females.

CHAPTER 5

5.0 ANALYSIS AND DICUSSION

5.0 Discussion and Analysis

When examining the results shown in the previous chapter, a few opinions seemed to reoccur in the feedback from the participants. The areas investigated were in the aesthetical image of a SCC as well as the gender and key characteristics desired by those who he or she (The SCC) would work with. The areas to be discussed are; is there a difference in opinion between the two sports? Is there a difference in opinion of the questionnaire questions between male and females? Do the other sports science members of the interdisciplinary team have the same desired attributes of a SCC as the athletes? Such arguments will look to build on existing knowledge and display how they have furthered knowledge in this area.

To begin with the attention is drawn to what characteristics and non-physical attributes are desired by those who work closely with the SCC. Limitations found in this area were the lack of diversity of teams and opinions collected from, especially in questioning football players. Although there was a lack in quantity of replies the validity of results was high as feedback came from professionals and semi-professionals who had had vast experience of SCCs. More experience with a SCC will give better feedback as they have had more time to get an idea of what their coaches good and bad attributes are.

A previous study by Powers (2008) developed the concept of the SCC recently evolving from a non-scientific approach to the modern day scientific research based conditioning programs. The old style coach was hypothesized as using intimidation factors to get the most out his (not often her) players. Martinez (2001) also mentioned the development of SCCs leading to the need to be scientifically based to get the most from players. No previous study has asked what characteristics make for a good practitioner in SCC. Using a similar approach to Anderson et al. (2002) who questioned what characteristics make for a good psychologist practitioner in sport. As athletes opinion has never been investigated before the results have furthered knowledge for SCCs to build themselves to suit a SC position in a particular sport. The results came from males and females in Rugby and Football. It has given an idea of how SCCs need to adapt themselves to certain populations. For example male rugby players are happier to have a more intense experience from their SCC, more so than females in rugby as well as males and females in football. It

was predicted females would not feel as comfortable with a SCC who would use shouting or intimidation (intense) tactics to get the most from them.

The most useful discovery is what all players felt were the most important attributes to have. To be experienced, knowledgeable and approachable were agreed upon across all populations. This agrees with the studies by Martinez and Powers as when SCCs were asked what level of knowledge is needed it was unanimous that a Bachelor or Master's degree was essential. The research furthers knowledge as it has now been confirmed British sports, who have less experience of SC than American have the same high values needed from SCCs. It also helps shape future SCCs characteristics and provide confidence to those who felt they could not be the intense style SCC. The study has created a model for the modern SCC and shown how the old style SCC does not seem to be wanted by athletes and SST alike as all participants agreed a likable, welcoming, approachable and knowledgeable coach were 'necessary' to 'important' attributes to have.

As previously mentioned image plays a massive role in the employment process for any job (Blasco et al., 2002). This study has challenged the hypothesized stereotype of the old style coach of having a large, muscular physique. It was discovered across all populations that knowledge is more important than physical size. The results confirm the findings made by Powers in America on American Football SCCs. His findings read physical size (not muscularity) is not considered to make you a better coach although it was mentioned the initial image of a perspective SCC as physically fit is important in the employment process (Jenkins, Caputo, & Farley, 2005). Coaches are more likely to gain respect from athletes having an athletic, fit figure. British opinion agrees with this statement to a point as on average physical fitness was rated highly necessary but the exact fitness was not defined. Some comments touched on this subject by saying SCCs would only need to be able to demonstrate conditioning protocols. Others stated they would lack confidence in a SCC who was not physically fit as they have not practiced what they preach (full list of comments in appendix G). Future research would be needed to be carried out to get a greater perspective of what level SCCs need to be to meet the 'ideal' practitioner SCC. It was mentioned in Powers study that future research was needed to get an athletes perspective on a SCCs physical size, this study has answered the question by saying no, athletes and the SST do not have preference over a larger SCC to a

physically smaller coach. With this knowledge it can open up the industry to others who felt their size would hold them back. It would seem athletes and sport scientists have efficiency at the forefront of their mind. When it comes to SC, the practitioner it comes from should have experience and knowledge of their field to be a good SC practitioner.

A huge issue in sport is of the employment of women in all areas especially at the top level in sports coaching. Of all the participants completing the survey, none had a current female conditioning coach. This may have affected results as some may have never experienced being conditioned by a female. Even without experience it was found the majority amount of participants said it is not essential for a man to be the SCC. Comparing this knowledge to research compiled Magnusen and Rhea (2009) on American football players it shows British sportsmen and women are more open minded to the idea a SCC can be either gender. It was commented by some that gender is not the issue and knowledge and experience count for more. There is some who doubted a woman's ability to coach a male team but the argument against outweighed it. One SST member in a professional club with years of SCC experience mentioned "female SCCs had been some of the best he had worked with" (other comments available in appendix G). Again the overall view here is the athletes and SSts want to see a SCC who can get the best from a team, no matter who the person is.

CHAPTER 6

6.0 CONCLUSION

Conclusion

Through research it has been found what the desired attributes of a SCC in Rugby and Football for are for the present day SCC. Looking into the origins of SC and how it has developed from its original non-scientific form to the modern day scientific approach has given a platform to compare old style to new style SCCs. SCCs are one of the most important components of the clubs multi-disciplinary team. It has been identified what are the SCCs role and responsibilities and how important it is for them to relate well to the other sport scientists and players of the clubs they work at. In getting professional and semi-professionals opinions in Rugby and Football, it has created a picture based on their experiences and desired attributes of what a modern day 'ideal' SCC is like.

The main argument of this study is to answer is there a stereotypical image for a SCC? Do they have to be physically 'big' and overly muscular? Do SCCs have to be intimidating and intense to motivate and get the most out of their athletes? Furthermore, will the new scientific based SCC have to fit this look to get the right attention at a potential job? Will the players respect someone not looking how they want them to be? It was hypothesized the male participants will not go for a physically smaller and less muscular looking person (especially rugby) for their SCC and females will not like to have an intense, intimidating experience.

Research into desired characteristics and attributes (non-physical) for a SCC to have has proven some of the original hypotheses to be incorrect. Feedback from players and SSSs led to a list of preferred attributes in rank order. The findings show male rugby players and some female prefer a more intense experience with their SCC. The 'intense' louder approach does not work to well with male football players, female football player and most females in rugby. Research suggested a more welcoming approach is needed and a likable approach is needed from the SCC to get the most from their athletes and to work well with the SST. All groups agreed on the main attributes to be; Knowledgeable, Experienced, Accessible and Trustworthy.

In the area of physical appearance, all athletes had their own opinions of what they're ideal SCC would be like but in general a SCC could be made up to suit all. The physical size (general size, not just muscle) of a SCC was irrelevant.

Muscularity had diverse comments but on average feedback suggests a muscular look and good fitness levels are necessary. Reason being SCCs should have experienced SC programs them self and the saying 'practice what you preach' was reiterated many times suggesting if they were to have done a lot of conditioning then a certain physique and fitness will have been adapted.

The issue of female SCCs is thought to be an issue explained by past research by Magnusen and Rhea (2009) on male American Football players. They find the female SCC to be distracting, un-motivational and they were unable to accept criticism from her. The survey on British sports men and woman has a completely different image. No participant said they would not be coached by a woman and overall comments were in favour for females to be SCCs. The opinions were from professional and semi-professional clubs. This research suggests there is room for the female SCC as previous research had suggested otherwise. Such knowledge will help open up the industry to female coaches. Further research needs to be conducted to explain why there aren't more female SCCs based on the feedback in this research.

Limitations of the study were the narrow population the results came from. More numbers from different clubs would give an even greater perspective on SCCs. The SST and football opinion was especially under populated. Although there were these limitations, the study has great strengths. It has furthered knowledge by building on previous studies (Pullo, 1989; Martinez, 2001 and Powers, 2008) who asked other SCCs what attributes their peers have to be great coaches. Now a point of view from the people they work with and especially the athlete is made aware of then the SCC can have a good idea of what they need to be to be the best they can. This 'ideal' model will also assist future SCCs looking to get employed in Britain. The overall conclusion to be taken is a SCC must adapt themselves to meet the needs of who they are working with. Even though there is a general model to follow each athlete has their own specific needs.

REFERENCES

References

- Anderson, A. G., & Miles, A. (2001). Developing an Understanding of Elite U.K. Athletes' Perceptions of the Characteristics of Sport Psychologists that are Pertinent to Effective Practice. In A. Papaioannou, M. Goudas, & Y. Theodorakis (Eds.), *In the Dawn of the New Millennium. Proceedings of International Society of Sport Psychology*, Skiathos, Greece (pp. 20–23). Thessaloniki, Hellas: Christodoulidis Publications.
- Baechle, R.T. and Earle, R.W. (2008). *Essentials of Strength Training and Conditioning. National Strength and Conditioning Association*. 3rd edn. Champaign, IL. Human Kinetics.
- Bixler, S.(2005) *The New Professional Image*, 4th edn. USA: Adams Media.
- Blasco, Z., Brennen, J., Little, B., and Shah, T. (2002) *Access to What: Analysis of Factors Determining Graduate Employability*. London, England. P.102Halbrook, M. and Judge, L.W. (2011) 'Working with Male Athletes: The Experience of U.S Female Head Coaches' *Journal of Health, Physical Education, Recreation, Sport and Dance*. Vol. 6 pp. 54-62
- Butler, J. (2004) *Undoing Gender*. New York: Routledge.
- 'Careers in Sport, Fitness and Exercise'. (2012) *American Kinesiology Association* [Available Online at <http://www.humankinetics.com/excerpts/excerpts/strength-and-conditioning-coach>] Accessed on 20/11/12
- Cashmore, E. (2000) *Making Sense of Sport*. New York: Routledge
- Coakley, J. (2010) *Sport in Society Issues and Controversies*. Boston: McGraw Hill
- Davies, M. (2007) *Doing a Successful Research Project: Using Qualitative or Quantitative Methods*. Palgrave Macmillan.
- Duehring, M.D., and Ebben, W.P. (2010) Profile of High School Strength and Conditioning Coaches. *Journal of Strength and Conditioning Research*. Vol.24 (2) p. 358
- Gilbert, N. (2001) *Researching Social Life*. (2nd Edn) London: Sage Publications Ltd.
- Gratton, C., and Jones. I. (2010) *Research Methods for Sports Studies*. 2nd edn. London: Routledge
- Hargreaves, L (1994) *Olympic Women: A Struggle for Recognition*. London: Routledge
- Hawkes, E., and Miles, A. (2002) Evaluating the Effectiveness of Sports Physiology Consultants Working in the UK. *Association of Commonwealth Universities*

- Jarvis, M. (2003) *Sport Psychology : A Student's Handbook*. East Sussex: Routledge
- Jenkins, A., Caputo, J., and Farley, R. (2005). Physical Description and Job Attainment in Physical Education. *The Physical Educator*, Vol. 62 (2), pp. 96-102.
- Jones, C. (2008) 'Ethics, Money, and Sport: This Sporting Mammon' *Journal of the Philosophy of Sport*. Vol.35 pp. 225-228
- Kontor, K. (1989) Defining a Profession. *National Strength and Conditioning Association Journal*. Vol.2 (4) p.75
- Magnusen, M. and Rhea, D., (2009) Division 1 Athletes Attitudes Toward and Preferences for Male and Female Strength and Conditioning Coaches. *Journal of Strength and Conditioning Research*. Vol. 23 (4) p. 1084
- Massey, C.D., Vincent, J. and Maneval, M., (2004) Job Analysis of College Division 1-A Football Strength and Conditioning Coaches. *Journal of Strength and Conditioning Research*. Vol. 18 pp. 19-25
- Massey, C.D., Schwind, J.J. Andrews, D.C., and Maneval, M.W., (2009) Analysis of the Job of Strength and Conditioning Coach for Football at the Division II Level. *Journal of Strength and Conditioning Research*. Vol. 23 (9).
- Mayer, J.D., Salovey, P. and Caruso, D.R. (2004) Emotional Intelligence: Theory, Findings, and Implications. *Psychological Inquiry*. Vol. 15 (3), pp. 197-215.
- National Strength and Conditioning Association. The National Strength and Conditioning Association: A brief history. Available at: <http://www.nscalift.org/AboutNSCA/history.shtml> [Accessed on 20/11/12]
- Newton, H. (2006) *Explosive Lifting for Sports*. Champaign, IL: Human Kinetics.
- Norman, L. (2010) Feeling Second Best: Elite Women Coaches Experiences. *Sociology of Sport Journal*. Vol. 27 pp. 89-104
- Office for National Statistics Data. (2011) Graduate Unemployment at Highest for over a Decade. Available Online at <http://www.bbc.co.uk/news/education-12286264> [Accessed on 25/04/12]
- Olson, J., & Hunter, G. (1985) A Comparison of 1974 and 1984 Player Sizes, and Maximal Strength and Speed Efforts for Division 1 NCAA universities. *National Strength and Conditioning Association Journal*. Vol.6 (6) pp.26-28
- Pervin, L. (1993) *Personality Theory and Research*. New York, Wiley.
- Patton, M.G. (2002) *Qualitative Research and Evaluation Methods*. 3rd edn. London: Sage.

Pennington, J., Laubach, L., De Marco, G and Linderman, J. (2010) Determining the Optimal Load for Maximal Power Output for the Power Clean and Snatch in Collegiate male Football Players. *Journal of Exercise Physiology*. Vol. 13 (2) p.10

Powers, J. (2008) A Survey of NCAA Division 1 Strength and Conditioning Coaches – Characteristics and Opinions. Theses *University of South Florida*.

Pullo, F.M. (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*. p.50

Qualter, P., Whiteley, H.E., and Gardner, K. (2007) Emotional Intelligence: Review of Research and Educational Implications. *Pastoral Care in Education*, Vol. 25. (1) pp. 11-20

Sanctuary, C., Meir, R and Sadler, I. (2012) The Seven Step Approach to the Application of Sports Science in English Professional Rugby League: Practical Considerations in Strength and Conditioning. *International Journal of Sports Science and Coaching*. Vol.7 pp. 33-45

Simenz, C.J., Dugan, C.A. and Ebben, W.P. (2005) Strength and Conditioning Practices of National Basketball Association Strength and Conditioning Coaches. *Journal of Strength Conditioning Research*. Vol. 19 pp. 495-504

Shaw, S. and Slack, T. (2002) It's Been Like That For Donkeys Years: The Construction of Gender Relations and the Cultures of Sports Organizations. *Culture, Sport, Society*. Vol. 3 p.86

Spencer, A. (1998). Physical Educator: Role Model or Role the Ball Out? *Journal of Physical Education, Recreation, and Dance* Vol. 69 (6), pp.58-63.

Strength and Speed Efforts for Division I NCAA Universities. *National Strength and Conditioning Association Journal*. Vol.7 (6), 26-28.

Sutherland, T., & Wiley, J. (1997). Survey of Strength and Conditioning Services for Professional Athletes in Four Sports. *Journal of Strength and Conditioning Research*. Vol. 11 (4), pp.266-268.

Todd, J., Lovett, D., and Todd, T. (1991) The status of Women in the Strength and Conditioning Profession' *National Strength and Conditioning Association Journal*. Vol. 13 (6) pp.35-38

Turman, P.D. (2008) Coaches' Immediacy Behaviours as Predictors of Athletes' Perceptions of athletes' Perceptions of Satisfaction and Team Cohesion. *Western Journal of Communication*. Vol. 72 (2)

Waller, M., Townsend, R. and Gattone, M. (2007) Application of the Power Snatch for Athletic Conditioning. *Strength and Conditioning Journal*. Vol. 29 (3) p.10

Whitley, J., Sage, L., & Bucher, M. (1988). Cardiorespiratory Fitness: Role Modelling by Physical Education Instructors. *Journal of Physical Education, Recreation, and Dance*. Vol. 59, pp.81-84.

Wright, K.B. (2006) Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services. *Journal of Computer-Mediated Communication*. Vol.10 (3)

APPENDICES

APPENDIX A
BLANK QUESTIONNAIRE

Blank Questionnaire

1. Are you Male or Female?

- a. Male
- b. Female

2. Occupation

- a. Player
- b. Coach

3. Club currently contracted too?

4. How many sessions per week (on average) do you use the services of a Strength and Conditioning Coach (SCC) ?

5. For how many years have you been using these services?

6. How would you describe the level of relationship with your SCC?

E.g.: We have a close relationship, I can approach him/her on a personal matter.

7. Please rank how important each characteristic is for S&C coaches.

(On a scale of 1-5)

(1) Not Important (3) Not Necessary (5) Important

Good Listener

Likable

Relatable

Energetic

Hard Working

Knowledgeable

Accessible

Experienced

Honest

Trustworthy

Approachable

Aggressive

Positive

Perceptive

Welcoming

8. Are there any other characteristics you would expect from an S&C coach?

9. In your own opinion how important is..... (On a scale of 1-5)

(1) Non-Essential (3) Somewhat Essential (5) Absolutely Essential

- i. It to have a physically large rather than small (general size, not just muscle) SCC you work with?
- ii. The physical appearance (muscularity, body fat) of a SCC you work with?
- iii. The S&C Coaches physical fitness?
- iv. The SCC to be Male?

Any Comments?

APPENDEIX B
COVER LETTER

Questionnaire Cover Letter

Dear Participant,

My name is Robert Chesters and I am a final year student studying Sports Conditioning, Rehabilitation and Massage at Cardiff Metropolitan University (UWIC). For my dissertation I am investigating 'What Makes a Good Practitioner in Strength and Conditioning'. Because you are accustomed to the services of a Strength and Conditioning Coach, I am inviting you to participate in my study via a link to a questionnaire.

The questionnaire should take no longer than 10 minutes of your time to complete. If you do choose to take part in this research, please answer all questions honestly and openly. All results are confidential and please do not input any personal data. Participation is voluntary and you may refuse to participate at any time.

I would like to thank you for taking the time to assist me in my research and I look forward to the results. Please do not hesitate to contact me with any queries you may have about the questionnaire.

Link to Questionnaire: <http://www.surveymonkey.com/s/97RWC22>

Many thanks,

Robert Chesters

07748988905 / st10001843@outlook.uwic.ac.uk

APPENDIX C

REMINDING/ THANKING LETTER

Questionnaire Reminding/Thanking Letter

Dear participant,

This email is a reminder and an update of my survey you were asked to participate in recently. Currently I have received minimal responses to the survey on 'What Makes a Good Practitioner in Strength and Conditioning'. If you have not completed the survey, please take 10 minutes out of your busy schedule to click on the link below and fill it in. The survey is available for one more week.

<http://www.surveymonkey.com/s/97RWC22>

If you have already completed the questionnaire, thank you and I hope to have the results analysed in the following week.

Thank you,

Robert Chesters

St10001843@outlook.uwic.ac.uk / 07748988905

APPENDIX D

RANKING OF CHARACTERISTICS

Results for Question 7:

'Please rank how important each characteristic is for S&C coaches.'

	Not Important		Not Necessary		Important	Rating Average	Rating Count
Good Listener	0.0% (0)	4.0% (2)	10.0% (5)	22.0% (11)	64.0% (32)	4.46	50
Likable	4.0% (2)	4.0% (2)	32.0% (16)	26.0% (13)	34.0% (17)	3.82	50
Relatable	0.0% (0)	0.0% (0)	26.0% (13)	48.0% (24)	26.0% (13)	4.00	50
Energetic	0.0% (0)	2.0% (1)	4.0% (2)	36.0% (18)	58.0% (29)	4.50	50
Hard Working	0.0% (0)	0.0% (0)	2.0% (1)	28.0% (14)	70.0% (35)	4.68	50
Knowledgeable	0.0% (0)	0.0% (0)	2.0% (1)	14.0% (7)	84.0% (42)	4.82	50
Accessible	0.0% (0)	0.0% (0)	4.0% (2)	36.0% (18)	60.0% (30)	4.56	50
Experienced	0.0% (0)	0.0% (0)	10.0% (5)	36.0% (18)	54.0% (27)	4.44	50
Honest	0.0% (0)	0.0% (0)	8.0% (4)	34.0% (17)	58.0% (29)	4.50	50
Trustworthy	0.0% (0)	2.0% (1)	10.0% (5)	22.0% (11)	66.0% (33)	4.52	50
Approachable	2.0% (1)	2.0% (1)	6.0% (3)	26.0% (13)	64.0% (32)	4.48	50
Intense	14.0% (7)	12.0% (6)	26.0% (13)	24.0% (12)	24.0% (12)	3.32	50
Positive	0.0% (0)	0.0% (0)	12.0% (6)	28.0% (14)	60.0% (30)	4.48	50
Perceptive	2.0% (1)	4.0% (2)	22.0% (11)	40.0% (20)	32.0% (16)	3.96	50
Welcoming	4.0% (2)	2.0% (1)	12.0% (6)	42.0% (21)	40.0% (20)	4.12	50

APPENDIX E
OTHER ATTRIBUTES FOR SCCs

Other attributes participants feel their SCC should have

“Critical”

“Motivational”

“Previous experience within that sport”

“Go above and beyond, little details make all the difference”

“Being able to think on your feet and adapt sessions at the drop of a hat. Being able to work within a performance team, using the expertise of other members to augment provision.”

“Reliable”

“Has to be in good shape and fitness”

“Encouraging”

“Be able to adjust to how individuals react, i.e. whether being shouted at works or doesn't work for athletes Being flexible to injured players to create sessions alongside the team that mean the player is still involved and still training”

“That They are good at explaining things to you”

“Professional, not overly friendly with us”

“Assertive, good leadership qualities, good interpersonal skills, adaptability, flexibility”

“Ability to see the bigger picture within the work place”

“Energetic is important as well as knowledge”

“Authoritarian”

“Professional and sociable with athletes on a professional level”

“Adaptable - to different types of players.”

“Must always be prepared for any situation that could occur within a session or program. Not only knowledgeable but willing to continue learning and keep that knowledge up to date.”

“Know their stuff”

APENDIX F

QUESTION 9 RESULTS

Question 9 Results: In your opinion how important is ...

	Non Essential		Somewhat Essential		Absolutely Essential	Rating Average	Rating Count
It to have a physically large rather than small (general size, not just muscle) SCC you work with? Show Responses	58.0% (29)	24.0% (12)	18.0% (9)	0.0% (0)	0.0% (0)	1.60	50
The physical appearance (muscularity, body fat) of a SCC you work with? Show Responses	16.0% (8)	6.0% (3)	46.0% (23)	24.0% (12)	8.0% (4)	3.02	50
The S&C Coaches physical fitness? Show Responses	10.0% (5)	6.0% (3)	26.0% (13)	38.0% (19)	20.0% (10)	3.52	50
The SCC to be Male? Show Responses	68.0% (34)	10.0% (5)	16.0% (8)	6.0% (3)	0.0% (0)	1.60	50

APPENDIX G
QUESTION 9 COMMENTS

Question 9: Comments: In your own opinion how important is ...

9.1: It to have a physically large rather than small (general size, not just muscle) SCC you work with?

“So long as they are fit themselves”

“As long as they are fit and can do their job”

“If an S&C coach isn't in shape themselves, I would doubt their ability to train me/my team”

“As long as they can advise you and help you improve it does not matter”

“As long as SCC is able to carry out his role effectively, his size is not relevant”

“why should appearance matter it's their knowledge you want.”

“Practitioner does not need to 'big”

“As long as they know what they are talking about. But would be vary of listening to a coach not in decent shape”

“This is massive, people think the bigger the coach the better - not true”

“Experience rather than size.”

9.2: The physical appearance (muscularity, body fat) of a SCC you work with?

“Practise what you preach”

“Can relate to them more if they are in good shape”

“A confident and knowledgeable coach who motivates and gets an outcome is essential, physical appearance is not necessary if the coach has these three attributes”

“With experience would come their own training therefore they should have a certain amount of muscle mass”

“To be a role model and practice what you preach is essential. A good physique is very important”

“They need to have participated in program's and have done the exercises a lot to be a good coach. This would result in a muscular improvement”

“Can't be fat”

9.3 The S&C Coaches physical fitness?

“Practise what you preach”

“Need to practice what you preach.”

“To motivate clients, SCC should display good level of physical fitness”

“To demonstrate. They should be a good role model”

“Only to demonstrate technique”

“Should have adequate fitness to carry out their duties. No need to be exceptionally strong, fast etc.”

9.4 The SCC to be Male?

“Sex doesn't matter if they are good at what they do.”

“As long as they can advise you and help you improve it does not matter”

“Haven't had experience with a female coach, do not feel it would make a difference”

“The delivery of physical sessions should not depend on gender, however , a female SCC may not be accepted as readily in all male working environment.”

“Both men and women suited to S&C. Different environments may suit one or another more.”

“In a male team it would be hard for a female to motivate the boys. A woman could coach females easier”

“Has to know the area they are coaching, female or male.”