

**AN INVESTIGATION INTO THE KNOWLEDGE AND
PERCEPTION OF RUGBY COACHES IN THE GREATER
DURBAN AREA WITH REGARDS TO CHIROPRACTIC
AND OTHER SPORTS MEDICAL PERSONNEL.**

A dissertation submitted in partial compliance with the requirements for a
Masters Degree in Technology, in the Department of Chiropractic at the Durban
University of Technology.

By

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2008**

I, Charlton Kenneth Butt, do hereby declare that my work is my own, both in
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DEDICATION

To my parents Donald and Charleen Butt, for their love, understanding and support these past years and to Gray my beautiful son.

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ABSTRACT

Introduction:

One of the most important responsibilities of a rugby coach towards players is that of injury prevention and advice. Often these responsibilities fall solely on the coach, but sometimes he has the benefit of sports medical personnel at his service. Therefore in order for the coach to best service this sport and industry, his/her knowledge and perception of Chiropractic and other sports medical personnel is critical.

Objective:

To establish an understanding of Durban rugby coaches' perceptions and knowledge of Chiropractic to formulate initiatives aimed at bridging gaps and building co-operation between coaches and various medical personnel that they have at their disposal.

Methods:

A survey was distributed to 149 rugby coaches within 23 high schools and 67 rugby coaches within 24 rugby clubs, resulting in a total of 219 rugby coaches in the greater Durban area received a questionnaire for completion and return.

Results:

Of the 85 coaches that participated (38.8% response rate), the majority were White (95%), male (99%), with a mean age of 37.36 years and coached at the amateur level (65.1%). School coaches dominated the participants with 67.1% with 61 (71.8%) having obtained a rugby coaching qualification and 26 (30.6%) having another professional sport, fitness or medical qualification besides that of rugby coaching.

Most (94.9%) participants referred players to a health professional for examination and / or treatment. This included Physiotherapists, 80% of the time, GPs 70.6% of the time and Chiropractors, 60% of the time. Twenty-nine (34.1%) had a Chiropractor on their medical management team and 28 (96.6%) said it was a positive experience. Of those who did not have a Chiropractor on the team, 82.4% said they would consider it in the future. Over half (65.5%)

had personally been treated by a Chiropractor. The 3 most frequent conditions associated with Chiropractic included: Disc herniation (42.6%), low back pain (36.1%) and whiplash (32.8%). Notwithstanding this outcome, the level of knowledge was low with the mean knowledge score (an aggregate knowledge score derived statistically from all questions relating to the knowledge of Chiropractic) of the group was 55.8% (SD 21.9%), even though the range varied from 0 to 96%.

Although the coaches' knowledge of Chiropractic was low, most participants (76.2%) had a favourable view of the Chiropractic profession. Furthermore the coaches perception of Chiropractic related significantly to their knowledge ($p = 0.037$). In addition the higher their knowledge scores the more positive their view.

Conclusion:

This study established what knowledge base is available that could promote rugby coaches greater understanding of the Chiropractic profession and related medical personnel. There was a positive association between increased knowledge and a better perception of Chiropractic, suggesting that if knowledge were improved, then perception and attitude towards Chiropractic and related medical personnel would further improve. This increased awareness may improve knowledge, understanding, communication and utilization with the Chiropractic profession and related medical personnel and ultimately these professions within rugby may gain a greater level of acceptance.

Key words: knowledge, perceptions, rugby coaches, Chiropractic.

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CHAPTER ONE: INTRODUCTION

1.1. Introduction:

Rugby is seen as a growing sport from both a spectator perspective as well as a professional game in that the number of players, coaches and officials involved are increasing worldwide (Best, 2003). With reference to the rugby fraternity in South Africa, there are approximately 80,000 registered players (Ingle, 2005), who require coaching at various levels. Reflecting the national norm and in the greater Durban area there are approximately 149 high school teams (Ingle, 2005) with at least one designated coach per team. In addition to this at club rugby level there 70 teams within 23 clubs, catering for all types of players from the Premier League down (Kwazulu-Natal Rugby Union, 2005; Van Noordwyk, 2005; Kwazulu-Natal Rugby Union, 2006), each also having their allocated coach(es). This number of players and coaches increases annually and is in line with the global trends (Ingle, 2005; KZN High School's Rugby Association, 2007).

In this context where there is an increase in the number of players, coaches are an integral part of the rugby administration (Best, 2003). At a coaching level, the coach is responsible for the players that constitute the team (15 players) and the squad (22 players or more). Pre-game flexibility, warm-ups and strapping against injury are issues usually dealt with primarily by the coach (Chalmers et al., 1998; Ingle, 2005; Van Noordwyk, 2005). In addition, the conditioning of the players before the season / specific games and basic advice about injuries are the coaches' responsibility. Therefore rugby coaches need to be fully involved in their players' fitness training, injury prevention and first aid (Noakes and du Plessis, 1996; Chalmers et al., 1998). Furthermore Noakes and du Plessis (1996) propose that coaches need to know about immediate first aid management of rugby injuries (Donaldson, Finch and Forero, 2003) and the ability to distinguish between serious and trivial injuries (grazes and bruises) (Chalmers et al., 1998).

In the role as overseer of the players' medical wellbeing, rugby coaches are an important link in conveying the needs of the administration to the players and from the players to the administration (Best, 2003; Chalmers et al., 2003; Beardmore et al., 2005). As such they

are respected and their advice on and off the field is respected by the players. This role is further emphasised due to the high-intensity, contact nature of rugby and consequent injuries that are incurred (Noakes and du Plessis 1996; Holloway, 2004). In this respect, the primary responsibility of coaches is to ensure that within the regulations of the administration there is an adequate provision of medical support in the areas of injury prevention, treatment and rehabilitation (Noakes and du Plessis, 1996; Ingle, 2005; Van Noordwyk, 2005) especially at the lower, less professional end of the sport and / or if their expertise regarding medical support is lacking.

It is however assumed that rugby coaches have sufficient training (Noakes and du Plessis 1996; Holloway, 2004) so that they are able to adequately address the role that they are expected to fulfil (viz. either by providing medical services or acting as a facilitator in procuring the appropriate medical services). In this respect however, most coaches have limited medical training and / or medical exposure in order to make the most appropriate decisions with respect to their players' injuries (Noakes and du Plessis 1996).

Thus it is assumed that most coaches rely almost entirely on personal experience and life experience when advising their players (Ingle, 2005; Van Noordwyk, 2005). When this occurs, the areas of injury prevention, treatment and rehabilitation are no longer addressed in terms of what is best for the player, but by what the coach knows and thus perceives to be the best for the player. This leads to either uncoordinated medical care (lack of multidisciplinary player / patient management) for the player or alternatively medical care that lacks a multidisciplinary approach (Graf, 2001), limiting the player's contribution to the sport and life within the sport (Beardmore et al., 2005) and increased likelihood of burnout (Cresswall and Ecklund, 2003). It has also been suggested that uncoordinated medical care is responsible for a high rate (15-27%) of re-injury within rugby (Dalley et al., 1982; Dalley et al., 1992; Hughes and Fricker, 1994; Garraway and Macleod, 1995).

The above assumptions however are in contrast to the fact that rugby is becoming an increasingly more scientific sport at both professional and amateur levels and it has been postulated that coaches who ignore science and do not apply scientific management to the sport will be sidelined (Noakes and du Plessis, 1996). Nevertheless it agrees with the anecdotal evidence (Ingle, 2007), that evidence based, scientific development is

hampered as most coaches have grown up in an environment of simply advising their players to consult a physiotherapist or their GP. Players are often referred to these practitioners (e.g. GPs or physiotherapists) in isolation of any others (e.g. homoeopaths or Chiropractors), based purely on life or personal experience (Ingle, 2005; Van Noordwyk, 2005). This is supported by Beardmore et al., (2005), who indicated that in New Zealand and potentially all rugby playing nations (e.g. South Africa), there is an assumption that all rugby unions have a standardised system in place for managing injuries. As detailed in their report, Beardmore et al., (2005) state that medical practitioners and physiotherapists, by default tend to be the medical care of choice and while they are well trained on the clinical aspects of injury assessment and treatment, they often lack the depth of understanding of the functional requirements of the sport. They suggest that personnel with comprehensive biomechanical and physiological knowledge with respect to the demands of rugby should be included in the team, allowing for fully integrated multidisciplinary care and to complement the treatment offered by GPs and Physiotherapists (Beardmore et al., 2005). Chalmers et al., (2003) concur with the findings of Beardmore et al., (2005), further stating that the coach is the principle co-ordinator who is responsible for ensuring the success of a multi-faceted, multidisciplinary clinical collaboration needed to ensure that players attain optimal performance.

Therefore, in order to understand the “gaps” that are apparent in the medical care provided for rugby players, it is important to first address rugby coaches knowledge and perception. This will enable the identification of these “gaps” and once they have been isolated, a greater co-operation and understanding between rugby coaches and the medical / paramedical and allied health services may occur which would be to the players' advantage (Beardmore et a., 2005). As a result appropriate medical personnel can then be identified in order to best fulfil the multi-faceted medical needs of the rugby players.

Therefore, this research was undertaken to establish the “gaps” based on rugby coaches' knowledge and perception with particular reference to Chiropractic, but it also includes other medical providers that may be part of a medical support team for rugby. It was also intended to ascertain whether coaches are actually applying multidisciplinary, evidence based principles in rugby as asserted by Noakes and du Plessis (1996), Ingle (2005) and Van Noordwyk (2005).

1.2. The problem statement:

The aim of this study was to investigate the knowledge and perceptions of rugby coaches in the greater Durban area with regards to Chiropractic and other sports medical personnel.

1.3. Research objectives:

1.3.1. To determine rugby coaches' level and extent of knowledge of Chiropractic and other sports medical personnel in the greater Durban area.

Hypothesis 1

It could be hypothesised that rugby coaches in the greater Durban area have a low level of knowledge about Chiropractic and other sports medical personnel.

1.3.2. To determine rugby coaches' perceptions of Chiropractic and other sports medical personnel.

Hypothesis 2

It could be hypothesised that rugby coaches' perceptions in the greater Durban area are not similar to perceptions found in the literature with respect to Chiropractic and other sports medical personnel.

1.3.3. To determine any relationship between the level of knowledge and the perception of Chiropractic and other sports medical personnel.

Hypothesis 3

A directly proportionate relationship exists between the level of knowledge and the perception of the Chiropractic and other sports medical personnel.

1.4. Rationale for the study:

Rugby coaches are expected to be responsible for players on numerous levels. This includes pre-game warm-ups, stretching and strapping against injury (Ingle, 200; Van Noordwyk, 2005). It also includes co-ordination of players conditioning before the season or specific games, as well as advice about injuries and the treatment and rehabilitation thereof. Therefore rugby coaches are expected to be fully involved in their players' fitness training and injury prevention as well as first aid management of rugby injuries. As the coaches are not necessarily medically trained, they often act as facilitators in advising players to consult certain medical personnel and to ensure that the appropriate medical personnel are accessible or employed by the teams to ensure the best cover is available for the rugby players.

However, research conducted by Noakes and du Plessis (1996), Donson (2003), Beardmore et al., (2005), Ingle (2005) and Van Noordwyk (2005) have shown a paucity of rugby coaches' knowledge regarding injuries, their prevention and treatment, as well as the health care options that are available for players. This lack of knowledge could account for the unchanged rates of injury in the last decade, irrespective of the intervention strategy utilised to limit player injury, but education of the rugby coaches could possibly rectify this injury problem (Chalmers et al., 2003).

Therefore it becomes important to establish what rugby coaches know and perceive of various medical personnel involved in rugby. It was hoped that the outcomes of this study would provide information related to the perceived roles of various medical personnel involved in rugby. This would allow for them to optimise their contribution within their respective scopes of practice and improve the multidisciplinary co-operation between the various medical personnel involved.

In addition this would improve player management within the coaching fraternity. It would stand to reason that establishing rugby coaches' knowledge and perception of Chiropractic and other sports medical personnel would provide a starting point to better multidisciplinary player / patient management protocols for the individual players (Graf, 2001; Ingle, 2005; Van Noordwyk, 2005). This would improve and augment (not replace current medical personnel (e.g. physiotherapist) but add to the medical services currently

provided to the players) current management strategies employed by the coaches (Ingle, 2005; Van Noordwyk, 2005). This is evidenced by the fact that rugby is becoming an increasingly scientific sport at both professional and amateur levels and it has been postulated that coaches who are ignorant with respect to developments in medicine and ignore scientific advances / best practice principles, will become increasingly marginalised (Noakes and du Plessis, 1996).

1.5. Delimitations:

As this study is a questionnaire based study, it was assumed that participants to this research answered the study's questionnaire openly and honestly, so allowing the researcher the best estimation of the rugby coaches' knowledge and perception of Chiropractic and other sports medical personnel.

The type of recruitment for observation may not be totally representative of the population group and may hence lead to errors in the results. However it is inevitable that any sampling process, no matter how carefully executed, will always result in a sample that is less than perfectly representative of the population (Dyer 1997).

This research focussed on rugby coaches in the greater Durban area only and not on rugby coaches in South Africa as a whole. There may indeed be some variations in the training and preparation of coaches from province to province and Rugby union to Rugby union.

1.6. Conclusion:

The research question is introduced in this Chapter and Chapter Two follows with a discussion of the related literature. Chapter Three analyses the methods and materials used to obtain the information required to meet the aims and objectives of the study. The results are then presented and discussed in Chapter Four and Chapter Five presents the recommendations and conclusions to the study.

CHAPTER TWO: LITERATURE REVIEW

2.1. Perception:

A person's perception is the “picture” and interpretation that they acquire of the world that is meaningful to them personally. They reach or arrive at this “picture” through the process of their individual and specific selection, interpretation and organization of the information to which they are exposed (Chaffe, 1997). Their perception is based on their senses and their interpretation of their surroundings and as well as on their life experience and education. It is further argued that reality is then based on this perception and so each person's reality can vary with their perception of the same environment or event. But according to Kehoe (1998) it is not necessarily an accurate reflection of the actual events taking place. Therefore as a result a person may assume that their perception is in fact the reality of an event or an environment; and only when conflict arises between people regarding their perceptions and interpretations of those same events or environments are their realities challenged. People are then forced to re-examine and perhaps modify their interpretation of the external stimuli they receive in that their perceptions may not be the possible/actual reality of those events or environments and the world around them (Chaffe, 1997).

To better understand the factors that may influence perception, the Neiss classification as presented by Robbins (1996) and Bergh (1999) indicated the following broad categories of possible factors, as presented in Table 2.1.

Table 2.1: Neiss Classification.

<p>1. The individual factors (which in the context of this research relates to the rugby coach):</p> <p>Experience. Beliefs / attitudes. Motivation. Knowledge / interests. Expectations and values. Culture.</p>	<p>2. Factors related to the object that is being perceived (in the context of this research this would be the Chiropractic profession):</p> <p>Development in the country. Public Relations. Accessibility (discussed under environmental factors).</p>
<p>3. Environmental factors (in the context of this research, these are factors that could influence or modify the object (i.e. Chiropractic profession) or the individual and a change in their perception (i.e. rugby coaches' knowledge and perception):</p> <p>Media. Medical. Accessibility. Training. Nomenclature or jargon related to the Chiropractic profession.</p>	

These factors were later described in more detail by Gaumer (2002) and contextualised with respect to Chiropractic in research by Rattan (2007) and Talmage (2007), who conducted research on perceptions; knowledge and expectations of medical service delivery with respect to Chiropractic respectively. Further research studies that have previously discussed factors that may influence perception and knowledge of the Chiropractic Profession include (Rubens, 1996; Hunter, 2004; Louw, 2005 and Kew, 2006).

In summary the following findings seem apparent with respect to the **individual factors** that influence perception:

2.1.1 Individual Factors:

2.1.1.1. Experience:

With respect to the individual's experience, it would appear that in general there is an increasing demand among athletes and their coaches for Chiropractic care (Stump et al., 2002). This is because of the emphasis placed on musculoskeletal injuries by Chiropractors (Brown, 2006; Delgado, 2006; Tyfield, 2006; Uys, 2006; Wilson, 2006; Ferguson, 2007; Campbell, 2007; Higgs, 2007) and the fact that Sport Chiropractors either have special training in sports and in the biomechanics of a specific sport or sport in general (Allied Health Professions Act 63 of 1982 (as amended): Stump et al., 2002; WFC, 2003; WHO, 2005; CASA, 2008). This is supported by athletes like Montana (American Football), Navratilova (Tennis), Woods (Golf), Armstrong (Cycling), Rhodes (Cricket) and Botha (Rugby), who rely on their Chiropractors and demand Chiropractic care from their medical teams (Stump et al., 2002; Van Zyl, 2007) as organised through the co-ordination by the coaches. Therefore it can be seen that the scope of Chiropractic care within sport is increasing as a result of athletes' demands who have had direct exposure to and positive results from their interaction with Chiropractic care (Stump et al., 2002). In congruence with this Atkings (2007) (as cited in Van Zyl, 2007), estimates that more than 90% of top athletes use Chiropractic care in their endeavour to increase their performance and prevent or decrease injuries. However, irrespective of this increased demand that is being placed on the coaches, research has shown that this increased demand seems to be limited to lower back pain and neck pain and to a lesser extent muscular injuries (Stump et al., 2002; Middleton and Pollard, 2005).

This type of interaction seems to be similar in the rugby context, where it would appear that the role of Chiropractic care is limited to complaints related to the players' back and on occasion muscular injury. This can be seen in the perceptions of several rugby players and coaches, where Muir's interaction and

experience has been limited to hamstring and back injuries; Allan has experienced generalised pain relief, but specifically neck and back; Bashford had been treated for “niggling injuries” with respect to the hamstring muscles and Garvey associated Chiropractic care with spine, back and neck muscles. Similarly Ackerman also reported success with “niggling muscular injuries”; Ndungane with hamstring strains and Pretorius with ongoing “hamstring / buttock” strain (Van Zyl, 2007). With this vast ambit of experience and understanding by each player as to what Chiropractic care constitutes, it is little wonder that the perception of Chiropractic is varied, vast and sometimes even conflicting (Straton et al., 1990; Coulter, 1992; Wardwell, 1994(b); Chapman-Smith, 2000).

2.1.1.2. Beliefs and attitudes:

Research has shown that players and coaches base their beliefs and attitudes on prior experience of care received. Ingle (2005) and Van Noordwyk (2005) have shown that previous Chiropractic care has positively promoted this particular profession because some players believe this treatment enhances their wellbeing. Thus based on the experiences players and coaches have been exposed to, they develop beliefs about Chiropractic care and other medical care that they have received. In this respect some challenges to some negative existing perceptions about the involvement of Chiropractic or other medical personnel in rugby (Ingle 2005 and Van Noordwyk 2005), comes from the perception (based on their experiences, knowledge and interaction with Chiropractors and other medical personnel) of some of the top professional rugby coaches and players. In this respect Muir (2007) believes that South Africa's top teams should all have full-time Chiropractors and claims that in his experience many USA professional sports teams have Chiropractors on staff for the players (Muir (2007) as cited in Van Zyl, 2007). Bashford (2007), based on his personal experience and from a management perspective, believes that Chiropractic will play a “major role in modern medicine” and that he will continue to promote Chiropractic (Bashford (2007) as cited in Van Zyl, 2007). These beliefs and perceptions are further echoed by Smit (2007), who attributes much of his physical wellbeing during his career to the Chiropractic care to which he has been exposed (Smit (2007) as cited in Van Zyl, 2007).

2.1.1.3. Motivation:

Rugby coaches are responsible in many aspects regarding the players whom they coach, but perhaps none more so than in their role of limiting the risks of injury or ensuring the best possible treatment for their players if injured (Chalmers et al., 1998; Ingle, 2005; Van Noordwyk, 2005). It is hence their responsibility to be motivated enough within their role, to keep abreast of current trends, ideas and medical science in the management of their teams (Noakes and du Plessis, 1996). Noakes and du Plessis (1996) further claim that there are those coaches who, due to a lack of motivation, ignore science and scientific development and furthermore are ignorant in its application in the sport (or not motivated enough to adapt and incorporate changes).

2.1.1.4. Knowledge and interests:

Ingle (2005) and Van Noordwyk (2005) believed that general ignorance prevented Durban rugby coaches from making more use of Chiropractic. This is supported by Rattan (2007) and concurs with the results obtained by www.chiroweb.com/worldnews-ChiropracticinSouthAfrica (2004) which estimates that approximately 1% of the South African Black population and only 10% of the South African White population have “any notion of what Chiropractic is”. Further to the above, knowledge is defined in the Compact Oxford English Dictionary (2008) as “information and skills acquired through experience or education as well as awareness or familiarity gained by experience of fact or situation and thus the sum of what is known”. Thus if it is considered that previous research has indicated a relationship between the perception of an object with the knowledge that an individual has of that object (Kew, 2006); it can be seen that a high level of ignorance with respect to rugby coaches may be the basis for a perception that does not reflect the reality of the Chiropractic profession at this time. Previous research has been conducted at the Durban University of Technology assessing knowledge and perceptions of Chiropractic by other professions. The studies were of: neurologists, neurosurgeons and orthopaedic surgeons by Reubens (1996); physiotherapists by Hunter (2004); GPs by Louw (2005) and personal trainers by Kew (2006). Generally the findings

revealed a lack of knowledge of Chiropractic and there was a perception of Chiropractors as back specialists (Reubens, 1996; Hunter, 2004; Louw, 2005; Middleton and Pollard, 2005). These findings were reinforced in the non-medical or fitness field by Van As (2005) who drew very similar conclusions from school guidance counsellors. These findings reflect results from international sources who found that most Chiropractors were viewed as back specialists only (Coulter, 1992; Caplan et al., 1994; Wardwell, 1994(a); Chapman-Smith, 2000; Gaumer et al., 2002). Based on these international studies it has been found that a greater awareness associated with higher levels of respect and acceptance between professions (Langworthy and Smink, 2000) occurs when there is an increased knowledge of Chiropractic and other sports medical personnel. This is supported by Langworthy and Birkelid (2001) and Van Zyl (2007) who show that increased acceptance and respect based on knowledge, results in a higher importance being placed on multidisciplinary health care, optimizing health care benefits to the patient. This appears to be particularly true in a sports setting (Van Zyl, 2007).

2.1.1.5. Expectations and values:

Complementary medicine has been defined as that which works alongside and together with orthodox medicine (Langworthy and Birkelid, 2001). Patient use of and demand for complementary practitioners including Chiropractors, have increased over the last decade. Many patients are drawn towards complementary medicine because of its focus on holistic care, together with patient responsibility for health and well-being (Verhoef and Page, 1996). Of all the complementary and alternative medical therapies, Chiropractic is the most used (Sherman, et al., 2004). It was also found that many patients with back pain specially, would be willing to try specific complementary and alternative medical therapies, especially if they thought them to be very useful (Sherman, et al., 2004). As a result an increasing number of Americans each year are seeking Chiropractic care for their back problems (Eisenberg et al., 1998). Therefore it would seem that people with high level of expectations of the usefulness of Chiropractic also have a high knowledge of Chiropractic (Louw, 2005).

2.1.1.6. Culture:

Ethnicity (race) is also cited in the literature as affecting perception and knowledge of Chiropractic. The traditional norms (cultural), socioeconomic factors, income and health insurance cover differences that exist between different races and ethnic groups have been cited for disparities with respect to health care access between different population groups (Hupkes, 1990; Van As, 2005). As explained this will affect the medical choices they make. It is also claimed that those previously disadvantaged were not (and may still not be) adequately exposed to Chiropractic and this will affect their choice of medical care (Lindhard, 1987; Gaumer et al., 2002; Rattan, 2007).

The following section looks at the findings are apparent with respect to the **object (i.e. Chiropractic profession) related factors** that influence perception:

2.1.2 Object (i.e. Chiropractic profession) related factors:

2.1.2.1. Development of the Chiropractic Profession in South Africa and accessibility:

Most Chiropractors in South Africa work in the private sector (CASA, 2005) catering for middle and upper income earners. This means that this care is unaffordable to most of the population (Rattan, 2007). As it is only available to those who can afford it (Hubert et al., 2005; About South Africa>Health, 2006) studies have shown that this could effect the rugby coaches' perception and knowledge of Chiropractic in the health care system (Lindhard, 1987; Gaumer et al., 2002), as they perceive that Chiropractic is only available to wealthy rugby players.

2.1.2.2. Public Relations:

- 2.1.2.2.1. Since the inception of Chiropractic over 100 years ago it has come under attack by some “highly influential” groups including medicine (Coulter, 1992; Wardwell, 1994(b); Chapman-Smith, 2000). Chiropractic has been criticized and condemned by Allopathic medicine and treated with suspicion (Curtis and Bove, 1992). Previously there was little scientific evidence to support the claims of Chiropractic and this also counted against the profession (Curtis and Bove, 1992). Therefore rugby coaches may indeed have a negative perception of Chiropractic and a low level of knowledge of the profession due to the slanted media reports of highly influential medical groups that have and may still continue to attempt to discredit and eliminate the Chiropractic profession (CASA, 2005; Rattan 2007) and due to the lack of research and scientific evidence to support these claims (Brantingham and Snyder, 1999). Research suggests that much has now changed in that there is Chiropractic related research being conducted and that this research is indeed published in journals and other publications (Langworthy and Smink, 2000). However these scientific publications are not really extensively read by rugby coaches or the general public in South Africa and Wardwell, (1994(a)) suggests that those original perceptions still do exist.
- 2.1.2.2.2. Until the first Chiropractic learners were accepted into Natal Technikon in 1989 (Till, 1997), Chiropractic education was not offered anywhere in South Africa. Chiropractic students needed to travel abroad in order to study (Brantingham and Snyder, 1999; Rattan, 2007). This has resulted in very little time for the profession to compete with and establish itself as an alternative to mainstream medicine (Rattan, 2007), especially as an alternative for sports injuries. According to Rattan (2007) this might well still be the status quo and this misunderstanding and misinformation by the public and rugby coaches might well impact on the perceptions of Chiropractic regarding their players.

2.1.2.2.3. Further reasons cited by Rattan (2007), in her study of matriculants' (Grade 12 learners') perception of Chiropractic, showed poor perception and knowledge of Chiropractic within this group. This is supported by the general lack of public knowledge of the fairly strict entry requirements for the course (Chiropractic Department Handbook, 2007; Chiropractic and Somatology Department Handbook, 2008), the content and subject matter and the duration of study (6 to 7 years) (Van As, 2005). It is thus assumed that this influence would also be present and reflected in rugby coaches in Durban (Ingle, 2005; Van Noordwyk, 2005). Ingle (2005) and Van Noordwyk (2005) state that one of the greatest causes cited for negative perceptions of Chiropractic and especially that of the involvement of Chiropractic in rugby, is that of ignorance and a lack of public education of Chiropractic. Van Zyl, (2007) agrees with this perception and further states that there are still many coaches and health professionals that do not understand the Chiropractic Profession. He blames the Chiropractic Profession / Chiropractors for this lack of public knowledge and suggests the profession has failed to adequately educate the public in South Africa (Van Zyl, 2007). This is supported by Whiting (2008), who suggests that Chiropractors have failed to educate the public and suggests a more aggressive public education drive. He believes that the general public (and so too rugby coaches) really have no idea what disorders or injuries can and can not be treated by Chiropractors (Whiting, 2008).

Lastly the following section looks at the findings apparent with respect to the **environment that influences the object and individual related factors** that influence perception:

2.1.3. Environment Factors:

2.1.3.1. Media:

In South Africa's current environment, the perception held by the general public about what it means to be healthy or ill is dominated by the perceptions and views of medical professionals (About South Africa>Health, 2006). Although

these professional views are a result of medical science's advances in the past 50 years, they are but one way of perceiving health and ill health (About South Africa>Health, 2006). Finally, although Stump's (2002) findings were fairly positive from a Chiropractic perspective and contrary to the About South Africa>Health (2006) results; there were indeed some negative results. Only 45% of NFL coaches believed that Chiropractors had sufficient training in the diagnosis of spinal problems, 14% did not believe that Chiropractors had sufficient training and 41% had no opinion. Furthermore 68% of coaches believed that Chiropractors required postdoctoral sports-injury training over and above their standard training, before they should be allowed to offer treatment to players (Stump et al., 2002).

2.1.3.2. Medical:

2.1.3.2.1. Perhaps some of the negative perception towards Chiropractic, in particular from the medical fraternity, can be illustrated in the study by Stump (2002). Some coaches requested their team names be withheld from the study report out of fear of reprimand from the team's medical physicians. Stump (2002) believed that this indicated "residual antipathy" from the team's medical physicians towards Chiropractic.

2.1.3.2.2. Although most medical aids in South Africa do provide for Chiropractic care, only about 18% of the population is actually covered by a medical scheme (About South Africa>Health, 2006). Therefore due to affordability problems (Hubert et al., 2005) large portions of the population will experience poor exposure to Chiropractors and Chiropractic care (Rattan, 2007). This will naturally lead to decreased exposure of many rugby coaches to Chiropractic treatment which will affect both their knowledge and perceptions.

2.1.3.3. Accessibility:

Accessibility barriers in the form of inaffordability and poor accessibility have also been blamed for the poor knowledge and perceptions of much of the population towards Chiropractic (Rattan, 2007). The difficulty in consulting a Chiropractor in many areas might well stem from shortages in these areas (Lindhard, 1987;

Gaumer et al., 2002). This is particularly true for rural areas as most Chiropractors are urban based (CASA, 2005). Therefore poor accessibility (Rattan, 2007) might well be a barrier to Chiropractic's expanded role into rugby as postulated by Ingle (2005) and Van Noordwyk (2005).

2.1.3.4. Training:

It has been noted with particular reference to sport, that the development of specialisation within a profession (Cloete, 2008) and thus also institutionalisation and integration of the profession into the health care system, are important indicators (Louw, 2007) that influence the perceived public standing of the profession. In South Africa, there is currently no standardised mechanism for specialisation and the integration of the Chiropractic profession into the health care system is limited (Myburgh and Mouton, 2007).

2.1.3.5. Nomenclature or jargon related to the Chiropractic profession:

Perhaps one of the greatest arguments for Chiropractic involvement in rugby comes from Roberts (2007) (as cited in Van Zyl, 2007), where he concurs with Van Zyl (2007), who stated that with the change of terminology from “alternative medicine” to “complimentary medicine” there has been an increased likelihood for Chiropractic involvement in sport. He elaborates that the medical team approach to rugby players and their injuries appears to be the best method of managing them, but added that it is crucial for the team members to work closely together and not feel threatened by their colleagues, so as to optimize a rugby player or athlete's performance. Roberts (2007) further states that his ideal medical team would include specialists with skills that other members of the team do not possess and this would most definitely include a Chiropractor (Roberts (2007) as cited by Van Zyl, 2007). He claims that he knows that Chiropractic methods of managing, assessing and treating players most definitely do work and that for him personally a Chiropractor is an “absolute key role player in any medical team” (Van Zyl, 2007). This is because they have a comprehensive biomechanical and physiological knowledge with respect to the demands of rugby, allowing for fully integrated multidisciplinary care and to complement the treatment offered by GPs

and Physiotherapists (Beardmore et al., 2005).

The reports by Van Zyl (2007) are similar to the findings presented by Stump et al., (2002) on the utilization of Chiropractic care by the NFL and the role of Chiropractors within this league. The head coaches were all provided with questionnaires on their use of and relationship with Chiropractors. It was found that there was considerable Chiropractic involvement within professional football in the United States, where the majority of trainers / coaches appeared to have developed “co-operative relationships” with Chiropractors. It was found that 31% of the coaches had Chiropractors on their staff in an official capacity as part of their medical team and of those teams that did not, 60% had already considered employing a team Chiropractor. Seventy seven percent of the coaches questioned reported that they had referred a player to a Chiropractor for evaluation and treatment and 100% of the coaches believed that there were players who consulted Chiropractors in their own capacity without their medical team's referral. As a result, many team coaches (81%) see Chiropractic as playing a definite role in this contact sport. More specifically they see the role of the Chiropractor as that of a “spinal specialist” focusing on musculoskeletal injuries and in particular those injuries to the low back (Stump et al., 2002).

According to Stump et al., (2002), a possible reason that many professional NFL coaches do believe in the benefits of Chiropractic care for their players is that many coaches (100%) see the role of the team Chiropractor as distinctly different from that of the team physician (Roberts (2007) as cited in Van Zyl, 2007). The most appropriate conditions for referral to a Chiropractor within the NFL appeared to be low back pain (61%), neck injury (31%) and headaches (8%) (Stump et al., 2002). Therefore musculoskeletal injury including low back and neck pain would justify treatment (spinal manipulation) of an athlete by a Sports Chiropractor (Stump et al., 2002). Nevertheless one of the interesting points is the difference between referrals, with 81% of coaches referring to an orthopedist, 36% referring to a Chiropractor and only 5% referring to a physical therapist (Stump et al., 2002). This re-enforces the earlier suggestion that there is a preference of rugby coaches to refer players to practitioners within the allopathic medical fraternity as opposed to the complementary or alternative medical fraternity (Rattan, 2007).

In the light of this understanding of “perception”, a coach's perspective with respect to Chiropractic and the opportunity of utilising Chiropractors within the rugby fraternity is based on the coach's picture or view of the world. This is selectively interpreted by them through the process of their individual and specific selection, interpretation and organization of the information to which they are exposed (Chaffe, 1997). Furthermore, coaches do not necessarily see the world, or indeed the opportunities, possibilities and benefits offered by Chiropractic as they truly are, but in terms of whom they are, moulded by their experiences, expectations and beliefs (Kehoe, 1998).

Thus, even though it is generally believed that a perception of the world or an event is the reality or truth, it cannot be assumed that our understanding of the coaches' perceptions and knowledge will reflect what they actually do think. This assumption is only challenged when the perception that is held is contradicted by that of others. Then only is the assumption / perception and therefore the selection, organization and interpretation of the world or the specific event examined. In the context of this research the perceptions and knowledge of the rugby coaches of Chiropractic and other sports medical personnel (Chaffe, 1997), may be vastly different from the perceived understanding of them. Rugby coaches' perceptions and knowledge of Chiropractic may or may not correlate and reflect that of previous literature (Reubens, 1996; Stump et al., 2002; Hunter, 2004; Louw, 2005; Van As, 2005; Kew, 2006) and our understanding of that literature.

One of the most significant outcomes of the New Zealand rugby injury prevention programme “Tackling Rugby Injury” of 1995 was the lesson that injury prevention strategies need to be based on scientific evidence and no longer on popular rugby belief (Chalmers et al., 1998). In accordance with Chaffe (1997) this suggests the need to challenge current rugby and coaching perceptions regarding injury (Chalmers et al., 1998), attitudes to Chiropractic and other sports medical personnel (Stump et al., 2002; Van As, 2005; Kew, 2006) and to base knowledge, practices and programmes on scientific evidence (in accordance with Noakes and du Plessis (1996)).

2.2. Rugby – the context:

This is particularly pertinent as Rugby Union Football, although currently played in over 100 countries is seen as a growing sport from both a spectator perspective as well as a professional game in that the number of players, coaches and officials involved are increasing worldwide (Best, 2003).

With reference to the rugby fraternity in South Africa, there are approximately 80,000 registered players (Ingle, 2005), who require coaching at various levels. Reflecting the national norm and in the greater Durban area there are approximately 149 high school teams (Ingle, 2007) with at least one designated coach per team. In addition to this at club rugby level, although increasing rapidly, there are 23 clubs, with 70 teams catering for all types of players from the Premier League down (Kwazulu-Natal Rugby Union, 2005; Van Noordwyk, 2005; Kwazulu-Natal Rugby Union, 2006; KZN High School's Rugby Association, 2007), each also having their allocated coach(es). This number of players and coaches increases annually and is in line with the global trends (Best, 2003; Ingle, 2005; Kwazulu-Natal Rugby Union, 2005; Kwazulu-Natal Rugby Union, 2006).

Best (2003) states that the pinnacle of rugby's success is the Rugby World Cup Tournament (hosted every four years), in that the resulting exposure provided for rugby dramatically increases participation rates, particularly within the junior ranks. He claims that in Australia, one of the successes of winning the 1999 tournament was the increase in player numbers. Similarly in South Africa the national pride and fervour of participating and winning the Rugby World Cup (twice), once in 1995 and again in 2007 (under White and Smit) and its knock-on effect is well known (White, 2007).

In this context where there is an increase in the number of players, the coaches form an even greater role integral to the rugby administration (Best, 2003; Ingle, 2005; Van Noordwyk, 2005). This is based on the fact that at a coaching level, the coach is responsible for the players, the team (15 players) and the squad (22 players or more) (Ingle, 2005; Van Noordwyk, 2005).

At the lower, less professional levels, the coaches have important responsibilities and roles far more diverse and way beyond that of their professional colleagues. This analogy

is also applicable to school teams which have fewer infrastructures available than would be the case with older teams / players (MacIntosh et al., 2003; MacKay et al., 2004). This is particularly pertinent when it is considered that the consequences of the success of Rugby as a sport are the subsequent increase in new players. Unfortunately many of these new players are not properly or adequately grounded in many of the basic technical and hence safety aspects (Best, 2003). When viewed in conjunction with the collision aspect of rugby (Best, 2003) and the subsequent high injury rate (Noakes and du Plessis 1996; Holloway, 2004), this places a greater responsibility on the coaches at these lower levels.

In New Zealand, where Rugby is very popular, it has the highest reported incidence of injury of all the major sports (Chalmers et al., 1998; Beardmore et al., 2005). In 1995, New Zealand Rugby undertook an intensive and multifaceted programme known as “Tackling Rugby Injury”, to provide and institute strategies aimed at preventing rugby injuries. Some of the most important lessons learned by the researchers based on this programme were not only the necessity to base injury prevention on scientific evidence (Noakes and du Plessis 1996) as opposed to current beliefs (Ingle, 2005; Van Noordwyk, 2005), but the important and “central role” played by the coach in implementing strategies to prevent injury (Chalmers et al., 1998).

The role of the rugby coach in the team setup is diverse and crucial. Pre-game flexibility, warm-ups and strapping against injury are issues usually dealt with primarily by the coach (Ingle, 2005; Van Noordwyk, 2005). It is the central role of the rugby coach in injury prevention (Chalmers et al., 1998; Ingle, 2005; Van Noordwyk, 2005), and in addition, the conditioning of the players before the season / specific games. Basic advice about injuries are also the coach's responsibility (Ingle, 2005; Van Noordwyk, 2005).

Therefore rugby coaches need to be properly trained to have an adequate knowledge and skill level regarding injury prevention and be fully involved in their players' fitness training, injury prevention and first aid (Noakes and du Plessis, 1996; Chalmers et al., 1998). Noakes and du Plessis (1996) further state that officials, especially coaches, need to know about immediate first aid management of rugby injuries (Donaldson, Finch and Forero, 2003) and the ability to distinguish between serious and trivial injuries (Noakes and du Plessis, 1996; Chalmers et al., 1998).

Chalmers et al., (1998) and Donaldson, Finch and Forero (2003) paint a negative picture of the first aid personnel and facilities provided at many schools and clubs in Australia and New Zealand. These findings are echoed in Durban by Ingle (2005) and Van Noordwyk (2005), that although due to increasing rugby administration rules ensuring that this situation is improving in Durban, they believe that many lower level clubs and schools do indeed still reflect these findings (Donaldson, Finch and Forero, 2003; Labuschagne, 2008). This scenario suggests that first aid facilities and knowledge should in general be improved at rugby matches (particularly lower leagues and schools). Furthermore, because of the medical and first aid inadequacies, the respective coaches' personal skills and knowledge needs to be even better and/or they need additional assistance from more highly trained personnel on hand (Ingle, 2005; Van Noordwyk, 2005).

In this role as overseer of the players' medical wellbeing (Best, 2003), rugby coaches are an important link in conveying the needs of the administration to the players and from the players to the administration. As such they are respected and their advice on and off the field is heeded by the players. This role is further emphasised due to the high-intensity, contact nature of rugby and consequent injuries that are incurred and their responsibility to ensure that the player is best equipped to either prevent injury or recover adequately (Noakes and du Plessis 1996; Chalmers et al., 1998; Best, 2003; Holloway, 2004).

In this respect, the primary responsibility of coaches is to ensure that within the regulations of the administration there is an adequate provision of medical support in the areas of injury prevention, treatment and rehabilitation (Noakes and du Plessis, 1996; Ingle, 2005; Van Noordwyk, 2005) especially at the lower, less professional end of the sport and / or if the coach's individual expertise regarding medical training is lacking.

From a coaching and administrative perspective it appears that those coaches that adopt an open-minded approach to the players, administration staff and medical teams reap the greatest rewards as seen by the successful 2007 Sharks coaching and management team. This is reflected in "Celebrity Chiropractic" (Van Zyl, 2007), where Van Zyl describes the Sharks' coaches as such. This leadership and attitude resulted in an open-minded, ego-less and proactive medical approach and philosophy and ultimately a successful and "happy" medical team. This approach is seen in the Sharks medical team which is comprised of a sports physician, physiotherapist, massage therapist, biokineticist,

strength coach, fitness advisor, Pilate's instructor and a Chiropractor, who support the coach in his role (Van Zyl, 2007).

In contrast to the above facilities, where the professional coaches, responsible for the professional teams, have a wealth of diverse and holistic knowledge, talent and expertise at their disposal through their medical team (Van Zyl, 2007), affording greater opportunities to the professional players and coaches, it is most certainly at the lower, less professional end of the rugby playing and coaching spectrum that this accumulative knowledge and skills pool is lacking (Noakes and du Plessis, 1996; Ingle, 2005; Van Noordwyk, 2005). This leaves inadequate injury prevention and management skills and knowledge at these lower levels, as all this diverse and vast knowledge is thus impossible to provide (at these levels), yet still needed by the coaches themselves (at least in some capacity) (Noakes and du Plessis, 1996; Ingle, 2005; Van Noordwyk, 2005).

Based on the above contrast, it is often assumed that rugby coaches have sufficient training (Noakes and du Plessis 1996; Holloway, 2004) in order to ensure that they are able to adequately address the roles that they are expected to fulfil (viz. either by providing medical services or acting as a facilitator in procuring the appropriate medical services). In this respect however, most coaches have limited medical training and / or medical exposure in order to make the most appropriate decisions with respect to their players' injuries (Noakes and du Plessis 1996).

As has been shown at lower levels of rugby participation, this lack of knowledge and adequate and correct medical support is in direct contrast to what is needed and indeed provided in the professional ranks. Muir's (2007) Sharks Medical Team's ethos was, "The player's needs come first!" (Muir (2007) as cited in Van Zyl, 2007). This ethos reflects a more sound medical decision making process based on accurate knowledge and expertise from a medical team or expert (Chalmers et al., 1998) and not based on the individual coach's perception or knowledge of the different medical fields or the injuries incurred.

The above assumptions regarding the differences between the upper and lower levels of participation in rugby and the perceptions and limited knowledge of Chiropractic and other medical personnel (Sanchez, 1991; Ingle, 2005; Van Noordwyk, 2005) of lower level

coaches fairly accurately reflects Noakes and du Plessis (1996), who claim that rugby is becoming an increasingly more scientific sport at both professional and to a lesser extent amateur levels. Furthermore it has been postulated that coaches who ignore science and are ignorant in its application in the sport will become increasingly marginalised (Noakes and du Plessis, 1996). This claim is not in contradiction to itself in that there are indeed coaches (usually those at higher ranks with more exposure) who are more open to scientific changes and those who are not (Ingle, 2005 and Van Noordwyk, 2005) and will hence become marginalised according to Noakes and du Plessis (1996).

Nevertheless it agrees with the anecdotal evidence (Ingle, 2007), that the evidence based, scientific development is hampered at lower levels as most coaches have grown up in an environment of simply advising their players to consult a physiotherapist or their GP. Players are often referred to these practitioners in isolation of any others (e.g. homoeopaths or Chiropractors), based purely on experience (life or personal experience) (Breen et al., 2000; Ingle, 2005 and Van Noordwyk, 2005). It is these coaches that are either not exposed to the scientific and medical change that will become increasingly marginalised (Noakes and du Plessis, 1996).

Thus it is assumed that most coaches rely almost entirely on personal experience and life experience when advising their players (Ingle, 2005; Van Noordwyk, 2005). Indeed it is postulated by Ingle (2005) and Van Noordwyk (2005) that most high school coaches and probably club coaches in Durban usually advise their players to consult a local physiotherapist or if the injury seems more severe their General Practitioner (GP). Their belief is that this “ignorant” approach is born out of convenience and one that most coaches both experienced as players whilst growing up or as coaches themselves (Ingle, 2005; Van Noordwyk, 2005).

When this occurs, the areas of injury prevention, treatment and rehabilitation (Chalmers et al., 1998) are no longer addressed in terms of what is best for the player, but by what the coach knows and thus perceives to be the best for the player (Rattan, 2007). This leads to either uncoordinated medical care (lack of holistic player / patient management) for the player or alternatively medical care that lacks a multidisciplinary (holistic) approach (Graf, 2001), limiting the player’s contribution to the sport and life within the sport (Beardmore et al., 2005) and increased likelihood of burnout (Cresswall and Ecklund, 2003). Sixty four

percent of coaches in the National Football League believe that low back pain results in the early retirement of players (Stump et al., 2002). The role of the Sports Chiropractor, especially in rugby is pro-active in which the player's alignment, biomechanics and musculoskeletal system are assessed in order to prevent injury as well as to improve performance (Allied Health Professions Act 63 of 1982 (as amended); WFC, 2003; Van Zyl, 2007; WHO, 2005; CASA, 2008; Health Professions Act, 2008). Injury prevention will naturally lead to a longer career for the athlete involved in that they are competitive within their sport for longer (Van Zyl, 2007). Furthermore, it has also been suggested that uncoordinated medical care is responsible for a high rate (15-27%) of re-injury within rugby (Dalley et al., 1982; Dalley et al., 1992; Hughes and Fricker, 1994; Garraway and Macleod, 1995).

This is supported by Beardmore et al., (2005), who indicated that in New Zealand and potentially all rugby playing nations, that there is an assumption that all rugby unions have a standardised system in place for managing injuries that present. They further reflect the assertions of Ingle (2005) and Van Noordwyk (2005), that those teams that do have some kind of professional medical personnel, generally have medical services limited to that of a team physiotherapist, occasionally a doctor and sometimes fitness advisor. As detailed in their report of findings Beardmore et al., (2005) state that medical practitioners and physiotherapists, by default tend to dominate the support of rugby teams and while they are well trained on the clinical aspects of injury assessment and treatment, they often lack the depth of understanding of the functional requirements of the sport. They suggest that personnel with comprehensive knowledge of biomechanical and physiological demands of rugby should be included in the team, allowing for fully integrated multidisciplinary care and to complement the current medical care available (Beardmore et al., 2005).

Beardmore et al., (2005) further emphasizes the importance of the relationship between the coach and the medical personnel. They claim that the most important indicators to a coach of a player's return to play, is the opinion of the paramedical and medical personnel respectively (Beardmore et al., 2005). Chalmers et al., (2005) concur with the findings of Beardmore et al., (2005), further stating that the coach is the principle co-ordinator who is responsible for ensuring the success of a multi-faceted, multidisciplinary clinical collaboration needed to ensure that players attain optimal performance. This places great responsibility and accountability on the medical personnel that are responsible for the

players' wellbeing and in whose opinion the coaches place an enormous amount of trust (Beardmore et al., 2005). In those situations when these skills are actually available they can provide the coaches, the other medical personnel and indeed the players with tremendously valuable information. It is the responsibility of the coach and the medical team leader to ensure that they retain the services of specialists with the correct skills. It has been suggested by Beardmore et al., (2005) that what is commonly missing from rugby medical teams are specialists with biomechanical and physiological knowledge of the demands placed on rugby players. This is supported by Van Zyl (2007), who indicated that the Sharks, have found benefit in including musculoskeletal and biomechanical specialists within their medical personnel.

2.3. Chiropractic Profession's perception of its role in rugby:

From a Chiropractic perspective, it is believed that due to the nature of contact sports like rugby, the joints and spinal column become jarred and misaligned. This results in “stiff and fixated joints” and very often associated muscle spasm. This can all further be exacerbated by rigorous and extensive training, matches and travelling, the end result being a major physical problem or injury for the rugby player, where if correctly assessed and treated this could have been prevented (Van Zyl, 2007). The pain felt by the player is viewed as the “symptom” of an underlying cause that the Chiropractor seeks to find and correct and so reduce the pain. However Chiropractors are trained to administer more than merely “symptomatic care” but to endeavour to actually identify structural imbalances and correct them before it develops into an injury, or present as pain to the player (Van Zyl, 2007).

Van Zyl (2007), believes that part of the success of Sports Chiropractic is that it is proactive, focussing on prevention of injury and the enhancement of performance. Sports Chiropractic is thus not re-active to underperformance and injury (i.e. treating players only when they are injured) but involves pre-match checks and post-match biomechanical assessment and communication of individual findings on players to the coach (Allied Health Professions Act 63 of 1982 (as amended); Health Professions Act, 2008). He further believes that the role of Sports Chiropractic is most effective when the player's biomechanics are assessed and spinal alignments are corrected (WFC, 2003; CASA, 2008; WHO, 2005). The effect of this is to decrease injury and to improve performance.

Fourie (2007) (as cited in Van Zyl, 2007) and Graf (2001) concur with the above emphasis on musculoskeletal and biomechanical knowledge and are in full support of an holistic approach to the assessment and treatment of rugby injuries. He believes that the holistic approach is an important part of the recovery and enhanced performance of players. In this respect he states that Chiropractic treatment plays a “valuable role” in the team's multi-disciplinary approach to the players and illustrates this point by referring to the Sharks Medical Team who utilize Chiropractic assessment of biomechanics and adjustments (Allied Health Professions Act 63 of 1982 (as amended)) to prevent muscle strain and injuries (Fourie (2007) as cited in Van Zyl, 2007). Similarly Wright (2007) (as cited in Van Zyl, 2007) claims to have dealt with numerous diverse medical professionals as part of his medical team. He claims the contributions of the Chiropractors with whom he has worked, in reducing injury turn around time and holistically managing their patients, to have been invaluable to the players with regards to their reduced absence from play. He further states that Chiropractors' “ability to recognise dysfunction” and to “identify misalignment” (Wright (2007) as cited in Van Zyl, 2007), here of central importance in this function.

Therefore researchers, Noakes and du Plessis (1996), Beardmore et al., (2005), Chalmers et al., (2005) Ingle, (2005), Van Noordwyk, (2005) and Van Zyl, (2007), have identified some deficient areas of medical support in rugby and some skills shortages provided to rugby coaches in general. In order to understand the “gaps” that are apparent in the medical care provided for Durban rugby players, it is thus important to address the knowledge and perception of the Durban rugby coach. Once these “gaps” have been isolated, appropriate medical personnel can then be identified in order to best fulfil the multi-faceted medical needs of the rugby players. This greater co-operation and understanding between rugby coaches and the medical / paramedical and allied health services would be to the players' advantage. Thus in order to determine whether the niche market attributed to Chiropractic generally (or any other medical personnel) can contribute to medical care in rugby specifically, is based entirely on its congruency with the perceived niches identified as outstanding by the rugby coaches. This is particularly true for a specifically Durban context as some general medically related rugby research has already been done internationally. This is also true for a context broader than merely professional teams, as the needs of these coaches and players appear to have already been researched in some capacity.

Therefore questions that need to be asked are: What is the current perception of Chiropractic? What is the current perception of Chiropractic from a medical point of view? What is the current perception of Chiropractic from a rugby coach's point of view?

Therefore this research was proposed in order to establish the niche areas based on the knowledge and perception of rugby coaches with particular reference to Chiropractic. This also includes other medical providers that may be included as part of the medical support team for rugby, in order to ascertain whether the assertions by Noakes and du Plessis (1996), Ingle (2005) and Van Noordwyk (2005) are indeed applicable to the rugby coaches.

CHAPTER THREE: METHODOLOGY

3.1. Introduction:

This chapter covers the study design; methodology used; sampling procedures employed; inclusion criteria, methods employed and data analysis.

3.2. Study Design:

This study was a population based epidemiological study on rugby coaches' knowledge and perceptions of Chiropractic in the greater Durban area and was conducted at high schools and rugby clubs within Durban. Survey research is a way of collecting information from a large and dispersed group of people (Dyer, 1997). The primary data for this research was collected by means of a questionnaire (appendix E) based upon previous questionnaires (Rubens, 1996; Louw, 2005; Van As, 2005; Kew, 2005), as well as input from a focus group and a pilot study.

As a result this study was a perception survey, quantitative in nature, and made use of a structured questionnaire (appendix E) to collect data (Wisker, 2001). A descriptive type design was used to collect the information (Dyer, 1997). Descriptive surveys are simply used to establish the features of a particular group (i.e. the perception and knowledge of Chiropractic and other medical professions) (Dyer, 1997). However, this is provided that the questionnaire has been demonstrated to be reliable and valid and that the participants answer openly and honestly (Mouton, 1996). If these criteria are met then questionnaires are generally a good source of information (Mouton, 1996).

Based on the above study design this research was approved by the Faculty of Health Sciences Research and Ethics Committee (FHSEC 031/07)(Appendix F) indicating that the research protocol satisfies the Ethical requirements set out by the Faculty of Health Sciences Research and Ethics Committee for such studies. Furthermore this approval indicates that the research protocol is in line with the Declaration of Helsinki, 1975.

3.3. Methodology:

3.3.1. Sampling Procedure:

No advertising was used. The participants were recruited via the KZN High School's Rugby Association (controlling body for high school rugby coaches and their respective schools) and the chairmen of the Durban Rugby Clubs. In order to access these participants, permission was obtained from the Master in Charge (MIC) (High Schools) or the Chairman of the Rugby Club (Appendix C2) prior to the participants being contacted within the respective jurisdictions.

3.3.2. Participant sampling:

3.3.2.1. Sample Size:

This research was aimed at rugby coaches who were at the time head or assistant coach of a rugby team at club or high school level.

The number of potential participants was obtained from the KZN High School's Rugby Association (Ingle, 2007), as well as the Kwazulu-Natal Rugby Union Fixtures Booklet (2005) and the Kwazulu-Natal Rugby Union Fixtures Booklet (2006). The sample was thus based on pre-research analysis, indicating a total population size of 219 coaches. An attempt was made to sample the entire population (219 rugby coaches), however this was dependent on the school MICs and Club Chairmen that allowed the research to proceed within their jurisdiction.

Based on the need for agreement from the school MICs and Club Chairmen, it was agreed by the Faculty of Health Sciences Research and Ethics Committee (FHSEC 031/07) (Appendix F) that a minimum response of 35% or 77 participants were required in this study as a response rate prior to statistical analysis being completed (Appendix G). This minimum compares favourably with current research where response rates varied from 13.8% (Louw and Myburgh, 2007) to 16.5% (Symon et al., 2006), where results are not generalisable to the population under study (Lindorff-Larsen et al., 2007; Mearns and Reader, 2007; Suter et al., 2007). However, studies ranging from 30%-50% (Caldwell et

al., 2007; Copp et al., 2007) indicate generalisations are possible and valid within the context of the population under study. In agreement with the above Esterhuizen (2007), who reviewed the methodology of this study, has indicated that a 35% response rate or 77 questionnaires is the minimum response rate required for such a study (Appendix G).

3.3.2.2. Allocation:

All participants were allocated to one group. There were no subgroup allocations based on any participant demographic characteristics.

3.3.2.3. Method:

The total population of 219 coaches was utilised (total population sampling) (Mouton 1996).

3.3.3. Inclusion and Exclusion criteria:

3.3.3.1. Inclusion criteria:

- Amateur or professional coaches / current club and high school coaches within the greater Durban area were included. This included all coaches at club and high school level dealing with adults and teenagers from the higher skilled professional ranks down to the lower social ranks. The reason for this inclusion criterion was to include the broadest spectrum of coaches as this would best reflect the focus of the study (i.e. the knowledge and perceptions of club and high school coaches in Durban). It was also hoped that if a large spectrum of coaches is surveyed, then the results will best reflect a general exposure (Mouton, 1996) and response to Chiropractic and other sports medical personnel (Ingle, 2005; Van Noordwyk, 2005).
- All coaches who were currently coaching were included in this study so as to improve the sample homogeneity (Mouton, 1996). Furthermore only coaches who are currently coaching in Durban specifically were considered, also to improve the sample homogeneity (Mouton, 1996).

- Head or assistant coaches were included. This is due to the nature of modern rugby whereby many teams will have more than one coach, usually including a head coach and either general assistant coaches or specific, more specialised coaches (i.e. specialising in attack, defence, forwards or back-line play etc.) (Ingle, 2005; Van Noordwyk, 2005).
- The participants must have given their Informed Consent in writing (Appendix D2).

3.3.3.2. Exclusion criteria:

- The members of the pilot study group were excluded from the main study to prevent bias from any of the participants in the main study as set out in Morgan (1998(a)), Morgan (1998(b)) and Morgan (1998(c)).
- The members of the focus group were excluded from the main study to prevent bias from any of the participants in the main study as set out in Morgan (1998(a)), Morgan (1998(b)) and Morgan (1998(c)).

3.4. Procedure:

Once the questionnaire had been developed, the respective high school's Master in Charge (MIC) of rugby was contacted for permission (Appendix C1 and C2). A letter from the KZN High School's Rugby Association (Appendix D4) endorsing the research and requesting assistance and co-operation from the MIC was also provided to the MIC.

The documents (Appendices C1, C2 and D4), along with the research packs (viz. Letters of Information (Appendix D1), Informed Consent Forms (Appendix D2) and Questionnaires (Appendix E)) were dropped off with the MIC or the respective school's secretary to provide to the MIC. The MIC then delivered the research packs (Appendices D1, D2 and E) to the coaches. At further arranged times the research packs (Appendices D2, E) were collected with Appendix C1 (Letter of Permission). If there was no Letter of Permission (Appendix C1) then those respective questionnaires were not counted.

In all instances there was telephonic follow up, in order to confirm an appropriate collection date. Often this process had to be repeated as it appeared to be an

inappropriate time of the year for most MICs and teachers as many were marking exams and preparing reports for the end of the year. Hence it proved to be difficult for many MICs to get all, or many, or in some instances any participant responses back on time.

The Durban Rugby Clubs were also contacted via their chairmen in order to provide them with letters of information about the study (Appendix C1) and to obtain permission to contact their respective coaches for this study (Appendix C2). These coaches were then contacted via telephone and subsequently faxed in order to deliver the research packs to them (Appendices D1, D2 and E).

In some instances, in order for the study to proceed, the Chairmen were followed up to obtain the confirmation letter (Appendix C2) and correct contact details for their coaches. Then the coaches were contacted in order for the researcher to forward the research packs. In some cases there had to be follow up with the Chairmen to confirm telephone and fax numbers of the respective coaches, as some of the coaches' details were incorrect and were hence corrected. In some cases this proved to be impossible.

In previous research it has been found that it did not matter in which format the questionnaire was presented to participants as there is no difference in the type of response obtained from different intervention strategies utilised (Lapane et al., 2007).

3.4.1. Outline of the research packs:

The **Letter of Information** (Appendix D1) consisted of an introduction that contained the basic information about the research study, and information about the questionnaire. Information included: the title of the research; the purpose of the research; the nature of the sample; the time taken to complete the questionnaire and to reassure all participants of their confidentiality of the information and the anonymity of their responses.

Participants were also required to sign an **Informed Consent Form** (Appendix D2).

The participants then completed the **Questionnaire** (Appendix E).

School MICs also received a **letter from the KZN High Schools Rugby Association** supporting this research and encouraging support and participation (Appendix D4). The use of this letter was one method utilised to improve the response rate to the Questionnaire (Dyer, 1997). School MICs and club Chairmen also receive a Letter of Information (Appendix C1) outlining the research, similar to the one that participants received, but further outlining their (club Chairmen and MICs) role in the study.

3.5. Measurement Tool:

3.5.1. Questionnaire background:

Langworthy and Birkelid (2001) developed and piloted a questionnaire for use in studies in Norway and The Netherlands (Langworthy and Birkelid, 2001). Louw (2005) received permission from Langworthy to use their questionnaire and to modify it accordingly to the South African context. Van As (2005) received permission from Louw (2005) to use his version of the questionnaire and modify it accordingly, as did Kew (2006) from Van As (2005).

The researcher received permission from Kew (Appendix A2) to use and modify her questionnaire and has permission from Langworthy (Appendix A1) to use her questionnaire as a base for the development of the questionnaire for this study. The use of these previous questionnaires allowed for the maintenance of the construct validity that had been built into them previously.

As suggested by Dyer (1997), the contents of the questionnaire were organised to elicit maximum advantage from the responses, which included having simple, logically following questions that were unambiguous yet deliver maximum information about the construct in question.

The pre-focus group questionnaire was modified predominantly from Kew (2006) who conducted a perception and knowledge study on personal trainers in Durban. Information from rugby sources including Ingle (2005); Van Noordwyk (2005); Noakes and du Plessis (1996) was used to modify specific questions relating to rugby and specifically rugby within the school and club rugby set up in Durban. They also provided insight into the

structure of the teams, coaching staff, medical personnel and possible existing perceptions, assumptions and trends. Noakes and du Plessis (1996) and Holloway (2004) provided information on rugby injuries and more specifically those related to Durban players.

3.5.2. Question development:

Based on Kew's (2006) questionnaire, the questionnaire (Appendix B5) was developed by the factors that were identified in the literature review, in particular those identified in Noakes and du Plessis (1996); Holloway (2004); Ingle (2005) and Van Noordwyk (2005).

The questionnaire was essentially broken down into three main questions and each main question had further sub-questions.

Question One, requested personal and demographic information on the rugby coach in order to establish if there would be any correlation between these variables and the coach's perception and knowledge of Chiropractic. Most of these questions evolved from rugby demographic information provided by Ingle, (2005); Kwazulu-Natal Rugby Union Fixtures Booklet (2005); Van Noordwyk, (2005) and Kwazulu-Natal Rugby Union Fixtures Booklet (2006) that were relevant to coaches in the greater Durban area.

Question Two, based on Noakes and du Plessis (1996), Holloway, (2004), Ingle, (2005), Van Noordwyk, (2005) and Kew (2006), requested information of the coach from a team management point of view of their experience, knowledge and perspective pertaining to injuries and their experience and perception of available sports medical professions.

Question Three focussed on the coach's personal experience and personal knowledge of Chiropractic, the scope and focus of the profession and the training received by Chiropractors.

3.5.3. Focus Group:

A focus group was set up to adapt the questionnaire (Appendix B5) to a South African context and to establish the face and construct validity as well as ensure that it met minimum requirements of reliability and validity set out by Mouton (1996) and Bernard (2000).

Before commencing, the participants read the Letter of Information (Appendix B1) and signed the Letter of Informed Consent (Appendix B2). A Confidentiality Statement (Appendix B4) and Code of Conduct Statement (Appendix B3) were also signed by all of the participants. The purpose of these forms collectively is to ensure that the participants were informed about the intentions of the researcher, the topic involved and the nature of the study from the outset. They also made the whole process formal and official by the participant providing a written Informed Consent that they participated willingly and of their own sanction and to abide by a certain Code of Conduct and behaviour during the discussions. Finally the participants also agreed in writing that the information and material discussed in the focus group is confidential and not for general public discussion.

The questionnaire (Appendix B5) was given to the participants and they were asked to comment on how the questionnaire could be modified to accurately record the relevant information within the study, so to accurately reflect constructs applicable to club and high school rugby coaches in the greater Durban area.

The focus group consisted of 8 Durban rugby coaches, 1 research student who is doing a questionnaire based study and 2 Chiropractors, who assisted with determining the face validity of the questionnaire. This group gathered and discussed the questionnaire and the factors that it covers, ruling out any ambiguity. Relevant questions were included while some irrelevant questions were omitted.

3.5.3.1. Questionnaire (Appendix B5) changes to produce Questionnaire (Appendix D3):

Formatting Changes (including answer format options):

1. 1.11 changed to 1.10 and given specific options (School, Club, Provincial, International) in tick block format. More than one block can be ticked. “you've” changed to “you have”.

Grammatical and spelling changes:

1. 2.1 “personelle” changed to “personel” and “team” highlighted in bold.

Questions omitted or added; or combined, omitted or added in modification:

1. 1.7 and 1.8 were combined to form 1.7. Specific coaching grades and specialisation in coaching were found to be less important than any generalised rugby coaching qualification. So it becomes a matter of simply “yes” or “no”.
2. 2.3 added.

Questions or answer options modified:

1. 1.5 “(including matches)” added.
2. 1.6 “and secondary one” added.
3. 1.9 “professional” and “medical” were added and the examples given at the end were omitted. 1.9 became 1.8.
4. 1.12 became 1.11 and “...at your...school?” omitted. Explanations were provided for the three categories based on revenue earned from coaching.
5. 2.3 became 2.4 and a “Both” option added.
6. 2.4 became 2.5. “Biokineticist” and “Homeopath” options removed and “Orthopaedic Surgeon” and “Not Sure” options added. The order was also altered in order to accommodate the headings.
7. 2.5 became 2.6 and “...someone...” changed to “...a health professional...”.
8. 2.6 became 2.7 and “Gynaecologist” option removed and that specific answer block altered to read “Psychologist” which was removed from the end of all the block options. (It was originally the last option available).
9. 2.7 became 2.8, “...your team member with...” inserted and the subsequent grammar corrected.

10.2.8 became 2.9 and “...from the following?” inserted. The “Yes” and “No” block options were replaced by “The player”, “Provider”, “Both” and “Neither” options.

11.2.9 became 2.10 and “In your experience” added. Upper case “H” on “Have” altered to lower case “h” in order to correct grammar and spelling. The option of “Yes” and “No” blocks to the second part of the question, i.e. “If no, would you like to?” was omitted.

12.2.10 became 2.11. Wording changed from “...practitioners in 2.6,..” to “...following practitioners,..” and “...top 3 in...” was added in bold. Answer section altered as per point 8 (2.6 becoming 2.7) under this heading.

Heading changes:

Three main headings added for the three main questions namely: Personal Information, Team Management and Personal Experience.

Questions completely unchanged:

1. 1.1
2. 1.2
3. 1.3
4. 1.4
5. 2.2

Questions completely unchanged except for numbering:

1. 1.10 became 1.9

3.5.4. Pilot Study:

Once the questionnaire had been produced (Appendix D3) by the Focus Group suggestions, it was subjected to evaluation.

1. The pilot study involved taking a very small sample from the population (3-5 people) for which the questionnaire was intended to be administered, with the purpose of having these people evaluating the questionnaire. The purpose of this would be to see how long it took to complete the questionnaire and identify problem areas within the questionnaire.

The Post Focus Group Questionnaire (Appendix D3), was then further reviewed in a Pilot Study. The purpose of the Pilot Study, as per Fink and Kosecoff, (1985) and Hicks, (2004), was to ascertain the following information regarding the questionnaire in general and regarding the specific questions relating to the participants:

- a. Would there be any questions that were ambiguous and misleading to the participants?
- b. Would the questions be appropriate for the participants?
- c. Would the information obtained in the survey be consistent?
- d. Would the information obtained in the survey be accurate?
- e. Would the questionnaire yield the correct and necessary information sought by the researcher?
- f. Would the researcher be able to use the information collected in the survey correctly?
- g. Has the correct amount of time been allocated to the completing of the questionnaire by the participants.
- h. Are all instructions clear and easy to understand by the participants.

3.5.4.1. Questionnaire (Appendix D3) changes to produce Questionnaire (Appendix E).

Changes in the questionnaire in the piloting process:

- 1.2 Answer line length increased.
- 1.3 “race group” changed to “ethnicity”. Answer block lengths increased.
- 1.8 Answer block length increased. More space for written response.
- 1.9 More space for written response. Wording changed “current level” to “currently the highest team level”.
- 1.10 Blocks made bold and corrected the block formatting.
- 1.11 Answer blocks made smaller and neatened up.
- 2.1 was previously 2.5 but moved to 2.1. The block formatting was corrected (around “GP” and made uniformly bold, stars replaced by solid lines, “Not Sure” moved to the end and Homeopath inserted as an option.
- 2.2 was previously 2.7.
- 2.3 was previously 2.8. The answer block size was increased.

- 2.4 was previously 2.9. Answer block size was increased, made bold and formatted under question, not next to it.
- 2.5 was previously 2.10. Answer block length increased.
- 2.6 was previously 2.11.
- 2.7 was previously 2.1. Answer block length increased. Spelling of “personnel” was corrected.
- 2.8 was previously 2.3 and answer blocks were added.
- 2.9 was previously 2.2 and answer block length was increased and formatted below question.
- 2.10 was previously 2.4. Answer block length increased and the “N/A” and “Both” options omitted.
- 2.11 was previously 2.6. Answer block length increased.
- 3.1 answer block length increased.
- 3.2 answer block length increased and the “N/A” and “Both” options omitted.
- 3.4 answer blocks added for Homeopath, Biokineticist and Physiotherapist.
- 3.5 Spelling of “personnel” corrected.
- 3.6 Spelling of “personnel” corrected.
- 3.7 Grammar correct between “it” and “generally” and spelling of “generally” also corrected. “Both” option omitted.
- 3.8 Answer blocks made bold and increased in length. Breakdown of the number of years of studying options altered.
- 3.9 “First Aid” answer box made bold. All answer wording made smaller. Explanations given for: Anatomy, Microbiology, Pathology, Pharmacology, Physiology and Physiotherapy.
- 3.10 Wording altered to be less ambiguous.
- 3.11 Formatting of answer blocks corrected and all bordered in bold and lengthened.
- 3.12 One of the “controlling” deleted. Answer blocks lengthened.
- 3.13 Answer blocks lengthened..
- 3.14 Answer blocks lengthened. Additional non-musculoskeletal options added. All blocks in bold.
- 3.15 Blocks in bold and lengthened. Explanations given for some of the options. Ultrasound and IFC split as an option.
- “...the results of this study” altered to read, “...any further information,...”

3.5.5. Final Questionnaire (Appendix E):

The questionnaire consisted of 3 sections: (Appendix E – i.e. post pilot study).

1. The participants' *demographic* details and personal data,
2. Their perceptions and knowledge of Chiropractic from a *team management* perspective and
3. Their *personal perceptions* and level of knowledge about Chiropractic.

Questions relating to demographics were the following: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, and 1.11.

Knowledge was assessed through a variety of questions regarding Chiropractic training and treatment. The knowledge score was composed of the sum of all the correct responses to the 27 Knowledge questions and expressed as a percentage of the total questions. This was applied to the demographics, individual knowledge questions, composite knowledge score and *responses to attitude and behavioural questions*.

The specific Knowledge questions used to calculate Knowledge statistics were the following: 3.8, 3.9 (comprised of 13 sub-questions), 3.11, 3.12, 3.15 (comprised of 11 sub-questions).

The specific Perception questions (responses to attitude and behavioural questions) used to calculate Perception statistics were the following: 2.1, 2.6, 3.3.

3.5.6. Measurement frequency:

The questionnaire was administered only once per participant.

3.6. Data Analysis:

Knowledge and perception were assessed through a variety of questions regarding Chiropractic training and treatment. The knowledge score was composed of the sum of all the correct responses to the 27 Knowledge questions and expressed as a percentage of the total questions.

3.6.1. Statistical package used:

The programme, which was used to analyse the data, was the latest version SPSS statistical package. SPSS version 15.0 (SPSS Inc., Chicago, Illinois, USA).

3.6.2. Scoring System:

The analysis of all the questions consisted of frequency counts and the results were expressed as percentages. A p value of <0.05 was considered as statistically significant. Factors associated with knowledge were assessed bivariate using t-tests, ANOVA or Pearson's correlation analysis, since knowledge score was approximately normally distributed. Factors associated with practices were assessed using Pearson's chi square analysis, since the proxy measure for practices was as a dichotomous variable.

3.6.3. Descriptive analysis:

The data was analysed to show trends and employ cross-tabular analysis and chi-squared statistical evaluation. This is a test to determine whether an observed distribution of frequencies is significantly different from that predicted by the null hypothesis (Dyer, 1997).

The data was displayed using various tables and graphs and a few summary statistics including but not limited to means, proportions and percentages. Knowledge and attitudes were scored quantitatively and the score was expressed as a percentage of the total responses. Descriptive statistics such as mean, standard deviation and range were used to describe responses to quantitative variables, while frequency tables and bar charts were used for categorical variables. This was applied to the demographics, individual

knowledge questions, composite knowledge score and responses to attitude and behavioural questions.

3.6.4. Analytical statistics:

Knowledge and attitude scores were compared between several factors to examine associations between demographics and risk factors and outcomes using independent t-tests or ANOVA. The confidence level for all tests will be set at 95%, or mentioned differently the p value will be set at $p = 0.05$. If the p-value as reported is less than 0.05 it would be declared a significant result and the null hypothesis would be rejected. Knowledge was assessed through a variety of questions regarding Chiropractic training and treatment. The knowledge score was composed of the sum of all the correct responses to the 27 Knowledge questions and expressed as a percentage of the total questions.

Factors associated with knowledge were assessed bivariate using t-tests, ANOVA or Pearson's correlation analysis, since knowledge score was approximately normally distributed. Factors associated with practices were assessed using Pearson's chi square analysis, since the proxy measure for practices was as a dichotomous variable.

CHAPTER FOUR: THE RESULTS AND DISCUSSION

4.1. Introduction:

This section presents the results of the statistical analysis of the data. Firstly there is a descriptive analysis of the data; this is then followed by an analytical analysis of the data. This reports on the proportions and means, with 95% confidence intervals. In addition and because of the cumbersome nature of the data, it was decided for expediency to include the discussion within this chapter in order to facilitate ease of reference. It is however noted that this is not standard protocol in dissertation writing.

4.2. The Data:

The data was obtained from club and high school rugby coaches in the greater Durban area.

- **4.2.1. Primary Data:**

This data was collected from the participants in the form of their responses to the questionnaires. It also includes the data obtained from the questionnaires once the statistical analysis had been completed.

- **4.2.2. Secondary Data:**

This data refers to the data acquired from the literature, personal interviews, journals, books and Internet that was used to construct arguments and hypotheses and with which to compare the results of the study.

4.3. Key of abbreviations for this chapter:

n	=	sample size
p –value	=	the probability of the results being due to chance or random error. If the p value is very small then it can be concluded that the results are significant (Hicks, 2004).
ANOVA	=	analysis of variance
Df	=	degrees of freedom
N	=	number
SD	=	standard deviation
%	=	percentage
IC	=	Ischaemic compression (physiotherapy modality used in the treatment of muscles and often referred to as Trigger Point Pressure Release (Simons, Travell and Simons, 1999).

4.4. Discussion of the Results:

4.4.1. Response rate for this study:

4.4.1.1. Schools:

It was estimated that there were **149** high school teams at **23** high schools (Ingle, 2005; KZN High School's Rugby Association, 2007), with at least one designated coach per team. All 23 high schools were contacted according to the protocol set out in the methodology, with the final result indicating that:

1. **15 (65%)** schools responded with the MICs facilitating contact, delivering the research packs to the rugby coaches and collecting the research packs from these coaches.
2. **4 (17%)** schools responded with the MICs facilitating contact, delivering the research packs. However, problems were encountered in the MICs collecting the research packs and so the research packs were not received from these schools.
3. **2 (9%)** schools did not respond to any attempts at contacting the MICs.
4. **2 (9%)** schools could not be contacted at all due to contact detail changes in respect of the MIC.

Based on the above school responses, the total number of possible research packs that could have been received were **180** (Ingle, 2005; Kwazulu-Natal Rugby Union Fixtures Booklet, 2005; Kwazulu-Natal Rugby Union Fixtures Booklet, 2006). However based on the constraints outlined above with respect to the school (MIC) interactions only **66 ((66/180)x100=36.6%)** research packs were returned through the MICs at the schools.

Reasons for the above could have included:

1. The contact data set as supplied by Ingle (2007) and KZN High School's Rugby Association (2007) did not include the most updated contact details for the schools which limited the number of MICs that were utilized to access participants.

2. Furthermore it was found that the data set supplied by the Ingle (2007) did not reflect accurately the total numbers of schools and thus also school teams (and subsequently rugby coaches) available for purposes of this research. It would seem that the actual responses received constituted a greater portion of the possible responses as the total numbers of school teams were perceived by the researcher as being less than that reflected on the contact data set received from Ingle (2005). However this percentage cannot be calculated as an accurate total number of teams outside of the received data set could not be precisely determined. This was due to a lack of efficient reporting systems within the rugby infrastructure, which was the only source of contact data for this study.
3. The percentage of responses were further complicated by the fact that the timing of the research was not optimal, in that the data collection phase was only approved through the Faculty of Health Sciences Research and Ethics Committee towards the end of 2007 (Appendix F). This only facilitated data collection towards the end of the same year. This unfortunately coincided with the end of the school year which is traditionally associated with learner examinations, increased lack of availability of teaching staff (MICs and rugby coaches), increased likelihood of staff turnover (e.g. on leave, retiring and / or resigning) complicating the ability of the researcher to contact MICs and also the ability of the MICs to contact coaches.
4. The process of gaining permission from the school MICs is also considered a factor that may have negatively influenced the sampling procedure in addition to the self selection process, based on participant agreeing to respond and participate in the study (Dyer, 1997).

4.4.1.2. Clubs:

It was estimated that there were **23** rugby clubs active (Kwazulu Natal Rugby Union Fixtures Booklet, 2005 and Kwazulu-Natal Rugby Union Fixtures Booklet, 2006) at the time of achieving Faculty of Health Sciences Research and Ethics Committee approval. It was however found that during the period of data collection for this research that there were actually **24** active clubs. Similarly with the teams represented at these clubs, it was

found that unlike the **70** reported rugby teams (Kwazulu-Natal Rugby Union Fixtures Booklet, 2005 and Kwazulu-Natal Rugby Union Fixtures Booklet, 2006) in total, there were actually only **67** teams active within these 24 clubs.

Of the 67 active teams, **44 rugby coaches** responded with a positive view to their involvement in the research, but the final result indicated that only **19 ((19/67)x100=28.4%)** participant responses from the club coaches from **15 ((15/24)x100=62.5%)** different clubs were received.

In addition to the factors mentioned with respect to the schools, self selection based on participant response to the request to complete the questionnaire was one of the hindrances in questionnaires being returned (Dyer, 1997).

Eight-five responses were received by the end of this study resulting in a **38.8%** response rate. This is in line with the required minimum of 35% as set out in the methodology section of this dissertation, where based on the entire population sampled (**219 rugby coaches**), a minimum response of **35% or 77** questionnaires were required in this study prior to statistical analysis being completed (Esterhuizen, 2007) (Appendix G).

4.4.2. Descriptive Statistics with respect to demographics:

The current descriptors as well as behaviours / practices of these rugby coaches regarding Chiropractic and other sports medical personnel are documented here.

4.4.2.1. Demographics and rugby coaching history of participants:

4.4.2.1.1. Ethnicity and Gender:

The participants were 99% male and 95% White. Table 4.1 shows the ethnic breakdown of participants. Only one female was amongst the participants.

It was to be expected that the majority of rugby coaches were male. The traditional mindset in Durban, South Africa and probably the world is that rugby is indeed a male dominated sport from both a player and coaching perspective. Best, (2003) states that rugby is a sport played mainly by strong young men. Possibly one of the greatest determinants of the personnel and certainly the gender make-up of rugby players is the high intensity and collision nature of the sport and the high incidence of injuries (Noakes and du Plessis 1996; Chalmers et al., 1998; Best, 2003; Holloway, 2004). Rugby's major world event, The Rugby World Cup Tournament is contested by male only teams as are most of the other major competitions, including: The Super 14, The Tri-Nations, Six Nations, World Sevens and South Africa's Currie Cup. Locally all four of the KZN major trophies: Moor Cup, Murray Cup, Dewar Shield and Frank Norris are contested by all male teams from predominantly male clubs (Kwazulu-Natal Rugby Union Fixtures Booklet, 2005 and Kwazulu-Natal Rugby Union Fixtures Booklet, 2006).

Although there are some female rugby teams in KZN, within the greater Durban area, evidence was found of only one. This team was not listed in the Kwazulu-Natal Rugby Union Fixtures Booklet (2005) and Kwazulu-Natal Rugby Union Fixtures Booklet (2006), but was revealed by the respective club's Chairman when canvassing the club chairmen in order to acquire fax and contact numbers. There were no female club chairmen and no listed female club rugby coaches in the KZN booklet Kwazulu-Natal Rugby Union Fixtures Booklet (2005) and Kwazulu-Natal Rugby Union Fixtures Booklet (2006). At a schools level two of the MICs were women, however one of these schools did not co-operate with this study. This is not to say that there are no high school female rugby coaches, however if so, then there was little or no response from that group.

Table 4.1: Ethnic group of participants.

	Frequency	Percent
Asian	1	1.2
Coloured	2	2.4
White	80	95.2
Indian	1	1.2
Missing	1	Not included
Total	84	100.0

The original data gathered from the Kwazulu-Natal Rugby Union Fixtures Booklet (2005) and Kwazulu-Natal Rugby Union Fixtures Booklet (2006), revealed that of all the club rugby coaches on the data base the Ethnic break-down was roughly: 11 Black, 3 Indian, 5 Coloured, 49 White coaches. The club breakdown, based on traditional Ethnic and location (area) lines was: 5 Black, 1 Indian, 3 Coloured and 14 White clubs. Naturally there are players of all ethnic backgrounds playing at all the different clubs; this is merely to provide the reader with an indication of the ethnic majority of players and rugby coaches at these clubs. It was impossible to estimate the prospective ethnic breakdown of the high school rugby coaches as this data and information was simply not available. However it is fair to say that based on the data given, most of the schools were traditional Model C (White) or private schools.

Perhaps the participant ratios that were established in this survey were as a result of the problems already mentioned. Hence the ethnic percentage breakdown is not really an accurate indication of the actual ethnic picture of high school and club rugby coaches in Durban. These results could have been affected by the less organized infrastructure or communication networks from what are deemed to be the more underprivileged or Black clubs from what were the previous townships and other less advantaged areas.

Kew (2006) and Hubert et al., (2005), found that in some groups a lower level of income was sometimes associated with a decreased level of physical activity. Kew, (2006) further states that it is possible that this is reflected in the South African context where

differences in education and income might result in a difference between ethnic groups in their choice of Leisure-Time Physical Activities (LTPA). If this disparity does result in differences in the choices of different ethnic groups on how they spend their LTPA, then this might explain the disparity between the different ethnic groups in terms of the numbers of rugby coaches.

4.4.2.1.2. Age:

Table 4.2: Descriptive statistics for age of participants.

		Age
	Valid	84
	Missing	1
Mean		37.36
Std. Deviation		11.064
Minimum		19
Maximum		64

Their mean age was 37.4 years (SD 11 years) with a range from 19 to 64 years (Table 4.2).

4.4.2.1.3. Coaching experience and hours per week coaching:

Table 4.3: Descriptive statistics for duration and hours per week of coaching.

		Years of rugby coaching	Hours per week coaching
	Valid	82	81
	Missing	3	4
Mean		11.77	7.33
Std. Deviation		9.879	2.865
Minimum		1	2
Maximum		55	17

Table 4.3 shows that on average participants had been coaching rugby for 11.8 years (SD 9.9 years) with a range from 1 to 55 years. The hours per week ranged from 2 to 17, with a mean of 7.3 (SD 2.9 hours).

It is of interest to note that the oldest recorded person is 64 (Table 4.2) years of age and the maximum years of coaching rugby were 55 years (Table 4.3), implying that the participant (assuming it is the same participant) started coaching when s/he were 9 years of age. This result implies that in at least one instance the participant either misunderstood the question or indicated the number of years for one or the other question in error.

4.4.2.1.4. Coaching association:

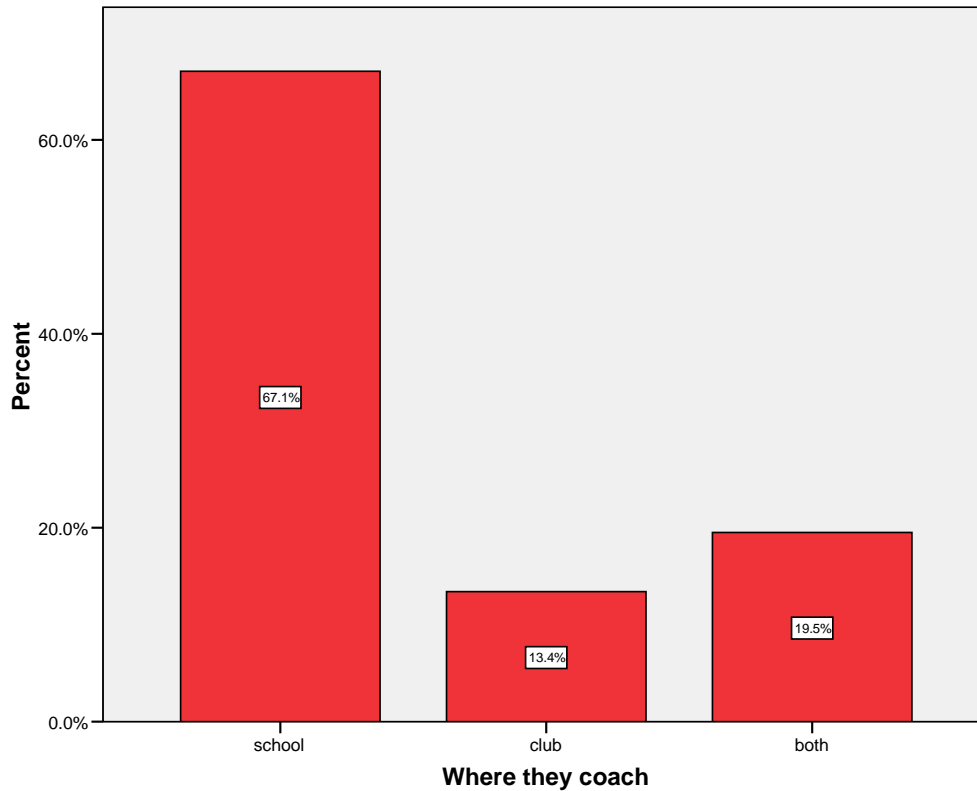


Figure 4.1: Percentage of participants who coached rugby at schools, clubs or both.

Figure 4.1 shows that the majority of participants coached rugby at schools (67.1%) while 19.5% coached at both schools and clubs and 13.4% coached at clubs only. Pre-survey data suggested that if all potential participants had responded with a completed questionnaire the majority would still have been the high school rugby coaches (Ingle, 2005; Kwazulu-Natal Rugby Union Fixtures Booklet, 2005; Kwazulu-Natal Rugby Union Fixtures Booklet, 2006).

Based on the study by McIntosh et al., (2003), where it was noted that in a modern environment where more and more schoolboys are being encouraged to participate in sport and recreational activity, Figure 4.1 becomes relevant. With this emphasis on youth

and adolescent sport it would appear that understanding potential injuries as a consequence of participation and prevention of these injuries is crucial for rugby coaches (McIntosh et al., 2003). However, it would appear that very few well-designed, evidence based, controlled studies have been conducted on strategies to prevent injuries in schoolboy sports, including rugby (MacKay et al., 2004). This therefore limits the ability of the rugby coaches to be prepared to undertake appropriate measures for injury treatment and the development of injury prevention strategies.

In addition to the above, the benefits to schoolboys participating in sport and increasing their physical activity are many, including: decreasing the risk of obesity and the associated risks of health problems and heart disease; improved motor skills and raised self-esteem (MacKay et al., 2004). However, it has been found that injuries are one of the leading reasons why schoolboys cease participation in these activities, despite the obvious benefits to them (MacKay et al., 2004).

This is indeed unexpected in that much has been made of the high incidences and the consequences of schoolboy rugby injuries (Noakes and du Plessis 1996; Best, 2003; McIntosh et al., 2003; Holloway, 2004) as well as the need for the rugby coaches to be evidence based in their approaches to injury treatment and the development of injury prevention strategies (Noakes and du Plessis 1996).

Furthermore it would appear that although most injuries are not really severe or serious enough to require that the player is hospitalized, they do however occur often enough accumulatively to have an economic impact in terms of medical costs (MacKay et al., 2004). The impact of schoolboy rugby injuries also has a negative social perception that is detrimental to the sport (Ingle 2005; Van Noordwyk 2005). Naturally the costs of catastrophic injuries are far greater, to the player, the sport and society as a whole (MacKay et al., 2004; Ingle, 2005).

So, if through effective multidisciplinary injury prevention strategies (Graf, 2001) it was possible to reduce the risks of participation in the sport and therefore the rate of injury, the

benefit of participation may continue and schoolboys could experience the benefits of physical activity (in this case participation in rugby) for longer (MacKay et al., 2004). It is therefore suggested that personnel with comprehensive knowledge of biomechanical and physiological demands of rugby should be included in the team (e.g. Chiropractors), allowing for fully integrated multidisciplinary care and to complement the current medical care available (Beardmore et al., 2005).

The above comments, although made specifically in the context of non-adult benefits and injuries, are certainly reasonably extrapolated to apply to adults and club rugby players (MacKay et al., 2004). This is supported by Van Zyl (2007) who indicated that this approach appears to reduce the risk of injury to a player if Chiropractic care was administered before a match and during the week following match day (Van Zyl, 2007).

However, a limitation in successfully addressing the need for multidisciplinary injury treatment, as well as injury prevention strategies, relies on the rugby coach having the knowledge of varied medical professions in order to develop a team of medical personnel that are able to effectively and efficiently address the needs of a rugby player irrespective of age (Chalmers et al., 1998).

4.4.2.1.5. Coaching Qualifications:

It was of interest to ascertain the status of the rugby coaching qualifications of the Durban coaches in general. A surprisingly large number 61 (71.8%) did have a rugby coaching qualification in contradiction to the suspicions of Ingle (2005) and Van Noordwyk (2005). Although there was the option of specifying the exact qualification very few rugby coaches actually did, however this did not impact on the outcomes of the study as it was more important to ascertain whether the qualifications were within rugby or outside of rugby.

Of the rugby coaches that participated in the study 26 (30.6%) had another professional sport, fitness or medical qualification in addition to rugby coaching. Although not all participants specified the exact qualification, results included: 3 personal trainer

qualifications; 3 coaches who had completed Sports Science Degrees; 1 Human Movement Science Degree; 1 Sports Science major; 1 Fitness and Nutrition Diploma; 2 Physical Education qualifications; 3 coaches with First Aid qualifications; 1 coach with a strapping certificate.

Of the rugby coaches that participated, other than the four with Sports Science or Human Movement Degrees, there were no participants with higher medical qualifications (e.g. coaches with Chiropractic, Physiotherapist, Biokineticist or GP qualifications). This could be important as the extent and type of qualification of the rugby coach might indicate or affect their knowledge of and extent of exposure to other medical professions and treatment options (Kew 2006).

4.4.2.1.6. Level of Rugby Coaching:

Table 4.4: Current and highest rugby coaching level in those who coach at schools.

	1 st team		Other	
	Count	Row N %	Count	Row N %
Current level at schools	22	32.8%	45	67.2%
Highest level ever at schools	30	41.1%	43	58.9%

Table 4.5: Current and highest rugby coaching level in those who coach at clubs.

	1 st team		other	
	Count	Row N %	Count	Row N %
Current level at clubs	11	47.8%	12	52.2%
Highest level ever at clubs	13	43.3%	17	56.7%

Table 4.4 and 4.5 show the number and percentage of participants who coach first team rugby at schools and clubs. Currently almost half the club coaches (11) or 47.8% were

coaching at a first team level, while of those who coach at schools; only (22) or 32.8% were coaching first teams.

At a schools level this is probably a fairly accurate reflection of the rugby coaches as some schools have only a small number of rugby teams and as previously stated the time of year probably prevented the successful participation of all coaches.

The breakdown of the club participants with such a high portion of the rugby coaches currently coaching 1st team is probably more an indication that these coaches were easier to contact and that their details were more easily accessible owing to their holding a more recognized and elevated position within the club.

In the case of both the schools and club rugby coaches it is possible that the higher level coaches (i.e. 1st team coaches) had a greater interest in the research, injury prevention and the assistance that Chiropractic can provide them, their teams and their players. Hence they availed themselves more readily for participation than other non-first team rugby coaches.

4.4.2.1.7. Professional designation:

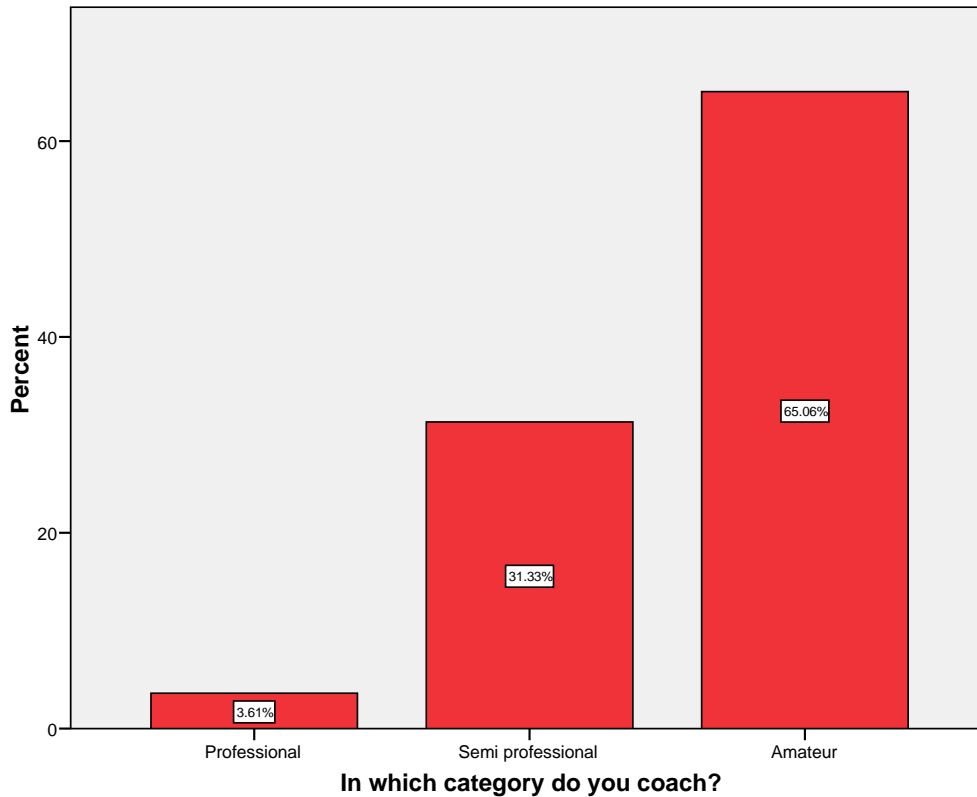


Figure 4.2: Category of rugby coaching of participants.

The vast majority of rugby coaches were amateur (65.1%), while 31.3% were semi-professional and only 3.6% were professional (Figure 4.2). This was to be expected with the greatest number of participants being high school coaches and the majority of those being teachers with full-time jobs. It was difficult to draw any conclusive decisions on who was amateur or semi-amateur or professional. It appeared that the majority of school rugby coaches that were in fact teachers were amateur. Similarly the same appeared to be true for the majority of club coaches at the lower levels. It is therefore recommended that future research look at differentiating between the amateur and professional rugby coaches.

Some school rugby coaches, usually those of the higher ranks like 1st team, seemed to receive some remuneration, either due to their expertise or because they were contracted

by the school as an outsider as an assistant or specialist coach (Ingle 2005; Van Noordwyk, 2005; Ingle 2007). Similarly the same was possibly true for club rugby coaches coaching at the higher levels or those coaches currently responsible for representative teams (Van Noordwyk, 2005).

4.4.2.1.8. Summary of Demographics:

The majority of participants were White (Table 4.1) males (Section 4.4.2.1.1.) coaching rugby at high schools (Figure 4.1) within Durban. Most coaches spent on average seven and a half hours a week coaching or advising their team on match day during rugby season and the average participant had been coaching for just less than 12 years (Table 4.3). The majority of Durban rugby coaches did have some coaching qualification (Section 4.4.2.1.5.), however only about a third had some other professional sport, fitness or medical qualification besides rugby coaching. Of these participants, very few had a degree or qualification of 3 or 4 years or more. An unexpectedly large number of the participants were currently coaching at a first team level (Tables 4.4 and 4.5) with the majority of participants having been amateur rugby coaches (Figure 4.2), but of those that were professional it was found that they were either school or club first team coaches or those of representative teams.

4.4.3. The current behaviours / practices of these coaches regarding Chiropractic and other sports medical personnel:

4.4.3.1. Coaches' referral patterns to physicians:

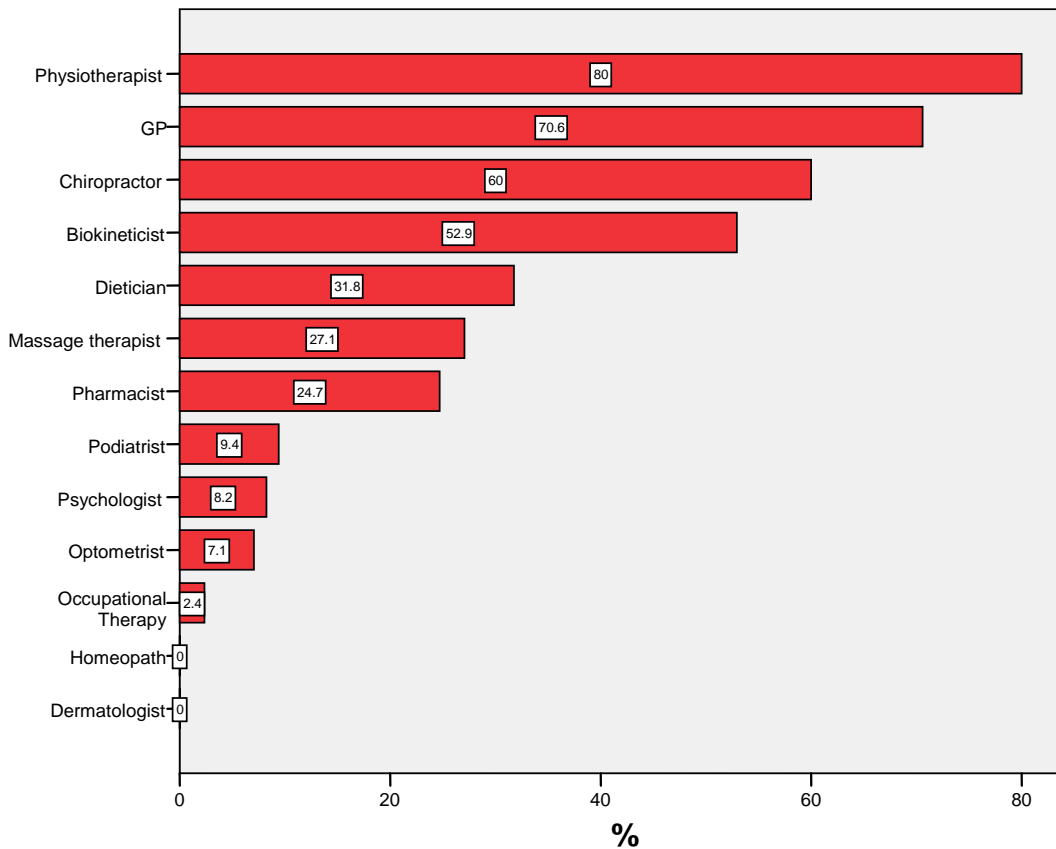


Figure 4.3: Percentage of participants who have recommended various medical practitioners.

Participants were requested to indicate which practitioners they had suggested a player consult. The list was not restrictive in that they could indicate more than one. It was found that 94.9% of participants had suggested to the players that they see a health professional for examination or treatment. Physiotherapists were the most frequently recommended medical practitioners (80%) followed by GPs (70.6%). Chiropractors were third with 60% of participants recommending them. Unfortunately this only provides an indication of the absolute total number of type of practitioners referred to; it does not give

an idea of the frequency or volume of players referred to those practitioners, which would have probably been a very useful statistic to have. As it might well be found that although 60% of the rugby coaches have suggested a player consult a Chiropractor at some stage in their career, literature suggests that the volume would be far less than that of GP's and physiotherapists (Ingle, 2005; Van Noordwyk, 2005; Beardmore et al., 2005). It is therefore recommended that future research elicit referral patterns from rugby coaches to the various health care disciplines that rugby players would consult.

These results appear to correspond with Ingle (2005) and Van Noordwyk (2005), who believe that the majority of rugby coaches will usually advise their players to consult a physiotherapist and their GP, based on the fact that "that is what they know" (Ingle, 2005; Van Noordwyk, 2005). Ingle (2005), further states that at lower levels at least, most rugby coaches have grown up in an environment of usually advising their players to consult a physiotherapist or their GP and players are often referred to these practitioners in isolation of any others (e.g. Homoeopaths or Chiropractors), based purely on experience (life or personal experience) (Ingle, 2005 and Van Noordwyk, 2005). These findings also support the claims of Beardmore et al., (2005) who state that medical practitioners and physiotherapists, by default tend to dominate the support of rugby teams.

Therefore the findings of this research regarding referral patterns of rugby coaches is important if it is considered that the coaches are the overseer of the players' medical wellbeing (Best, 2003) and as such they are respected and their advice on and off the field is heeded by the players. The findings of this research, regarding referral patterns are even more relevant if the important roles and responsibilities of the rugby coach as outlined by Noakes and du Plessis (1996) and Van Zyl (2007) are considered. These authors emphasize that the player should be best equipped to prevent injury and to recover optimally and this emphasizes the importance of the rugby coach being open to considering more than the standard norm or learned referral patterns within rugby as outlined by Ingle (2005) and Van Noordwyk (2005).

However, as stated, more research needs to be done on the actual referral numbers or volumes to different physicians in order to form a clearer picture of rugby coaches' behaviours regarding their referral of players to physicians.

4.4.3.2. Interaction with medical practitioners:

Sixty five percent of participating rugby coaches responded that they provided contact details of the medical practitioner to whom they referred the player. Furthermore 50% of these coaches requested feedback from the player, 10.7% from the health care provider and 26.2% from both (player and health care provider). Only 13.1% had not requested feedback whereas 47.6% had received feedback.

This suggests that the rugby coaches have either taken an active interest in their players' options of medical care (e.g. GPs or physiotherapists), or have some kind of personal experience from which to draw their decisions. Although the former could possibly be true, anecdotal evidence seems to support the latter argument (Ingle, 2005 and Van Noordwyk, 2005) and research further suggests that this method of health care interaction propagates the existing norms of GP's and physiotherapists dominating rugby thinking and injury treatment (Beardmore et al., 2005).

It is difficult to determine the level of the rugby coaches' interest in the actual injury of the player in that although 50% did request feedback, this was from the player and it could be suspected that more out of an interest of whether or not the player is able to compete. This is in contrast to only 10.7% of coaches requesting feedback from the practitioner - the detailed, accurate source of the injury assessment and prognosis. Although it is not the coach's responsibility to understand the details of the medical world, the importance of the rugby coach and his/her input and advice to the team and the player has already been discussed (Chapter 2) (Best, 2003; Ingle, 2005 and Van Noordwyk, 2005). It could therefore be anticipated that a greater interest in the opinion of the physician (Best, 2003; Noakes and du Plessis 1996; Chalmers et al., 1998) is their responsibility.

4.4.3.3. Use of Chiropractors on Rugby management teams:

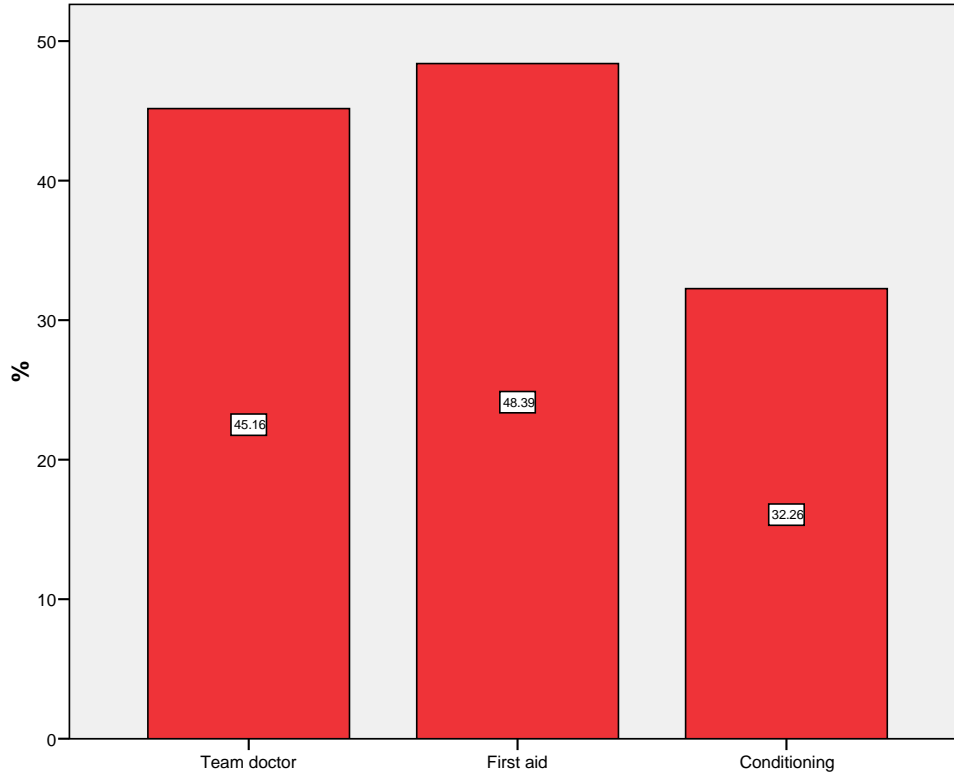


Figure 4.5: Percentage of participants who had a Chiropractor in various positions on the management team (n=29).

Twenty-nine of eighty five responses (34.1%) had a Chiropractor as part of their management team. Of these, 44.8% (13/29) had a Chiropractor as team doctor, 48.3% (14/29) a Chiropractor / Chiropractic student as a first aid assistant, and 31.0% (9/29) had a Chiropractor as a physical conditioning advisor (it should be noted that combinations were possible and therefore that the final total was more than 100%).

Of the rugby coaches exposed to Chiropractors in this way, 96.8% (28/29) of them said it was a positive experience. Of those who did not have a Chiropractor on the team (56), 82.1% (46) said they would consider it in the future.

These results are not dissimilar to those of Stump et al., (2002) who found that 31% of the NFL coaches had Chiropractors on their staff in an official capacity as part of their

medical team and of those teams that did not, 60% had considered the prospect for the future.

The involvement of Chiropractors in rugby clubs has grown from only one club using Chiropractic in 2001 and 2002 to 5 of the 6 Premier League Rugby clubs in Durban using Chiropractic in 2008. In addition The Sharks, Durban's top professional team currently utilizes the services of a Chiropractor as part of their medical team (Van Zyl, 2007). Furthermore, it is also not only the top club teams that currently enjoy Chiropractic care and involvement in some capacity, as there are some lower league teams that also make use of Chiropractors for injury advice, fitness and conditioning and pre-match strapping. There are also teams in the University of KwaZulu-Natal's Inter-faculty League that utilize the services of Chiropractors in some capacity (e.g. injury assessment and pre-match strapping).

It appears that across the spectrum of those who participated, there was generally a very positive response (96.8%) to the rugby coaches' experiences of Chiropractic personnel in some or another capacity. These figures reflect some of the positive comments made by Muir (2007), the Sharks' Head Coach and some of his medical team regarding their experiences of Chiropractic within a rugby context (Van Zyl, 2007).

According to Labuschagne (2008), it would appear that the first aid and strapping services provided by 3rd to 6th year trained Chiropractic students to some clubs at their matches are much appreciated. She reports that the demand for her services has escalated over the past three years from one club (Glenwood Falcons) to numerous clubs from different levels and divisions. Thus it is evident that there is a need for these services. However, the involvement of Chiropractic at a schools level has not been as widespread; even though Chiropractic students have been involved at some schools and in some school tournaments, assisting at matches with injuries and advice under the supervision of trained and qualified clinicians (Talmage, 2007). Therefore it would seem that the growth of Chiropractic acceptance and utilisation amongst schools appears to be slower than in

the clubs and this may be linked to the perception and knowledge of rugby coaches at this level.

However it still appears that overall there is an increasing amount of Chiropractic involvement in Durban rugby, with more coaches having experienced Chiropractic in some capacity within a rugby context than expected. It is postulated that this has occurred for the following reasons:

- The experience of the rugby coaches of the Chiropractic personnel with whom they have been involved has been very positive (96.8%). This has resulted in a greater acceptance of Chiropractic amongst these coaches as well as a “word of mouth” spread to other coaches within the same club or the rugby fraternity in general. The large number of coaches (65.9%) who did not have a Chiropractor on the team, but said they would consider it in the future (82.1%), reflects the spread of the positive perception that Chiropractic seems to command within some Durban rugby circles. This has resulted in a diverse role of Chiropractors within the teams from Team Doctor (44.8%) to fitness and conditioning advisor (31.0%). However, it would seem that these luxuries are experienced more by the top (1st and 2nd) teams at premier clubs than across all the levels of the sport, possibly inadvertently reflecting Noakes and du Plessis (1996) who believe that those coaches that are resistant to scientific change (in this case Chiropractic care for rugby players) will hence become marginalised as coaches.
- The increase in Chiropractic services at rugby practices and matches, as well as the frequent referral of players by them and other Chiropractic personnel to their own practices and to the Durban University of Technology’s Chiropractic Day Clinic should increase the exposure of rugby coaches to Chiropractic. This should in time possibly begin to nullify the claims by Ingle (2005) and Van Noordwyk (2005), who indicated that much of a Durban rugby coach’s pattern of referral is based on ignorance and poor knowledge of Chiropractic facilities and accessibility (Lindhard, 1987; Gaumer et al., 2002).

- The exposure that has been gained by the coaches of Chiropractic through the use of Chiropractic students as first aid staff (Labuschagne, 2008), has portrayed Chiropractic personnel as more than just spine, low back and neck specialists as has been dominant in the literature (WHO, 2005 and WFC, 2007). In addition to the above further valuable exposure has been gained for Chiropractic through the Chiropractic students when the Durban University of Technology Sports Chiropractic Team has been available as an injury assessment and treatment facility at predominantly school rugby tournaments and regular school rugby fixtures (Talmage, 2007).
- Further to the above the services rendered by the Durban University of Technology's Chiropractic Day Clinic, especially in the treatment of many club and school rugby players and rugby coaches has led to much exposure of Chiropractic amongst the rugby fraternity within Durban.
- In terms of the exposure of the profession within the rugby fraternity, the Durban University of Technology's Chiropractic Department's rugby team that currently plays in the University of KwaZulu-Natal's Inter-faculty League and against the lower league club teams, has created some awareness of Chiropractic amongst these respective players and administrators. Van Zyl (2007) describes similar results on exposure for Chiropractic by the Chiropractic college rugby teams playing in the United States.
- Many of the Chiropractors involved in the clubs have been required to do self marketing, with respect to their skills and their profession. This combined with what would appear to be a good level of competence, has led to the increased awareness and acceptance of Chiropractic among certain rugby coaches and clubs and the positive response of 96.8% recorded in this study.

More research would need to be conducted into the above opinions and the exact reasons for this growth of Chiropractic within Durban rugby circles and indeed, based on these results, how to grow Chiropractic's involvement within the sport even further. Furthermore it is doubted that, due to the positive effects of the Durban University of

Technology's Chiropractic Day Clinic on exposure, that the rapid growth of Chiropractic within Durban rugby coaches and the positive opinion and experiences expressed by many coaches, could be extrapolated to other areas within South Africa. What is very positive from a Chiropractic perspective is the large percentage of coaches that have not yet been exposed to Chiropractic within a rugby context but are still considering it playing a role within their setup in the future (82.1%).

4.4.3.4. Chiropractic treatment of coaches:

In response to whether or not they had personally been treated by a Chiropractor 65.5% of participants replied that they had. Therefore 34.5% had not. It is however suspected that this figure is possibly higher than a true reflection of reality as most of the participants were White males. This population group has probably had the greatest exposure to Chiropractic through various experiences and hence probably the most knowledge and balanced perception of Chiropractic. Furthermore as Chiropractors operate in the private sector in South Africa (CASA, 2005), catering for middle and upper income earners, this population group would be slightly wealthier and have more access to medical cover than other population groups and would thus generally have the means to afford Chiropractic care, which appears to be unaffordable to most of the population (Rattan, 2007). As indicated on the About South Africa>Health website (2006), only 18% of the population is actually covered by a medical scheme, therefore due to affordability problems large portions of the population will experience poor exposure to Chiropractors and Chiropractic care (Rattan, 2007; Van As, 2005).

When questioned by Stump et al., (2002), 45% of NFL coaches confirmed that they had personally been treated by a Chiropractor. Therefore, because 65.5% of participants in this study claimed to have been treated by a Chiropractor in their personal capacity, it is perhaps not a fully accurate indication of the percentage of rugby coaches who have actually experienced Chiropractic care. It is suspected that 65.5% is an unrealistically high figure and that this may be as a result of those coaches that did not respond (219-85 = 134 (nil response)) to the questionnaire which could possibly have lowered the final

percentage obtained. Thus more research would need to be conducted, especially on the coaches that were possibly previously disadvantaged.

4.4.3.5. Summary of Team Management:

The majority of participants 94.9% did suggest that players consult a medical practitioner at some stage (Section 4.4.3.1.). Most of these indicated that Physiotherapists, GPs and Chiropractors were the practitioners of choice (Section 4.4.3.1.). Furthermore the majority of rugby coaches did provide details of the practitioner to whom they were referring the player and most did request feedback from the player, physician or both (Section 4.4.3.2.). On investigation as to their experience of Chiropractic within a rugby context, it was found that 45.16% (Figure 4.5) of the participants had experienced Chiropractors in the role of team doctor, 31.0% (Figure 4.5) as a fitness advisor, or 48.3% (Figure 4.5) as first aid personnel. Virtually all (96.8%) these coaches had found these experiences positive (Section 4.4.3.3.).

Furthermore of those participants that had not experienced Chiropractic within a team role 82.1% said that they would contemplate it in the future (Section 4.4.3.3.). This consideration given to including Chiropractors within the team medical personnel may be influenced by the fact that at a personal level about a 65.5% of the participants had been treated by a Chiropractor (Section 4.4.3.4.).

4.4.4. Results of the questionnaire as pertains to the objectives outlined in Chapter One:

4.4.4.1. Objective 1: To determine the level and extent of knowledge of Chiropractic and other sports medical personnel amongst rugby coaches in the Greater Durban area.

Knowledge was assessed through certain questions in the questionnaire. The individual responses to these questions are shown below. These responses were used to generate a knowledge score for each participant.

4.4.4.1.1. Questionnaire questions corresponding to this section on knowledge of Chiropractic amongst rugby coaches in the Greater Durban area:

Tables 4.6 to 4.8 show the responses to the individual knowledge questions.
(I.e. Questions: 3.8, 3.12, 3.11, 3.9, 3.15 (Appendix E))

4.4.4.1.2. Coaches knowledge regarding Chiropractors' years of study, controlling professional body and medical aid cover:

Table 4.6: Responses to Knowledge questions on years of study, professional body registration of Chiropractors and whether medical aid covers Chiropractic care.

		Count	%
Years of study to become a Chiropractor	1-3 years	3	3.8%
	4 years	22	28.2%
	5 years	17	21.8%
	6 years	22	28.2%
	7 years	14	17.9%
Controlling professional body	no	1	1.2%
	yes	53	63.1%
	don't know	30	35.7%
Is Chiropractic treatment covered by medical aid?	no	8	9.5%
	yes	47	56.0%
	don't know	27	32.1%
	Not on medical aid	2	2.4%

4.4.4.1.2.1. Years of study to become a Chiropractor:

Most Chiropractors that qualify in South Africa do so in approximately 6 to 7 years, which means that just under half (46.1% (28.2%+17.9%)) of the rugby coaches were correct in their response. Thus, a poor level of public knowledge of Chiropractic surrounds the fairly strict entry requirements for the course, the content and subject matter and the duration of study (6 to 7 years) (Rattan, 2007). Similar findings were made by Kew (2006) who found that 36.7% responded correctly. Van As (2005) and Rubens (1996) also had similar findings with the majority of SGC's, neurologists, neurosurgeons and orthopaedic surgeons, it is therefore reasonable to assume this would be a reflection in general of rugby coaches in Durban.

4.4.4.1.2.2. Controlling professional body:

On the question of a controlling body the correct answer was “yes” as (CASA, 2008) is the controlling body, as is the Allied Health Council (Act 63 of 1982 (as amended)). Only 63.1% of the participants correctly answered this question. Kew (2006) found that personal trainers in Durban obtained 91.1% for a similar question. A professional controlling body is usually associated with the maintenance of standards within the profession and with the protection of the users of the services of the profession (in this case the Chiropractic patients). The perception of a profession not having a governing body alludes to that profession being seen as disorganized or illegitimate. It is thus important that the general population and specifically within rugby coaches, are more educated about the strict control that is exerted over the Chiropractic profession regarding: scope of practice; strict education entry requirements (Rattan, 2007) and education standards; and the legalities governing Chiropractic.

4.4.4.1.2.3. Medical aid:

Most medical aids in South Africa do generally provide for Chiropractic care (About South Africa>Health, 2006) and the 56% (Table 4.6) recorded by the participants is probably a little low. Once again Kew (2006) recorded higher accuracy rates of 79.7%. It is however difficult to determine the actual accuracy of the responses, in that some of the negative responses (9.5%) might actually be incorrect and the individual participant might actually be covered for Chiropractic care. Many of the “don’t know” participants (32.1% (Table 4.6)), which is a large portion of the responses, are in fact probably actually covered if they questioned their provider. This suggests that they probably fall into the category of participants that have not visited a Chiropractor in their personal capacity (34.5% (4.4.3.4.)). Unfortunately only about 18% of the South African population is actually covered by a medical scheme (About South Africa>Health, 2006) and the small 2.4% (Table 4.6) reflected by the participants reinforces the possibility that the participants are not a true reflection of the demographics of South African and probably not a completely accurate reflection of the rugby coaches within Durban. It re-iterates that the majority of

the rugby coaches are from a predominantly White male background and therefore fall into the category that can generally afford Chiropractic care and will thus have had a greater exposure to it.

4.4.4.1.3. Knowledge of Chiropractic training and subject matter:

Table 4.7: Responses to Knowledge questions on subjects included in Chiropractic training¹.

	No		Yes	
	Count	%	Count	%
Anatomy	2	2.6%	75	97.4%
Chemistry	54	68.4%	25	31.6%
Diagnostics	26	32.9%	53	67.1%
Microbiology	61	77.2%	18	22.8%
Pathology	49	62.0%	30	38.0%
Pharmacy	37	46.8%	42	53.2%
First Aid	29	36.7%	50	63.3%
Physics	47	60.3%	31	39.7%
Physiology	6	7.6%	73	92.4%
Physiotherapy modalities	23	29.1%	56	70.9%
Psychology	47	59.5%	32	40.5%
Radiology	33	41.8%	46	58.2%
Surgery	62	78.5%	17	21.5%

All the above options in Table 4.7 are correct except Surgery (Chiropractic Department Handbook, 2007 and Chiropractic and Somatology Department Handbook, 2008).

¹ Note that the participants had the opportunity to answer with more than one possible set of combinations for this question and therefore the totals will not be reflective out of 85 total responses.

Chiropractic education in South Africa is a relatively new option for students wishing to study to become a Chiropractor (Till, 1997 and Rattan, 2007). That in itself is a poorly known fact and many members of the public still assume that it is necessary to study overseas to attain the qualification (Brantingham and Snyder, 1999). What is also poorly known is the entry requirement, the length of time needed to achieve the necessary qualification and in particular the subject matter and content of the course (Rattan, 2007). This question investigated the coaches' knowledge of what subjects Chiropractors have to study.

Table 4.7 indicates that more than 70% of participants correctly stated the subjects of Anatomy (97.4%), Physiology (92.4%) and Physiotherapy Modalities (70.9%), whereas Diagnostics (67.1%), Pharmacy (53.2%), First Aid (63.3%) and Radiology (58.2%) were correctly selected more than 50% of the time. In all the other subjects participant responses were below 50% correct.

These responses indicate the poor knowledge that participants have of Chiropractic. This poor knowledge of the training and the knowledge that needs to be mastered by a Chiropractor will possibly affect rugby coaches' perception of Chiropractic. This might well be reflected in the coaches' decision making regarding referral patterns and medical team staff. Of the NFL coaches questioned, although only 14% believed that Chiropractic training was inadequate, only 45% agreed that the training that Chiropractors received was sufficient (Stump et al., 2002). This left 41% undecided and that had "no opinion". If those coaches (and indeed the coaches who responded negatively) could be further educated on the training that Chiropractors do receive then perhaps the knowledge of Chiropractic could improve, these figures could be greatly changed in favour of Chiropractic which might well have a positive influence on perception of Chiropractic in general.

Furthermore, Chiropractic has come under constant attack from various influential groups such as Allopathic medicine (Coulter, 1992 and Wardwell, 1994(b)). Stump et al., (2002) reports that some coaches in their study wished to have their team names withheld from

research on Chiropractic in fear of the response from their team physicians. It is generally assumed that the training provided to Allopathic doctors is sufficient and they have no need to educate the public regarding their training whereas Chiropractors most certainly do. This is especially true when it is considered in the context of the often hostile environment in which the Chiropractic Profession attempts to grow (Coulter, 1992 and Wardwell, 1994(b)). Rugby coaches may indeed have a negative perception of Chiropractic based on a low level of knowledge of the profession and the training requirement “due to the propaganda of highly influential groups” that may attempt to “discredit and destroy Chiropractic” (CASA, 2005; Rattan, 2007).

Whiting (2008) states that it is crucial in this environment that the rugby coaches and indeed the general public are educated to a greater degree on the merits of what Chiropractors have to study, the intensity and depth of their training and thus what the profession is all about. More research needs to be conducted to ascertain exactly what the levels of rugby coaches and the public knowledge are and how best to institute education drives that will have the desired effect (Brown, 2006; Delgado, 2006; Tyfield, 2006; Uys, 2006; Wilson, 2006; Campbell, 2007; Ferguson, 2007; Higgs, 2007).

4.4.4.1.4. Knowledge of Chiropractic Treatment:

Table 4.8: Responses to Knowledge questions on Chiropractic treatment modalities².

	No		Yes	
	Count	Row N %	Count	Row N %
Adjustment /manipulation	6	7.4%	75	92.6%
Dry needling	32	39.5%	49	60.5%
Heat	42	51.9%	39	48.1%
IC	41	50.6%	40	49.4%
Ice	46	56.8%	35	43.2%
IFC	39	48.1%	42	51.9%
Injection of anti-inflammatories	58	71.6%	23	28.4%
Injection of cortico-steroids	67	82.7%	14	17.3%
Massage	27	33.3%	54	66.7%
Surgery	71	87.7%	10	12.3%
Ultra-sound	37	45.7%	44	54.3%

The modalities not utilized by Chiropractors have been highlighted (grey areas in the Table 4.8), although the injection of an anti-inflammatory is a controversial and grey area in that some Chiropractors, who have completed the post-graduate course, do in fact inject. Hence it might be difficult to draw conclusions from data from this specific aspect of this question, as some rugby coaches might have witnessed Chiropractors administering anti-inflammatory injections to their players or indeed to the coaches themselves. More conclusive research would need to be conducted on this controversial issue.

² Note that the participants had the opportunity to answer with more than one possible set of combinations for this question and therefore the totals will not be reflective out of 85 total responses.

Van Zyl (2002) defines Chiropractic as “a system of specific manipulation or adjustment of the joints and tissues of the human body, particularly of the spinal column, for the correction of neural and functional integrity.” Such emphasis is placed on the adjustment or manipulation by Chiropractors. Furthermore, traditionally the perception of Chiropractic was that of a physician who simply manipulated or adjusted or “clicked” a patient's back or neck (WFC, 2003). Stump et al., (2002), states that NFL coaches agree that Chiropractors specialize in the use of spinal manipulation and 92.6% (Table 4.8) participants in this study concur. Although this is partly true, in that a specific, short lever, hi-velocity, low-amplitude adjustment is the Chiropractor's main treatment modality (Van Zyl, 2007 and CASA, 2007), Chiropractors are now well trained in a diverse array of treatment modalities to best suit the needs of the patient, the area involved and the type of injury (CASA, 2007 and WFC, 2003). This is reflected in the wide variety of results that were obtained in this question.

According to Engelbrecht (2007) (as cited in Van Zyl, 2007) the value of manipulation, (especially of the back) is becoming increasingly well accepted and other medical professions are attempting to offer the same services. Stump (2002) found that 82% of NFL coaches applied their own manipulation techniques to their players for injury care. These however are seldom as effective as that administered by a qualified Chiropractor due to the training received, the skill and experience developed of expert manipulation and the Chiropractor's understanding of the mechanics of the spinal joints (Engelbrecht, 2007 as cited in Van Zyl, 2007). This in conjunction with the continued effort of Chiropractors to develop more effective techniques at reducing patient discomfort and in restoring normal biomechanical function, “places them in a league of their own” (Engelbrecht, 2007 as cited in Van Zyl, 2007).

With reference to this statement, the main modalities used by Chiropractors include the ones listed in the question posed to the Durban rugby coaches. In Table 4.8 it is interesting to note that except for: Ice (43.2%), Heat (48.1%) and IC (49.4%), the participants replied with a positive answer in over half of the other listed treatment

modalities: Dry needling (60.5%), Ultra Sound (54.3%), IFC (51.9%) and massage (66.7%).

However, participants were only slightly lower than 50% in all three of the Chiropractic modalities (Ice, Heat and IC) to which they replied “No” and only slightly higher than 50% in 3 of the 5 modalities (Dry needling, Ultra Sound, IFC) to which they replied “Yes” (except for Massage and Adjustment / Manipulation); thus it is difficult to ascertain exactly what their level of knowledge of Chiropractic and its treatment modalities are. More research needs to be conducted on this to determine how many of the responses are a legitimate indication of the rugby coach's knowledge or merely an educated guess.

As a result the mean knowledge score of the group as a whole was 55.8% (SD 21.9%) with a range from 0 to 96% with almost half the sample having obtained less than 50% correct. Thus as a result their knowledge was categorized as inadequate.

4.4.4.1.5. Summary for Objective One:

Statistically it would appear that amongst the participant sample there was indeed a low level of knowledge of Chiropractic. However the results need closer examination to make sense of this and to substantiate this statement.

Statistically, the majority of participants (46.1%) did not respond correctly to the questions that included the years of study question (Section 4.4.4.1.2.1.), question regarding the controlling professional body (63.1% (Table 4.6)) and the question with respect to medical aid cover (56.0% (Table 4.6)). However these were not really conclusive in that none of the values were significant. In addition, when uncertain on specific questions, some of the participants could possibly be providing the answer that he/she feels the researcher is looking for hence providing data that appears more positive than a true reflection of their knowledge.

From an education and training perspective only 3 questions were answered correctly, these were on Anatomy (97.4%), Physiology (92.4%) and to a lesser extent Physiotherapy Modalities (70.9%). Furthermore it is of importance to note that Surgery was indicated as part of the training 21.5% of the time.

The only question on treatment that was answered overwhelmingly correctly was that on adjustments/manipulation (92.6%). The other responses were largely inconclusive, except for surgery which came up as treatment modality with a positive response rate (12.3%).

The responses regarding surgery are incorrect and indicate very strongly that the participants have a very low level of knowledge of Chiropractic. These findings reflect that of Kew (2006) who had a similar response of 19%. Commenting on these results and in concurrence with WHO (2005) and CASA (2008), Kew (2006) stated “This shows the lack of knowledge of the Chiropractic profession in SA as the non-drug, non-surgical mandate of Chiropractic is viewed as being the cornerstone of the profession's identity.” In contrast to this are some of the other questions (like those on injections), which are open to interpretation and “grey” areas as they are part of post graduate courses that are available to Chiropractors.

Thus the overall knowledge of Chiropractic of rugby coaches within the greater Durban area was low. These findings are similar to the WFC consultation of the identity of Chiropractic. It was found that there was a limited awareness from the public regarding Chiropractic education (WHO, 2005). Furthermore they are not dissimilar to those of Caplan et al., (1994) who found that the knowledge of Chiropractic amongst the public in Canada, including Chiropractic patients, was of a very low level regarding education, scope of practice and qualification.

These results, in conjunction with many others found in the literature suggest that the rugby coaches and the general public have a misconception about Chiropractic and indeed a low level of knowledge. There need to be more concerted attempts to

accurately educate (Whiting, 2008) the rugby coaches on Chiropractic scope of practice, treatment modalities, controlling bodies, medical aid cover, legalities and education. This poor level of knowledge by the coaches is probably resulting in the under-utilization of Chiropractic within rugby in general (Kew, 2006; Sanchez, 1991).

Thus it stands to reason that if more information and education could be provided to rugby coaches on Chiropractic and its treatment modalities, this would have a positive response on knowledge and perception. This assertion is supported in that many player and coach testimonials have also been included in support of this and Van Zyl (2007) attempts to accomplish this by simply and succinctly describing some of the theories on the efficacy of Chiropractic in his book “Celebrity Chiropractic”. Therefore, possibly through these efforts, rugby coaches could be made to realize that Chiropractic treatment is more than simply “cracking backs”, but takes far more into account regarding the patient, injury location and type of injury (Brown, 2006; Delgado, 2006; Tyfield, 2006; Uys, 2006; Wilson, 2006; Campbell, 2007; Ferguson, 2007; Higgs, 2007). This will hopefully have a more positive effect on knowledge, perception and Chiropractic usage in the future.

Hypothesis 1

A low level of knowledge exists about Chiropractic and other sports medical personnel amongst rugby coaches in the greater Durban area.

This hypothesis can be accepted based on evidence from the study and in comparison with previous, similar literature.

4.4.4.2. Objective 2: To determine the attitudes/perceptions of these coaches towards Chiropractic and other sports medical personnel.

4.4.4.2.1. Questionnaire questions corresponding to this section on perception of Chiropractic amongst rugby coaches in the Greater Durban area:

(i.e. Questions 2.1., 2.6., 3.3. (Appendix E))

4.4.4.2.2. Coaches' referral patterns for specific injuries:

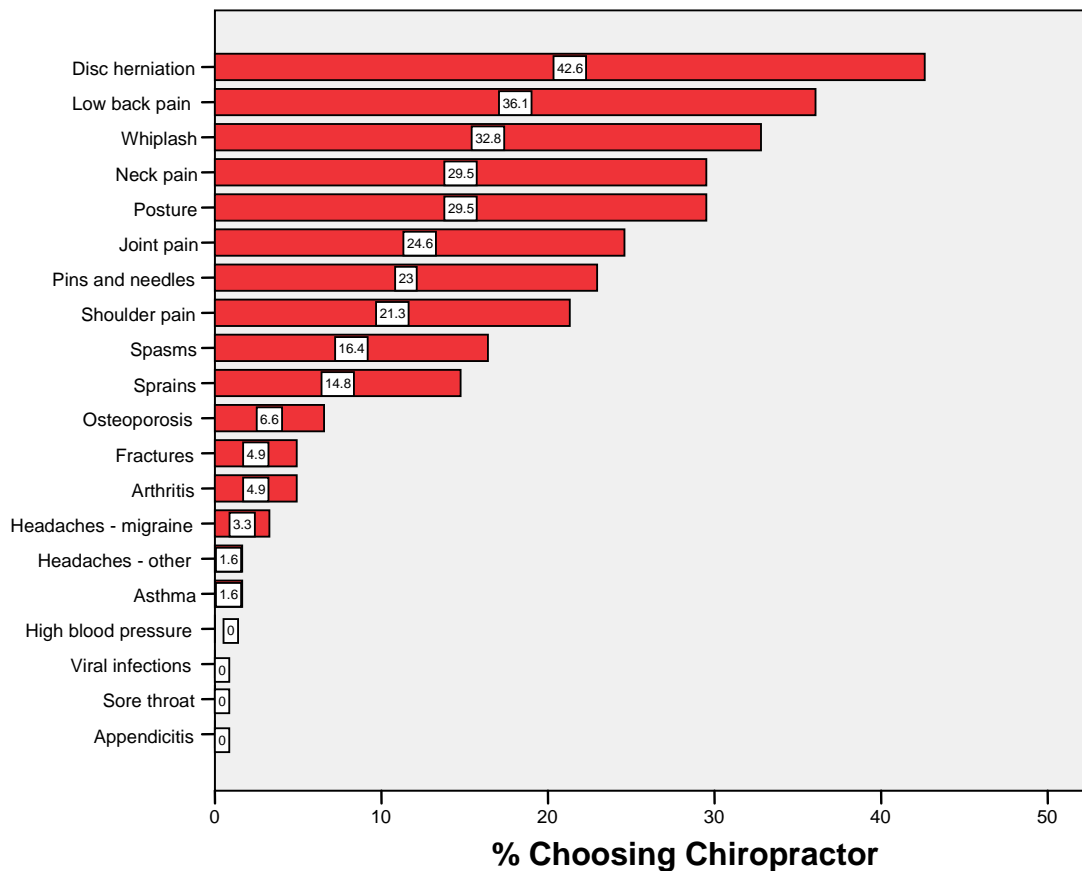


Figure 4.6: Percentage of participants who chose a Chiropractor for the listed conditions.

Figure 4.6 shows the percentage of participants who reported they would choose a Chiropractor first for treatment of the listed conditions. Disc herniation was the condition that participants would use a Chiropractor for most (42.6%), followed by low back pain (36.1%) and whiplash (32.8%). For treatment of neck pain and posture 29.5% would opt to utilize Chiropractic services as their first choice. For some conditions, none of the participants reported that they would refer to a Chiropractor, including high blood pressure, viral infections, appendicitis and sore throat as they associate these conditions and the treatment of these conditions with their GP.

These figures are certainly in keeping with the current literature. Findings by Kew (2006), Van As (2005) and the WHO (2005) all concur that the population in general views Chiropractic care, as that which is predominantly involved with neck and back pain. Kew (2006) found that 78% of personal trainers in Durban would refer to a Chiropractor for neck or back pain, findings which are very similar to the findings on rugby coaches on low back pain (36.1%) and neck pain (29.5%), a total of 65.6% in this study. Amongst NFL coaches the primary reasons for referral to a Chiropractor appeared to be low back pain (61%) and neck injury (31%) (Stump et al., 2002). However Stump et al., (2002) found that when faced with referring a player with a low back injury, 81% of NFL coaches still preferred to refer to an Orthopaedist, followed by referral to a Chiropractor (36%).

These findings are further supported in Australia (Beardmore et al., 2005) in that the general population perceive GPs and physiotherapists as being better trained and more effective than Chiropractors at treating general ailments. This is reflected in Table 4.9, which shows that the participants considered the GP as the first choice of treatment for most conditions. However, back pain appeared to be the exception to this rule (Beardmore et al., 2005) as well as in this study. This concurs with Middleton and Pollard (2005), who indicated that in New Zealand it was found that that population believed that Chiropractors were more knowledgeable about and more effective in treating the spine than GPs and physiotherapists

Of an interesting note is the resistance to accepting that Chiropractors are indeed trained to treat more than just the spine. The participants in this study responded fairly low when asked whether or not they would refer to a Chiropractor for conditions affecting non-spine injuries. Responses included (Figure 4.6): joint pain (24.6%), shoulder pain (21.3%), spasms (16.4), and sprains (14.8%). These are most certainly areas of the body and conditions in which Chiropractors receive intensive training (Brown, 2006; Delgado, 2006; Tyfield, 2006; Uys, 2006; Wilson, 2006; Campbell, 2007; Ferguson, 2007; Higgs, 2007; and Department of Chiropractic and Somatology Handbook, 2008). Van Zyl (2007) lists numerous sports specific, non back-specific problems and areas commonly seen by Sports Chiropractors, including, but not restricted to: Hip fixation; Anterior Talus (front ankle bone); Calcaneal fixation (heel bone); Posterior tibia (lower limb inferior to the knee); Shoulder-Sternum-Collarbone joint (SC); Shoulder-Collarbone joint (AC) and referred pain.

Based on the injuries that are perceived to be treated by Chiropractors, Louw (2005) found that South African GPs perceived the role of Chiropractic to be that of referral and rehabilitation. Along similar lines Rubens (1996) found that South African neurologists, neurosurgeons and orthopaedic surgeons considered the role of Chiropractors to be that of support and rehabilitation. However these findings appear to be in contrast to this and other studies on other sectors of the population (Langworthy and Smink, 2000; Langworthy and Birkelid, 2001; van As, 2005; Kew, 2006; Rattan, 2007).

Thus it can be seen that although some groups do perceive Chiropractic to be the treatment of choice for back pain, or at least one of the treatment options, there is still much work to be done in reinforcing both this perception and the notion that Chiropractors are trained to treat far more than simply backs.

Table 4.9: Percentage of responses to first choice for treatment of listed conditions.

	Pharmacist	Orthopedic surgeon	Physiotherapist	GP	Chiro-practor	Homeo-path	Not sure
Appendicitis	.0%	2.5%	1.2%	93.8%	.0%	.0%	2.5%
Arthritis	2.5%	7.6%	11.4%	65.8%	5.1%	2.5%	5.1%
Asthma	3.8%	.0%	2.5%	86.3%	1.3%	5.0%	1.3%
Disc herniation	1.3%	21.5%	15.2%	16.5%	43.0%	.0%	2.5%
Fractures	.0%	39.2%	3.8%	51.9%	5.1%	.0%	.0%
Headaches - migraine	18.8%	.0%	2.5%	71.3%	2.5%	5.0%	.0%
Headaches - other	23.8%	.0%	1.3%	70.0%	1.3%	3.8%	.0%
High blood pressure	6.3%	.0%	2.5%	89.9%	.0%	1.3%	.0%
Joint pain	.0%	15.6%	10.4%	44.2%	27.3%	1.3%	1.3%
Low back pain	1.3%	10.0%	31.3%	17.5%	37.5%	.0%	2.5%
Neck pain	1.3%	6.3%	29.1%	32.9%	29.1%	.0%	1.3%
Osteoporosis	.0%	19.7%	7.9%	55.3%	9.2%	2.6%	5.3%
Pins and needles	.0%	16.9%	6.5%	50.6%	24.7%	.0%	1.3%
Posture	.0%	15.5%	8.5%	35.2%	28.2%	.0%	11.3%
Shoulder pain	1.3%	11.3%	42.5%	20.0%	23.8%	.0%	1.3%
Sore throat	29.1%	.0%	1.3%	67.1%	1.3%	.0%	1.3%
Spasms	5.0%	.0%	48.8%	30.0%	16.3%	.0%	.0%
Sprains	1.3%	5.0%	50.0%	28.8%	15.0%	.0%	.0%
Viral infections	5.1%	1.3%	1.3%	91.1%	1.3%	.0%	.0%
Whiplash	.0%	10.0%	30.0%	28.8%	30.0%	.0%	1.3%

In the above table (Table 4.9), the three main options chosen by the participants have been highlighted: Chiropractor, GP and Physiotherapist. “Chiropractor” has been highlighted in dark grey as it is the focus of this study. Where “Chiropractor” has been a first choice or a close second or third (within 10%³ of first choice irrespective of whether this was the GP or the Physiotherapist), both the condition and the participant response have been highlighted in dark grey and the same applies to “GP” and “Physiotherapist”, except in light grey.

³ Note to reader: the figure of 10 % is utilized as a comparative tool and is not meant as a categorical statement of comparison.

Table 4.9 clearly shows that “GP” (light grey highlighting) was the first choice of treatment for most conditions (14 of the 20 conditions) and a close second choice (within 10%) in one (Whiplash with 28.8%). Some of the 14 conditions that the participants chose a GP for were moderately surprising, including: neck pain (32.9%), joint pain (44.2%) and posture (35.2%), in that some of these fall into the musculoskeletal and biomechanical conditions, previously viewed as the domain of the Chiropractor and Physiotherapist. This also includes Whiplash (second choice with 28.8%). In conditions where the participants did not choose “GP” as a close option, these were dominated by “Chiropractor” and “Physiotherapist”. These options included: spasms (30.0%), low back pain (17.5%), shoulder pain (20.0%), disc herniation (16.5%), and sprains (28.8%). This appears to be in keeping with the literature (Straton et al., 1990).

Conditions dominated by “Physiotherapist” included: spasms (48.8%), shoulder pain (42.5%) and sprains (50.0%). Participants chose this option for these conditions in a conclusive manner, in that neither “Chiropractor” nor “GP” came close in their choices. “Physiotherapist” was however tie first or a close alternative option for: neck pain (29.1%), low back pain (31.3%) and whiplash (30%). These results for Physiotherapy all seem to be similar as they reflect closely the scopes of practice of each of these professions (Allied Health Professions Act 63 of 1982 (as amended); Health Professions Act, 2008).

Conditions that participants nominated “Chiropractor” as first choice included: disc herniation (43.0%), low back pain (37.5%) and whiplash (30.0%). Conditions that participants chose “Chiropractor” as second choice or third but close enough to be within 10% included: neck pain (29.1%) and posture (28.2%). As discussed this is in line with current literature (Allied Health Professions Act 63 of 1982 (as amended); WFC, 2003; CASA, 2007; Health Professions Act, 2008).

The conditions where participants perceived Chiropractic to be a competitive treatment of choice (competitive with the GP or Physiotherapist), generally means that for these conditions the participants will either choose Chiropractic as the treatment of choice or will be undecided between the available options. It is for these predominantly

musculoskeletal and biomechanical conditions discussed above including: neck pain, posture, low back pain and whiplash and spasms, shoulder pain, joint pain and sprains, where Chiropractic is merely one of the competitive choices. Thus in order for Chiropractic to define its niche market with respect to these conditions it is important that the rugby coaches must be further educated. This will increase the coaches' knowledge of the scope of Chiropractic practice and thus improve perception and usage of Chiropractic treatment in rugby in Durban.

4.4.4.2.3. Choice of management team:

This question requested the participants to grade from a list of medical practitioners, those that they would choose for their medical management team, from grade 1 to 3 (Question 2.6). The results are reflected in table 4.10.

Table 4.10: Number choosing a Chiropractor as part of management team.

	Frequency	Percent
No	43	50.6
Yes	42	49.4
Total	85	100.0

As shown in Table 4.10, almost half the participants would have chosen a Chiropractor as part of their management team (49.4%), either as first (13.3%), second (24.1%) or third choice (13.3%).

It should be encouraging from a Chiropractic perspective to find a relatively positive response from rugby coaches regarding Chiropractic, whereby if given the opportunity, 49.4% would choose to have a Chiropractor as part of their medical team. This reflects a fairly positive perception when one considers that many traditional options were provided to the coaches from which to choose including: Biokineticist, Dietitian, GP, Massage Therapist and Physiotherapist.

Although exact comparisons are difficult to come by in the literature, it has been shown by Stump (2002) that 31% of NFL teams utilise Chiropractors in an official capacity. Furthermore in Chapter Two it was shown how crucial a role a Chiropractor plays on the Sharks Medical Team (Van Zyl, 2007), with positive comments from the Head Coach, team physician, biokineticist, physiotherapist and even the players. Roberts (2007) and Muir (2007) (as cited by van Zyl, 2007) two of the influential decision makers on the Sharks management team comment that a Chiropractor is a key role player in any medical team. In addition Muir (2007) (as cited by van Zyl, 2007) believes that all South Africa's top teams should have a full-time Chiropractor. These attitudes and perceptions reflect the growing positive support that Chiropractic is beginning to enjoy in world sport (Stump et al., 2002; van Zyl, 2007).

Crucial to this section on the makeup of the coach's medical management team would be the education they had received and their knowledge and perceptions of the coach's referral patterns for specific injuries. Naturally the results of this question would be closely linked to the management team selection as coaches attempt to cover as many conditions as possible and in the most effective and efficient manner with their limited choices.

However, it appears that the decision as to the make up of the medical team does not usually rest solely with the coach, as 74% of NFL coaches claim that the team physician is usually responsible for the makeup of the team (Stump, 2002). Thus it is reasonable to assume that this is the same in South Africa regarding rugby. Naturally this allows for far more prejudice and inter-professional issues (Stump, 2002; Van Zyl, 2007). If the team physician and coach can overcome the negative perceptions traditionally held by the medical profession (Coulter, 1992; Curtis and Bove, 1992; Wardwell, 1994(a); Wardwell, 1994 (b); Stump et al., 2002; Rattan, 2007; Van Zyl, 2007), then it appears that a multi-disciplinary approach to injuries could be adopted, where the skills of the different practitioners complement, rather than impede each other (Van Zyl, 2007). Many of those barriers do indeed seem to be breaking down and more progressive thinking is frequently found among medical personnel embracing Chiropractic and the benefits that can be

provided to the players (Stump et al., 2002 and Van Zyl, 2007). Perhaps future research needs to examine the exact knowledge and perceptions of these medical personnel that have the ability and position to act as gatekeepers to the advancement of Chiropractic within sport in general and rugby in particular.

It appears that in addition to the coach and the chief medical officer there is a third determinant in the make up of the medical team. It would appear as if the athletes are becoming increasingly demanding in their request for Chiropractic personnel as part of the management team. Woods (golf) (2007) claims that his Chiropractor is as important to his training as “practicing my swing” and Armstrong (2007) claims that perhaps the most important man on their team may have been their Chiropractor (Van Zyl, 2007). To Botha (2007) his Chiropractor was the most important man in his pre-match schedule (Van Zyl, 2007). Future research definitely needs to examine the exact knowledge and perceptions of the athletes themselves and recommend what they perceive the role of Chiropractic to be in their particular sport. In addition this would allow for the identification of how Chiropractors can best assist them and the medical personnel whose services they already have. They too, through their demand, most definitely have the ability to act as gatekeepers in the advancement of Chiropractic within sport and rugby. Their perceptions will most certainly influence the public, the medical physicians with whom they come in contact and the coaches who are responsible for their performance.

4.4.4.2.4. Coaches’ views of Chiropractic:

The majority of rugby coaches had a favourable view of Chiropractic (76.2%), while 21.4% were not informed enough to comment and only 1 coach did not know what Chiropractic was, and 1 coach felt it did more harm than good (Table 4.11).

Table 4.11: Participants' view of Chiropractic.

	Frequency	Percent
I think it has a valuable and effective role for some conditions	64	76.2%
I am not informed enough to comment	18	21.4%
I have heard of Chiropractic before but do not know what it is	1	1.2%
It does more harm than good, I am uncomfortable with it	1	1.2%
Total ⁴	84	100.0%

As can be seen in Table 4.11 the majority of participants (76.2%) believed that Chiropractic had a valuable and effective role to play in some conditions (these were not specified in this question).

This result appears to be similar to some other findings from research conducted in Durban. Kew (2006) found that a total of 70.8% of personal trainers had a positive response with:

- 47.6% of personal trainers in Durban thought that Chiropractic played a valuable role in the health care system,
- 20% personal trainers thought Chiropractic effective for some patients and
- 3.2% of personal trainers said that they preferred it over other physical therapies.

From the results obtained in the knowledge section, it would seem possible for the participants to have a favourable view of Chiropractic even when their calculated mean score for knowledge is inadequate. This is possible as although knowledge may provide insight into a topic, career, profession, object, argument or help with decision making; and might assist when choosing between variables, a person may actually know a lot / little about something and still have a positive or negative perception of that same entity. Kew (2006) found this to hold true and recorded similar results with personal trainers (i.e. poor knowledge scores and relatively high perception scores). It was argued that the perception of the personal trainers must therefore be based mainly on their personal experiences or those experiences conveyed to them by colleagues (Kew, 2006). In the

⁴ Note that there was one respondent who did not respond to this question.

case of rugby coaches, of those that had: been treated personally by a Chiropractor (65.5% (Section 4.4.3.4)), referred players to a Chiropractor (60% (Figure 4.3)) or had been exposed to them as part of their management team (34.1% (Section 4.4.3.3.)), (96.8%) indicated that they had recorded a positive experience. Thus the assumption that views are modified by experience and not only knowledge does seem to hold true with the results obtained in this study.

Notwithstanding the above, twenty-one percent (21.4%) of participants claimed that they were not informed enough to comment (Table 4.1), which is not that dissimilar from the findings of Kew (2006) who found 14.3% falling into the same category. Only 1 participant (1.2%) did not know what Chiropractic was, compared with 4 participants (6.3%) from Kew's (2006) study and only 1 participant (1.2%) felt it did more harm than good. This is also comparable to the 3 participants (4.8%) from Kew's (2006) study that reported a similar perception of Chiropractic.

4.4.4.2.4. Summary for Objective Two:

There appear to be three main professions that rugby coaches prefer to refer their players to, based on the condition with which the player presents. These three main referrals appear to be GPs, Physiotherapists and Chiropractors (Table 4.9). Of the referrals to these practitioners, it was found that significant Chiropractic choices by the coaches include (Table 4.9): Disc herniation (43.0%), Low back pain (37.5%), Neck pain (29.1%), Posture (28.2%) and Whiplash (30%). For some conditions responses were surprisingly low including joint pain (27.3% (Table 4.9)), shoulder pain (23.8% (Table 4.9)), spasms (16.3% (Table 4.9)) and sprains (15.0% (Table 4.9)), when compared to other practitioners. Furthermore for some conditions none of the participants reported that they would refer to a Chiropractor, including high blood pressure, viral infections, appendicitis and sore throat. In general these findings correspond with existing evidence (CASA, 2007; WFC, 2003; WFC 2007). More research needs to be conducted on how coaches arrived at some of these perceptions and then more information and education could be provided to them on the scope of Chiropractic practice.

Notwithstanding the above, when looking at the particular diagnoses that the rugby coaches perceived as being treated by Chiropractors; disc herniation (42.6% (Figure 4.6)) rated highest as the condition that coaches would refer to a Chiropractor. This was followed by low back pain (36.1% (Figure 4.6)) and whiplash (32.8% ((Figure 4.6)).

As far as choosing a medical team is concerned, almost half the participants would have chosen a Chiropractor as part of their management team (49.4% (Table 4.10)), either as first (13.3% (Section 4.4.4.2.3)), second (24.1% (Section 4.4.4.2.3)) or third choice (13.3% (Section 4.4.4.2.3)). It must however be considered that in addition to the rugby coaches, there are sometimes even more important decision makers in the process of establishing the medical team, which include the team physician, the players and / or the athletes themselves (Stump et al., 2002; van Zyl, 2007). These influencers may therefore be modifiers in the selection process and thus the results obtained in this study may not accurately reflect the actual process that occurs in medical team selection. More research needs to be conducted on these influencers in order to establish their role in the selection process of medical team members.

When asked what their view was of Chiropractic, the majority of participants (76.2% (Table 4.11)) believed that Chiropractic had a valuable and effective role to play in some conditions. This is in line with other findings on similar population groups within Durban despite both having a poor level of knowledge of Chiropractic (Kew, 2006; Rattan, 2007). It should thus be considered that it is possible that the positive perception that is held by the participants could be reinforced if their knowledge levels could be increased, as this will provide them with a base from which to formulate their opinions as opposed to merely basing them on what they think they know. This applies equally to the 21.4% (Table 4.11) of participants that claimed that they were not informed enough to comment.

Hypothesis 2

The perception amongst rugby coaches of Chiropractic and other sports medical personnel is not similar to perceptions of Chiropractic as found in literature.

Literature seems to indicate that there was a negative perception of Chiropractic (Coulter, 1992; Wardwell, 1994(a); Wardwell, 1994(b)) whilst other, more recent literature suggests a positive perception, in particular amongst NFL coaches and personal trainers in Durban (Stump et al., 2002; Kew, 2006). This is even in view of that fact that a low level of knowledge existed amongst them (Stump et al., 2002; Kew 2006). This is further supported by Van Zyl (2007), who reports that slightly more knowledge about Chiropractic had an influence on increasing the positive perceptions of Chiropractic.

Therefore if the results were analysed in the context of the literature, with reference to the perception of the Chiropractic profession by rugby coaches, then the results indicate that they support the positive outcomes in terms of perception (Stump et al., 2002; Kew, 2006) noted in the literature and reject the negative outcomes in terms of perception (Coulter, 1992; Wardwell, 1994(a); Wardwell, 1994(b)).

4.4.4.3. Objective 3: To determine relationships between demographics / behaviours / practices, knowledge and perception of Chiropractic and other sports medical personnel.

4.4.4.3.1. Factors associated with knowledge:

It is noted that only the statistically significant (or borderline non-significant) associations are reported here.

4.4.4.3.1.1. Relationship between knowledge and qualification:

Table 4.12: Comparison of mean knowledge score by qualification.

	Qualification	N	Mean	Std. Deviation	Std. Error Mean	p value
Knowledge	Yes	61	58.71	20.497	2.624	0.052
	No	24	48.46	24.174	4.934	

Having a formal qualification in rugby coaching was associated with increased mean knowledge score with borderline significance ($p=0.052$). The mean scores of knowledge were higher in those who had a coaching qualification than in those who did not have a qualification (Table 4.12).

It would thus seem that there is a direct / proportional relationship between the level of rugby coaching and the qualification in coaching, as well as the knowledge of Chiropractic presented in the questionnaire (question 1.7). However this interpretation needs to be taken / read with caution as a possibility exists that the relationship may be influenced by those coaches that had additional professional sporting, fitness or medical qualifications.

4.4.4.3.1.2. Relationship between individual knowledge and perception:

Based on the results of this correlation, the participants' perception towards Chiropractic was related to their knowledge significantly ($p=0.037$). Table 4.13 shows that the more positive their view, the greater the likelihood that their knowledge score was higher. Although it is acknowledged that this study cannot determine the causality between the knowledge and perception, the likelihood is that knowledge of Chiropractic affected the perception, rather than the other way around.

Table 4.13: Comparison of mean knowledge score by view of Chiropractic.

	View of Chiropractic	N	Mean	Std. Deviation	Std. Error Mean	p value
Knowledge	I am not informed enough to comment	18	47.74	23.386	5.512	0.037
	I think it has a valuable and effective role for some conditions	64	59.49	20.025	2.503	

These results may seem to contradict the earlier summary of knowledge, where the participants' knowledge was rated as inadequate (Section 4.4.4.1.5.). In order to contextualize the above results, it needs to be remembered that when the individual perceptions of Chiropractic are plotted against knowledge the results obtained are those related to a comparison between two groups. Therefore although the overall results indicate a poor knowledge, it is possible to have a subgroup that has better knowledge as well as a better perception than the comparative group.

4.4.4.3.1.3. Relationship between individual treatment and knowledge:

Surprisingly, there was no significant association between having been treated by a Chiropractor and knowledge ($p=0.095$), although there was a trend which showed a higher mean knowledge score in those who had been treated by a Chiropractor (mean = 58.8) compared with those who had not (mean = 50.3). This result may have been affected by the small sample size and it is therefore suggested that future studies increase the sample size to obtain a more conclusive result in this respect.

It could be expected that the knowledge of Chiropractic should be higher in ex-patients, as they have been exposed to a practitioner in the profession (Rattan, 2007). However many rugby coaches might well have only been exposed (personally or observed) to Chiropractic treatment on the side of the rugby field or in the change room. This might vary tremendously when compared to that provided in a proper consultation in the respective Chiropractor's rooms or the Durban University of Technology's Chiropractic Day Clinic. Perhaps an investigation needs to be conducted into the number of consultations attended / field side treatments received or observed by the coaches; as a patient having had one exposure to a Chiropractor may know far less than a regular patient.

4.4.4.3.1.4. Relationship between knowledge and the demographic variables:

None of the demographic variables were related with knowledge.

With particular reference to age, this was not correlated with knowledge score ($r=-0.006$, $p=0.955$), which is in contrast to Kew (2006) who noted that the older the individual the greater the likelihood of increased knowledge, but that this was not necessarily directly proportional to the perception of the Chiropractic profession.

4.4.4.3.2. Factors associated with behaviour / practices:

Factors associated with the practice of having a Chiropractor as part of the management team were examined.

4.4.4.3.2.1. Chiropractors on club or school teams:

Table 4.14: Association between having a Chiropractor on the team and coaching for a school or club.

			Having a Chiropractor on the team		
			No	Yes	
School or club	School	Count	42	13	55
		Row %	76.4%	23.6%	100.0%
	Club	Count	0	11	11
		Row %	.0%	100.0%	100.0%
	Both	Count	11	5	16
		Row %	68.8%	31.3%	100.0%
Total		Count	53	29	82
		Row %	64.6%	35.4%	100.0%

Pearson's chi square 23.5, $p < 0.001$

As is shown in Table 4.14, coaching for a club was strongly associated with having a Chiropractor on the team ($p < 0.001$) as 100% of club rugby coaches had a Chiropractor on their team, while a smaller percentage of those who coached for a school or both (school and club) had a Chiropractor on their team. Many clubs have a Chiropractor on their staff or in assistance in some capacity. Whilst the Chiropractor is usually primarily at the disposal of the senior teams and their coaches, it is possible that all coaches of all teams at one particular club with a Chiropractor answered "yes" to this question. Thus even if the coach did not have a Chiropractor for his own specific team, he essentially had a Chiropractor as part of the club's management team in general.

4.4.4.3.2.2. Relationship between providing contact details and having a Chiropractor on the team:

Table 4.15: Association between having a Chiropractor on the team and providing contact details of person to whom they are referring.

				Having a Chiropractor on the team		Total
				No	Yes	
Provide contact details	No	Count	25	4	29	
		Row %	86.2%	13.8%	100.0%	
	Yes	Count	30	25	55	
		Row %	54.5%	45.5%	100.0%	
		Count	55	29	84	
		Row %	65.5%	34.5%	100.0%	

Pearson's chi square 8.4, p=0.004

There was also a significant association between the rugby coach providing the contact details of the person to whom they are referring the injured player, and having a Chiropractor on the team (p=0.004). This seems to confirm that having a Chiropractor at the rugby practice or match will allow for the coach to request for an on the spot assessment of the player. In addition the player could then be referred by the Chiropractor in consultation with the coach to the Chiropractor's rooms, or alternatively to another physician that the Chiropractor sees fit based on the condition (e.g. to a physiotherapist or GP). Furthermore the contact between the coach and the Chiropractor would facilitate the coach being able to refer players more readily and easily (as access to the contact details of the Chiropractor is greater) to the Chiropractor, even if the Chiropractor is not present at the training / match.

Furthermore, if a rugby coach has a Chiropractor at his disposal there is an increased likelihood that the medical provision is based on a multidisciplinary approach (Graf, 2001)

and thus the same principles as discussed above would apply to all of the members of the multidisciplinary team.

4.4.4.3.2.3. Relationship between been treated by a Chiropractor and having a Chiropractor on the medical team:

Participants who had a Chiropractor as part of their management team were significantly more likely to have been treated by a Chiropractor ($p < 0.001$). However, this may be as a result of having better access to a Chiropractor, and not that the treatment resulted in the Chiropractor being included as part of the management team.

The problem with cross-sectional studies is that it is difficult to establish causality of associations and often one detects reverse causality in associations which should not be interpreted as causality.

Table 4.16: Association between having a Chiropractor on the team and being treated personally by a Chiropractor.

		Having a Chiropractor on the team			Total
			No	Yes	
Have you been treated by a Chiropractor?	No	Count	28	1	29
		Row %	96.6%	3.4%	100.0%
	Yes	Count	27	28	55
		Row %	49.1%	50.9%	100.0%
Total		Count	55	29	84
		Row %	65.5%	34.5%	100.0%

Pearson's chi square 18.9, $p < 0.001$

It is possible that some rugby coaches have been treated in their own capacity by a Chiropractor. From that treatment or relationship with the Chiropractor, they could have

requested, or insisted, or at least not resisted the incorporation of a Chiropractor onto their management team. However it is also possible that most coaches have been treated by Chiropractors as a result of the Chiropractor being a part of the coach's management team, because of the convenience of having the Chiropractor on hand for treatment on site, or for referral details. More research would need to be conducted to ascertain the exact nature of this relationship.

4.4.4.3.2.4. Relationship between having a Chiropractor as part of the team and view of Chiropractic:

There was a significant association between view of Chiropractic and having a Chiropractor as part of the team ($p=0.023$). Table 4.17 shows that the numbers were small in two of the groups so the Table should be interpreted with caution. However, it shows that the percentage that had a Chiropractor on the team was highest in those with the most positive view of Chiropractic (42.2%).

Again it cannot be determined if their positive view of Chiropractors influenced them in having a Chiropractor on the team, or whether having a Chiropractor on the team influenced their positive view of Chiropractic. One can only state that the two factors are associated.

Table 4.17: Association between having a Chiropractor on the team and view of Chiropractic.

			Having a Chiropractor on the team		Total
			No	Yes	
View of Chiropractic	I have heard of Chiropractic before, but do not know what it is	Count	1	0	1
		Row %	100.0%	.0%	100.0%
	I am not informed enough to comment	Count	17	1	18
		Row %	94.4%	5.6%	100.0%
	Chiropractic does more harm than good, I am uncomfortable with it	Count	1	0	1
		Row %	100.0%	.0%	100.0%
	I think it has a valuable and effective role for some conditions	Count	37	27	64
		Row %	57.8%	42.2%	100.0%
		Count	56	28	84
		Row %	66.7%	33.3%	100.0%

Pearson chi square = 9.5, p=0.023

The participant that had heard of Chiropractic before, but does not know what it is, has not experienced a Chiropractor on the team. Of those participants that are not informed enough to comment, 17 of the 18 (94.4%), have not experienced a Chiropractor on their team. The 1 participant that believed that Chiropractic does more harm than good has also not experienced a Chiropractor on his or her team. Of those that think that it has a valuable and effective role for some conditions, 27 of the 64 (42.4%) have experienced a Chiropractor on their team.

Most importantly however, of the total of 28 participants who had a Chiropractor on the team, 27 (96.4%), believed that Chiropractic has a valuable and effective role for some conditions ((27/28)x100)).

Of the total of 56 participants who had not had a Chiropractor on the team, 37 (66.0% ((37/56)x100)) believed that Chiropractic has a valuable and effective role for some

conditions. The remaining 19 (34% (19/56)x100)) who did not have a Chiropractor on the team, could either not comment or did not think it was beneficial.

Although these were relatively small sample groups, there most certainly does appear to be a correlation between having experienced a Chiropractor on the team in some capacity and a positive perception of Chiropractic. Not having experienced a Chiropractor as part of the team does not necessarily predispose to having a negative perception or not being knowledgeable enough to comment but it would appear that there are fewer positive responses from that group.

Perhaps credence can be given to having had experienced something (Chiropractic) first hand. Either this is due to the increased knowledge of Chiropractic gained from the experience, or the greater awareness of it (Rattan, 2007), or simply the comfort that the experience or exposure brings. Either way it is clear that within rugby and the population in general the greater the exposure that Chiropractic has, the greater the positive response to it will be (Lindhard, 1987; Gaumer et al., 2002).

4.4.4.3.2.5. Knowledge of Chiropractor in residential suburb:

Table 4.18 shows that there was a strong association between having a Chiropractor as a team doctor and having a Chiropractic practice in the participant's residential suburb ($p < 0.001$). Almost half of the rugby coaches who had a Chiropractor practicing in their residential suburb had a Chiropractor on the team. Of those who did not have a Chiropractor practicing in their residential suburb none had a Chiropractor on the team. Only 7% of those who did not know whether or not they did have one in their suburb had a Chiropractor on the team.

Table 4.18: Association between having a Chiropractor on the team and knowing if there was a Chiropractic practice in their suburb.

			Having a Chiropractor on the team		
			No	Yes	
Is there a Chiropractic practice in your suburb?	No	Count	3	0	3
		% within (question 3.10) suburb	100.0%	.0%	100.0%
	Yes	Count	27	26	53
		% within (question 3.10)suburb	50.9%	49.1%	100.0%
	Don't know	Count	25	2	27
		% within (question 3.10)suburb	92.6%	7.4%	100.0%
Total		Count	55	28	83
		% within (question 3.10) suburb	66.3%	33.7%	100.0%

Pearson chi square = 15.5, $p < 0.001$

According to Table 4.18, having a Chiropractor on the management team would lead to a greater knowledge of practices in the area, or within the participant's residential suburb. This is probably due to increased interaction between participants and Chiropractic personnel and therefore greater awareness (similar to discussion in section 4.4.4.3.2.2.). This information could be conveyed in general conversation or in response to a specific question about Chiropractic or practices within a specific area. This follows the trend that the greater the exposure a participant has to Chiropractic, the greater their knowledge and perception (section 4.4.4.3.1.2.).

4.4.4.3.2.6. Knowledge score as related to having a Chiropractor on the team:

Surprisingly, knowledge score was not associated with having a Chiropractor on the team ($p=0.422$). Although those with a Chiropractor on the team did have a higher mean knowledge score (mean = 58.5%) than those without (mean = 54.4%), but this small difference was not statistically significant.

4.4.4.3.2.7. Knowledge score as related to demographic variables:

In addition the demographic factors of age ($p=0.133$), duration of coaching ($p=0.758$) and hours spent coaching ($p=0.584$) were not associated with having a Chiropractor on the team.

4.4.4.3.2.8. Summary for objective Three:

Having a formal qualification in rugby coaching was associated with increased mean knowledge as there is often a relationship between the level coached and the qualification (Table 4.12). There is probably a correlation between the level coached and the level of knowledge of Chiropractic but more research would need to be conducted in order to establish the accuracy of these variables. Generally the participants' knowledge was poor but their perception of Chiropractic was still high, the individual participant's perception towards Chiropractic was related to their knowledge significantly ($p=0.037$ (Table 4.13)). Thus the higher their knowledge the more positive their view or perception would seem to be.

There was no significant association between having been personally treated by a Chiropractor and knowledge ($p=0.095$ (section 4.4.4.3.1.3.)), although there was a trend which showed a higher mean knowledge score in those who had been treated by a Chiropractor (mean = 58.8 (section 4.4.4.3.1.3.)) compared with those who had not been treated (mean = 50.3 (section 4.4.4.3.1.3.)). Neither age, nor any other of the demographic variables was correlated with knowledge score (section 4.4.4.3.2.7),

furthermore knowledge was not related to having a Chiropractor on the team (section 4.4.3.2.6).

Hypothesis 3

A directly proportionate relationship exists between the level of knowledge and the perception of the Chiropractic Profession and other sports medical personnel.

The hypothesis is accepted for the following factors:

- The association between having a Chiropractor as a team doctor and having a Chiropractic practice in the participant's residential suburb.

The hypothesis is rejected based on the following factors:

- a) The association between knowledge score and having a Chiropractor on the team;
- b) The association between age, duration of coaching and hours spent coaching rugby;

were not associated with having a Chiropractor on the team, which implies that this is based on an increased knowledge.

4.4.4.4. Summary and conclusion:

This study has established that the level of knowledge of Chiropractic in about half the South African rugby coaches is inadequate. However, generally their perception of Chiropractic is favourable.

There was an association between increased knowledge and a favourable perception, thus suggesting that if knowledge were to be improved, then perception and attitude towards Chiropractic would further improve.

Thirty four percent of coaches had a Chiropractor as part of their management team (Section 4.4.3.3.). They were more likely to have a Chiropractor on the team if they had a positive perception of Chiropractic but the possibility of reverse causality is not excluded.

Thus by improving the knowledge of coaches regarding Chiropractic, so the perception will improve and hence ultimately the number clubs, schools and teams that employ Chiropractors may increase.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

The knowledge and perceptions of club and high school rugby coaches of Chiropractic within the greater Durban area have been examined and described in this study. What is apparent is the poor level of knowledge of Chiropractic amongst the rugby coaches. This includes the lack of understanding of the scope of practice of Chiropractic as a profession, involved in the management of musculoskeletal conditions and the assessment and correction of biomechanical disorders. This lack of knowledge is reflected in the perception that Chiropractic is limited to the treatment of spinal disorders and reinforces the incorrect notion that Chiropractors are neck and back specialists only. There was certainly a lack of knowledge amongst the coaches regarding the education requirements, medical scheme support and statutory and regulatory controls of the profession.

The perception of Chiropractic amongst rugby coaches was however very positive and it would appear that the support for Chiropractors is growing rapidly within rugby and sport in general. On the whole and at virtually all levels of the sport it would appear as if rugby coaches are prepared to work with and accept the assistance offered by Chiropractors. Unfortunately the poor level of knowledge of Chiropractic, in conjunction with some negative perceptions portrayed by certain parties that are either ignorant of the holistic benefits offered, or threatened by the successes and growth in popularity of Chiropractic, has resulted in under-utilisation. Although there is interaction between rugby coaches and Chiropractors and the coaches' view Chiropractic care and treatment as a valuable option for treating certain conditions, there is still much confusion amongst the coaches regarding the role that Chiropractic should play within rugby and the health system. Thus the profession and specifically Chiropractors that are involved in sport and rugby need to educate the public and

the coaches and in some cases other medical practitioners involved in sport, on the scope of practice, conditions treated and modalities used by Chiropractors.

Furthermore, it has been shown that when rugby coaches have been exposed to Chiropractors in some capacity, usually as the team Chiropractor or team doctor, then although their knowledge does improve slightly, their perception improves tremendously. In addition, coaches' perceptions further improved when they had been treated by a Chiropractor in their personal capacity. This treatment was often as a result of exposure to Chiropractic within the rugby setting. The Chiropractic profession needs to capitalize on this link between perception and exposure and increase the exposure to and education of the role players in rugby i.e. the coaches and the public in general. This will improve knowledge, understanding and communication with the Chiropractic profession and ultimately a greater level of acceptance and utilisation of Chiropractic in rugby and society in general.

5.2. RECOMMENDATIONS FROM THIS RESEARCH

1. Although statistically satisfactory the response rate was not fantastic. The time of year and its impact on high school rugby coaches as discussed in Chapter Four had a large negative effect on the response rate from these coaches. The inconvenience and pressure placed on the MICs by involving them at this difficult and extremely pressurized time at the end of the year was regretted. The time of year between rugby seasons also had a negative effect on the response rates from club rugby coaches. It is suspected that if conducted at a different time of year, preferably during the season, that the names of coaches and their contact details would be more accurate. It is further suggested that future research conducted on coaches should be done at the beginning of the season when all the rugby coaches from schools and

clubs from all over Durban and KZN meet at the annual coaches' conference.

2. It is also considered that future research should distinguish between amateur and professional rugby coaches as this variable may have had an effect on the level of knowledge reflected in this study and may thus have skewed the results.
3. Future research should also include questions about the length of time that the participant has been consulting a Chiropractor in their private capacity.
4. To better delineate the exposure of rugby coaches to various health care professionals, it would be recommended that the referral patterns and volume of referrals (i.e. by player) between coaches and relevant health care disciplines be analysed.
5. The response rate from other non-White ethnic groups was not as high as was reflected in data prior to the research being conducted. The reasons for this were discussed in Chapter Four. Thus the knowledge and perceptions of the rugby coaches from many predominantly and traditionally Black and Coloured clubs is not really accurately reflected. It is suggested that if in future similar research is to be conducted that it is executed during the actual season when the coaches are actually present at their respective clubs on practice or match day.
6. Further research should be conducted on rugby coaches in the rest of South Africa to assess whether the knowledge and perceptions of Chiropractic of rugby coaches nationally are accurately reflected by those in Durban. The results of this study might not accurately reflect those countrywide. The Chiropractic training being offered at the

Durban University of Technology, The Chiropractic Day Clinic at the same institution, the fairly large number of Chiropractors practicing in Durban and the Sharks utilizing a Chiropractor, must all in some way have some bearing or influence on the perception and knowledge of at least some of the coaches in Durban. These and other factors might well result in regional differences in knowledge and perception.

7. Future research should also investigate the influencers on the process of medical team selection for rugby teams.
8. Notwithstanding the Delphi process (Landeta, 2006) of focus groups and piloting of the questionnaire, certain questions are suspected of having been ambiguous or misunderstood by the rugby coaches. It is therefore suggested that the questionnaire is subjected to further Delphi refinement, before it is utilized in future studies, in order to avoid the same perceived ambiguities in this study. An example is that certain questions may have had the effect of limiting the coaches and removing the multi-disciplinary approach to health care that some coaches might have preferred. In other cases it was clear that the coaches viewed some physicians as equally important, however this could not be portrayed in the structure of the questionnaire.
9. In terms of a presentation of the questionnaire, it was also felt that the answer blocks in some questions were too small and too close together. This could have led to participant confusion and therefore on some occasions, to participants ticking the wrong line of blocks for corresponding respective conditions.
10. In addition to the questionnaire related recommendations above, it is suggested that in order to obtain a more accurate reflection of knowledge, it may be necessary to include an "I do not know option" in

those questions where multiple choices are the preferred question structure.

5.3. RECOMMENDATIONS FOR INTERVENTIONS BASED ON THIS STUDY.

1. Gatekeeper health care professions within the rugby fraternity should be evaluated on their knowledge and understanding of Chiropractic, in order for the Chiropractic profession to be able to increase its interaction with these professions.
2. Programmes need to be instituted to educate rugby coaches on Chiropractic and the benefit and options it offers to them and their players. An awareness of Chiropractic amongst sport in general, and rugby specifically needs to be nurtured. The result will be increased co-operation between Chiropractors and coaches and other sports medical personnel as the scope of practice is better understood and barriers are removed.

These awareness and education programmes could include talks at schools or clubs and articles published in rugby, sports and health and fitness magazines. Education drives could be conducted in the form of senior Chiropractic students, under the ambit of “Sports Chiropractic”, attending club rugby practices and providing assessment and treatment of players at their sports facilities. Furthermore clinical research could be conducted on the efficacy of Chiropractic treatment on certain rugby injuries and the results be made known to the rugby fraternity.

Finally the results of these education initiatives need to be assessed and similar research needs to be conducted in the future to ascertain their success.

REFERENCES

About South Africa>Health, 2006 [online] accessed 10.07.2007.

Beardmore, A.L., Hancock, P.J., and Rehner, N.J. 2005. Return to play after injury: practices in New Zealand Rugby Union. Physical Therapy in Sport. (6)24-30.

Bernard, R. 2000. Social Research methods. California: Sage.

Best, J. 2003. Making rugby safer: from grass roots to the elite level. Sports Medicine Australia, 6(4)2-eoa.

Bergh, Z.C. and Theron, A.L. 1999. Psychology in the Work Context. 1st Edition. South Africa: International Thompson Publishing.

Brantingham, J.W. and Snyder, W.R. 1999. From Africa to Africa. Chiropractic History. **19**(1):53-59.

Breen, L., Drew, N., Pike, L., Pooley, J.A. and Young, A. 2001. Evaluation of the school of Psychology Peer Mentoring Program- Semester1, 2000. In A. Herrmann M.M. Kulski (Eds), Expanding Horizons in teaching and Learning. Proceedings of the 10th Annual Teaching Learning Forum, 7-9 February 2001. Perth: Curtin University of Technology.

Brown C. 2006. The effectiveness of first rib adjustment as an adjunct to the treatment of mechanical neck pain. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Caldwell, K., Coleman, K., Copp, G., Bell, L., and Ghasi, F. 2007. Preparing for professional practice: How well does professional training equip health and social care practitioners to engage in evidence based practice? Nurse Education Today, 27:518-528.

Campbell J, 2007. The relative effect of manipulation and core rehabilitation in the treatment of acute mechanical low back pain in athletes. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Caplan, K. and Associates. 1994. The Image, Position and Reputation of Chiropractic in the Health Care Marketplace Today: A Qualitative Investigation into Attitudes towards, and Perceptions of, Chiropractic in Canada. Canadian Association. Unpublished monograph.

Chaffe, J. 1997. Thinking Critically. 5th Edition. Houghton Muffin Company. Boston. New York.

Chalmers, D.J., Simpson, J.C., and Dupree, R. 1998. Tackling Rugby Injury: lessons learned from the implementation of a five-year sports injury prevention program. Sports Medicine Australia, 7(1)74-84-eoa.

Chalmers, D., Gulliver, P., and Stephenson S. 2003. Routine surveillance of injury and injury prevention behaviours in New Zealand club rugby. Sports Medicine Australia, 6(4)45-eoa.

Chapman-Smith, D. 2000. The Chiropractic Profession. NCMIC Group, West Des Moines, USA.

Chiropractic Association South Africa, 2005. Register of Members and Information Booklet 2004/2005, Bethlehem, South Africa.

Chiropractic Association of South Africa, 2007. CASA [online]. Available at www.chiropractic.co.za [Accessed 31 August 2007].

Chiropractic Association of South Africa, 2008. CASA [online]. Available at www.chiropractic.co.za [Accessed 25 March 2008].

Chiropractic Department Handbook, 2007. Department of Chiropractic, Durban University of Technology, Durban, South Africa.

Chiropractic and Somatology Department Handbook, 2008. Department of Chiropractic, Durban University of Technology, Durban, South Africa.

Chiroweb.com [online]. 2004. Available : www.chiroweb.com/worldnews-ChiropracticinSouthAfrica, [Accessed 10 July 2007].

Cloete, K. 2008. A Study to Determine the International Federations' Perception and Utilization of Chiropractors and Other Sports Medical Personnel. M. Tech. Chiropractic thesis, Durban University of Technology, Durban.

Compact Oxford English Dictionary [online]. 2008. Available : http://www.askoxford.com/concise_oed/knowledge?view=uk, [Accessed 19 March 2008].

Copp, G., Caldwell, K., Atwal, A., Brett-Richards, M., and Coleman, K. 2007. Preparation for cancer care: Perceptions of newly qualified health care professionals. European Journal of Oncology Nursing, 11:159-167.

Coulter, I.D. 1992. The sociology of Chiropractic: Future options and directions. In Haldeman S. Principles and Practice of Chiropractic. Appleton and Large

Cresswall, S. and Eklund, B. 2003. Changes in player burnout in rugby: pre-season and midseason comparisons. Sports Medicine Australia, 6(4)74-eoa.

Curtis, P. and Bove, G. 1992. Family physicians and chiropractors: what's best for the patient. Journal of Family Practitioners. 35: 552-555

Dalley, D.R., Laing, D.R., Rowberry, J.M., and Caird, M.J. 1982. Rugby injuries: an epidemiological survey, Christchurch 1980. New Zealand Journal of Sports Medicine. 10(3)5-17. Got from Beardmore but no hardcopy.

Dalley, D.R., Laing, D.R., and McMartin, P.J. 1992. Injuries in rugby football, Christchurch 1989. New Zealand Journal of Sports Medicine. 20(1)2-5. Got from Beardmore but no hardcopy.

Delgado R.J. 2006. The immediate and short term effect of spinal manipulative therapy on club head velocity in amateur golfers suffering from mechanical low back pain. M. Tech. Chiropractic Thesis, Durban Institute of Technology, Durban, South Africa.

Donaldson, A., Finch, C., and Forero, R. 2003. The first aid policies and practices of community sporting clubs. Sports Medicine Australia, 6(4)50-eoa.

Donson, H. 2003. Epidemiology of super 12 rugby injuries 1999, 2002-2003. Sports Medicine Australia, 6(4)19-eoa.

Dyer, C. 1997. Beginning Research in Psychology. A practical guide to research methods and statistics. Blackwell publishers Ltd. Oxford.

Eaton, C., and George, K. 2006. Position specific rehabilitation for rugby union players. Part 2: Evidence-based examples. Physical Therapy in Sport. (7)30-35. Had this but only got one page now?!?!

Eisenberg, D. M., Davis, R.B., Ettner, S. L., Appel, S., Van Rompay, M. and Kessler, R. C. 1998. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. JAMA. **280**: 1569-75.

Esterhuizen (2007). Personal communication. Butt, Durban, 16.11.2007, 13:00.

Ferguson S. 2007. A cross-sectional cohort pilot study to determine and compare the activation and endurance of the Transversus Abdominus muscles in three selected populations. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Fink, A and Kosecoff, J. 1985. How to conduct a survey; a step by step guide. California: Sage Publications.

Forster, A. and Palastanga, N. 1994. Clayton's Electrotherapy : Theory and Practice. London: Balliere Tindall – W.B. Saunders.

The Free Dictionary [online]. 2008. Available : www.thefreedictionary.com/conditioning, [Accessed 25 March 2008].

The Free Dictionary [online]. 2008. Available : www.thefreedictionary.com/administration, [Accessed 25 March 2008].

The Free Dictionary [online]. 2008. Available : www.thefreedictionary.com/squad, [Accessed 25 March 2008].

The Free Dictionary [online]. 2008. Available : www.thefreedictionary.com/team, [Accessed 25 March 2008].

The Free Dictionary [online]. 2008. Available : www.thefreedictionary.com/union, [Accessed 25 March 2008].

Garraway, M., and MacLeod, D. 1995. Epidemiology of rugby football injuries. Lancet, 345, 1485-1487. Got from Beardmore but no hardcopy.

Gatterman, M.I. 1995. The Foundations of the Chiropractic : Subluxation. Mosby - Year Book, St Louis, Missouri, USA.

Gaumer, G., Koren, A. and Gemmen, E. 2002. Barriers to expanding primary care roles for chiropractors: The role of chiropractic as primary care gatekeeper. Journal of Manipulative and Physiological Therapeutics. **25** (7):427-449.

Graf, M.A. 2001. The Ireland Report on Succeeding in Women's Health. The Ireland Corporation (online) Available from:
http://www.snowinst.com/complementary_medicine.htm

Hicks, C. 2004. Research methods for clinical therapists. 4th ed. China: Churchill Livingstone.

Higgs R. 2007. The relative effect of manipulation and core rehabilitation in the treatment of acute mechanical low back pain in sedentary patients. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Holloway, K. 2004. A study of the Incidences and Financial Implications of Club Rugby Injuries. B. Ed. Thesis, University of Kwazulu Natal, Durban.

Hubert, H.B., Snider, J., Winkleby, M.A. 2005. Health Status, health behaviours, and acculturation factors associated with overweight and obesity in Latinos from a community and agricultural labour camp survey. Preventive Medicine. **40**: 642-651.

Hughes, D.C., and Fricker, P.A. 1994. A prospective survey of injuries to first grade rugby union players. Clinical Journal of Sports Medicine, 4, 249-256. Got from Beardmore but no hardcopy.

Hunter, S. 2004. The Perceptions and Attitudes of South African Physiotherapists about the Chiropractic Profession. M. Tech. Chiropractic Thesis, Durban Institute of Technology, Durban, South Africa.

Hupkes, G.J., 1990. A proposal for the "Equal playing fields" for Chiropractic in SA's health care delivery system. MSc Dissertation. University of South Africa.

Ingle, N. 2005. Coaching Committee: High Schools Personal Communication. Butt, Durban, 12.10.2005.

Ingle, N. 2007. Coaching Committee: High Schools Personal Communication. Butt, Durban, 08.09.2007.

Kehoe, J. 1998. Money, Success and You. Harness your mind to achieve prosperity. Zoetic Inc. Canada.

Kew, M. 2006. The assessment of the knowledge and perception of personal trainers within Durban with respect to Chiropractic. M. Tech. Chiropractic Thesis, Durban University of Technology, Durban, South Africa.

Kwazulu-Natal Rugby Union Fixtures Booklet. More than rugby! 2005

Kwazulu-Natal Rugby Union Fixtures Booklet. More than rugby! 2006

KZN High School's Rugby Association, 2007. Personal communication. Letter dated 24.08.2007.

Labuschagne, K. 2008. First Aid Services Durban. Personal Communication. Butt, Durban, 08.02.2008.

Landeta, J. 2006. Current validity of the Delphi method in social sciences. Technological Forecasting and Social Change, 73(5): 467-482.

Langworthy, J.M., and Birkelid, J. 2001. General Practice and chiropractic in Norway: How well do they communicate and what do GP's want to know? Journal of Manipulative and Physiological Therapeutics, 24(9): 576-581.

Langworthy, J.M. and Smink, R.D. 2000. Chiropractic through the eyes of Physiotherapists, Manual Therapists, and Osteopaths in the Netherlands. The Journal of Alternative and Complimentary Medicine. 6 (5):437-443.

Lapane, K.L., Quilliam, B.J., and Hughes, C.M. 2007. A comparison of two distribution methods on response rates to a patient safety questionnaire in nursing homes. Journal of the American Medical Directors Association, 8:1-6.

Lindhard, N. 1987. Career Choice. How Parents can help their Children Choose a Career. College Tutorial Press. Cape Town. ISBN 07985 0646 6.

Lindorff-Larsen K., Rasmussen, H.H., Kondrup, J., Staum, M., Ladefoged K., and The Scandinavian Nutrition Group, 2007. Management and perception of hospital undernutrition – A positive change among Danish doctors and nurses. Clinical Nutrition, 26:371-378.

Louw, J.D. 2005. The Knowledge of General Practitioners about Chiropractic as a Factor that may Influence Health Care Integration in South Africa. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Louw, J.D., and Myburgh, C. 2007. Knowledge and perception of general practitioners about chiropractic as a factor that may influence inter-professional communication: A South African perspective. Journal of Interprofessional Care, March 2007; 21(2):221-224.

MacKay, M., Scanlan, A., Olsen, L., Reid, D., Clark, M., McKim, K., and Raina, P., 2004. Looking for the evidence: a systematic review of prevention strategies addressing sport and recreational injury among children and youth. Sports Medicine Australia, 7(1)58-73.

McIntosh, A., Finch, C., McCrory, P. and Best, J. 2003. Patterns of injury in schoolboy rugby union football. Sports Medicine Australia, 6(4)45-eoa.

Mearns, K.J., and Reader, T. 2007. Organisational support and safety outcomes: An un-investigated relationship ? Safety Science (2007), doi:10.1016/j.ssci.2007.05.002.

MedicineNet.com [online]. 2008. Available:

www.medterms.com/script/main/art.asp?articlekey=33612, [Accessed 25 March 2008].

Middleton, P. and Pollard H. 2005. Are chronic low back pain outcomes improved with co-management of concurrent depression. Chiropractic and Osteopathy, 13:8.

Morgan, D.L. 1998(a). The Focus Group Guidebook. Volume 1. Sage Publications. Thousand Oaks.

Morgan, D.L. 1998(b). Planning Focus Groups. Volume 1. Sage Publications. Thousand Oaks.

Morgan, D.L. 1998(c). Moderating Focus Groups. Volume 1. Sage Publications. Thousand Oaks.

Mouton, J. 1996. Understanding social research. South Africa: Van Struik.

Myburgh, C. and Mouton J. 2007. Developmental Issues in Chiropractic: A South African Practitioner and Patient Perspective. Journal of Manipulative and Physiological Therapeutics 30(3):206-214.

Noakes, T. and du Plessis, M. 1996. Rugby without risk. Pretoria, J.L van Schaik Publishers.

Quarrie, K.L., Alsop, J.C., Waller, A.E., Bird, Y.N., Marchall, S.W., and Chalmers, D.J. 2001. The New Zealand rugby injury and performance project. Vi. A prospective cohort study of risk factors for injury in rugby union football. British Journal of Sports Medicine. 35(3), 157-166. Got from Beardmore but no hardcopy.

Rattan A. 2007. A knowledge and perception study of Grade 12 learners from selected secondary schools in the Durban Metropolitan Region on the Chiropractic Profession. M. Tech: Chiropractic, Technikon Natal, Durban, South Africa.

Robbins, S.P. 1996. Organizational Behaviour. 7th Edition. United States of America: Prentice-Hall International.

Rubens, B. N. 1996. Orthopaedic Surgeons, Neurologists and Neurosurgeons Views of the Chiropractic Profession in South Africa. M. Dip. Chiropractic thesis, Technikon Natal, Durban, South Africa.

Sanchez, R.E. 1991. A Look in the Mirror: A Critical and Exploratory Study of Public Perceptions of the Chiropractic Profession in New Jersey. Journal of Manipulative and Physiological Therapeutics. 14 (3):165-176

The Sharks Pty Ltd, 2007 [online]. 2007. Available : www.sharksrugby.co.za/default.asp?Id=12178&des=content, [Accessed 25 March 2008].

Sherman, K. J., Cherkin, D. C., Connelly, M. T., Erro, J., Savetsky, J. B., Dais, R. B. and Eisenberg, D. M. 2004. Complementary and alternative medical therapies for chronic low back pain: What treatments are patients willing to try? BMC Complement Alternative Medicine. 4(9).

Simons, D.G., Travell, J.G. and Simons L.S. 1999. Travell and Simons' Myofascial Pain and Dysfunction . The Trigger Point Manual. Volume 1: Upper Half of the Body. 2nd Edition. United States of America, Pennsylvania, Philadelphia.

South Africa, 2008. Allied Health Professions Act 63 of 1982 (as amended). Pretoria: Government Printer.

South Africa, 2008. Health Professions Act, 2008. Pretoria: Government Printer.

Straton, R.G., Sweeney, J. and Grandage, J. 1990. Review of the Relationship of Chiropractic services to the Public Health System in Western Australia. (Unpublished monograph).

Stump, J.J. and Redwood, D. 2002. The Use and Role of Sport Chiropractors in the National Football League: A Short Report. Journal of Manipulative and Physiological Therapeutics. March/April 2002.

Suter, E., Vanderheyden, L.C., Trojan, L.S, Verhoef, M.J., and Armitage, G.D. 2007. How important is research based practice to chiropractors and massage therapists. Journal of Manipulative and Physiological Therapeutics, 30(2);109-115.

Symon, A.G., McStea, B., and Murphy-Black, T. 2006. An exploratory mixed methods study of Scottish midwives understandings and perceptions of clinical near misses in maternity care. Midwifery, 22:125-136.

Talmage, G. 2007. An exploratory mixed-methods study to determine factors which may affect satisfaction levels of patients outside of a clinical setting. M. Tech. Chiropractic Thesis, Durban Institute of Technology, Durban.

Till, G. 1997. Aspects of Chiropractic History in South Africa. Technikon Natal, unpublished handout.

Tyfield S. 2006. The immediate effect of a lumbar manipulation on the clinical and performance measures of amateur tennis players suffering from lower back discomfort associated with playing tennis. M. Tech. Chiropractic Thesis, Durban Institute of Technology, Durban, South Africa.

Uys L. 2006. An investigation into the effect of a high velocity low amplitude manipulation on core muscle strength in patients with chronic mechanical lower back pain. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Van As, R.K. 2005. The Knowledge and Perception of Vocational Councillors in South Africa with Respect to Chiropractic. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban.

Van Noordwyk, R. 2005. Coaching Committee: Durban Rugby Sub-Union. Butt, Durban, 12.10.2005.

Van Zyl, W. 2007. Celebrity Chiropractic. Durban, Pinetown Printers.

Verhoef, M. J. and Page, S. A. 1996. Physicians' perspectives on chiropractic treatment. Journal of Canadian Chiropractic Association, 40(4):214-219.

Wardwell, W. I. 1994(a). Differential evolution of the osteopathic and chiropractic professions in the United States. Perspect Biol Med. **37**(4):595-608

Wardwell, W. I. 1994(b). Alternative medicine in the United States. Soc Sci Med. 37(8):1061-8.

White, J. 2007. In Black and White: The Jake White Story. Cape Town, Zebra Press.

Whiting, S. 2008. Ex-Durban club rugby player and club team manager. Butt, Durban, 10.02.2008

Wilson D. 2006. The relative effectiveness of spinal manipulation in conjunction with core stability exercises as opposed to spinal manipulation alone in the treatment of postnatal mechanical low back pain. M. Tech. Chiropractic thesis, Durban Institute of Technology, Durban, South Africa.

Wisker, G. 2001. The Postgraduate Research Handbook. Succeed with MA, MPhil, EdD and PhD. Palgrave. New York.

World Federation of Chiropractic. 2003/11/13. Consultation on Identity. Abstracts of Previous Relevant Research. [Online]. Available from: www.wfc.org/projects/identity/publications/surveyresearchabstracts. (Accessed on 10.07.2007)

World Federation of Chiropractic, 2007. WFC [online]. Available at www.wfc.org [accessed 30 August 2007].

World Health Organisation, 2005. WHO guidelines on basic training and safety in Chiropractic. Geneva, WHO publishers.

Your Dictionary.com [online]. 2008. www.yourdictionary.com/antipathy, [Accessed 25 March 2008].

Appendix A1

Charlt
Here is your response
C

>>> "JLangworthy" <imrci.JLangworthy@aecc.ac.uk> 30/05/2007 17:53:31 >>>
Hello Charmaine,

No, unfortunately I did not receive any email from Charlton. However, if he would like to adapt the original then that's fine. I wish him well with his study and, if possible, would be interested in seeing his final version and hearing a little about his results.

Warm regards,
Jennifer

-----Original Message-----

From: Charmaine Korporaal [mailto:charmak@dut.ac.za]
Sent: 30 May 2007 13:24
To: JLangworthy
Subject: Fwd: Re: Charlton Butt Research
Hi Jennifer

Please advise as to whether you have received the mail below ?

Thank you
Charmaine

>>> "Tracey Savy" <sugarshock@mweb.co.za> 21/05/2007 11:29:41 >>>
Goodmorning Ms Langworthy,

My name is Charlton Butt and I am a Chiropractic Masters student at The Durban University of Technology in South Africa.

Dr. Charmaine Korporaal gave me your address and advised me to contact you requesting permission to use a modified questionnaire based on an original questionnaire devised by you. My research is an attitudes and perception study titled "An investigation into the attitudes and perceptions of high school and club rugby coaches in the greater Durban area with respect to Chiropractic."

Your original has subsequently been modified by Jannie Louw, Ron Van As and Michelle Kew, all of whom it appears have had your permission to do so and use the modified version.

Your co-operation and assistance in this matter will be greatly appreciated. Kind regards,
Charlton Butt

Appendix A2

APPENDIX A2

1 June 2007

I hereby give Choriton Butt permission to use and
modify my questionnaire for the purpose of his research.

Dr. Michelle Kew

M Kew

Appendix A3

Hi Charlton

If I could assist in anyway possible I would. My role will be to assist with literature sourcing, database usage, searching techniques, etc.

Regards

>>> "Tracey Savy" <sugarshock@mweb.co.za> 2007/05/21 11:43 AM >>>
Goodmorning Ms Naidoo,

My name is Charlton Butt and I am a Chiropractic Masters student.

Dr. Charmaine Korporaal advised me to contact you and request permission for participants in my research to contact you in respect to the results and conclusions. Apparently you have been the contact for previous research students like Michelle Kew etc.

Your co-operation or advice in this matter would be greatly appreciated. Thank you.

Reagrds.

Chatlon Butt

Appendix B4

IMPORTANT NOTICE: THIS FORM IS TO BE READ AND FILLED IN BY EVERY MEMBER PARTICIPATING IN THE FOCUS GROUP, BEFORE THE FOCUS GROUP MEETING CONVENES.

CONFIDENTIALITY STATEMENT – FOCUS GROUP DECLARATION

1. All information contained in the research documents and any information discussed during the focus group meeting will be kept private and confidential. This is especially binding to any information that may identify any of the participants in the research process.
2. The returned questionnaires will be coded and kept anonymous in the research process.
3. None of the information shall be communicated to any other individual or organisation outside of this specific focus group as to the decisions of this focus group.
4. The information from this focus group will be made public in terms of a journal publication, which will in no way identify any participants of this research.

Once this form has been read and agreed to, please fill in the appropriate information below and sign to acknowledge agreement.

Please Print in block letters:

Focus Group Member: _____ Signature: _____

Witness Name: _____ Signature: _____

Researcher's Name: _____ Signature: _____

Supervisor's /
Co-supervisor's Name: _____ Signature: _____

Appendix B2

INFORMED CONSENT FORM

(TO BE COMPLETED BY THE PARTICIPANTS OF THE FOCUS GROUP)

DATE: _____ :

TITLE OF RESEARCH PROJECT:

An investigation into the knowledge and perceptions of club and high school rugby coaches in the greater Durban area with regards to Chiropractic.

NAME OF SUPERVISOR : Dr C. Korporaal

NAME OF CO-SUPERVISOR : Dr A. Van de Meulen

NAME OF RESEARCH STUDENT : Charlton Butt

Please circle the appropriate answer

- | | YES/NO | |
|--|---------------|----|
| 1. Have you read the research information sheet? | Yes | No |
| 2. Have you had an opportunity to ask questions regarding this study? | Yes | No |
| 3. Have you received satisfactory answers to your questions? | Yes | No |
| 4. Have you had an opportunity to discuss this study? | Yes | No |
| 5. Have you received enough information about this study? | Yes | No |
| 6. Do you understand the implications of your involvement in this study? | Yes | No |
| 7. Do you understand that you are free to | | |
| a) withdraw from this study at any time? | Yes | No |
| b) withdraw from the study at any time, without reasons given | Yes | No |
| c) withdraw from the study at any time without affecting your future health care or relationship with the Chiropractic day clinic at the Durban Institute of Technology. | Yes | No |
| 8. Do you agree to voluntarily participate in this study | Yes | No |
| 9. Who have you spoken to regarding this study? | | |

If you have answered NO to any of the above, please obtain the necessary information from the researcher and / or supervisor before signing. Thank You.

Please Print in block letters:

Focus Group Member: _____ Signature: _____

Witness Name: _____ Signature: _____

Researcher's Name: _____ Signature: _____

Supervisor's / Co-supervisor's Name: _____

Signature: _____

Appendix B1

LETTER OF INFORMATION – FOCUS GROUP

Dear Participant,

I would like to welcome you into the focus group of my study, the title of my research project is:

An investigation into the knowledge and perceptions of club and high school rugby coaches in the greater Durban area with regards to Chiropractic.

Background to the study:

The goal of this research is to assess what the general perception of rugby coaches is of the Chiropractic profession and their awareness of the scope of the profession.

In Durban it is estimated that there are about 250 high school teams and approximately 63 club teams, each of which generally has its own designated coach. These coaches are often responsible for the conditioning of players before the season and specific games, warm-ups, flexibility, strapping and basic injury advice. The Chiropractic profession could really contribute to rugby and the coaching staff and players in all of these important issues with many hours of training being dedicated to spinal alignment, flexibility, weight training, sports strapping, posture, gait assessment and correction and most importantly injury assessment and treatment. Most coaches have grown up in an environment of simply advising players to consult a physiotherapist or GP and this perception has been passed down from trainer to trainer with the bias towards these professions being reinforced by the convenience of their availability and the coach's limited experience of Chiropractic and indeed ignorance towards the benefits of Chiropractic.

Objective of the study:

The data obtained by means of this questionnaire will allow for further assessment and advancement of chiropractic with regards to rugby and especially the coaching staff. It will allow for an understanding of the current status of Chiropractic within rugby in Durban and provide a knowledge base from which to formulate future educational and promotional drives.

The questions are concerned with the coaches:

- Knowledge and perceptions of chiropractic
- Current role and utilization of chiropractic in their specific teams
- And the potential role that the rugby coaches would like chiropractic to play

The questionnaire will only take a few minutes to complete, as most of the questions require you to tick or circle the appropriate answer. There are only a few short written responses that are required.

Your participation in this study is much appreciated and you are assured that your comments and contributions to the discussion will be kept confidential. The results of the discussion will only be used for research purposes. If you have any further questions please feel free to contact either my supervisor/ co-supervisor or myself.

Charlton Butt

Questionnaire Appendix B5

Question 1

1.1 Gender:

Male

Female

1.2 State your age in years:

1.3 What is your race group?
(for research purposes only)

Asian
 Black
 Coloured

White
 Indian
 Other(please specify)

1.4 For how long have you been a rugby coach?

_____ years

1.5 On average, how many hours per week do you coach?

_____ hrs/week

1.6 In what school or club? (If more than one, the predominant one)

School/Club: _____ Secondary school/club, **if applicable**, state: _____

1.7 Please state the highest grade or qualification you have in rugby coaching :

(If no specific qualification, state: none)

1.8 Have you specialised in any further rugby coaching? (if yes, state what)

No
 Yes

If yes, please state: _____

1.9 Do you have any sporting or fitness qualifications besides rugby coaching, eg. Personal trainer, medical profession etc.

No
 Yes

Please state: _____

1.10 What is the current team level at which you coach?

Please state: _____

1.11 What is the highest level at which you've coached?

Please state: _____

1.12 In which of these categories do you coach at your respective club or school?

Professional
 Semi-professional
 Amateur

Question Two

2.1 Do you or have you ever had Chiropractic personelle as your team Doctor, 1st Aid, medical or physical conditioning advisor?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.2 If 'no' to 2.1, would you consider it in the future?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.3 If yes to 2.1 above, has it been a positive or negative experience?

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Negative

2.4 Please indicate which health care provider YOU would choose FIRST FOR TREATMENT if your player had each of the following conditions. (Please tick one box per condition only):

	Bio-kineticist	Chiro-practor	Physio-therapist	GP	Phar-macist	Homeo-path
				<input type="checkbox"/>		
Appendicitis						
Arthritis						
Asthma						
Sore throat						
Fractures						
Headaches- Migraine						
Headaches- Other						
High Blood Pressure						
Muscle spasm						
Neck pain						
Osteoporosis						
Pain in your joints						
Pins and Needles/ Numbness in your arms or legs	*	*	*	*	*	*
Postural Abnormalities (e.g. Scoliosis or Hyperlordosis)	*	*	*	*	*	*
Low back pain						
Shoulder pain						
Slipped disc						
Sprains e.g: ankle sprain						
Viral Infections (e.g. Flu)						
Whiplash injuries						

2.5 If necessary, do you ever suggest to your players they see someone for examination or treatment/therapy?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No (if no, skip to question 3)

2.6 Tick the practitioners that you have ever suggested a player consult:

<input type="checkbox"/>	Biokineticist	<input type="checkbox"/>	Massage Therapist
<input type="checkbox"/>	Chiropractor	<input type="checkbox"/>	Optometrist
<input type="checkbox"/>	Dermatologist	<input type="checkbox"/>	Occupational Therapist
<input type="checkbox"/>	Dietitian	<input type="checkbox"/>	Pharmacist
<input type="checkbox"/>	General Practitioner (medical doctor)	<input type="checkbox"/>	Physiotherapist
<input type="checkbox"/>	Gynaecologist	<input type="checkbox"/>	Podiatrist
<input type="checkbox"/>	Homeopath	<input type="checkbox"/>	Psychologist

2.7 Do you provide contact details of the person you are referring to?

Yes
 No

2.8 Do you require or request feedback?

Yes
 No

2.9 Have you ever received feedback from any of those practitioners?
(if not applicable, tick N/A)

N/A
 Yes
 No

If no, would you like to?

Yes
 No

2.10 If you had a choice of the practitioners in 2.6, please rank the order in which you would appoint them as part of your management team.

<input type="checkbox"/>	Biokineticist
<input type="checkbox"/>	Chiropractor
<input type="checkbox"/>	Dermatologist
<input type="checkbox"/>	Dietitian
<input type="checkbox"/>	General Practitioner (medical doctor)
<input type="checkbox"/>	Gynaecologist
<input type="checkbox"/>	Homeopath

<input type="checkbox"/>	Massage Therapist
<input type="checkbox"/>	Optometrist
<input type="checkbox"/>	Occupational Therapist
<input type="checkbox"/>	Pharmacist
<input type="checkbox"/>	Physiotherapist
<input type="checkbox"/>	Podiatrist
<input type="checkbox"/>	Psychologist

Question three

3.1 Have you ever been treated by a Chiropractor?

Yes
 No

3.2 If yes, has it been a positive or negative experience?

N/A
 Positive
 Negative

Any comments regarding your experience:

3.3 Which one of the following statements best reflects your view of chiropractic?
(Please tick one box only).

I have never heard of Chiropractic before; I do not know what it is

If you have marked the above block, your participation in the questionnaire is complete.

Thank-you for your participation!

<input type="checkbox"/>	I have heard of it before, but I am not informed enough to comment
<input type="checkbox"/>	Chiropractic does more harm than good
<input type="checkbox"/>	It is a very effective treatment for muscle, joint and nerve conditions
<input type="checkbox"/>	I am uncomfortable with it
<input type="checkbox"/>	I think it has a valuable role in the health care system
<input type="checkbox"/>	It may be effective for some patients
<input type="checkbox"/>	I prefer Chiropractic over most other physical therapies

3.4 How did you become familiar with the Chiropractic Profession? (More than one answer possible)

<input type="checkbox"/>	I have been treated by a Chiropractor
<input type="checkbox"/>	My GP told me about Chiropractic
<input type="checkbox"/>	I learnt about it in my studies
<input type="checkbox"/>	I have read about chiropractic in a magazine/newspaper
<input type="checkbox"/>	From my players who have been treated by a Chiropractor
<input type="checkbox"/>	From Friends or colleagues
<input type="checkbox"/>	Through chiropractors / chiropractic students at a rugby match
<input type="checkbox"/>	Through chiropractors / chiropractic students at any sports event
<input type="checkbox"/>	Through medics / frst aid at a rugby match
<input type="checkbox"/>	Through the media
<input type="checkbox"/>	Other (please specify) _____

3.5 Have you ever had first hand experience of Chiropractic personelle running 1st Aid at a rugby match in which you were involved?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.6 Have you ever had interaction with Chiropractic personelle at another sports code's event eg. cycling, running, swimming etc.?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.9 If yes to either 3.5 or 3.6 above, has it been a positive or negative experience?

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Negative

3.10 At which institutions do you think Chiropractic can be studied?

<input type="checkbox"/>	Durban University of Technology (formerly known as Technikon Natal)	<input type="checkbox"/>	University of Johannesburg (formerly known as Technikon Witwatersrand)
<input type="checkbox"/>	Stellenbosch University	<input type="checkbox"/>	Nelson Mandela Medical School
<input type="checkbox"/>	University of Cape Town	<input type="checkbox"/>	R.A.U.

3.11 A chiropractor that qualifies from his/her studies in South Africa does so with what qualification?

3.12 The Chiropractic course includes grounding in which of the following subjects.

(please tick the subjects you consider to be applicable)

<input type="checkbox"/>	Anatomy	<input type="checkbox"/>	Physics
<input type="checkbox"/>	Chemistry	<input type="checkbox"/>	Physiology
<input type="checkbox"/>	Diagnostics	<input type="checkbox"/>	Physiotherapy modalities
<input type="checkbox"/>	Microbiology	<input type="checkbox"/>	Psychology
<input type="checkbox"/>	Pathology	<input type="checkbox"/>	Radiology
<input type="checkbox"/>	Pharmacology	<input type="checkbox"/>	Surgery

3.13 Do you have any Chiropractors working in your area?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Don't know

3.14 To your knowledge, is Chiropractic care covered by your medical aid?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.15 Does the Chiropractic profession in South Africa have an organisational professional body?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.16 Would you ever suggest to a player he/she sees a Chiropractor?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

Substantiate why: _____

3.12 If yes to above question, when would you suggest a Chiropractor?

(If no, you can end the questionnaire now, thank-you)

If yes, (more than one block may be ticked)

<input type="checkbox"/>	For back or neck problems/pain
<input type="checkbox"/>	For any nerve, muscle or bone related conditions
<input type="checkbox"/>	For rehabilitation
<input type="checkbox"/>	For treatment of conditions within the extremities
<input type="checkbox"/>	For a Sporting Injury
<input type="checkbox"/>	For fractures
<input type="checkbox"/>	For dislocations

If you would like the results of this study, we can contact you via e-mail when the study has been completed. Please give your e-mail address if you are interested.

e-mail address: _____

<input type="checkbox"/>	Not interested
--------------------------	----------------

Thank-you



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Appendix C1

Date: 06.11.2007

The Principal/Chairman of _____

Dear Sir,

Thank you for your interest and support.

Title: An investigation into the knowledge and perceptions of club and high school rugby coaches in the greater Durban area with regards to Chiropractic.

Name of researcher: Charlton Butt (0723511892)

Name of supervisor: Dr. Charmaine Korporaal (0832463562 or 031-2042611)

Name of Institution: Durban University of Technology

Introduction:

In respect of the above, I have developed a research survey which I wish to conduct among the rugby coaches in your school/club. This survey will be for the completion of my Master's Degree in Technology: Chiropractic, at the Durban University of Technology.

Procedure:

With your permission I would like to approach the rugby coaches in your school/club with a view to requesting their voluntary participation in this survey. Once permission has been granted I will set up a time and date with yourself or Head of rugby or Sports to visit your school/club. Your school will then be visited, the questionnaire will be introduced and the rugby coaches will be requested to complete the survey.

Completion of the questionnaire should take about 15 minutes. It will be made clear to each coach that participation is not compulsory and that the responses of each individual and the school/club involved will remain anonymous.

Benefits:

Your participation will help in identifying and establishing the prevailing knowledge and perceptions of club and high school rugby coaches in the greater Durban area with regards to Chiropractic.

I would like to take this opportunity to thank you most sincerely for your willingness and assistance in allowing me to address your rugby coaches about Chiropractic and for their participation in my survey.

Yours faithfully

Charlton Butt
Research student

Dr. Korporaal
Department of Chiropractic



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Appendix C2

Confirmation of approval by Principal/Chairman

Name of school/Club: _____

Date of Visit: _____

Name of contact at school/Club: _____
(Principal/Chairman/ Head Rugby Coach/ Master of Sports)

Contact numbers for contact person: _____

I hereby confirm that I have approved that Charlton Butt of the Department of Chiropractic of the Durban University of Technology may undertake a survey among the rugby coaches at the above mentioned school/club.

Principal/Chairman/ Head Rugby Coach/ Master of Sports



Appendix D2

INFORMED CONSENT FORM

(TO BE COMPLETED BY THE PARTICIPANTS OF THE SURVEY)

DATE: _____ :

TITLE OF RESEARCH PROJECT _____ :

An investigation into the knowledge and perceptions of club and high school rugby coaches in the greater Durban area with regards to Chiropractic.

NAME OF SUPERVISOR : **Dr C. Korporaal**

NAME OF CO-SUPERVISOR : **Dr A. Van der Meulen**

NAME OF RESEARCH STUDENT : **Charlton Butt**

Please circle the appropriate answer

- | | YES/NO | |
|---|---------------|----|
| 1. Have you read the research information sheet? | Yes | No |
| 2. Have you had an opportunity to ask questions regarding this study? | Yes | No |
| 3. Have you received satisfactory answers to your questions? | Yes | No |
| 4. Have you had an opportunity to discuss this study? | Yes | No |
| 5. Have you received enough information about this study? | Yes | No |
| 6. Do you understand the implications of your involvement in this study? | Yes | No |
| 7. Do you understand that you are free to | | |
| a) withdraw from this study at any time? | Yes | No |
| b) withdraw from the study at any time, without reasons given | Yes | No |
| c) withdraw from the study at any time without affecting your future health care or relationship with the Chiropractic day clinic at the Durban University of Technology. | Yes | No |
| 8. Do you agree to voluntarily participate in this study | Yes | No |
| 9. Who have you spoken to regarding this study? | | |

If you have answered NO to any of the above, please obtain the necessary information from the researcher and / or supervisor before signing. Thank You.

Please Print in block letters:

Participant: _____ Signature: _____

Witness Name: _____ Signature: _____

Researcher's Name: _____ Signature: _____

Supervisor's / Co-supervisor's Name: _____ Signature: _____



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Appendix D1

LETTER OF INFORMATION – SURVEY

Dear Participant,

I would like to welcome you to my survey, the title of my research project is:

An investigation into the knowledge and perceptions of club and high school rugby coaches in the greater Durban area with regards to Chiropractic.

Background to the study:

The goal of this research is to assess what the general perception of rugby coaches is of the Chiropractic profession and their awareness of the scope of the profession.

Objective of the study:

The data obtained by means of this questionnaire will allow for further assessment and advancement of chiropractic with regards to rugby and especially the coaching staff. It will allow for an understanding of the current status of Chiropractic within rugby in Durban and provide a knowledge base from which to formulate future educational and promotional drives.

The questions are concerned with the coaches:

- Knowledge and perceptions of chiropractic
- Current role and utilization of chiropractic in their specific teams
- And the potential role that the rugby coaches would like chiropractic to play

The questionnaire will only take a few minutes to complete, as most of the questions require you to tick or circle the appropriate answer. There are only a few short written responses that are required.

Your participation in this study is much appreciated and you are assured that your comments and contributions to the discussion will be kept confidential. The results of the discussion will only be used for research purposes. If you have any further questions please feel free to contact either my supervisor/ co-supervisor or myself.

Regards

Charlton Butt
0723511892

Dr. Charmaine Korporaal
031-3732611

Questionnaire Appendix D3

Question 1

PERSONAL INFORMATION

1.1 Gender:

Male

Female

1.2 State your age in years: _____

1.3 What is your race group?
(for research purposes only)

Asian
 Black
 Coloured

White
 Indian
 Other (please specify)

1.4 For how long have you been a rugby coach? _____ years

1.5 On average, how many hours per week do you coach (including matches)? _____ hrs/week

1.6 In what school or club? (If more than one, the predominant and secondary one)

School/Club: _____ Secondary school/club, **if applicable**, state: _____

1.7 Have you any qualification in rugby coaching :

No
 Yes

1.8 Do you have any professional sporting, fitness or medical qualifications besides rugby coaching?

No
 Yes

Please state: _____

1.9 What is the current team level at which you coach?

Please state: _____

1.10 What is the highest level at which you have coached?

School	1 st Team	<input type="checkbox"/>
	Other	<input type="checkbox"/>
Club	1 st Team	<input type="checkbox"/>
	Other	<input type="checkbox"/>
Provincial		<input type="checkbox"/>
International		<input type="checkbox"/>

1.11 In which of these categories do you coach?

Professional (Main income)
 Semi-professional (Any revenue earned)
 Amateur (no revenue earned)

Question Two

TEAM MANAGEMENT

2.1 Do you or have you ever had Chiropractic personnel as your **team** Doctor, 1st Aid, medical or physical conditioning advisor?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.2 If 'no' to 2.1, would you consider it in the future?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.3 If yes to 2.2 above, in what capacity? _____

2.4 If yes to 2.1 above, has it been a positive or negative experience?

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Negative
<input type="checkbox"/>	Both

2.5 Please indicate which health care provider YOU would choose FIRST FOR TREATMENT if your player had each of the following conditions. (Please tick one box per condition only):

	Pharmacist	Orthopaedic Surgeon	Physio-therapist	GP	Not Sure	Chiro-practor
Appendicitis						
Arthritis						
Asthma						
Sore throat						
Fractures						
Headaches- Migraine						
Headaches- Other						
High Blood Pressure						
Muscle spasm						
Neck pain						
Osteoporosis						
Pain in your joints						
Pins and Needles/ Numbness in your arms or legs	*	*	*	*	*	*
Postural Abnormalities (e.g. Scoliosis or Hyperlordosis)	*	*	*	*	*	*
Low back pain						
Shoulder pain						
Slipped disc						
Sprains e.g.: ankle sprain						
Viral Infections (e.g. Flu)						
Whiplash injuries						

2.6 If necessary, do you ever suggest to your players they see a health professional for examination or treatment/therapy?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No (if no, skip to question 3)

2.7 Tick the practitioners that you have ever suggested a player consult:

<input type="checkbox"/>	Biokineticist	<input type="checkbox"/>	Massage Therapist
<input type="checkbox"/>	Chiropractor	<input type="checkbox"/>	Optometrist
<input type="checkbox"/>	Dermatologist	<input type="checkbox"/>	Occupational Therapist

<input type="checkbox"/>	Dietitian
<input type="checkbox"/>	General Practitioner (medical doctor)
<input type="checkbox"/>	Psychologist
<input type="checkbox"/>	Homeopath

<input type="checkbox"/>	Pharmacist
<input type="checkbox"/>	Physiotherapist
<input type="checkbox"/>	Podiatrist

2.8 Do you provide your team member with contact details of the person to whom you are referring?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.9 Do you require or request feedback from the following?

<input type="checkbox"/>	The player
<input type="checkbox"/>	Provider
<input type="checkbox"/>	Both
<input type="checkbox"/>	Neither

2.10 In your experience have you ever received feedback from any of those practitioners?
(if not applicable, tick N/A)

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.11 If you had a choice of the following practitioners, please rank the **top 3 in** order in which you would appoint them as part of your management team.

<input type="checkbox"/>	Biokineticist
<input type="checkbox"/>	Chiropractor
<input type="checkbox"/>	Dermatologist
<input type="checkbox"/>	Dietitian
<input type="checkbox"/>	General Practitioner (medical doctor)
<input type="checkbox"/>	Psychologist
<input type="checkbox"/>	Homeopath

<input type="checkbox"/>	Massage Therapist
<input type="checkbox"/>	Optometrist
<input type="checkbox"/>	Occupational Therapist
<input type="checkbox"/>	Pharmacist
<input type="checkbox"/>	Physiotherapist
<input type="checkbox"/>	Podiatrist

Question three

PERSONAL EXPERIENCE

3.1 Have **YOU** ever personally been treated by a Chiropractor?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.2 If yes, has it generally been a positive or negative experience?

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Negative
<input type="checkbox"/>	Both

Any comments regarding your experience:

3.3 Which one of the following statements best reflects your view of chiropractic?

(Please tick one box only).

<input type="checkbox"/>	I have never heard of Chiropractic before; I do not know what it is
<input type="checkbox"/>	I have heard of it before, but I am not informed enough to comment
<input type="checkbox"/>	Chiropractic does more harm than good, I am uncomfortable with it
<input type="checkbox"/>	I think it has a valuable and effective role for some conditions in the health

care system

If you have marked the first block, your participation in the questionnaire is complete.
Thank-you for your participation!

3.4 How did you become familiar with the Chiropractic Profession? (More than one answer possible)

<input type="checkbox"/>	I have been treated by a Chiropractor
<input type="checkbox"/>	My GP told me about Chiropractic
<input type="checkbox"/>	I learnt about it in my studies
<input type="checkbox"/>	I have read about chiropractic in a magazine/newspaper
<input type="checkbox"/>	From my players who have been treated by a Chiropractor
<input type="checkbox"/>	From friends or colleagues
<input type="checkbox"/>	Through chiropractors / chiropractic students at a rugby match
<input type="checkbox"/>	Through chiropractors / chiropractic students at any sports event
<input type="checkbox"/>	Through medics / first aid at a rugby match
<input type="checkbox"/>	Through the media
<input type="checkbox"/>	Other (please specify) _____

3.5 Have you had experience of Chiropractic personnel involved at a rugby match?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.6 Have you ever had interaction with Chiropractic personnel at another sports code's event (e.g.. cycling, running, swimming etc.)?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.7 If yes to either 3.5 or 3.6 above, has it in general been a positive or negative experience?

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Negative
<input type="checkbox"/>	Both

3.8 A chiropractor qualifies from his/her studies in South Africa after how many years of full time study?

<input type="checkbox"/>	Less than 1 year
<input type="checkbox"/>	1 to 3 years
<input type="checkbox"/>	4 to 5 years
<input type="checkbox"/>	6 to 7 years

3.9 The Chiropractic course includes which of the following subjects.

(please tick the subjects you consider to be applicable)

<input type="checkbox"/>	Anatomy	<input type="checkbox"/>	Physics
<input type="checkbox"/>	Chemistry	<input type="checkbox"/>	Physiology
<input type="checkbox"/>	Diagnostics	<input type="checkbox"/>	Physiotherapy modalities
<input type="checkbox"/>	Microbiology	<input type="checkbox"/>	Psychology
<input type="checkbox"/>	Pathology	<input type="checkbox"/>	Radiology (X-rays)
<input type="checkbox"/>	Pharmacology	<input type="checkbox"/>	Surgery
<input type="checkbox"/>	First Aid		

3.10 Do you have any Chiropractors practicing in your suburb?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Don't know

3.11 To your knowledge, is Chiropractic care covered by **your** medical aid?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

- I do not know
- I am not on a medical aid

3.12 To your knowledge does the Chiropractic profession in South Africa have a controlling Controlling professional body?

- Yes
- No
- I do not know

3.13 Based on your personal experience, would you ever suggest to a player he/she sees a Chiropractor?

- Yes
- No

3.14 If yes to above question, for which of the following would you recommend a Chiropractor? (more than one block may be ticked)

- For back or neck problems/pain
- For nerve, muscle or bone related conditions
- For rehabilitation
- For treatment of conditions within the extremities
(e.g.. Knee, elbow, shoulder, foot, ankle, hand or wrist)
- For a sport related injury
- For fractures
- For dislocations
- None of the above

3.15 Some modalities (types) of Chiropractic treatment include? (more than one block may be ticked)

- Adjustment or manipulation of the joints
- Massage
- Dry Needling
- Ischaemic compression
- Electro-modalities (Ultrasound, IFC)
- Ice
- Surgery
- Injection of corticosteroids
- Injection of anti-inflammatories
- Heat

If you would like the results of this study, we can contact you via e-mail when the study has been completed. Please give your e-mail address if you are interested.

e-mail address: _____

Not interested

Thank-you

KWAZULU NATAL

HIGH SCHOOL'S
RUGBY ASSOCIATION



HOËRSKOLE
RUGBYVERENIGING

24 August 2007

Dear Sir

This letter is to confirm that Mr Charlton Butt has the full support of the Kwazulu-Natal Schools Rugby Association in his research project.

Yours faithfully

Noël Ingle

NOËL INGLE

Questionnaire

Appendix E

Question 1

PERSONAL INFORMATION

1.1 Gender:

Male

Female

1.2 State your age in years:

1.3 What is your ethnicity?
(for research purposes only)

Asian

Black

Coloured

White

Indian

Other(please specify)

1.4 For how long have you been a rugby coach?

 years

1.5 On average, how many hours per week do you coach (including matches)?

 hrs/week

1.6 In what school or club? (If more than one, the predominant and secondary one)

School/Club:

Secondary school/club, if applicable, state:

1.7 Have you any qualification in rugby coaching :

No

Yes

1.8 Do you have any professional sporting, fitness or medical qualifications besides rugby coaching?

No

Yes

Please state:

1.9 What is the currently the highest team level at which you coach?

Please state:

1.10 What is the highest level at which you have coached?

School	1 st Team	
	Other	
Club	1 st Team	
	Other	
Provincial		
International		

1.11 In which of these categories do you coach?

Professional (Main income)

Semi-professional (Any revenue earned)

Amateur (no revenue earned)

Question Two

TEAM MANAGEMENT

2.1 Please indicate which health care provider YOU would choose FIRST FOR TREATMENT if your player had each of the following conditions. (Please tick one box per condition only):

	Pharma- cist	Orthopaedic Surgeon	Physio- therapist	GP	Chiro- practor	Homeo- path	Not Sure
Appendicitis							
Arthritis							
Asthma							
Sore throat							
Fractures							
Headaches- Migraine							
Headaches- Other							
High Blood Pressure							
Muscle spasm							
Neck pain							
Osteoporosis							
Pain in your joints							
Pins and Needles/ Numbness in your arms or legs							
Postural Abnormalities (e.g. Scoliosis or Hyperlordosis)							
Low back pain							
Shoulder pain							
Slipped disc							
Sprains e.g: ankle sprain							
Viral Infections (e.g. Flu)							
Whiplash injuries							

2.2 Tick the practitioners that you have ever suggested a player consult:

<input type="checkbox"/>	Biokineticist	<input type="checkbox"/>	Massage Therapist
<input type="checkbox"/>	Chiropractor	<input type="checkbox"/>	Optometrist
<input type="checkbox"/>	Dermatologist	<input type="checkbox"/>	Occupational Therapist
<input type="checkbox"/>	Dietitian	<input type="checkbox"/>	Pharmacist
<input type="checkbox"/>	General Practitioner (medical doctor)	<input type="checkbox"/>	Physiotherapist
<input type="checkbox"/>	Psychologist	<input type="checkbox"/>	Podiatrist
<input type="checkbox"/>	Homeopath		

2.3 Do you provide your team member with contact details of the person to whom you are referring?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.4 Do you require or request feedback from the following?

<input type="checkbox"/>	The player
<input type="checkbox"/>	Provider
<input type="checkbox"/>	Both
<input type="checkbox"/>	Neither

2.5 In your experience have you ever received feedback from any of those practitioners?

(if not applicable, tick N/A)

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.6 If you had a choice of the following practitioners, please rank the **top 3** in order in which you would appoint them as part of your management team.

<input type="checkbox"/>	Biokineticist	<input type="checkbox"/>	Massage Therapist
<input type="checkbox"/>	Chiropractor	<input type="checkbox"/>	Optometrist
<input type="checkbox"/>	Dermatologist	<input type="checkbox"/>	Occupational Therapist
<input type="checkbox"/>	Dietitian	<input type="checkbox"/>	Pharmacist
<input type="checkbox"/>	General Practitioner (medical doctor)	<input type="checkbox"/>	Physiotherapist
<input type="checkbox"/>	Psychologist	<input type="checkbox"/>	Podiatrist
<input type="checkbox"/>	Homeopath		

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2.7 Do you or have you ever had Chiropractic personnel as your **team** Doctor, 1st Aid, medical or

physical conditioning advisor? Yes
 No

2.8 If yes to 2.7 above, in what capacity?
 Team Doctor
 1st Aid
 Physical conditioning advisor

2.9 If 'no' to 2.7, would you consider it in the future?
 Yes
 No

2.10 If yes to 2.7 above, has it been a positive or negative experience?
 Positive
 Negative

2.11 If necessary, do you ever suggest to your players they see a health professional for examination or treatment/therapy?
 Yes
 No (if no, skip to question 3)

Question three

PERSONAL EXPERIENCE

3.1 Have **YOU** ever personally been treated by a Chiropractor?
 Yes
 No

3.2 If yes, has it generally been a positive or negative experience?
 Positive
 Negative

Any comments regarding your experience:

3.3 Which one of the following statements best reflects your view of chiropractic?
(Please tick one box only).
 I have never heard of Chiropractic before; I do not know what it is
 I have heard of it before, but I am not informed enough to comment
 Chiropractic does more harm than good, I am uncomfortable with it
 I think it has a valuable and effective role for some conditions in the health care system

**If you have marked the first block of 3.3, your participation in the questionnaire is complete.
Thank-you for your participation!**

3.4 How did you become familiar with the Chiropractic Profession? (More than one answer possible)

<input type="checkbox"/>	I have been treated by a Chiropractor
<input type="checkbox"/>	My GP told me about Chiropractic
<input type="checkbox"/>	My Homeopath told me about Chiropractic
<input type="checkbox"/>	My Biokineticist told me about Chiropractic
<input type="checkbox"/>	My Physiotherapist told me about Chiropractic
<input type="checkbox"/>	I learnt about it in my studies
<input type="checkbox"/>	I have read about chiropractic in a magazine/newspaper
<input type="checkbox"/>	From my players who have been treated by a Chiropractor
<input type="checkbox"/>	From friends or colleagues
<input type="checkbox"/>	Through chiropractors / chiropractic students at a rugby match
<input type="checkbox"/>	Through chiropractors / chiropractic students at any sports event
<input type="checkbox"/>	Through medics / first aid at a rugby match
<input type="checkbox"/>	Through the media
<input type="checkbox"/>	Other (please specify) _____

3.5 Have you had experience of Chiropractic personnel involved at a rugby match?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.6 Have you ever had interaction with Chiropractic personnel at another sports code's event (eg. cycling, running, swimming etc.)?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.7 If yes to either 3.5 or 3.6 above, has it generally been a positive or negative experience?

<input type="checkbox"/>	N/A
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Negative

3.8 A chiropractor qualifies from his/her studies in South Africa after how many years of full time study?

<input type="checkbox"/>	1 to 3 years
<input type="checkbox"/>	4 years
<input type="checkbox"/>	5 years
<input type="checkbox"/>	6 years
<input type="checkbox"/>	7 years

3.9 The Chiropractic course includes which of the following subjects.

(please tick the subjects you consider to be applicable)

<input type="checkbox"/>	Anatomy (study of the structure of the human body)	<input type="checkbox"/>	Physics
<input type="checkbox"/>	Chemistry	<input type="checkbox"/>	Physiology(study of the function of the human body)
<input type="checkbox"/>	Diagnostics	<input type="checkbox"/>	Physiotherapy modalities (e.g.therapeutic ultrasound)
<input type="checkbox"/>	Microbiology (study of germs)	<input type="checkbox"/>	Psychology
<input type="checkbox"/>	Pathology (study of disease processes)	<input type="checkbox"/>	Radiology (x-rays)
<input type="checkbox"/>	Pharmacology (study of drugs and their interactions)	<input type="checkbox"/>	Surgery
<input type="checkbox"/>	First Aid		

3.10 To your knowledge do you have any Chiropractors practising in your residential suburb?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	Don't know

3.11 To your knowledge, is Chiropractic care covered by **your** medical aid?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

<input type="checkbox"/>	I do not know
<input type="checkbox"/>	I am not on a medical aid

3.12 To your knowledge does the Chiropractic profession in South Africa have a controlling professional body?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No
<input type="checkbox"/>	I do not know

3.13 Based on your personal experience, would you ever suggest to a player he/she sees a Chiropractor?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

3.14 If yes to above question, for which of the following would you recommend a Chiropractor? (more than one block may be ticked)

<input type="checkbox"/>	For a sport related injury
<input type="checkbox"/>	For back or neck problems/pain
<input type="checkbox"/>	For chest pain
<input type="checkbox"/>	For dislocations
<input type="checkbox"/>	For fractures
<input type="checkbox"/>	For headaches
<input type="checkbox"/>	For high blood pressure
<input type="checkbox"/>	For loss of consciousness
<input type="checkbox"/>	For nerve, muscle or bone related conditions
<input type="checkbox"/>	For pain / discomfort related to colds or flu
<input type="checkbox"/>	For rehabilitation
<input type="checkbox"/>	For stomach pain
<input type="checkbox"/>	For treatment of conditions within the extremities (eg. Knee, elbow, shoulder, foot, ankle, hand or wrist)
<input type="checkbox"/>	None of the above

3.15 Some modalities (types) of Chiropractic treatment include? (more than one block may be ticked)

<input type="checkbox"/>	Adjustment or manipulation ("clicking") of the joints
<input type="checkbox"/>	Dry Needling (needling of muscle knots)
<input type="checkbox"/>	Electro-modalities (Ultrasound - use of machine and gel)
<input type="checkbox"/>	Electro-modalities (IFC - use of "tingling" pads to relax the muscle)
<input type="checkbox"/>	Heat
<input type="checkbox"/>	Ice
<input type="checkbox"/>	Injection of anti-inflammatories
<input type="checkbox"/>	Injection of corticosteroids
<input type="checkbox"/>	Ischaemic compression (pressure to knots in the muscle)
<input type="checkbox"/>	Massage
<input type="checkbox"/>	Surgery

If you would like any further information, we can contact you via e-mail when the study has been completed. Please give your e-mail address if you are interested.

e-mail address: _____
 Not interested

Thank-you

Appendix F


ETHICS CLEARANCE CERTIFICATE

Student Name	Butt Charlton Kenneth	Student No	20200908
Ethics Reference Number	FHSEC 031/07	Date of FRC Approval	22.01.2008
Research Title:	An investigation into the knowledge and perceptions of rugby coaches in the greater Durban area with regards to Chiropractic and other sports medical personnel.		

In terms of the ethical considerations for the conduct of research in the Faculty of Health Sciences, Durban University of Technology, this proposal meets with Institutional requirements and confirms the following ethical obligations:

1. The researcher has read and understood the research ethics policy and procedures as endorsed by the Durban University of Technology, has sufficiently answered all questions pertaining to ethics in the DUT 186 and agrees to comply with them.
2. The researcher will report any serious adverse events pertaining to the research to the Faculty of Health Sciences Research Ethics Committee.
3. The researcher will submit any major additions or changes to the research proposal after approval has been granted to the Faculty of Health Sciences Research Committee for consideration.
4. The researcher, with the supervisor and co-researchers will take full responsibility in ensuring that the protocol is adhered to.
5. **The following section must be completed if the research involves human participants:**

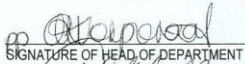
	YES	NO	N/A
❖ Provision has been made to obtain informed consent of the participants	✓		
❖ Potential psychological and physical risks have been considered and minimised			✓
❖ Provision has been made to avoid undue intrusion with regard to participants and community	✓		
❖ Rights of participants will be safe-guarded in relation to:			
- Measures for the protection of anonymity and the maintenance of Confidentiality.	✓		
- Access to research information and findings.	✓		
- Termination of involvement without compromise	✓		
- Misleading promises regarding benefits of the research			✓


SIGNATURE OF STUDENT/RESEARCHER

24.01.08
DATE


SIGNATURE OF SUPERVISOR/S

24.01.2008
DATE


SIGNATURE OF HEAD OF DEPARTMENT

24.01.08
DATE


SIGNATURE, CHAIRPERSON OF RESEARCH ETHICS COMMITTEE

6/02/08
DATE

Appendix G

The Research Ethics Committee
Chiropractic Department
DUT
23 October 2007

Re: “An investigation into the knowledge and perceptions of rugby coaches in the greater Durban area with regards to Chiropractic and other sports medical personnel” Charlton Butt.

Regarding the required response rate in the above study, the “rule of thumb” in the case of finite relatively small populations such as this one is 35%. This would make the minimum sample size $n = 77$. I feel that this is not unreasonable to achieve since this is the average response rate for surveys. In the case of the above study the majority of potential participants should be relatively well educated and have a vested interest in the outcome of the study, thus more inclined to participate. If more than 77 responses are received they will all be used in the analysis to increase the validity of the results further.

Yours sincerely



Tonya Esterhuizen
Biostatistician
College of Health Sciences
UKZN _