Knowledge, Perception and Utilisation of Chiropractic by National Olympic Committees

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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2009

I, Kerry Labuschagne, do hereby declare that my work is my own, both in conception and execution.

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Dedication

For Gray

ACKNOWLEDGEMENTS

- To Dr Charmaine Korporaal for all your help, encouragement, patience, and guidance.

- To my Mom and Terry, Maggie and Jeanie, for all your love and support. I am where I am because of all your love.

- To Charlton for believing in me.

- To Mrs Ireland, for ensuring the smooth running of the administration aspects of this study.

- To Tonya Esterhuizen, for her speedy and efficient statistical analysis and interpretation of the results.

- To the Blewitts, for your friendship, meals, love and support. You are truly amazing friends.

- And finally to Jesus Christ my lord and saviour.

ABSTRACT

Introduction:

National Olympic Committees (NOCs) select medical personnel to support their athletes at the Olympic Games. To best support athletes the knowledge, perception and utilisation of all medical professions is assumed to be high, however literature seems to indicate that this is not so.

Objective:

To determine the knowledge, perception and utilisation of Chiropractic by NOCs in order to develop a better relationship so that more athletes can benefit from Chiropractic care.

Methods:

A questionnaire was emailed to the 205 NOCs worldwide. Respective executive committee and medical commission members were asked to complete the questionnaires.

Results:

76 NOCs responded (37%), returning 27 questionnaires. 30% of the respondents were high ranking members. 93% were highly educated with a bachelor's degree or higher and 33% had represented their country as an athlete.

Both committees agreed on the importance of a post-graduate sports qualification and perceived the profession to be one of spinal care specialists. Overall knowledge of Chiropractic was poor.

A trend was observed among the medical commissions in their choice of Medical Doctors or Physiotherapists over Chiropractors and other professionals. The executive committees in contrast seemed more open-minded in their choice of professionals.

No association was found between the knowledge and perception of Chiropractic and use of Chiropractic

Conclusion:

There is confusion regarding the role and scope of practice of Chiropractic by NOCs. In order to achieve a greater level of acceptance and utilisation of Chiropractic in international sports medical teams the profession needs to clarify their role, better educate NOC members on the benefits of Chiropractic, and obtain sports specific post-graduate programmes that are recognised internationally.

Key words: Chiropractic, knowledge, NOC, Olympics, perceptions.

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ABBREVIATIONS

ANOC	Association of National Olympic Committees
ANOCA	Association of National Olympic Committees of Africa
CAM	Complementary and Alternative Medicine
EOC	The European Olympic Committees
FICS	Federation Internationale de Chiropratique du Sport
GAIFS / AGFIS	General Association of International Sports Federations
ICSSD	International Chiropractic Sports Science Diploma
IF	International Federation
IOA	International Olympic Academy
IOC	International Olympic Committee
LOCOG	Local Organising Committees of Olympic Games
NOC	National Olympic Committee
OC	Olympic Charter
OCA	Olympic Council of Asia
OCOG	Organising Committee of the Olympic Games
ONOC	Oceania National Olympic Committees
PASO	Pan-American Sports Organisation
WADA	World Anti-Doping Agency
WFC	World Federation of Chiropractic
WOA	World Olympian Association

DEFINITIONS

Adjustment: Any Chiropractic therapeutic procedure that utilises controlled force, leverage, direction, amplitude, and velocity which is directed at specific joints or anatomical regions. Chiropractors commonly use such procedures to influence joint and neurophysiological function (Bergmann and Peterson, 2002).

Chiropractic: For the purposes of this study is defined by the World Federation of Chiropractic (2007) as: “A health profession specializing in the diagnosis, treatment and prevention of disorders of the musculoskeletal system and the effects of these disorders on the function of the nervous system and general health.” This is congruent with the definition from the Chiropractic Association of South Africa (CASA, 2007).

Construct validity: Measures how accurately answers to questions reflect theoretical predictions of a particular construct (Bernard, 2000).

Face Validity: This type of validity is a subjective judgement by those involved in the research, that the instrument designed is measuring what it is supposed to measure, and whether the sample being measured is representative of the traits being measured by the instrument (Leedy, 1997) . In other words, face validity refers to whether “on the face of it” the questionnaire seemed unambiguous, valid and easily interpreted by the people taking part in the focus group (Hicks, 2004; Bernard, 2000).

FICS: FICS is the international federation that represents Chiropractic as a profession among international sports federations, (OC) WOA, Games Commissions and Games Organisers such as the OCOGs or LOCOGs (FICS, 2005; FICS, 2004).

GP: Refers to general practitioner / medical practitioner / Medical Doctor.

IF: This term is utilised in this research to denote all the sports and sports related federations that constitute the GAISF or AGFIS, a body that represents athletes within the sporting world intact (GAISF, 2007).

Manipulation: A manual procedure that involves a directed thrust to move a joint past the physiological range of motion, without exceeding the anatomical limit (Bergmann and Peterson, 2002).

Manual therapy: Procedures by which the therapists / doctors hands are directly in contact with the patient's body to treat the articulations and/or soft tissues (Bergmann and Peterson, 2002).

Mobilization: Singularly or repetitive movement / motion applied within or at the physiological range of joint movement (without imparting a thrust or impulse) with the goal of restoring joint mobility (Bergmann and Peterson, 2002).

NOC: The mission of the NOCs is to develop, promote and protect the Olympic Movement in their respective countries, in accordance with the Olympic Charter (Olympic Charter, 2007).

NOC executive committee:

Every country has a NOC executive committee, whose task is to oversee the general running of the NOC and to delegate certain duties to various subordinate committees with the NOC, including that of appointing medical staff / personnel to the various sporting teams associated with the NOC (Olympic Charter, 2007).

NOC medical commission:

One of these subordinate committees is the medical commission. One of the vital functions of medical commission's members is to make decisions regarding which medical staff they perceive to be most vital to the athletes' well being, and subsequently which practitioners they require to be on site at various competitions (Olympic Charter, 2007).

OCOGs:

The organisation of the Olympic Games is entrusted by the IOC to the NOC of the country of the host city as well as to the host city itself. The NOC shall be responsible for the establishment, for that purpose, of an Organising Committee ("OCOG") which, from the time it is constituted, reports directly to the IOC Executive Board. From the time of its constitution to the end of its liquidation, the OCOG shall conduct all its activities in accordance with the Olympic Charter, with the agreement entered into between the IOC, the NOC and the host city and with any other regulations or instructions of the IOC Executive Board (Olympic Charter, 2007).

Perception: Perception is the process of acquiring, interpreting, selecting, organizing sensory information (The Concise Oxford Dictionary, 1999); and interpreting the events related to the world within which the experience occurred (Chaffe, 1997). Thus perceptions are influenced by experiences, expectations and beliefs of the same individuals (Kehoe, 1998).

Subluxation: A motion segment, in which alignment, movement integrity and/or physiological function are altered although contact between joint surfaces remains (Leach, 1994).

Validity: "The term validity means that the measurements are correct, i.e. the instrument measures what it is intended to measure, and that it measures this correctly" (Goddard and Melville, 2001).

CHAPTER ONE : INTRODUCTION

1.1. Background to the Study

Chiropractic is a primary healthcare profession which deals with the diagnosis, treatment, and prevention of disorders of the musculoskeletal system and is recognised by the World Health Organisation as a Complementary and Alternative Medicine (WHO, 2005).

Over the past decade it has been reported that the demand for CAM practitioners, both by athletes and non-athletes has increased (Hughes and Wingard, 2006; Nichols and Harrigan, 2006; Wojcikowski, Johnson and Gobe, 2006; Krueger, McClain, McClave, and Dryden, 2004; Bodeker and Kronenberg, 2002; McFarland , Zani, Newson and Kaplan, 2002; Bodeker, 2001; Lewith, Owen and Stephens, 2001; Ernst and White, 2000; Gardiner and Worham, 2000; Verhoef and Page, 1996) possibly because Chiropractic is seen as a drug free profession (Stump and Redwood, 2002).

Together with the increasing demand for CAM practitioners is the increasing involvement of Chiropractors in the treatment of athletes, both in professional and amateur sport (Redwood and Cleveland, 2003). One of the reasons for this could be the suitability of the profession to the sporting arena, particularly considering that one of the defining features of sports medicine is the emphasis on performance (Theberge, 2008). At the Olympic level, this increased performance must comply with the World Anti-Doping Code (The Olympic Movement, 2008) and as Chiropractic is a drug-free profession the compatibility of its treatment protocol is ideally suited to Olympic athletes. Another possible reason for this could be that the onset of symptoms experienced by athletes can often be directly linked to the mechanical stresses placed on the athletes by their sporting activities (Stump and Redwood, 2002; Mootz and McCarthy, 1999). As a result of the above and despite the antagonistic past that Chiropractic has shared with allopathic medicine (Halderman and Meeker, 2002; Paris, 2000; Stranack, 1995;

Coulter, 1992) the profession has been more widely accepted and appreciated within the sporting community than anywhere else (Mootz and McCarthy, 2002).

Within the sporting world the summer and winter Olympic Games are one of the most prestigious sporting events. Every four years athletes from around the world gather at a designated place to compete against the best athletes in the world. For many an athlete, this event is the culmination of years of hard work and preparation and to win a gold medal is the ultimate achievement in their sporting career (Olympic Movement, 2008).

According to the Olympic Charter established by Pierre de Coubertin, the Olympic Movement is unique in that its goal, "is to contribute to building a peaceful and better world by educating youth through sport practised without discrimination of any kind and in the Olympic spirit, which requires mutual understanding with a spirit of friendship, solidarity and fair play." (Olympic Movement, 2008).

Chiropractic involvement at the Olympic Games has been at best inconsistent (Theberge, 2008; Nook, 2006). In this context, Chiropractors have been involved in the treatment of athletes at the Olympic Games since 1980 (Redwood and Cleveland, 2003) and the World Games since 2005 (FICS, 2006; "Handiwork" – The 26 chiropractors at the 2005 World Games, 2005). Chiropractic involvement has occurred been mainly by becoming part of a few countries' teams, and occasionally as part of the organising committee's official medical team. The main goals in this respect have been the prevention and rehabilitation of sporting injuries and performance enhancement of the healthy athlete (Theberge, 2008; Redwood and Cleveland, 2003).

In order to understand why this sporadic involvement has occurred, it is necessary to have an understanding of the composition and general organisation of sport within the Olympic Movement and particularly within and by the NOCs (Olympic Charter, 2007). The role of the NOCs can be summarized as: "development of sport at all levels, creation of educational programmes, continued training of sports administrators,

sending athletes to the Olympic Games and lastly ensuring that all the programmes carried out at a national level conform to the principles of the Olympic Charter" (Olympic Museum and Studies Center, 2002). Studies have shown that if Chiropractic is to become better represented in the international sporting arena, it would be in their best interest to ascertain how the profession is currently being perceived by the controlling powers of international sport (i.e. by the NOCs) (Langworthy and Birkelid, 2001).

Therefore this research was designed to investigate the knowledge and perceptions held by the NOCs with regards to Chiropractic, as well as the current utilisation of Chiropractors.

1.2. Aims and Objectives of the Study

The aim of the study was to determine the knowledge, perception and utilisation of Chiropractic by National Olympic Committees.

The objectives were:

1. To determine the NOCs ***executive*** committee's knowledge and perception of Chiropractic.

   - Hypothesis 1

     The NOCs executive committee knowledge and perception of Chiropractic is not congruent.

2. To determine the NOCs ***medical*** commission's knowledge and perception of Chiropractic.

   - Hypothesis 2

   The NOCs medical commission's knowledge and perception of Chiropractic is not congruent.

3. To determine the NOCs *utilisation* of Chiropractic.

4. To compare the knowledge, perception and utilisation differences between the executive committees and medical commissions of the NOCs.

   - Hypothesis 3

   The knowledge, perception and utilisation of Chiropractic held by the executive committees and that of the medical commissions is not congruent.

5. To determine any correlations between the knowledge and perception of Chiropractic and the utilisation of Chiropractic by NOC's.

   - Hypothesis 4

   No relationship exists between the knowledge and perception of Chiropractic and the utilisation of Chiropractic by NOCs.

1.3. Rationale

Chiropractic involvement in sport at a national and international level is still far behind that of other health care providers (in terms of participation). The NOCs are influential both nationally and internationally at one of the highest levels within the sporting world. They influence who is represented in the medical support teams to Olympic athletes (Olympic Museum and Studies Center, 2002). If their knowledge and perception of Chiropractic is inadequate or incorrect, then they will be less likely to take advantage of Chiropractic skills. Chiropractors could build better awareness of Chiropractic within the sporting world due to the international links between the NOCs, IFs, OCOGs and IOC. It would however be counterproductive if the members of these organisations already know and understand Chiropractic. Therefore, it is important to first establish the level of knowledge of the NOC's as well as their perception and resultant utilisation of Chiropractic.

1.4. Delimitations

It was assumed that the respondents to this study would have answered the questionnaire openly and honestly, therefore allowing the researcher the best approximation of the views and perceptions held by the members of the NOCs. This type of recruitment (email) may not represent the population fully which may lead to errors in results. It is however inevitable that any sampling process will result in a sample that is less than a perfect representation of the total population, no matter how carefully the research process is carried out (Mouton, 1996).

1.5. Conclusion

A review of the related literature will follow in chapter two, with a discussion of the research methodology employed in chapter three. In chapter four the results of the

questionnaire will be presented, followed by a discussion of these results in Chapter Five. Chapter Six concludes the research and provides recommendations for future studies.

CHAPTER TWO : LITERATURE REVIEW

2.1 Introduction

This chapter reviews and discusses some of the most recent literature available related to the research title i.e. The Knowledge, Perception and Utilisation of Chiropractic by National Olympic Committees. Firstly, the Chiropractic profession will be discussed in terms of its definition, scope of practice, growth worldwide and trends seen in utilisation in recent years. Secondly, the National Olympic Committees will be reviewed in terms of their definition, mission and role, history, structure and function, and any factors that may affect these roles and functions. Finally, knowledge and perception and their determining factors will be discussed and debated.

2.2 Chiropractic

2.2.1 Definition of Chiropractic

Chiropractic has been defined and classified by the WHO (2005) as “a healthcare profession concerned with the diagnosis, treatment, and prevention of disorders of the musculoskeletal system and the effects of these disorders on the function of the nervous system and general health.” In addition, the WHO has classified Chiropractic as a Complementary and Alternative Medicine (CAM).

2.2.2 Scope of Practice

The scope of practice of Chiropractic (Regulations in Terms of the Associated (Allied) Health Professions Act, 1982) are as follows:

"45. The following acts are acts specially pertaining to the profession of a Chiropractor:

(a) The physical examination of any person, with or without the taking, reading and interpreting of X-ray plates, for the purpose of diagnosing any physical defect, illness or deficiency in such a person.
(b) The treatment or prevention of any physical defect, illness specifically related to spinal, pelvic, spinovisceral and general neuromusculoskeletal conditions in any person by-

(i) Manipulation or adjustment;
(ii) Electrotherapy;
(iii) Exercise therapy;
(iv) Hydrotherapy
(v) Traction therapy
(vi) Thermal therapy
(vii) Vibration therapy
(viii) Immobilization therapy
(ix) Neuro-muscular reflex therapy
(x) Massage therapy
(xi) Acupuncture or acupressure therapy; or
(xii) Remedies, dietary advice or dietary supplementation."

It should be noted that the above Associated Health Professions Act (1982) is pertinent to South African Chiropractors, however it is congruent internationally (ACA, 2009; WFC, 2007).

2.2.3 Chiropractic Worldwide

The earliest recording of Chiropractic can be dated back to 1895 when David Daniel Palmer began focusing his treatment on spinal manipulation or adjustment (CASA, 2007; Chapman-Smith, 2000). Since then the profession has spread to over 42 countries worldwide (CASA, 2007).

On January 1, 2008, Italy became the newest addition to the 42 countries where Chiropractic is regulated and practiced legally. This achievement came after 17 years during which the Italian Chiropractic Association presented several proposals for legislation (Chapman-Smith, 2008; Pellisier, 2002(a); Pellisier, 2002(b)). Of the other countries where Chiropractic is practiced, official recognition varies from a fully legislated profession (e.g. the U.S.A and England) to a view of tolerance without being fully legislated (e.g. France, Greece and Hungary) to where there is a risk of persecution (e.g. South Korea) (Chapman-Smith, 2008).

In many of the countries, such as Thailand, China, Greece and Hungry, where the legal status of Chiropractic has yet to be defined/granted, there is a “tolerance” approach, and this has allowed the practice to continue as long as it does not pose any harm or danger to the people (Chapman-Smith, 2008; Chiropractic Diplomatic Corps(a), 2008).

In 2001, the WHO released its “Worldwide Review” and publication: “Legal Status of Allopathic Medicine and Complementary/Alternate Medicine”. In the publication the WHO stated: ”The World Health Organisation encourages and supports Member States to integrate allopathic and complementary/alternative medicine into national healthcare systems and to ensure their national use.” (Chiropractic Diplomatic Corps, 2008(a)). This document shows how CAM therapies, including Chiropractic, are supported by the WHO along with allopathic medicine in order to foster integration.

2.2.4 Recent Utilisation Trends

With respect to the popularity and use of Chiropractic, a study by Sherman, Cherkin, Connelly, Erro, Savetsky, Dais and Eisenberg (2004) showed that of all the CAM therapies, Chiropractic is the most often used, especially for chronic low back pain (Sherman et.al**,** 2004). There has also been an increase in the use of CAM worldwide over the past eleven years (Hughs and Wingard, 2006; Wojkicowski et al, 2006; Bodeker and Kronenberg, 2002; McFarland et al, 2002; Bodeker, 2001; Lewith et al, 2001; Ernst and White, 2000). One of the reasons for this could be because the focus of CAM (including Chiropractic) is on holistic care as combined with patient responsibility for health and wellbeing (Verhoef and Page, 1996).

As the demand for CAM practitioners has increased, so has the demand for Chiropractors worldwide. This has resulted in the formation of new Chiropractic schools outside of the United States (US). In 1989 there were 5 Chiropractic schools outside the US compared with 17 in 2000 (Chiropractic Diplomatic Corps, 2008(b); CCEI, 2005). Similarly, the number of Chiropractors in the profession has grown from 65,000 in 1989, to 81,000 in 2000 (Chiropractic Diplomatic Corps, 2008(b); CCEI, 2005).

As the Chiropractic profession has continued its growth in the healthcare sector, there has been a corresponding increase in the number of elite athletes being treated (Redwood and Cleveland, 2003). This increased involvement is more likely due to a Chiropractor's knowledge in the fields of human anatomy, physiology, biomechanics, nutrition, as well as exercise and rehabilitation (WHO, 2005) which is ideally suited to the needs of the athletes. As Chiropractic care adopts a non-drug approach to healthcare, it supports the World Anti-Doping Agency (WADA) and the athletes in complying with the strict anti-doping regulations imposed at national sport, international sport and the Olympic Games (WADA, 2008). Along with this non-drug approach to care, Chiropractic also provides an approach to the management of sporting injuries

consistent with injury prevention and enhanced performance. Not only does Chiropractic adopt a local method to their treatment (i.e. the treatment of the specifically injured area) but also a holistic whole-system method whereby areas distant to the injured site are also considered and treated. This is because it has been documented that dysfunction elsewhere can produce added stress to the already injured tissue (Redwood and Cleveland, 2003).

With all the above taken into account, an athlete under Chiropractic care should stand a better chance of being successful in qualifying in an Olympic event, making them eligible to participate at the Olympic Games. If the athlete is selected by their National Olympic Committee (NOC), they will then go on to compete at the Olympic Games (Olympic Charter, 2007). The following is an overview of the NOCs.

2.3 The National Olympic Committees

2.3.1 Definition

According to the Olympic Charter (2007), the National Olympic Committees (NOCs) can be defined as being the national constituents of the worldwide Olympic movement, and are subject to the control of the IOC.

The NOCs, in summary, are responsible for organising their people's participation in the Olympic Games; nominating cities within their respective areas as candidates for future Olympic Games; promoting the development of athletes; and training coaches and officials at a national level (Olympic Charter, 2007).

2.3.2. History

The first Olympic Games of modern times were held in Athens, Greece in 1896. This all took place under the initiative of Pierre de Coubertin who conceived Modern Olympism, and is considered the Father of the Olympic Games (Olympic Charter, 2007). Under his direction, the International Athletic Congress of Paris was held in June 1894. The

International Olympic Committee (IOC) was constituted on 23 June 1894. In 1914, the Olympic flag was presented by Pierre de Coubertin at the Paris Congress. It includes the five interlaced rings, which represent the union of the five Olympic world regions and the meeting of athletes from throughout the world at the Olympic Games (Olympic Charter, 2007).

2.3.3. Structure

The involvement of Chiropractic in sports medicine, particularly at the Olympic Games, has been at best inconsistent (Theberge, 2008; Nook, 2006). However, to understand the reason why this has occurred it is necessary to obtain a framework of the composition and general organisation of sport within the Olympic Movement (Olympic Charter, 2007:13-14): "

1. *Under the supreme authority of the International Olympic Committee, the Olympic Movement encompasses organisations, athletes and other persons who agree to be guided by the Olympic Charter. The goal of the Olympic Movement is to contribute to building a peaceful and better world by educating youth through sport practiced in accordance with Olympism and its values.*

2. *The three main constituents of the Olympic Movement are the International Olympic Committee ("IOC"), the International Sports Federations ("IFs") and the National Olympic Committees ("NOCs"). Any person or organisation belonging in any capacity whatsoever to the Olympic Movement is bound by the provisions of the Olympic Charter and shall abide by the decisions of the IOC.*

3. *In addition to its three main constituents, the Olympic Movement also encompasses the Organising Committees of the Olympic Games ("OCOGs"), the national associations, clubs and persons belonging to the IFs and NOCs, particularly the athletes, whose interests constitute a fundamental element of the Olympic Movement's action, as well as the judges, referees, coaches and*

the other sports officials and technicians. It also includes other organisations and institutions as recognised by the IOC."

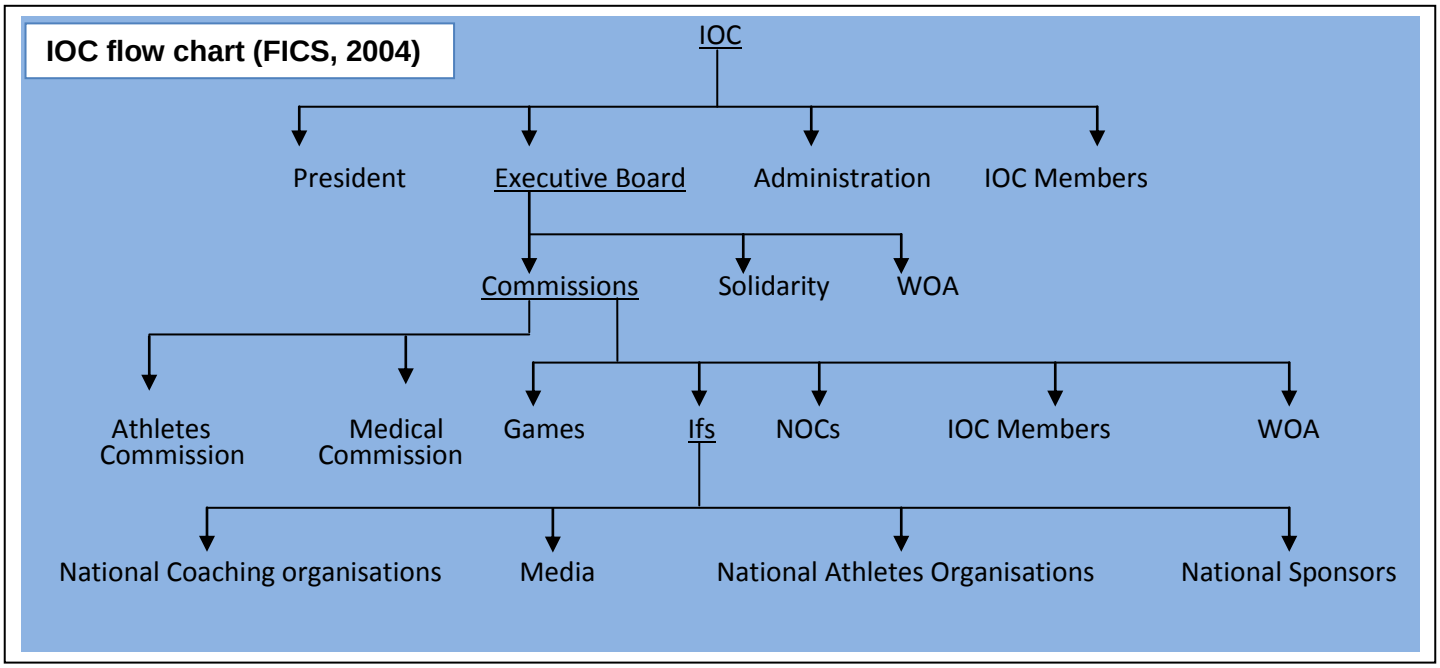

Figure 2.1: IOC Organisational Flow Chart

At least every two years the NOCs gather together in the form of the Association of National Olympic Committees (ANOC). This is done so that information and experiences may be exchanged, and in doing so consolidate their role within the Olympic Movement. In this way the ANOC helps the NOCs to prepare for their meetings with the IOC Executive Board and Olympic Congresses (National Olympic Committees, n.d.).

The ANOC is currently made up of the 205 NOCs and is split among five continental associations (See Table 2.1) (National Olympic Committees, n.d.):

- **AFRICA** : ANOCA (Association of National Olympic Committees of Africa)
- **AMERICA** : PASO (Pan American Sports Organisation)
- **ASIA** : OCA (Olympic Council of Asia)
- **EUROPE** : EOC (European Olympic Committees)
- **OCEANIA** : ONOC (Oceania National Olympic Committees)

Table 2.1: Continental distribution of NOC Associations (ANOC Table, 2008)

ontinent		Association	NOCs
	Africa	Association of National Olympic Committees of Africa	53
	America	Pan American Sports Organisation	42
	Asia	Olympic Council of Asia	44
	Europe	European Olympic Committees	49
	Oceania	Oceania National Olympic Committees	17

2.3.4. Mission, role and functions of the National Olympic Committees in Sport

The mission of the National Olympic Committees (NOCs) is to develop, promote and protect the Olympic Movement in their respective countries, in accordance with the Olympic Charter.

Their role can be summarized as: development of sport at all levels, creation of educational programmes, continued training of sports administrators, sending athletes to the Olympic Games and lastly ensuring that all the programmes carried out at a national level conform to the principles of the Olympic Charter (Olympic Charter, 2007; Olympic Museum and Studies Center, 2002).

Within the NOC structure is the executive committee and the medical commission. The executive committee is responsible for handling the running of the organisation, while the medical commission's duty is to implement the World Anti-Doping Code and all other IOC Anti-Doping Rules. It also promotes guidelines relating to the medical care and health of the athletes, as well as selecting the accompanying medical staff they perceive to be most vital to the athletes' well being (Olympic Charter, 2007). The medical staff that accompany the teams to the Olympic Games are thus exposed to the international sporting arena (Olympic Charter, 2007).

2.4. Perception

2.4.1. Definition of Perception

The word perception comes from the Latin percipere, meaning "seize, understand' the prefix per meaning "completely." In psychology and the cognitive sciences, perception is the process of acquiring, interpreting, selecting, and organizing sensory information (Atkinson, Atkinson, Smith, Bem and Nolen-Hoeksema, 2000; The Concise Oxford Dictionary, 1999; Chaffe, 1997). Therefore, it is only when it is found that a person's perception of an event is different from the perceptions of others that they are forced to examine the manner in which they select, organize and interpret the events in the world around them (Chaffe, 1997).

2.4.2. Factors Affecting Perception

The Neiss Classification, shown in the table 2.2, was adapted from Bergh and Theron (1999) and Robbins (1996) and indicates factors that influence perception.

Table 2.2: Neiss Classification Table

<table>
<tr>
<td>1 THE INDIVIDUAL FACTORS

(which in the context of this research relates to the NOC respondents):

▪ Experience.
▪ Beliefs.
▪ Motivation.
• Knowledge.
• Attitudes.
• Interests.
• Expectations.
• Values.
▪ Culture.</td>
<td>2 FACTORS RELATED TO THE OBJECT THAT IS BEING PERCEIVED

(in the context of this research this would be the Chiropractic profession):

•Development in the country.
•PR.
•Accessibility.
•Motion.
•Novelty.
•Sounds.
•Proximity.
•Background.
•Size.</td>
</tr>
<tr>
<td colspan="2">3 ENVIRONMENTAL FACTORS

(in the context of this research, these factors would constitute factors that could influence or modify the object or the individual and change perception):

• Media.
• Medical.
• Accessibility.
• Training.
• Nomenclature .
• Time.
• Work setting.
• Social setting.</td>
</tr>
</table>

2.4.2.1 Individual Factors

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

2.4.2.1.1 NOCs ***Experience*** of Chiropractic

According to the Concise Oxford Dictionary (1999) experience can be defined as:

"1. actual observation of or practical acquaintance with facts or events; and/or
2. knowledge or skill resulting from this."

This definition is supported by studies which show that a person is more likely to have knowledge about something if they have had first or second hand experience of it (Brussee, Assendelft and Breen, 2001). In other words, if a person has been treated by a Chiropractor, or has spoken to someone who has been treated by a Chiropractor, then they are more likely to have a strong perception of Chiropractic. The general public, especially the poorer communities, may have a reduced exposure to Chiropractic treatment due to the fact that Chiropractors generally operate within the private sector (CASA, 2007). Further exposure may be limited due to the poor interaction between Chiropractic and other healthcare professions. This in turn may limit referrals of the general public to Chiropractors (Dreyer, 2004; Jamison, 1995) and in turn limit personal experiences of Chiropractic care.

Support for this can be found in a study done by Brussee et al. (2001) where it was observed that a large portion of the information obtained by GPs' regarding Chiropractic came from their patients who had been treated by Chiropractors. This indicated that an influencing factor of GPs' opinions and perceptions of Chiropractic came from their patients' experiences under Chiropractic care.

Within the sporting world this first or second hand experience of Chiropractic can also be observed. Well known athletes like Montana (American Football), Navratilova (Tennis), Woods (Golf), Armstrong (Cycling), Rhodes (Cricket) and Botha (Rugby), rely on their Chiropractors and demand Chiropractic care from their medical teams (Van Zyl, 2007; Stump and Redwood, 2002). Hence, having an impact on the perception of the profession as their overt support for the profession will affect the perceptions held by their supporters worldwide and the medical teams that support them.

All the above being said, the conflicting information regarding the experience and understanding of the Chiropractic profession, and the related perception, are so varied and at times confusing (Wardwell, 1994; Coulter, 1992).

2.4.2.1.2 NOCs ***Beliefs*** regarding Chiropractic

According to Schneider (n.d.), in the field of psychology there is little agreement as to what 'beliefs' are or how they should be construed. However, he claims that beliefs are among the most primitive and central of mental constructs, and are basic to our understanding of a wide range of phenomena in psychology. Beliefs are important components of our personalities and identity. How we express our beliefs often defines us to others, and we often react to others based on our beliefs (Schneider, n.d.).

As belief is closely related to experience, it stands to reason that as a person experiences Chiropractic care, so they develop beliefs about Chiropractic (Dieussaert, Vansteenwegen and Van Assche, n.d.) In a study done by Gaumer (2006), the factors associated with patient satisfaction regarding Chiropractic care were analysed. It was found that satisfaction levels with Chiropractic care were quite high (over 83% of persons were satisfied or very satisfied). If a person/athlete believes in the effectiveness of the care they are receiving by their Chiropractor to be a positive one, then they are more

likely to have a positive perception about the profession (Langworthy and Birkelid, 2001; Langworthy and Smink, 2000). Within the context of South African rugby, Bashford (Bashford as cited in Van Zyl, 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. Athletes like Smit (Smit as cited in Van Zyl, 2007) reinforce this statement and has been quoted saying he believes much of his physical wellbeing during his career has been due to the Chiropractic care to which he has been exposed.

2.4.2.1.3 NOCs ***Motivation*** for Selecting/Not selecting Chiropractors

Motivation is the reason for behaving in a certain way or doing something (The Concise Oxford Dictionary, 1999). The NOCs role and function, as stated above, involves the selection of medical personnel for their Olympic teams (Olympic Museum and Studies Center, 2002). This role places a responsibility on the NOC committees to stay abreast of current trends, ideas and medical science in the management of their teams, so as to minimise the risk of injuries and provide the best possible care to their injured athletes (Noakes and du Plessis, 1996).

According to the Olympic Movement Medical Code (2006:5):

"***5.4.*** *Athletes have the right to choose and change their own physician, health care provider or health care establishment, provided that this is compatible with the functioning of the health care system."*

This means that any athlete who wishes to have a specific practitioner treat them while they compete as an Olympic athlete has the right to request that one is provided.

There are a number of channels through which an athlete can make their request. Three channels are:

1. IOC Athletes Commission (2009).
   This commission was established in 1981, and serves as a link between the athletes (who are currently still competitive) and the IOC. Through this commission Olympic athletes can express their point of view on a variety of subjects with the purpose of ensuring that ultimately the athletes' needs are met. This commission takes part in meetings of other IOC commissions as well as works in liaison with the OCOG.

2. Through the World Olympians Association (WOA) (2008).
   Through this association athletes can make suggestions and requests. These are then forwarded to the appropriate NOC/ IOC/ IF executive board.

3. Directly to their respective NOC / IF executive board through the Secretary General.

Based on the above Olympic Movement Medical Code (2006:5) rule and the available communication channels indicated above, one can see that provisions have been made for athletes to make requests and suggestions regarding their medical care. It is therefore vital to understand the NOCs motivation for selecting their medical representatives, especially if they are receiving requests for certain practitioners (namely Chiropractors).

2.4.2.1.4 NOCs ***Knowledge*** regarding Chiropractic

Knowledge is defined in the Concise Oxford Dictionary (1999) as an awareness or familiarity; a person's range of information; understanding (of the subject); information; and sum of what is known.

Previous research conducted by students at the Durban University of Technology assessing knowledge and perceptions of Chiropractic by other professions showed a lack of knowledge of Chiropractic, and there was a perception of Chiropractors as back specialists (Butt (2008), Cloete (2008), Kew (2006), Louw (2005), Hunter (2004) and Rubens (1996)). The studies mentioned above were of: rugby coaches by Butt (2008); International Federations by Cloete (2008); personal trainers by Kew (2006), GPs by Louw (2005), Physiotherapists by Hunter (2004), and Neurologists, Neurosurgeons and Orthopaedic Surgeons by Rubens (1996). This research indicated a relationship between the perception of an object with the knowledge that an individual has of that object (Kew, 2006). The findings of Butt (2008), Cloete (2008), Kew (2006), Louw (2005), Hunter (2004) and Rubens (1996) are supported with that of Van As (2005) who drew similar conclusions from school guidance counsellors.

It can therefore be assumed that a high level of ignorance among NOCs may be the basis for a perception that does not reflect the reality of the Chiropractic profession at this time.

2.4.2.2 Object Related Factors

Secondly, the following section looks at the findings apparent with respect to the ***object related factors*** that influence perception:

2.4.2.2.1 ***Development*** of Chiropractic in the NOCs country

Development of Chiropractic varies from country to country. As stated previously (section 2.2.3), the profession is practiced legally in 42 countries (Chiropractic Diplomatic Corps, 2008(a); CASA, 2007). The profession, founded in the United States in 1895, has spread worldwide and has been

regulated in the United States and Canada since the 1920's, in Australia since the late 1940's, in New Zealand and South Africa since the 1960's, and more recently in parts of Asia, Europe and Latin America (Chapman-Smith, 2000).

It has been observed that *"Professional development is closely tied to the Educational Opportunities available to any given country or region."* (Chiropractic Diplomatic Corps, 2008(b)). Below, table 2.3 shows the current countries where Chiropractic schools are available (Tetrault, 2008).

From Table 2.3 below, it can be seen that the Chiropractic profession is growing worldwide. There are however many obstacles to the successful establishment and growth of these schools. Some problems are curriculum designs, cost of education, partnering with established institutions (which have had a notifiably profound influence on the success and growth of the program) (Tetrault, 2008), as well as governmental legislature and restrictions (as discussed previously in section 2.2.3) (Chapman-Smith, 2008; Chiropractic Diplomatic Corps, 2008(a)).

If a country does not have a Chiropractic school, then the country's citizens are required to go overseas in order to qualify as a Chiropractor. This influences a person's knowledge and perception of the profession due to the fact that they are not exposed to it, as well as making it difficult for the profession to establish itself and compete with mainstream medicine (Rattan, 2007; Brantingham and Snyder, 1999). In this context, the likelihood of the NOC being able to understand Chiropractic becomes diminished.

Table 2.3: Current Chiropractic Schools Worldwide (Tetrault, 2008)

Established Countries:		
USA	17 Schools	Doctor of Chiropractic Degree (DC)
Australia	3 Schools	Bachelor of Science (BSc) Degree
Canada	2 Schools	DC Degree
Advancing Countries:		
England	3 Schools	BSc in Chiropractic Degree
South Africa	2 Schools	Masters in Chiropractic Degree
New Zealand	1 School	DC
Denmark	1 School	Masters in Clinical Bio-Mechanics Degree
Pioneer Countries:		
Brazil	2 Schools	DC Degree
Costa Rica	1 School	DC Degree
France	1 School	DC Degree
Japan	1 School	DC Degree
Korea	1 School	DC Degree
Mexico	1 School	DC Degree
Hopefuls: Argentina, Iran ,Italy, Malaysia, Peru, Philippines, Portugal, Spain, Sweden[1], Taiwan, Thailand.		
Eventuals: Austria, Belgium, Chile, China, Czech Republic, Egypt, Finland, Germany, Greece, Hong Kong, India, Israel, Morocco, Netherlands, Norway, Poland, Russia, Saudi Arabia, Singapore, Switzerland, Turkey, Venezuela		

[1] Yellow highlight: It should be noted that Spain and Sweden now have Chiropractic schools functioning (CCEI, 2005), even though according to Table 2.3 they are viewed as “Hopefuls”.

Chiropractic ***Public Relations***

Research has shown that public relations appear to be an area of weakness with regards to Chiropractic (Rattan, 2007). In Rattan's study of Grade 12 learners' perception of Chiropractic, she stated that one of the possible reasons for the poor perception and knowledge of Chiropractic is the general lack of public knowledge of the fairly strict entry requirements for the course, the content and subject matter and the duration of study (6 to 7 years) (Rattan, 2007). Butt (2008) supported this finding, and found that among rugby coaches in Durban, South Africa, there was a belief that one of the reasons there was a negative perception about Chiropractic in rugby was because of the ignorance and a lack of public education of Chiropractic. In his book, *Celebrity Chiropractic*, Van Zyl (2007) commented that the Chiropractors are to blame for this lack of public knowledge and suggests the profession has failed to adequately educate the public in South Africa.

The confusion regarding the identity of the profession and the role it plays in healthcare was highlighted by the WFC in their Identity Consultation of 2005 where the task force found that there is confusion among the Chiropractic profession regarding their role in the health care system (Carey, Clum and Dixon, 2005).

2.4.2.2.2 ***Accessibility*** of Chiropractic

Worldwide, Chiropractic is at present inaccessible to the majority of people. It is estimated that most people (76%) only see a ratio of one Chiropractor to every 100 000 to ten million people (Chiropractic Diplomatic Corps, 2008(a)). Therefore difficulty in consulting a Chiropractor in many areas might well stem from shortages in these areas (Gaumer, Koren and Gemmen, 2002). This is

particularly true for rural areas as most Chiropractors in South Africa are urban based (CASA, 2007).

Even if there are sufficient Chiropractors, Stevens (2007) found that access barriers like transportation, cost, insurance, and belief systems played a large role in whether Chiropractic care was utilised or not. This was supported by Rattan (2007) who found that 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.

2.4.2.3 Environmental Factors

Thirdly, the following section looks at the findings apparent with respect to the ***environmental factors*** that influence perception:

2.4.2.3.1 *Media*

According to Chapman-Smith (2000), perceptions and attitudes of Chiropractic are often strongly influenced by the media (television, radio, newspapers, magazines) which have *"generally been unhelpful to the Chiropractic profession".* He claims that this is significantly due to Associated Press, Reuters, major daily newspapers and radio/television networks predominantly promoting allopathic medicine. In contrast, the media are very slow to generate favourable mass media regarding the benefits and positive outcomes of Chiropractic. However, medical sources are quick to comment on the shortcomings in the effectiveness and safety of Chiropractic care (Chapman-Smith, 2000).

As mentioned earlier (sections 1.1 and 2.2), numerous studies over the past decade have indicated a change in trends regarding the attitudes towards

CAM, Chiropractic included (Hughs and Wingard, 2006; Wojkicowski et al, 2006; Bodeker and Kronenberg, 2002; McFarland et al, 2002; Bodeker, 2001; Lewith et al, 2001; Ernst, 2000). This may be partly due to the increased support for the principals of evidence-based medicine in the CAM field itself (van Tulder, Furland and Gagnier, 2005), or CAM's holistic approach to healthcare, together with its strong focus on patient responsibility (Verhoef and Page, 1996). Whatever the reasons for this shift, it will undoubtedly not go unnoticed by the media, and as demand by the public for more CAM friendly news grows, so one can expect to see more Chiropractic and other CAM therapies being presented by the media.

2.4.2.3.2 ***Medical***

Studies have found that Chiropractic has had an antagonistic relationship with the medical establishment, and over the last hundred years has come under repeated attack (Chapman-Smith, 2000; Wardwell, 1994 and Coulter, 1992). Until recently there has been little evidence to support the claims made by Chiropractic, and it has been criticized and condemned by allopathic medicine and regarded with suspicion (Chapman-Smith, 2000; Curtis and Bove, 1992). It is therefore possible that any negative perceptions or low level of knowledge of Chiropractic held by NOC members will indeed be influenced by this "propaganda" which aims to "discredit and destroy Chiropractic" (CASA, 2007; Rattan 2007).

But, studies have found that trends are changing favourably towards the acceptance of Chiropractic; and over the past 30 years Chiropractic has gained widespread social acceptance as an alternative form of healthcare (Coulter, 1992). This has been achieved by Chiropractic related research being conducted, many of which have been published in peer reviewed journals and other publications (Langworthy and Smink, 2000). This has

helped to strengthen the claims made by the profession by gaining scientific evidence in support of Chiropractic (Brantingham and Snyder, 1999). Having said this, it is possible that many of the original perceptions do still exist, as these publications and journals are probably not widely read by public or NOC members, but the converse may also be true.

2.4.2.3.3 ***Training***

Research has found that health professionals will often specialise in a sports specific programme in order to enhance their portfolio and offer a better service to the athletes that they are training (Theberge, 2008). For example, a Medical Doctor will specialise in Sports Medicine (Theberge, 2008). Postgraduate sports-injury training can set apart two equally competent practitioners, and be a deciding factor on their inclusion in medical teams who offer treatment to athletes at competitions (Theberge, 2008). Stump and Redwood (2002) found that 45% of NFL coaches believed that Chiropractic training was sufficient when it came to the treatment and diagnosis of spinal problems. However, 68% (of NFL coaches) believed that in order to treat athletes, Chiropractors needed to have completed some sort of postgraduate sports-injury training over and above their standard training. In this manner Chiropractors can complete the ICSSD (FICS 2008). This diploma is the minimum requirement for a Chiropractor to participate as a FICS Chiropractor at an international sporting event.

2.4.2.3.4 Nomenclature

Nomenclature can be defined as a person's or community's system of names for things; the terminology of a science; or systematic naming (The Concise Oxford Dictionary, 1999). According to Gatterman (1995), issues regarding Chiropractic terminology have divided the profession for over a hundred

years. For example, Chiropractors have disagreed over the meaning of common terms, including subluxation, adjustment and manipulation (Gatterman, 1995). According to Lawrence (1988) this has hampered the overall development of the Chiropractic profession. He noted that one of the greatest challenges was for Chiropractors to learn to communicate with one another. Sandoz (1989) supported this by saying that the semantic confusion had caused interdisciplinary misunderstanding and served to maintain longstanding differences within the profession. As a result of this internal disagreement, the public cannot be expected to formulate an accurate perception of Chiropractic (Wardwell, 1994; Coulter, 1992).

Therefore, to address these problems a concerted effort has been made to standardise nomenclature (Gatterman, 1995; Gatterman and Hansen, 1994). Upon the agreement of clearly defined terms the Chiropractic establishment is seen to move forward into maturity, resolving the rifts within the profession (Gatterman, 1995) and hence fostering a unified platform for the public to be able to gather accurate information about Chiropractic (Carey et al, 2005).

2.5 Conclusion

Based on the above literature it can be see that there are many factors that may have an influence on the NOCs knowledge, perception and utilisation of Chiropractic. The following chapter therefore will lay out the methodology utilised throughout this research.

CHAPTER THREE : METHODOLOGY

3.1 Introduction

This chapter covers the methodology utilised throughout the research process. This includes the study design and type; the sampling procedure; inclusion and exclusion criteria; procedure; and measurement tools. It also includes the focus group and pilot study; the questionnaire formation; the measurement frequency and statistical analysis of the results.

3.2 Study Type and Design

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 developed from the review of previously published (Louw, 2006) and unpublished works (Naidoo, 2008; Rattan, 2007; Kew, 2006; Van As, 2005; Hunter, 2004; Langworthy and Birkelid, 2001; Rubens, 1996).

Therefore this study was an attitudinal survey, quantitative in nature, and made use of a structured questionnaire to collect data (Wisker, 2001). A descriptive type design was used to collect the information to establish the features of the NOC with respect to their perception, knowledge and utilisation of Chiropractic (Dyer, 1997).

3.3 Sampling procedure

a. Sample Size:

A questionnaire was sent to a member of both the executive committee and the medical commission of each NOC. Since there are 205 NOC's recognised by the International Olympic Committee (National Olympic Committees n.d), this meant there was a

maximum sample size of 410. This was under the assumption that all the NOCs had an executive committee as well as a medical commission.

The minimum sample size was set at 30% (i.e. 30% of 410 = 123) for all questionnaires, irrespective of whether the returns were from the medical or executive commissions.

It was however noted that not all NOCs would have had a medical commission due to the small size of the NOC. In the case when a questionnaire was returned *only* from the executive committee, it was assumed that either that NOC did not have a medical commission, or that the medical commission for that NOC chose not to respond to the questionnaire. The total sample size was amended accordingly during and after the data collection.

b. Allocation :

One group, although comparisons were made between subsets of data (e.g. one for the executive committees' response, and one for the medical commissions' response, which were compared).

c. Method:

The secretary of each NOC was emailed a questionnaire, letter of information and consent form, and they were then asked to distribute / forward it on via electronic mail to each of the committee members. Therefore in terms of the sample, a total sample selection was utilised (Mouton, 1996).

In terms of the method of allocation to the group (medical or executive) this was through sample self selection or opportunity sampling, where the respondents chose to respond by returning the completed questionnaire (Mouton, 1996).

3.4 Inclusion and Exclusion Criteria

a. Inclusion criteria:

Respondents had to be members of the National Olympic Committee (NOC) who:

- had to be one of the 205 NOC's recognised by the International Olympic Committee (IOC) (National Olympic Committees n.d).

- conversed in either English or French as these are the official languages of the IOC. (National Olympic Committees n.d).

  As the IOC had these two languages as their official languages the English questionnaire (Appendix C-2) for this study was also translated into French (Appendix J). This was compiled in order to improve the response rates. However, it is acknowledged that these two questionnaires did not actually measure the same construct (even after translation and back translation processes (Guillemin, Bombardier and Beaton, 1993). This is supported by Scollen and Scollen (1995), who indicated that it is possible that 'meaning' is not only determined by words and phrases, but also by the interpretation by others. So even if words were translated accurately, the meaning of a particular phrase or the combination thereof may become unclear to different cultures even when the same words are used (Scollen and Scollen, 1995). This problem is highlighted by Baynham (1995) who stated that even to an English speaker, words taken out of context could easily lose their meaning or even have a completely different meaning.

Respondents of the National Olympic Committees (NOC):

- who completed the questionnaire sent to the NOC's executive committee had to be a member of the NOC's executive committee.
- and / or those who completed the questionnaire sent to the NOC's medical commission had to be a member of the NOC's medical commission.
- had to give their informed consent (Appendix B).

Questionnaires

- The questionnaires had to be returned within the specified time period (i.e. 8 weeks). A reminder was sent at 2 week intervals to NOC's who had not yet returned their questionnaires (i.e. at 2, 4 and 6 weeks).

b. Exclusion criteria:

Did not meet the inclusion criteria above.

3.5 Procedure

1. The NOC secretary received, via electronic mail, the questionnaires (Appendix C-2 and Appendix J), along with a Letter of Information about the study (Appendix A) and an Informed Consent Form (Appendix B). She/he would then forward them on to each of the respective NOC respondents (i.e. a member of the executive committee and a member of the medical commission).
2. The NOC respondents then received, via electronic mail, the questionnaire (Appendix C-2 and Appendix J); along with a Letter of Information about the study (Appendix A) and an Informed Consent Form (Appendix B).
3. An 8 week time lapse was allowed for the return of the completed questionnaires, with reminders being sent at 2 week intervals (i.e. at 2, 4 and 6 weeks).

4. Completed questionnaires were returned to the Department Research Administrator, who was a neutral third party (Appendix I), either by electronic mail or fax.
5. The NOC respondents were asked to return the signed Informed Consent Form via fax – directed to the Department Research Administrator (DRA) at +27 (0) 31 2023632.
6. The DRA then ticked off the names on the questionnaires against the list of potential respondents so that a response rate could be determined.
7. The DRA then printed out the completed questionnaires for use by the researcher, but first deleted the names of the respondents, so to retain their anonymity. The hard copy was then stored in a locked filing cabinet.
8. Where questionnaires were not returned after 8 weeks, the respondent in question was considered as "not participating" in the study.
9. Data analysis then took place.

3.6 Questionnaire Background and Design

3.6.1 Measurement tool:

This was by means of a structured questionnaire.

The researcher reviewed similar perception-related questionnaires, which were completed both locally and internationally, to determine what the outcomes of the research were so as to identify areas in which questions should be developed (Naidoo, 2008; Rattan, 2007; Kew, 2006; Louw, 2005; Van As, 2005; Hunter, 2004; Langworthy and Birkelid, 2001; Rubens, 1996). Questions (Appendix D) were then developed with the aim of specifically phrasing and contextualising questions in such a manner as to obtain information regarding the NOC's knowledge, perception and utilisation of Chiropractic. The questionnaire was then compiled, which was presented to a selected Focus Group for review and discussion.

3.6.2 Focus Group

The reason for having had a Focus Group was to stimulate the group members thinking and encourage them to develop ideas about the topic(s) surrounding the research (Salant and Dillman, 1994). This enabled members of the Focus Group to critically assess the relevance of questions presented in the questionnaire (Appendix D) as well as to add to, delete from or modify for clarity, the questions presented. The Focus Group was then also able to contextualise the questionnaire (Salant and Dillman, 1994) so to enhance its face validity (Bernard 2000). In this context, face validity referred to whether “on the face of it” the questionnaire seemed unambiguous, valid and easily interpreted by the people taking part in the Focus Group (Hicks, 2004; Bernard, 2000). Validity constructs such as face validity and construct validity (see definitions) were achieved by ensuring that the individuals (as indicated below) in the Focus Group were representative of the specific areas of expertise related to the research to be conducted as well as the process in which the Focus Group was conducted (Bernard, 2000; Mouton, 1996).

The Focus Group in this study consisted of the following:

- The researcher.
- The research supervisor, who had guided the researcher through the research process and who was a member of the International Federation of Chiropractic in Sports (FICS).
- An Australian Chiropractor who was also a member of FICS, and who was able to provide information about the federations and National Olympic Committees and how they operate, as well as give input from an international perspective.
- A provincial swimming coach, who was able to assist with information regarding medical treatment of athletes.
- A member of the Glenwood Rugby Board, who assisted with information regarding selection of sports medical teams.

- A Physiotherapist who was involved in the treatment of professional sports people.
- A local Chiropractor.
- Two Chiropractic students who were conducting similar perception-based questionnaires.

Before commencing, each respondent read the Letter of Information (Appendix G) and signed the Confidentiality Statement (Appendix F), Code of Conduct Statement (Appendix E) and Informed Consent Form (Appendix H). The questionnaire (Appendix D) was distributed to respondents and each question in the questionnaire was then discussed individually amongst the group.

The changes made to the questionnaire included inserting more sports specific questions (viz. the ranking of various health care practitioners relative to one another within the NOCs sports medical team), and those relating specifically to Chiropractic treatment of athletes. Irrelevant questions and those which did not contribute directly to the purposes of the study (viz. to determine the NOCs knowledge, perception and utilisation of Chiropractic), were omitted.

The specific changes made to the questionnaire (Appendix D) were as follows:
Section A:

- Rephrasing of question 1 (Q1) to be more specific.
- Q5 : replaced “competed in a sport/s at an international level” with “represent your country at an international level”
- Q5.2 and Q5.3 were removed. Instead Q5b was added: “If YES, list the events and year of competition.”

Section B: was completely omitted. This was due to issues that are demographically related to Chiropractic education e.g. duration of study and subjects covered, as these vary from country to country.

Section C:

- Q15: was omitted
- Q17: was reworded to “If yes, what has been your experience” and added as a part b to the question “Have you ever been treated by a Chiropractor?”
- Q18: Of the disorders listed the following were omitted : attention deficit disorder, appendicitis, arthritis, asthma, colic, chronic visceral disorders, dysmenorrhoea, meningitis, neck and shoulder pain, nocturnal enuresis, osteoporosis, pregnant females with low back pain, stress related disorders.

  Cervicogenic headaches, non-organic/migraine headaches and tension headaches were grouped together as “headaches”.

  Conditions that were added to the list were: rotator cuff tendonitis, joint instability/laxity, overuse injuries e.g. lateral epicondylitis, patellar tracking syndrome, muscle strains, recurrent dislocations (e.g. shoulder), fractures, impingement syndromes, patellar tendonitis, adhesive capsulitis, ligament injury and general muscle stiffness.

Section D:

- Part 2 of Q19 was reworded from “If yes, what feedback have you received from them regarding their experience” to

  “If YES, when?

  - Any time, Chiropractors are always available.
  - During Competition, when Chiropractors are provided.
  - On their own time, and without the support or knowledge of the medical team.

- Q20: Was reworded from

  "What do you believe to be the most important with respect to techniques/modalities required by a health care provider taking care of elite athletes (tick)"

  to

  "Which of the following techniques / modalities should be provided by the health care practitioner taking care of your Olympic athletes?"

  The following *techniques/modalities* listed were removed: acupuncture, mobilization, neurological examination, physical examination, traction.

  Interferential therapy, laser, low frequency electrotherapy, TENS, ultra short wave, ultrasound and ultraviolet light therapy were represented under one option, "Electro-modalities".

  Techniques/modalities that were added to the list were: Fracture reduction, prescription of drugs and injections, psychology, strapping and suturing.

- Q21: Was reworded from

  "Which of the following health care providers do your National Olympic Teams require to be present at major sporting events for use by your athletes (tick from list)"

  To

  "Which of the following health care providers are currently part of your Olympic medical team? (minimum requirements for competition) Please tick"

  "GP" was replaced with "Medical Doctor".

  Paediatrician, Paramedic and Sports Physician were removed.

  Dietician, Massage therapist, Nurse, Personal trainer, Pharmacist, Plastic Surgeon and Psychologist were added to the list.

- Q22 and Q23: removed from the questionnaire.

Section E:

Removed from the questionnaire.

The pre-pilot questionnaire was then developed (Appendix C-1).

3.6.3. The Pilot Study

After the Focus Group was held, the changes suggested to the questionnaire were implemented and thereafter the questionnaire was completed by 5 people involved in sports organisations in the Durban area. The purpose of the Pilot Study was to ensure that the following questions could be answered efficiently (Fink and Kosecoff, 1985):

- Are certain questions in the questionnaire redundant or misleading?
- Are the questions appropriate for the individuals who participated in the survey?
- Did the information that the researcher collect enable him/her to use the survey forms properly?
- Are the procedures standardized?
- How consistent was the information obtained by the survey?
- How accurate was the information obtained by the survey?

Suggested changes by the pilot study were:

1. To add another column for the option “Don’t Know” to the table in question 7: “Which health care practitioner would your federation nominate for athletes to consult if they suffered from each of the following conditions: (choose from Biokineticist, Chiropractor, Physiotherapist, Medical Practitioner, Personal Trainer, Pharmacist or Homeopath)”.
2. Remove the duplication of modalities in question 9.

The changes were then implemented.

3.6.4 Final Questionnaire

As a result of the preceding processes the final questionnaire was developed (Appendix C-2) and consisted of four sections:

A: questions (1-6) regarding the respondent's demographic details and personal data.

B: questions (7-10) regarding the NOCs use and perception of various health care practitioners, including Chiropractors.

C: questions (11-14) specifically focusing on the NOCs current and future utilisation of Chiropractors.

D: the respondent's personal experience with and knowledge of Chiropractic and comments (questions 15 and 16).

The final questionnaire (Appendix C-2) was then translated into French (Appendix J) and back translated as requested through the Faculty Research and Ethics Committee and Departmental Research Committee. This was to increase the likelihood that the questionnaires collected the same data (Scollen and Scollen, 1995).

The questionnaire had the headings removed prior to sending them out to the respondents so as to decrease questionnaire structure and decrease respondents' responses being biased by the inherent structure that headings provide (Bernard, 2000).

When validity had been met by making the above corrections (section 3.6.2 and 3.6.3), the questionnaire was mailed electronically to each of the 205 NOC secretaries, who then forwarded them on to each of the respective NOC respondents, as per the procedures in the "procedure" above (Section 3.5)

3.7 Measurement frequency

Three reminders were sent within an 8 week period (at 2, 4 and 6 weeks).

3.8 Data Analysis

3.8.1 Statistical Analysis and Methodology

SPSS version 15.0 (SPSS Inc., Chicago, Illinois, USA) was used to analyse the data. A p value <0.05 was considered as statistically significant. Intergroup and overall descriptive analyses made use of frequency tables and bar charts reporting percentages. Comparisons of categorical variables between groups were made using Pearson's chi square test or Fisher's exact test where appropriate. Median rankings of the various professions were compared between the two groups using Mann-Whitney tests, and between more than two groups using the Kruskal-Wallis test.

CHAPTER 4 : RESULTS

4.1 Introduction

The following chapter covers the results of the study as well as a brief discussion of the results. A more comprehensive discussion of the results will follow in Chapter Five.

4.2 Data

The data sources used to compile this chapter were from both primary and secondary sources of information.

4.2.1 Primary Data

Primary data was collected from the respondents in the form of their responses to the questions in the questionnaire (Appendix C-2). It also includes the data obtained from the questionnaires once the statistical analysis had been completed.

4.2.2 Secondary Data

Secondary data refers to the data acquired from the literature, personal communication, journals, books and Internet that was used to construct arguments and hypotheses and with which to compare the results of the study (Hinton, 2001; Campbell and Machin, 1999; Tropper, 1998; Wright, 1997; Bland, 1996; Swinscow, 1996).

4.2.3 Abbreviations Pertinent to the Chapter

- "p" refers to the p-value, which is of statistical significance (Hinton, 2001; Campbell and Machin, 1999; Wright, 1997; Bland, 1996; Swinscow, 1996).
- "n" refers to the sample size. This can be defined as *"A subset of the population"* (Tropper, 1998).
- "%" percentage.
- "<" refers to a figure "less than" the reported figure.
- "=" implies "equals to".

4.3 Statistical Analysis

4.3.1 Null Hypothesis Testing

A research hypothesis can be defined as a supposition made *as a starting point for further investigation; or a proposition made as a basis for reasoning, without the assumption of its truth* (The Concise Oxford Dictionary, 1999; Mouton, 1996). When a researcher is designing a research project, they formulate a hypothesis and then try to test it and prove/disprove similarities between the research categories. When it is generally assumed that no difference exists between the research categories it is termed the "null hypothesis" (The Concise Oxford Dictionary, 1999). In its simplest form the research hypothesis (alternative hypothesis) assumes there is a difference between the research categories, while the null hypothesis assumes they are the same (Hinton, 2001; Campbell and Machin, 1999; Tropper, 1998; Bland, 1996).

4.3.2 Significance of the p-value

The p-value is an indication of the reliability of the results obtained (Departamento Geofisica, 2008; Campbell and Machin, 1999). According to Brownlee (1960) "*the value of the p-value represents a decreasing index of the reliability of a result*". In other words, the *p-value* is the probability of observing the given sample result under the assumption that the null hypothesis is true (Statsoft, 2008). The larger the p-value, the less there is a tendency to believe that the relationship between the variables in the research sample is representative of the larger population. If however, the p-value is small, then there is a tendency to view the results as statistically significant (Departamento Geofisica, 2008; Campbell and Machin, 1999).

For example, if the p-value is set at 0.05 then the significance level is 5%, and the chance of incorrectly rejecting the null hypothesis when it is actually true is 5%. If the researcher wishes to have more "protection" against error, then they choose a lower p-value, e.g. 0.01 (Departamento Geofisica, 2008; Hinton, 2001; Campbell and Machin, 1999; Wright, 1997; Bland, 1996; Swinscow, 1996).

The p-value is usually selected before the collection of data, and is usually set as p=0.05 or p=0.01. This then renders a significant p-value level. (Departamento Geofisica, 2008; Hinton, 2001; Campbell and Machin, 1999; Wright, 1997; Bland, 1996; Swinscow, 1996). In the instance of this study, the p-value was set at p=0.05, though cognizance was given at p=0.01 if the results were close or multiple significances were found.

4.4 Response Rate

At the time that the research proposal was approved, there were 205 NOCs worldwide (National Olympic Committees, n.d). A questionnaire was emailed to the secretary of each NOC, who then forwarded a copy to a member of both the medical commission and the executive committee. This resulted in a total of 410 ***maximum possible*** questionnaires. However, it was found that not all NOCs had a medical commission due to the small size of the NOC. In the case when a questionnaire was returned only from the executive committee, it was therefore assumed that either the NOC did not have a medical commission or that the medical commission for that NOC chose not to respond to the questionnaire.

Hence, a ***minimum possible*** number of questionnaires that could have been returned was 205 (i.e. one from each NOC).

Of the 205 NOCs' emailed/ telephoned/ faxed:

- 76 NOCs responded to the study (37%);
- 10 NOCs (5%) were not contactable (i.e. email boxes were full, email addresses were incorrect, telephone numbers inaccessable);
- 15 NOCs' (7%) first person of contact did not speak any English / French when telephoned;
- 104 NOCs (51%) - although contact was made by email/ telephone/ fax - did not send any response to indicate they did not wish to participate in the study, and no questionnaires were returned from them.

Of the 76 responding NOCs:

- 26 NOCs returned questionnaires (34%[2]) (Only 1 country returned 2 questionnaires).
- 50 NOCs (66%) chose *not* to participate in the study, i.e. they did not return any questionnaires, but did respond via email / fax / verbally indicating this.

Twenty seven questionnaires in total were returned (13%[3]). Of the 27 questionnaires, 15 of the responses came from the executive committee (56%) and 12 from the medical commission (44%). The statistics therefore were based on the 27 valid responses (Figure 4.1).

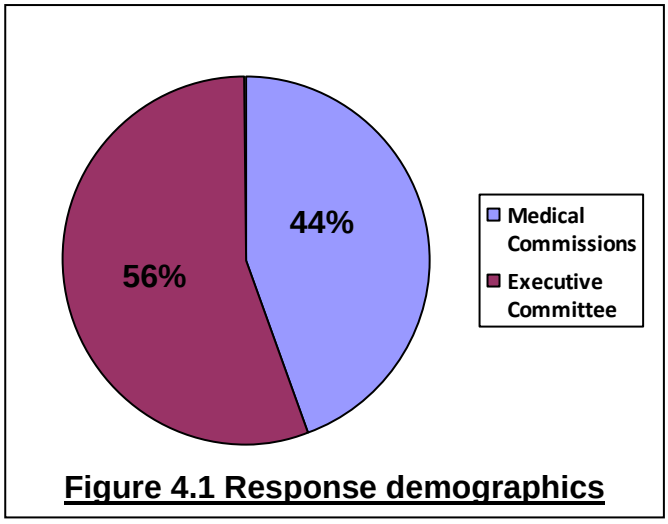

Figure 4.1 Response demographics

4.4.1 Problems in the data collection process

There were some problems that arose during the data collection that may have significantly affected the response rate. They are listed as follows:

1. Due to unforeseen circumstances, the data collection took place in an Olympic year. This was not ideal because this is an extremely busy time for the NOC committee members. Many of the NOC representatives are, during this period, travelling a great deal with regards to all the Olympic preparation meetings. The Summer Olympic Games were held in August 2008. During

[2] (26/76) x 100=34%
[3] (27/205) x100=13%: this is based on one questionnaire being returned by each of the NOC's.

the six month period over the games (May through October) no one was willing to participate in the study, no correspondence via email was received, and no one was reachable by telephone.

2. Language barriers were a problem. This was despite the fact that the NOCs were required to speak one of the two IOC official languages (i.e. English or French).

3. Incorrect email addresses; full email boxes and automated answering machines (e.g. USA NOC) made it very difficult to get in direct / personal contact with anyone.

4. In many cases, email accounts were not checked frequently enough/ or were incorrect. When the first follow up calls were made, many of the secretaries said they had never received the emails sent. Alternate email accounts were then exchanged and in some instances this improved response rates.

5. Some of the NOCs did not have email addresses. In these cases, they were faxed and telephoned. However, it was still difficult to contact most of them because telephones were not answered and/or fax machine lines were unavailable.

6. In an effort to improve the response rate, the IOC was contacted telephonically. It was suggested that the Assistant to the Medical Director be emailed to see if they could help. No correspondence was ever received by the Assistant to the Medical Director despite repeated attempts to contact them.

7. When the IOC was contacted, they commented that the researcher was experiencing the same problems that they often incurred with respect to obtaining information and correspondence with the NOCs (Noirat, 2008). It

would therefore appear that communication problems with the NOCs are not a new issue and may have impacted negatively on this study.

4.4.2 Future suggestions

To obtain a better response rate, it is suggested that the IOC's cooperation and support of the research process be obtained. Ideally, it would be easier if permission was granted for the researcher to attend one of the meetings where NOC representatives were present.

It was announced on the 7th August 2008 that Durban has been selected as the location for 123rd IOC Session in 2011 (Olympic Org Media, 2008). This would be the perfect opportunity to repeat this research topic, provided the researcher was permitted to attend and collect the data at the meeting.

Another suggestion would be to not collect data during, and especially not immediately preceding, an Olympic Year (i.e. Vancouver 2010 (Winter Games); London 2012 (Summer Games); Sochi 2014 (Winter Games)) (Olympic Org Media, 2008).

4.5 Results

4.5.1 Demographics

The demographics below are a representation of the following categories, as presented by questions 1-6 of the questionnaire:

- The National Olympic Committee (NOC) of which they are a member.
- Current position within the NOC.
- Number of years as a NOC member.
- Respondents country of residence.
- Representation of their country as an individual athlete and when.
- Highest level of education.

Twenty-seven respondents from 26 countries completed and returned the questionnaire. The countries represented are shown in Table 4.1. Barbados returned two questionnaires.

Table 4.1: Responding NOC countries in the sample

NOC	Frequency	Percent
Andorra	1	3.7
Barbados	2	7.4
British Virgin Islands	1	3.7
Cayman Islands	1	3.7
Chinese Taipei	1	3.7
Cyprus	1	3.7
Dominican Republic	1	3.7
Eretria	1	3.7
Fiji	1	3.7
Germany	1	3.7
Ghana	1	3.7
Great Britain	1	3.7
Italy	1	3.7
Luxemburg	1	3.7
Malta	1	3.7
New Zealand	1	3.7
Norway	1	3.7
Puerto Rico	1	3.7
Romania	1	3.7
Slovakia	1	3.7
South Africa	1	3.7
Swaziland	1	3.7
Tonga	1	3.7
Trinidad and Tobago	1	3.7
Vanuata	1	3.7
Zimbabwe	1	3.7
Total	27	**100.0**

Table 4.2: Respondents current position within the NOC

Position	Number
Medical Commissions Chair / Head / President / Director	4(5)[4]
Medical Commissions Vice Chair / Vice Head / Vice President	0
Medical Commissions Ordinary Member	7
Executive Committee President or Vice President	3
Executive Committee Ordinary Member	12
TOTAL	**26(27)**

Of the 27 respondents there were 15 (55.6%) from the executive committees and 12 (44.4%) from the medical commissions (Table 4.2).

Table 4.3: Number of years as a NOC member

Years	Executive Committee (Number)	Medical Commission (Number)	TOTAL
Less than 10	8	6	**14**
10-19	5	3	**8**
20-29	1	3	**4**
30 or more	1	0	**1**
TOTAL	**15**	**12**	**27**

[4] In one instance the second vice president also served as the Chairman of the Medical Commission for the NOC. This is represented by the figure in brackets.

Table 4.4: Country of residence of the respondents (according to continents)

Continental NOCs	Number
America PASO	7
Africa ANOCA	5
Europe EOC	10
Asia OCA	1
Oceania ONOC	4

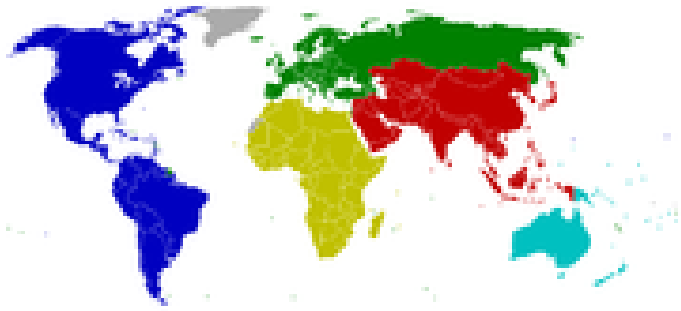

Figure 4.2: NOC Continental Map

Table 4.5: Respondents who have represented their country as an individual athlete.

Answer	Number	%
YES	9	33.3
NO	18	66.7
TOTAL	**27**	**100**

Nine of the sample (33.3%) had represented their country at a National or International level (Table 4.5).

Table 4.6: If Yes (Table 4.5), in which decade?

When[5]	Number
1970's	3
1980's	8
1990's	5
After 2000	2

[5] People who competed in more than one decade were counted for each decade in which they competed.

Table 4.7: Highest level of education

Level	Number	%
Grade 12 or the equivalent	1	3.7
Diploma	1	3.7
Bachelor's degree (not a bachelor of medicine)	9	33.4
Bachelor's of medicine degree (medical)	10	37.0
Master's degree	5	18.5
PhD	1	3.7
TOTAL	**27**	**100**

Based on the qualifications above, the respondents indicated that they had attained a medical qualification on one or more levels resulting in 48.1% of the respondents being medically or para-medically (e.g. nurse) qualified (Table 4.7).

Table 4.8: Summary statistics for length of time on NOC

N	Valid	27
	Missing	0
Mean		9.858
Std. Deviation		8.7400
Minimum		.2
Maximum		30.0

The sample as a whole had been part of the NOC for an average of 9.8 years with a range from 2 months to 30 years and a standard deviation of 8.7 years. This is shown in Table 4.8.

4.5.2 Objective ONE of the Study

OBJECTIVE ONE:
To determine the NOCs executive committee's knowledge and perception of Chiropractic.

Knowledge and perception of Chiropractic was measured with questions 7, 8 and 11. A descriptive analysis of the responses to these questions by the executive committee members is presented.

4.5.2.1 Question 7

With reference to question 7:
"Which health care practitioner would your NOC nominate for athletes to consult if they suffered from each of the following conditions:
(choose from Biokineticist, Chiropractor, Physiotherapist, GP, Pharmacist ,Homeopath or Don't know)" (Appendix C-2)

It should be noted that with respect to question 7, the respondents were able to select more than one option, therefore total percentages for the figures may not total 100% (see Figure 4.3 to Figure 4.19).

Even though there were a set number of practitioners in the questionnaire for the respondents to choose from, some respondents chose to give an alternative option (e.g. Orthopaedic Surgeon). As a result, this was included in the data capturing to accurately reflect their views.

4.5.2.1.1 Ankle sprain

Figure 4.3 shows that executive committee respondents tended to choose Physiotherapists to treat ankle sprain (66.7%) followed by Medical Doctors (33.3%). Chiropractors were chosen in 6.7% of the sample.

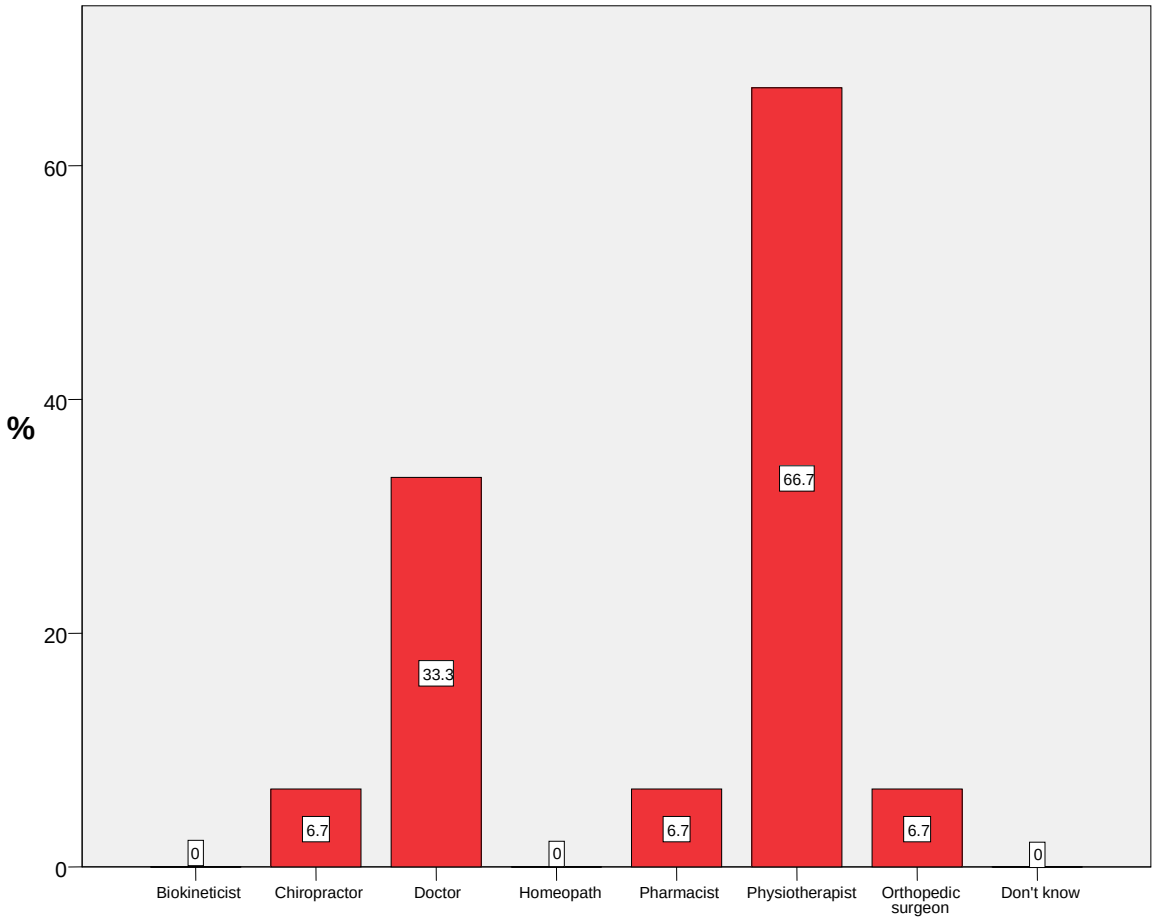

Figure 4.3: Nominated practitioners for ankle sprain by executive committee respondents

4.5.2.1.2 Tendonitis

For tendonitis the choice was predominantly Physiotherapists (46.7%) (Figure 4.4).

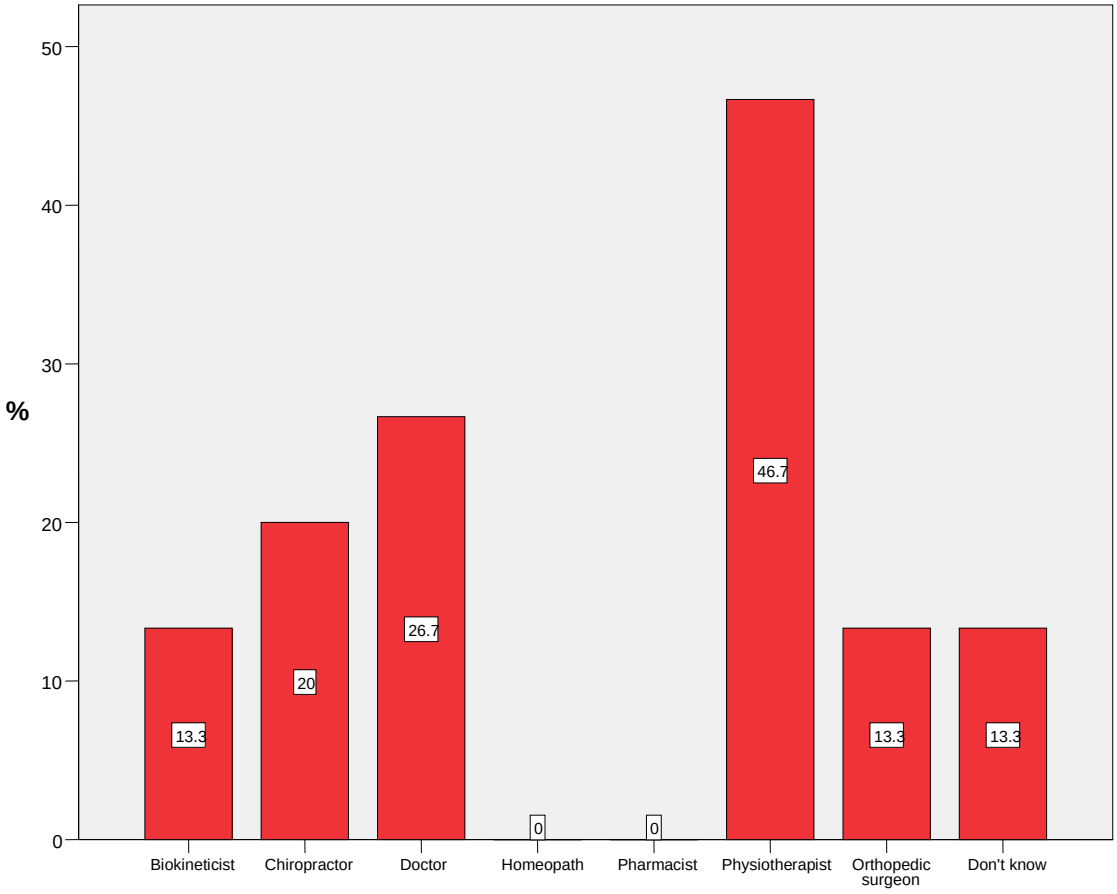

Figure 4.4: Nominated practitioners for tendonitis by executive committee respondents

4.5.2.1.3 Joint Instability

For joint instability executive respondents preferred using Physiotherapists (40%) (Figures 4.5).

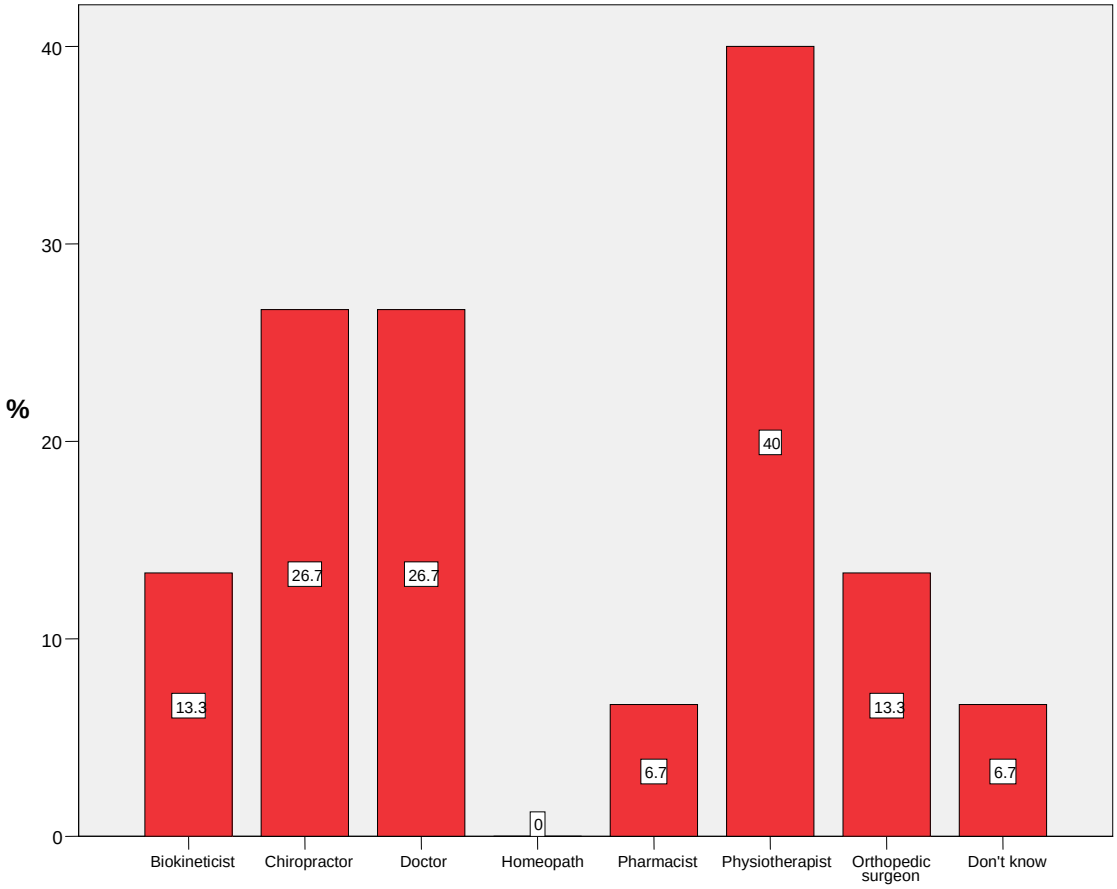

Figure 4.5: Nominated practitioners for joint instability by executive committee respondents

4.5.2.1.4 Overuse Injuries

Similarly for joint overuse injuries, executive respondents preferred using Physiotherapists (60%) (Figure 4.6)

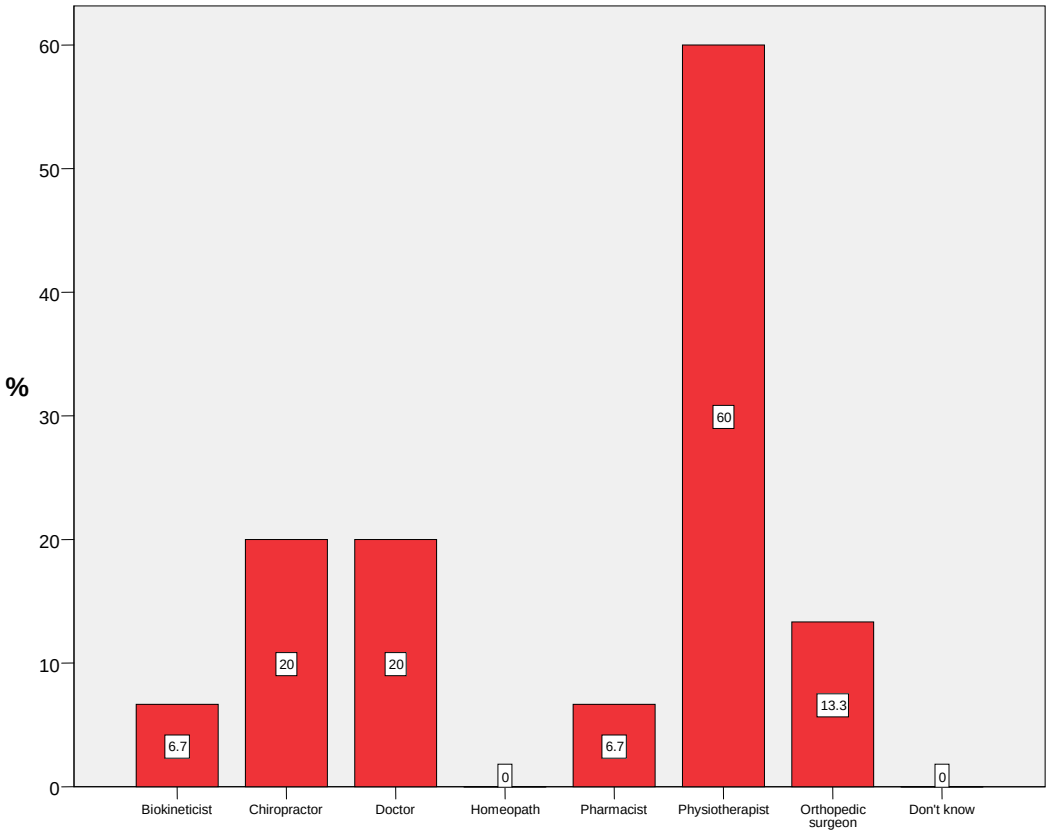

Figure 4.6: Nominated practitioners for overuse injuries by executive committee respondents

4.5.2.1.5 Patellofemoral Pain Syndrome (PFPS)

For PFPS Physiotherapists were preferred (33.3%).

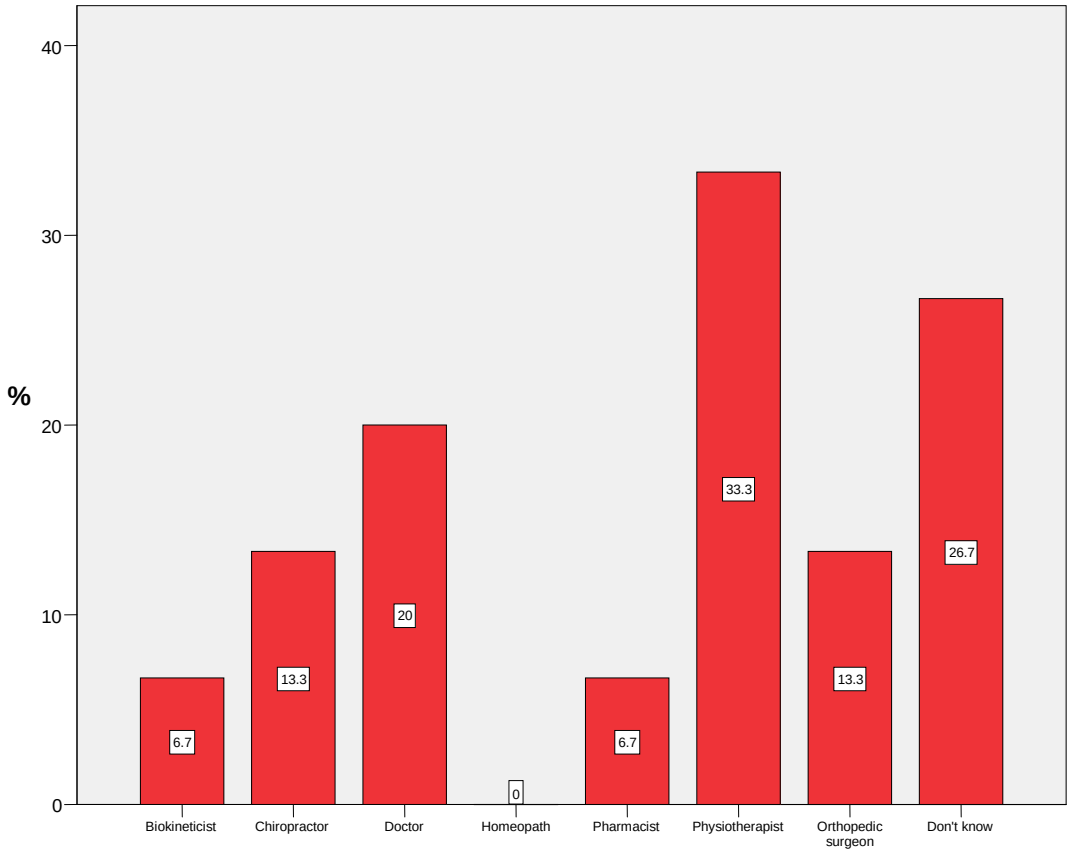

Figure 4.7: Nominated practitioners for PFPS by executive committee respondents

4.5.2.1.6 Muscle Strains

For muscle strains, the majority of executive respondents preferred using Physiotherapists.

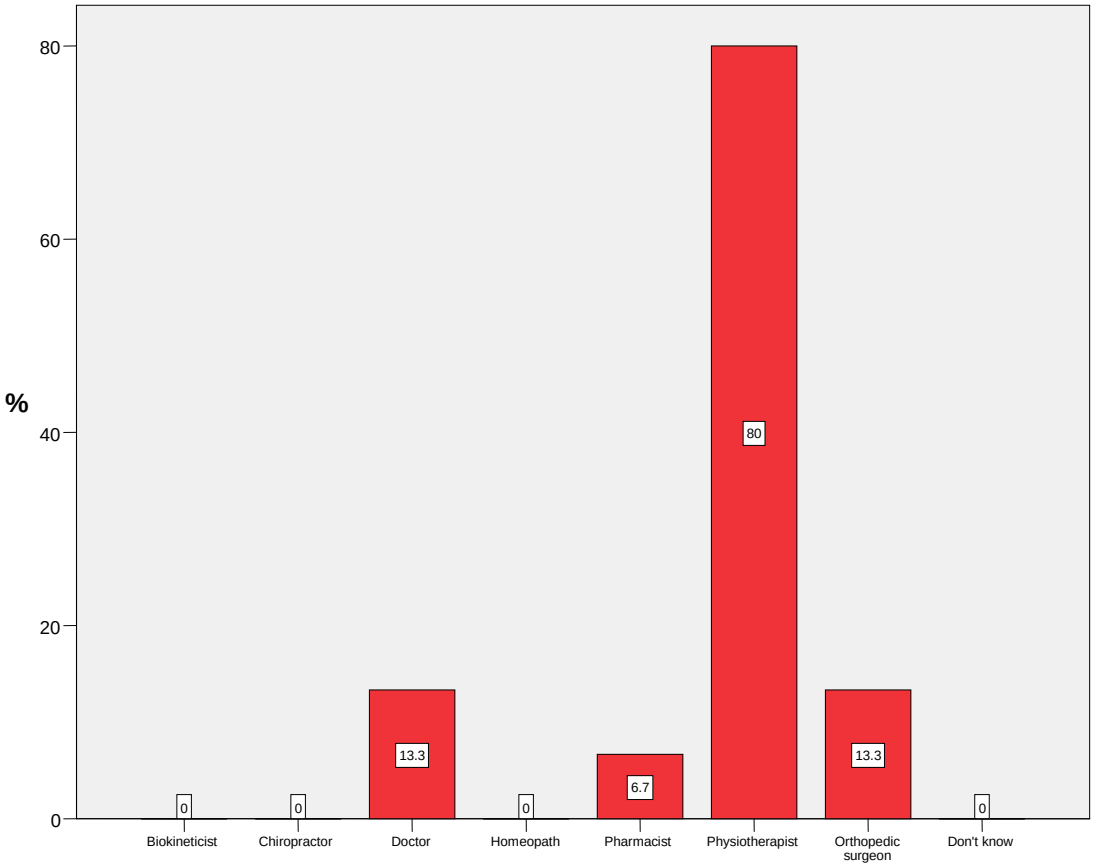

Figure 4.8: Nominated practitioners for muscle strains by executive committee respondents

4.5.2.1.7 Whiplash (acceleration deceleration syndrome)

For whiplash, Physiotherapists were preferred (40%) but Medical Doctors were chosen by 26.7% (Figure 4.9).

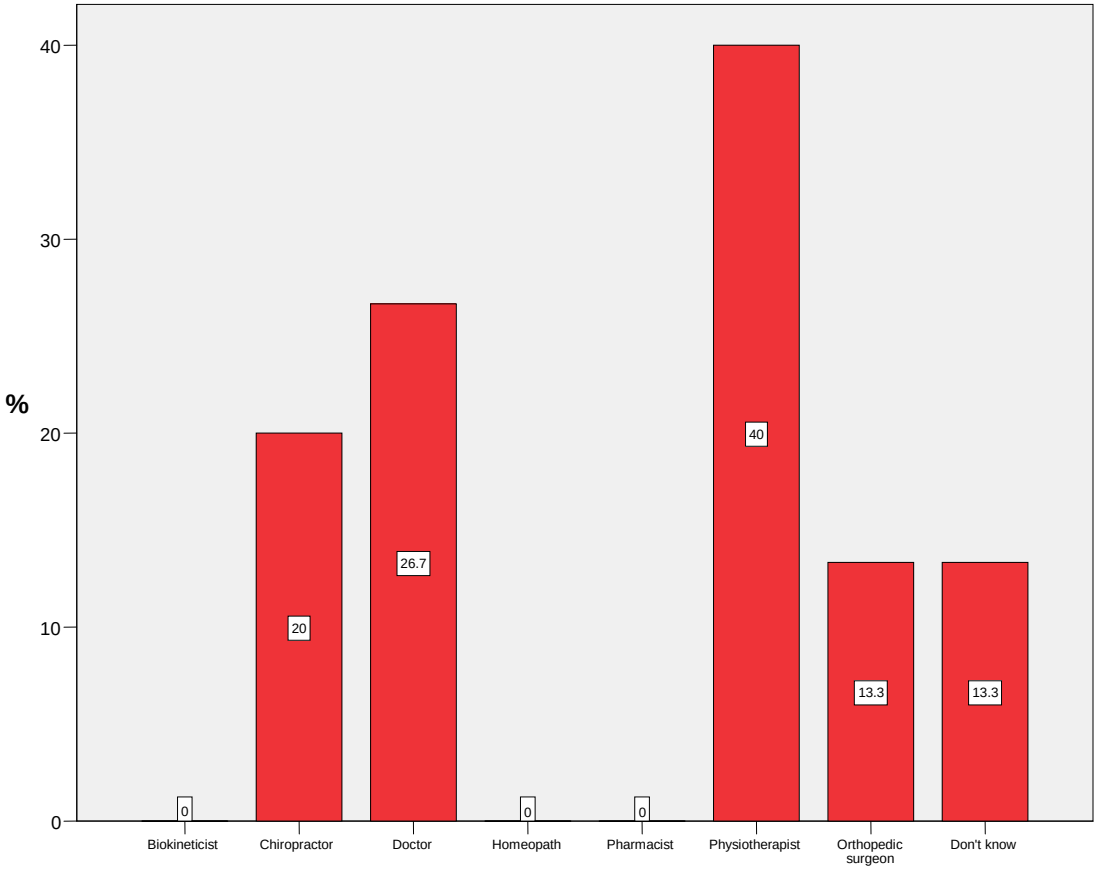

Figure 4.9: Nominated practitioners for whiplash by executive committee respondents

4.5.2.1.8 Dislocation

For dislocation, Chiropractors were chosen most frequently (33.3%) followed by Medical Doctors and Physiotherapists with 26.7% each.

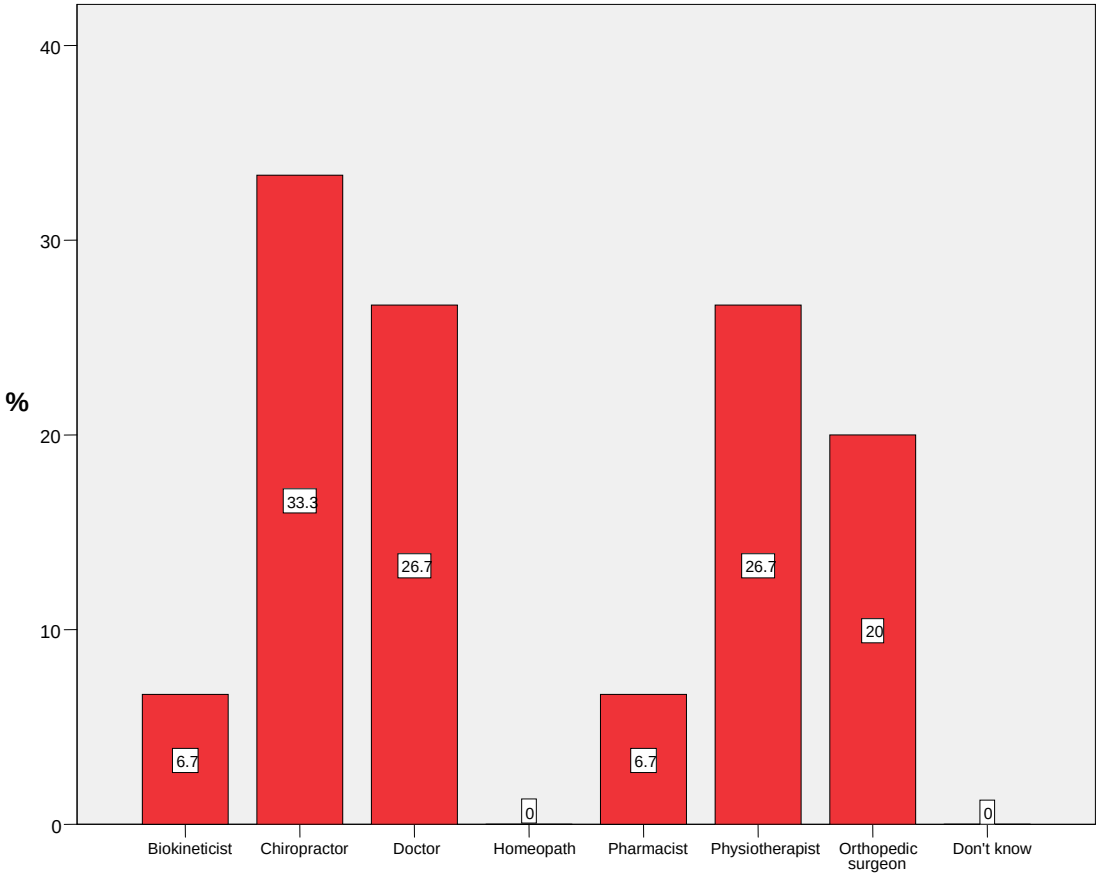

Figure 4.10: Nominated practitioners for dislocations by executive committee respondents

4.5.2.1.9 Headaches

Headaches were preferred to be treated by Medical Doctors (86.7%).

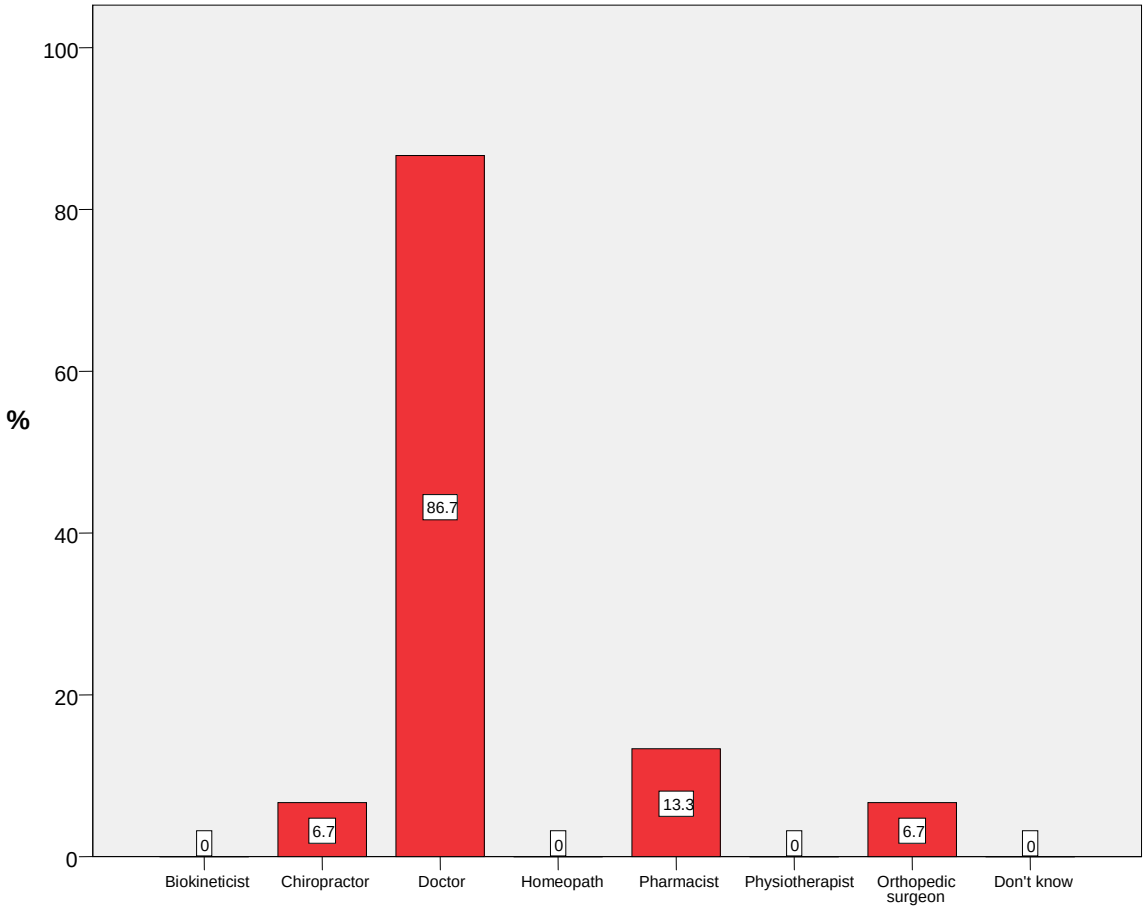

Figure 4.11: Nominated practitioners for headaches by executive committee respondents

4.5.2.1.10 Fractures

Fractures were preferred to be treated by Medical Doctors (73.3%).

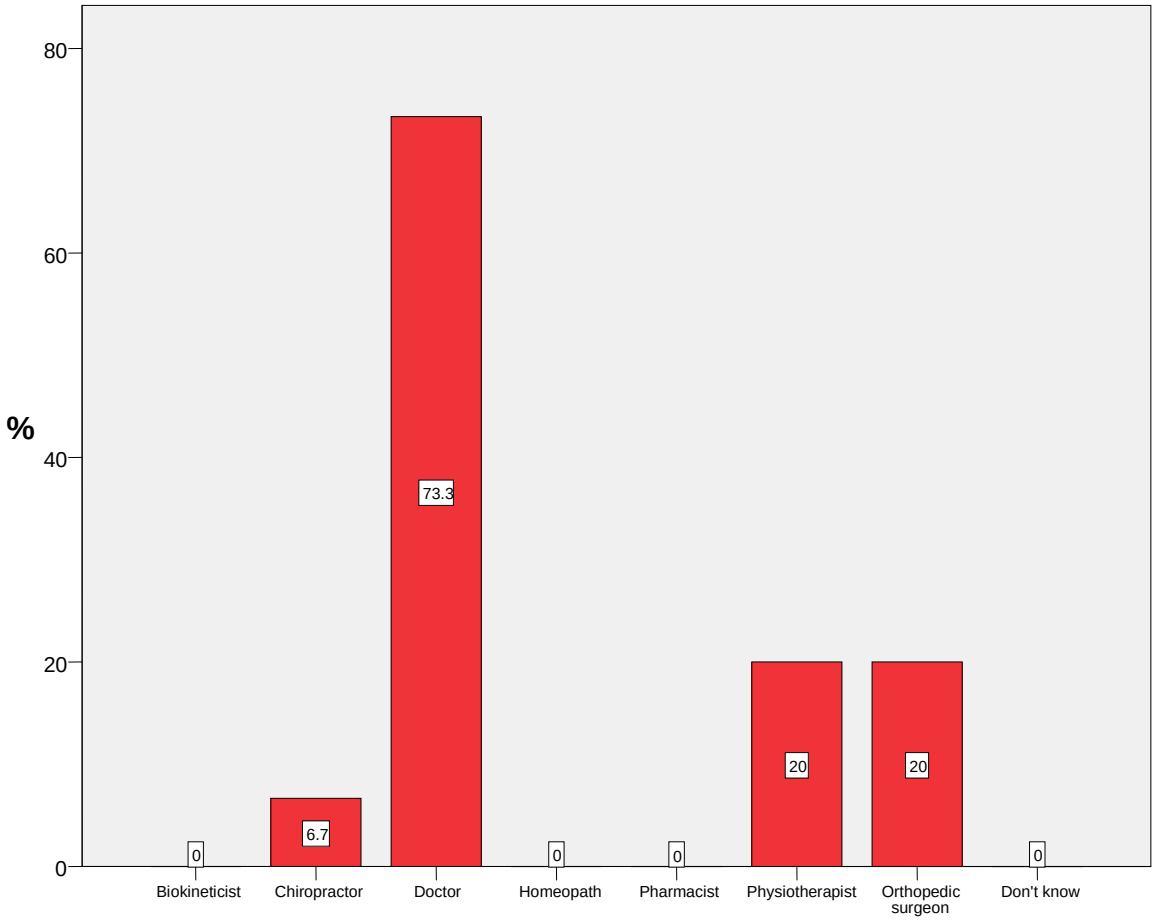

Figure 4.12: Nominated practitioners for fractures by executive committee respondents

4.5.2.1.11 Disc Herniation

For disc herniation Medical Doctors (33.3%) would mostly be used, followed by Physiotherapists (26.7%).

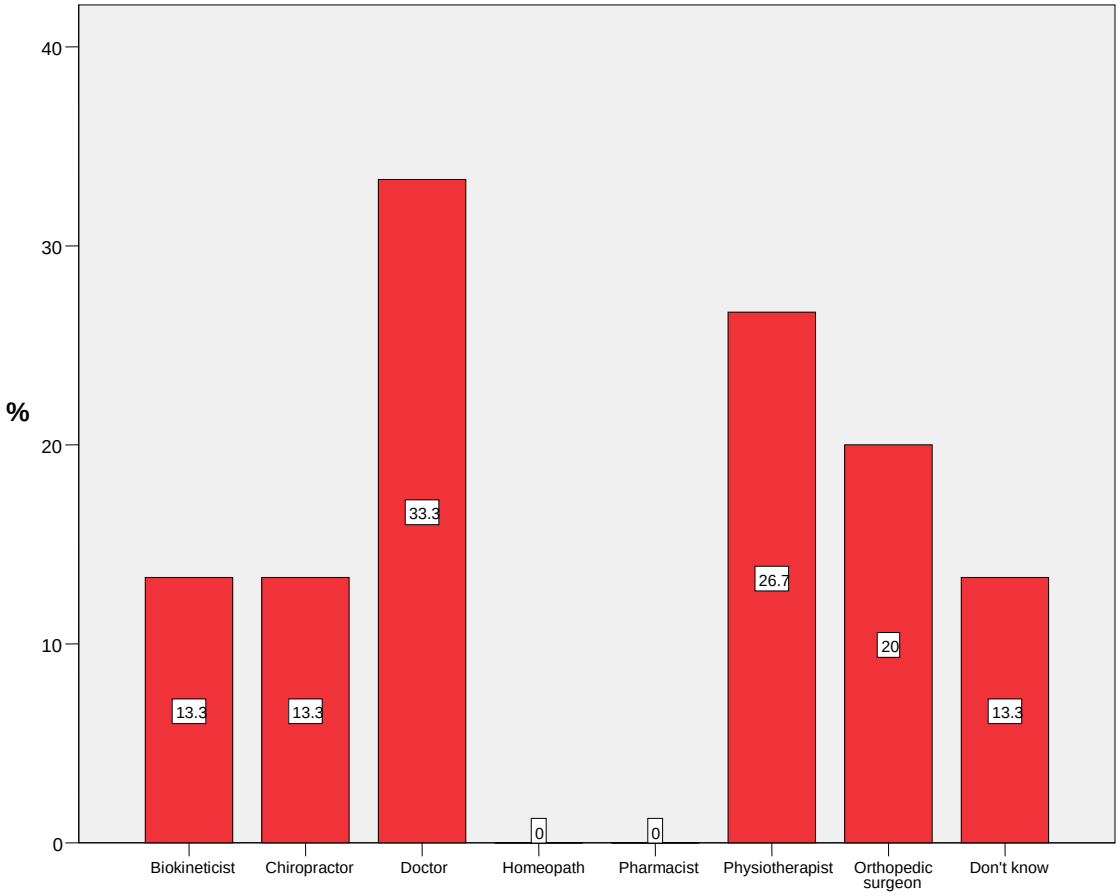

Figure 4.13: Nominated practitioners for disc herniations by executive committee respondents

4.5.2.1.12 Impingement

Impingement was deemed to be treated by Medical Doctors in a third of executive committee respondents but another third also stated that they did not know.

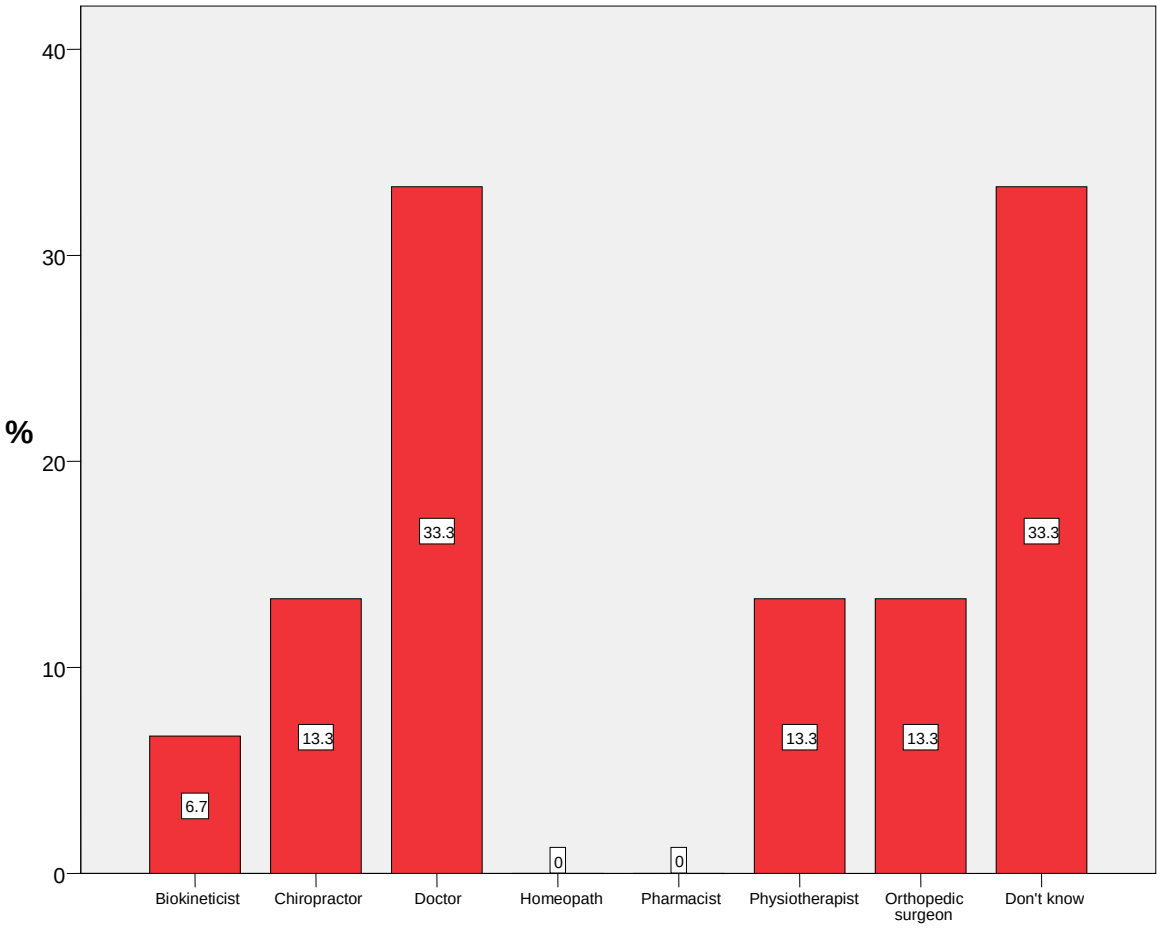

Figure 4.14: Nominated practitioners for impingement by executive committee respondents

4.5.2.1.13 Patella Tendonitis

Patella tendonitis was deemed to be treated by Physiotherapists by almost half the executive commission respondents.

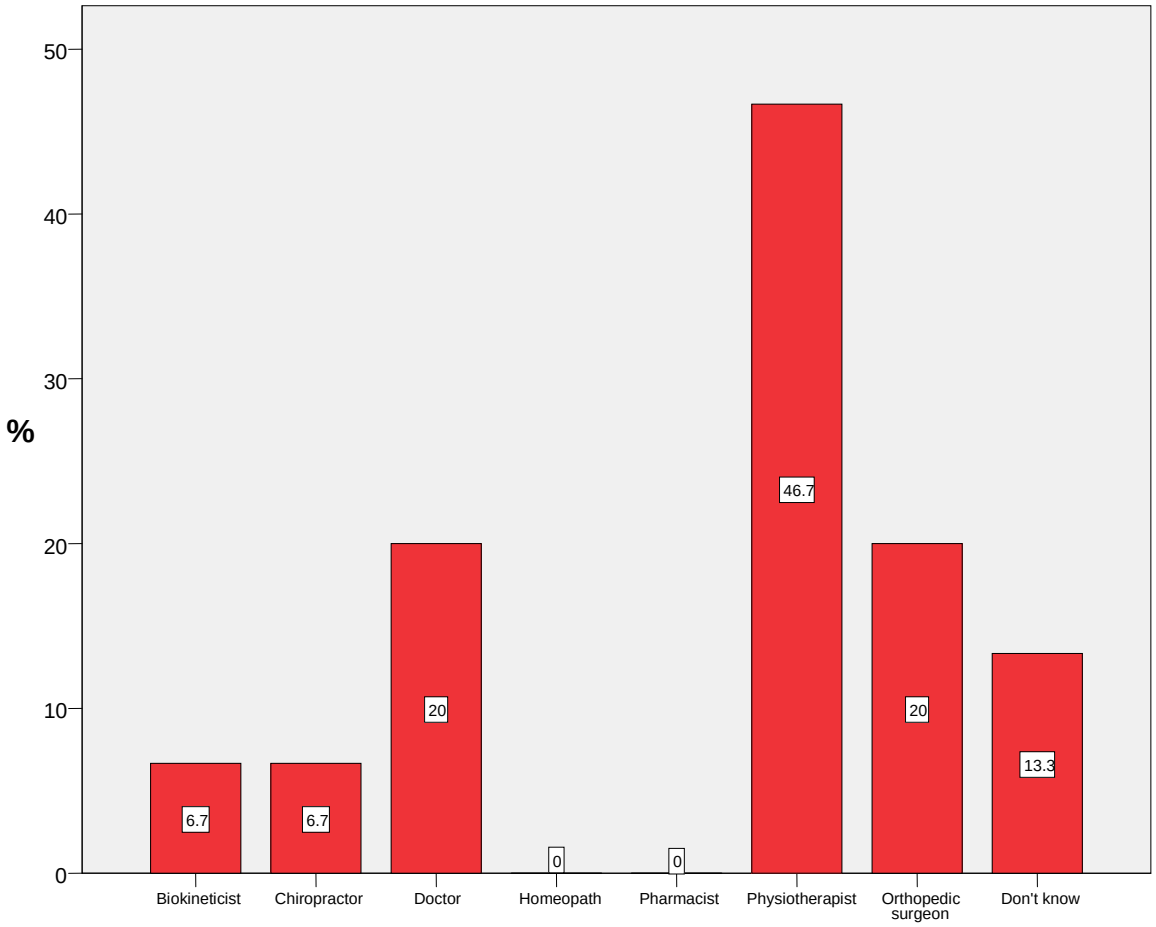

Figure 4.15: Nominated practitioners for patella tendonitis by executive committee respondents

4.5.2.1.14 Frozen Shoulder

Frozen shoulder was also nominated to be treated by Physiotherapists by almost half the executive commission respondents.

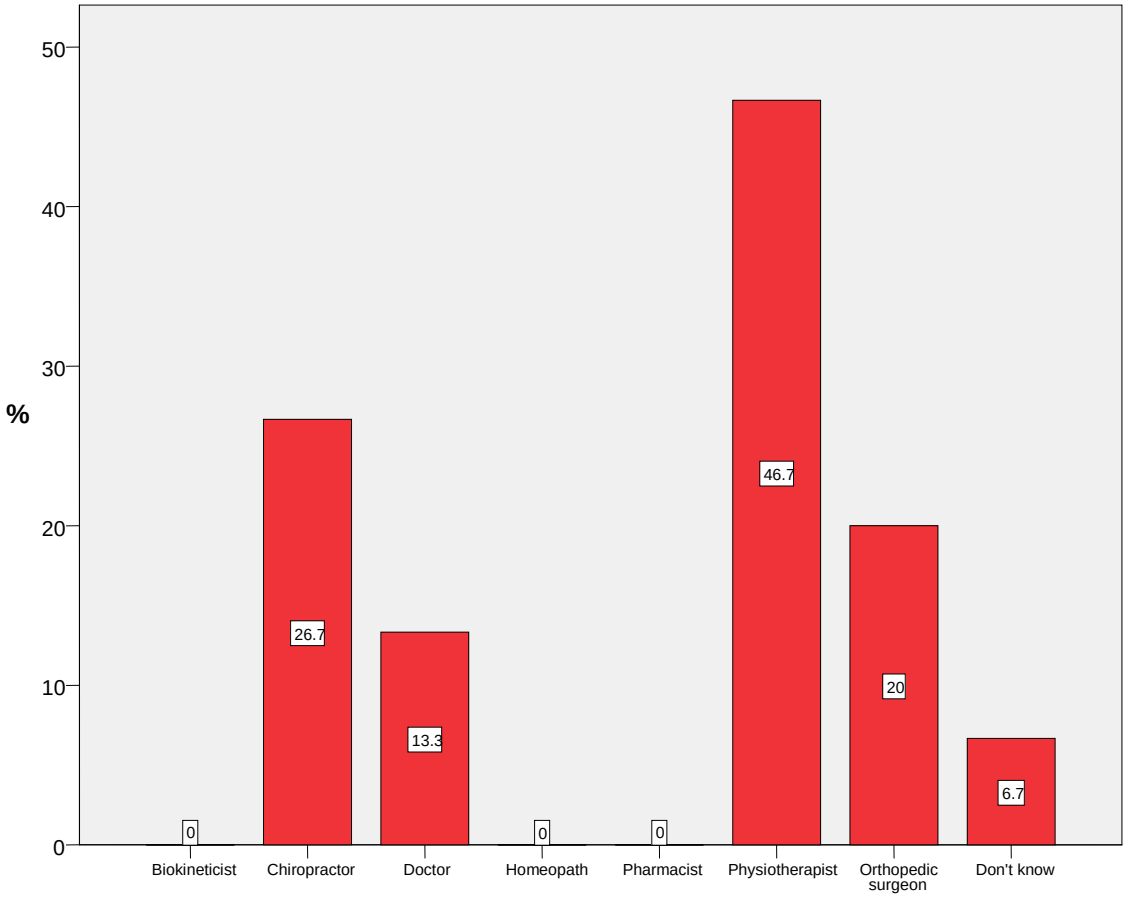

Figure 4.16: Nominated practitioners for frozen shoulder by executive committee respondents

4.5.2.1.15 Ligament Injury

Ligament injury was chosen to be treated by Physiotherapists by over half the executive commission respondents.

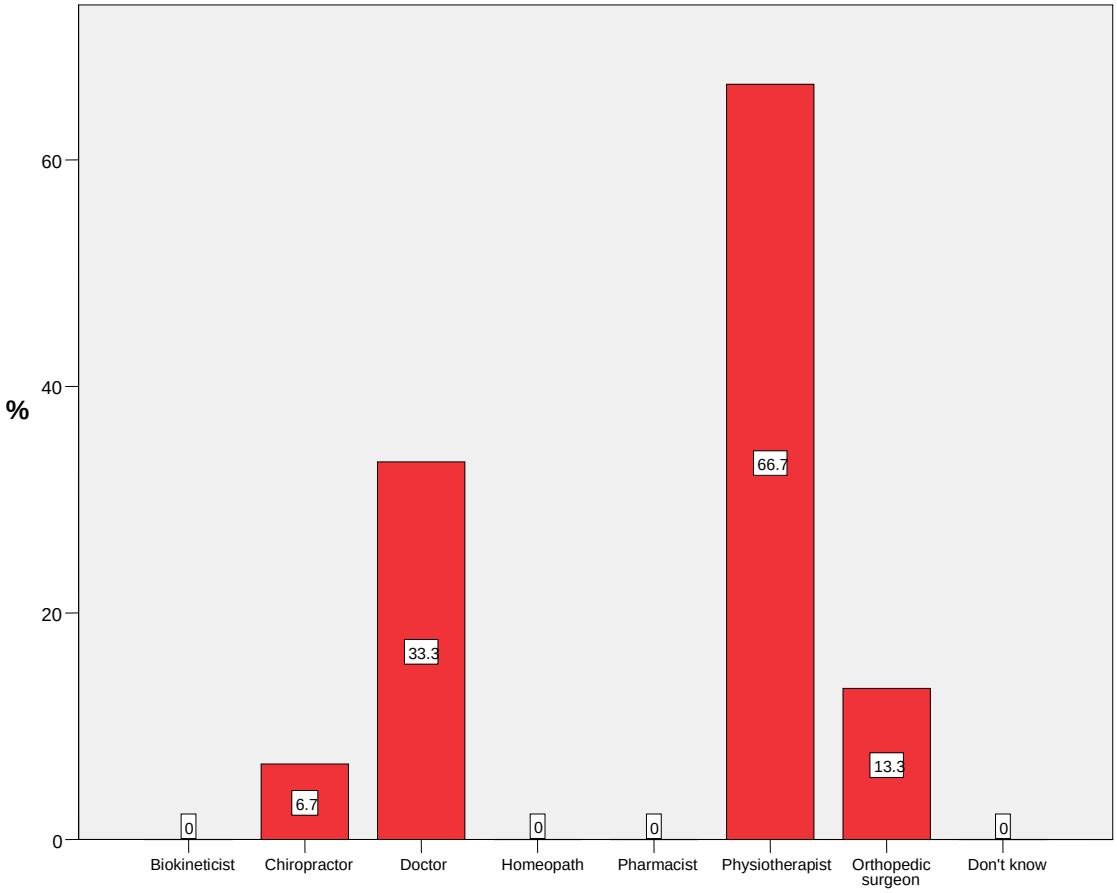

Figure 4.17: Nominated practitioners for ligament injury by executive committee respondents

4.5.2.1.16 Low Back Pain (LBP)

One third of executive commission respondents chose Chiropractors to treat LBP and another third chose Physiotherapists. However, this was followed closely by the choice of Medical Doctors to treat LBP.

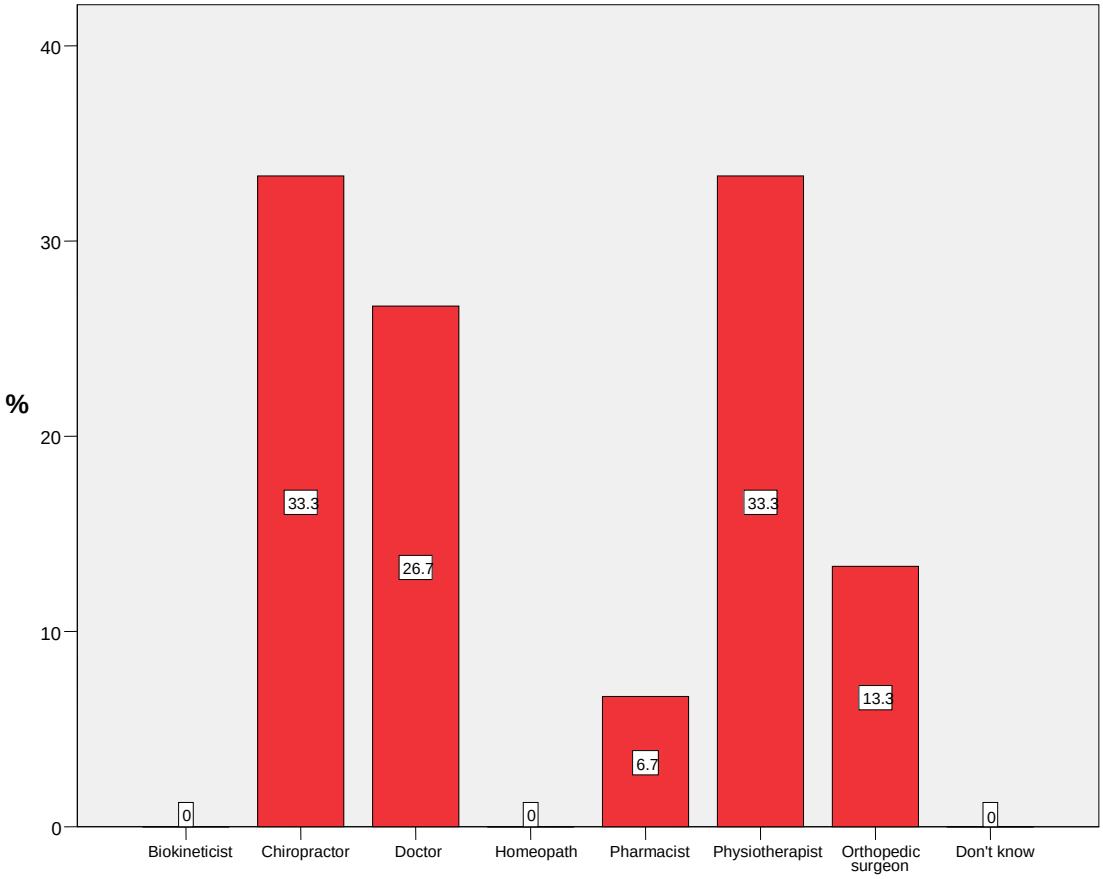

Figure 4.18: Nominated practitioners for LBP by executive committee respondents

4.5.2.1.17 Muscle stiffness

Muscle stiffness was predominantly deemed to be treated by Physiotherapists (66.7%).

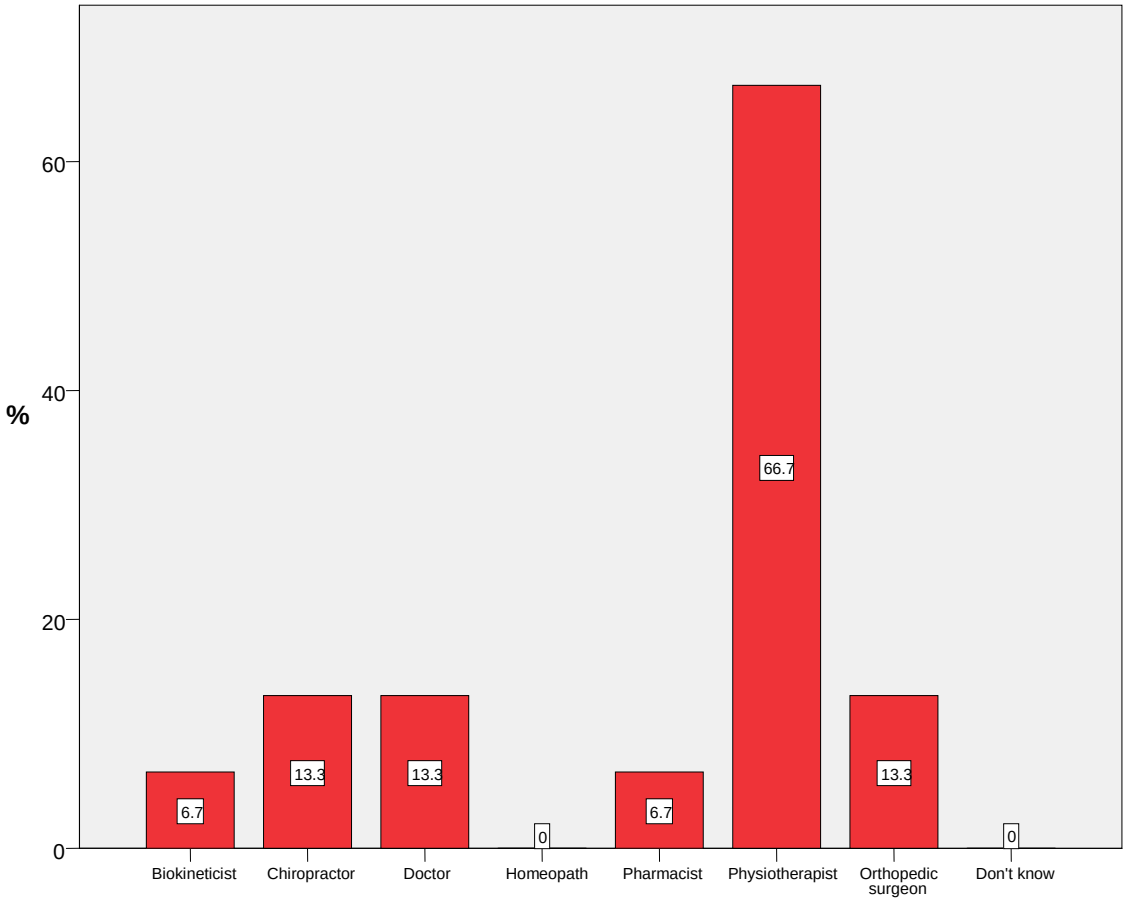

Figure 4.19: Nominated practitioners for muscle stiffness by executive committee respondents

4.5.2.2 Question 8

With reference to question 8:

"Please rank the following health care providers from 1 to 12, based on who your NOC believes to be most important to any sports medical team (1 being most important and 12 being least important)" (Appendix C-2).

Figure 4.20 shows the median rankings of the various health professionals by executive respondents. Medical Doctors were ranked first, followed by Physiotherapists. Psychologists, Dieticians, Orthopaedic Surgeons and Personal Trainers were tied for 4th rank. Chiropractors were ranked 7th out of 12.

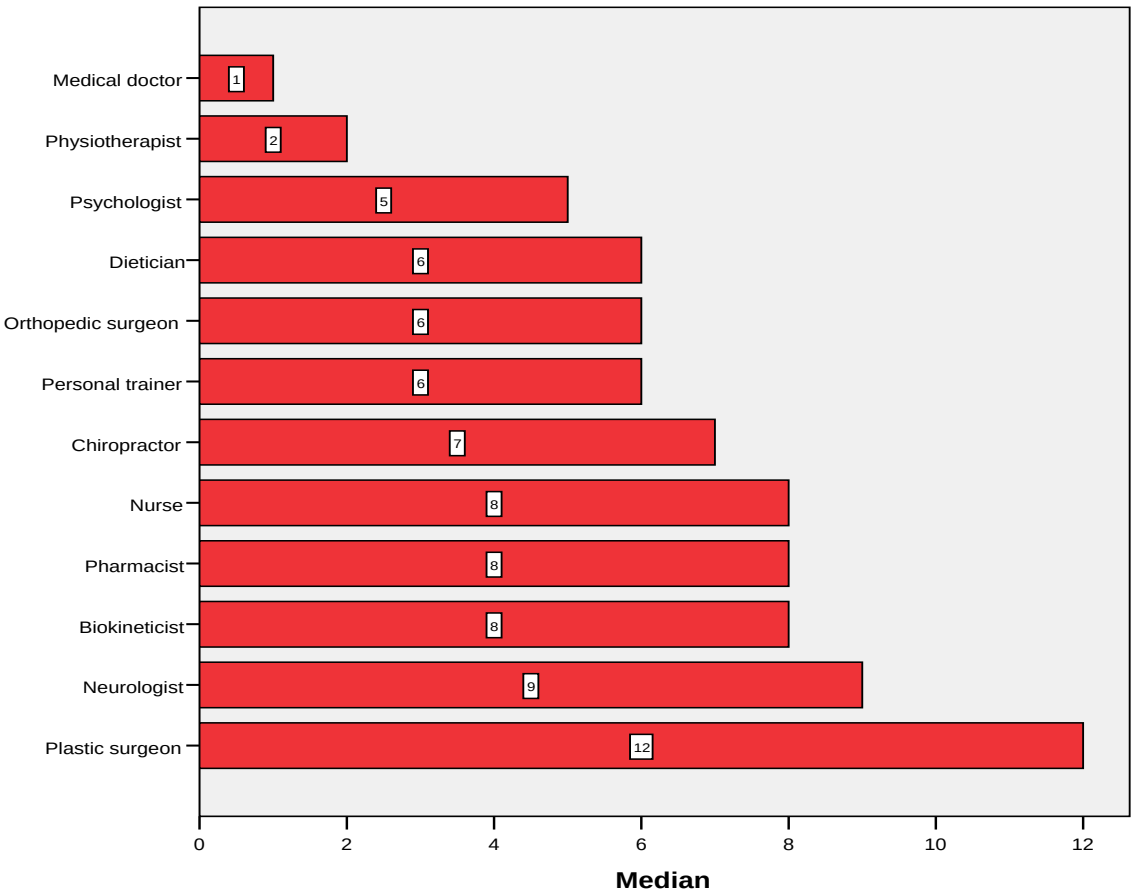

Figure 4.20: Median ranking of health care professionals by executive committee respondents

4.5.2.3 Question 11

With reference to question 11:

"Which of the following roles would you classify Chiropractic care as fulfilling in the health care system." (Appendix C-2).

Almost all the executive respondents in the sample agreed that the role of Chiropractic was rehabilitative (93.3%). Only 26.7% thought the role was curative. The percentages do not add up to 100% since many respondents chose more than one role reflecting that Chiropractic has more than one perceived role.

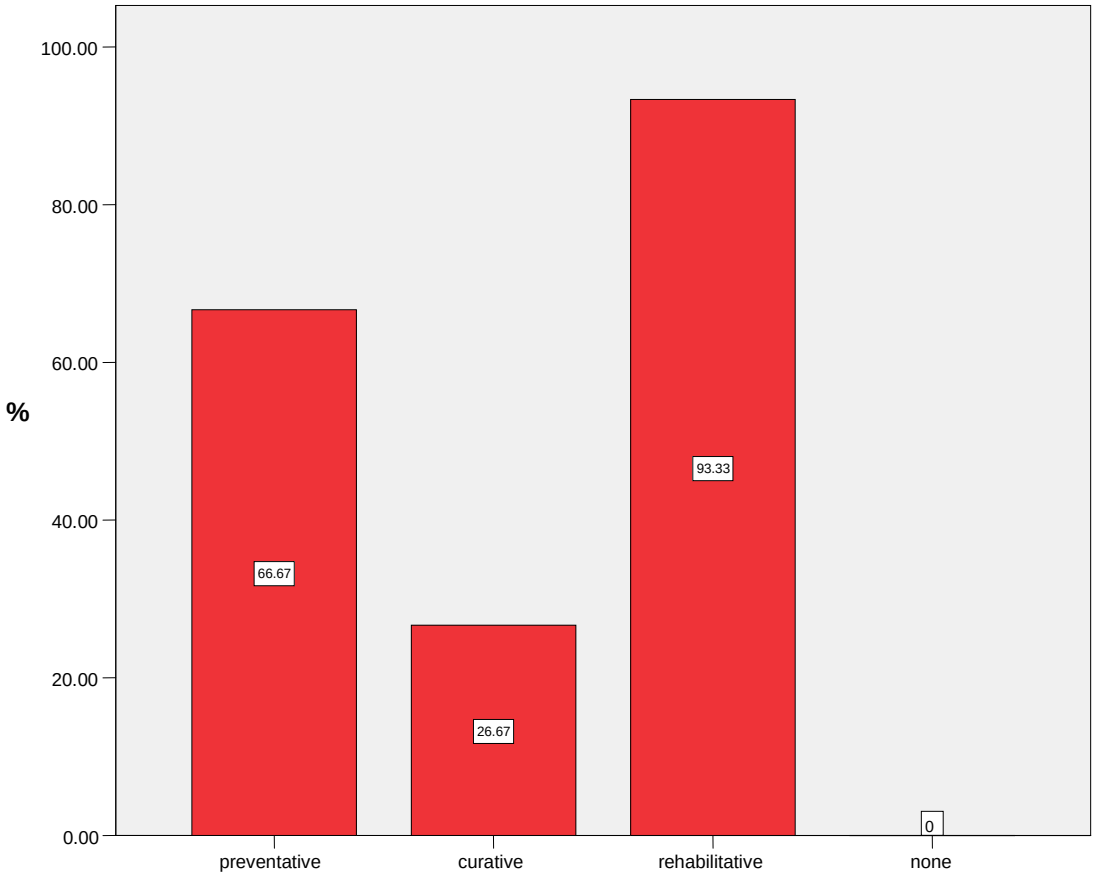

Figure 4.21: Median ranking of the role of Chiropractic by executive committee respondents

4.5.3 Objective TWO of the Study

OBJECTIVE TWO :
To determine the NOCs *medical* commission's knowledge and perception of Chiropractic.

4.5.3.1 Question 7

With reference to question 7:
"Which health care practitioner would your NOC nominate for athletes to consult if they suffered from each of the following conditions:
(choose from Biokineticist, Chiropractor, Physiotherapist, GP, Pharmacist, Homeopath or Don't Know)" (Appendix C-2)

It should be noted that with respect to question 7, the respondents were able to select more than one option, therefore total percentages for the figures may not total 100% (see Figure 4.3 to Figure 4.19).

Even though there were a set number of practitioners in the questionnaire for the respondents to choose from, some respondents chose to give an alternative option (e.g. Orthopaedic Surgeon). As a result, this was included in the data capturing to accurately reflect their views.

4.5.3.1.1 Ankle Sprains

For ankle sprain there was a tie between Medical Doctor and Physiotherapist according to medical commission respondents.

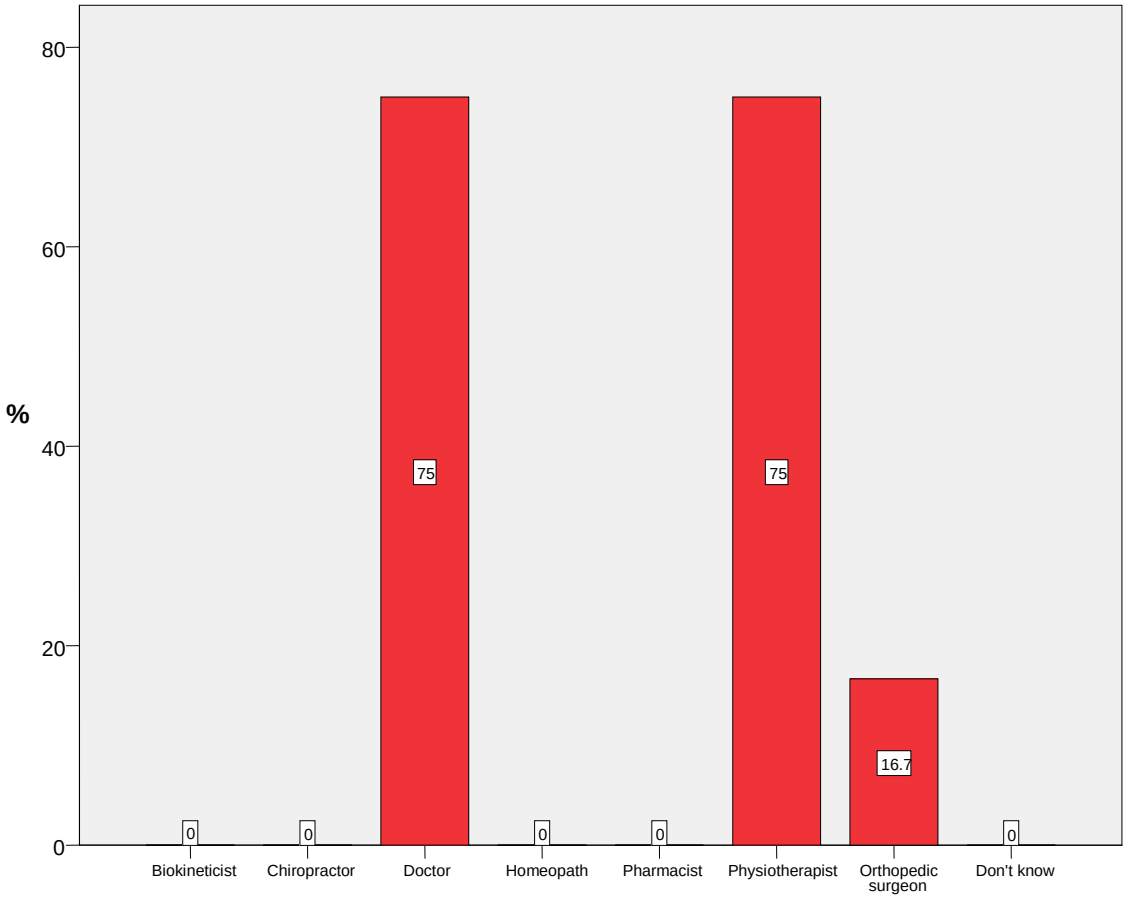

Figure 4.22: Nominated practitioners for ankle sprains by medical commission respondents

4.5.3.1.2 Tendonitis

Tendonitis was mainly perceived to be treated by Medical Doctors (66.7%) followed by Physiotherapists (50%).

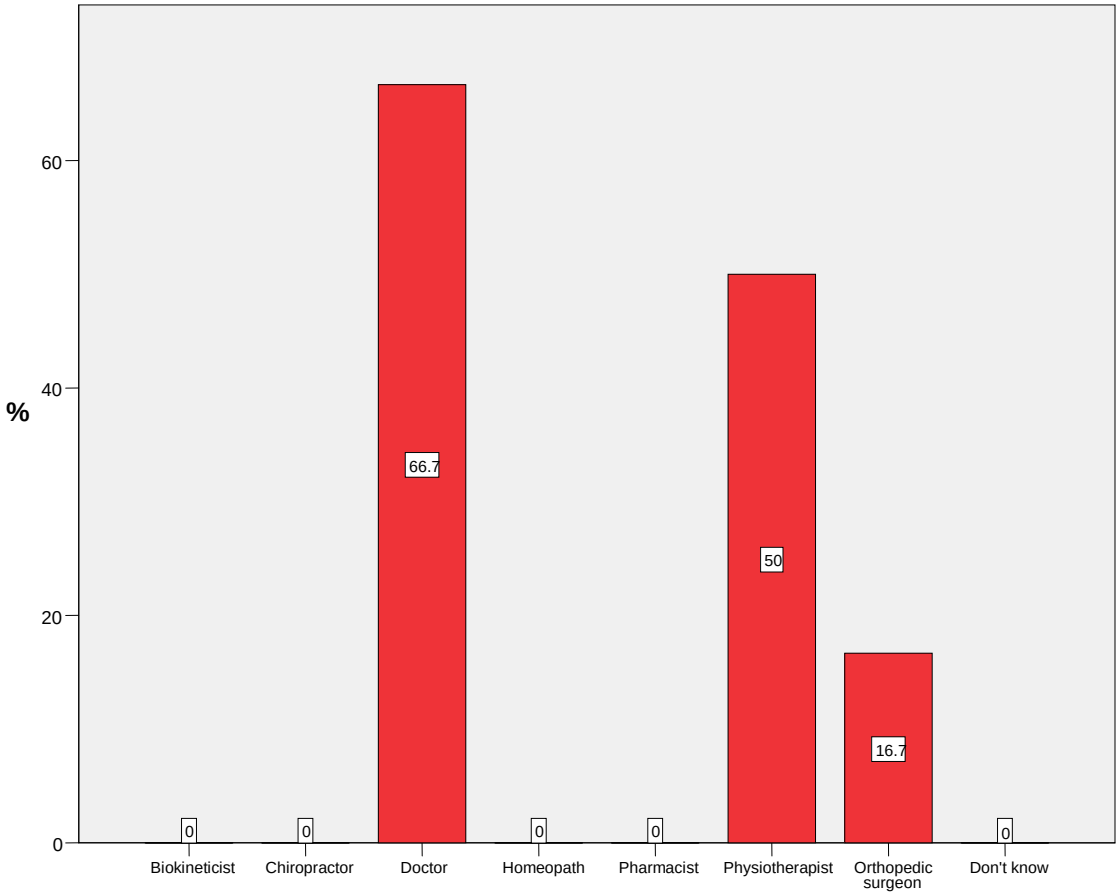

Figure 4.23: Nominated practitioners for tendonitis by medical commission respondents

4.5.3.1.3 Joint Instability

Joint instability was mainly perceived to be treated by Medical Doctors (66.7%) followed by Physiotherapists (50%).

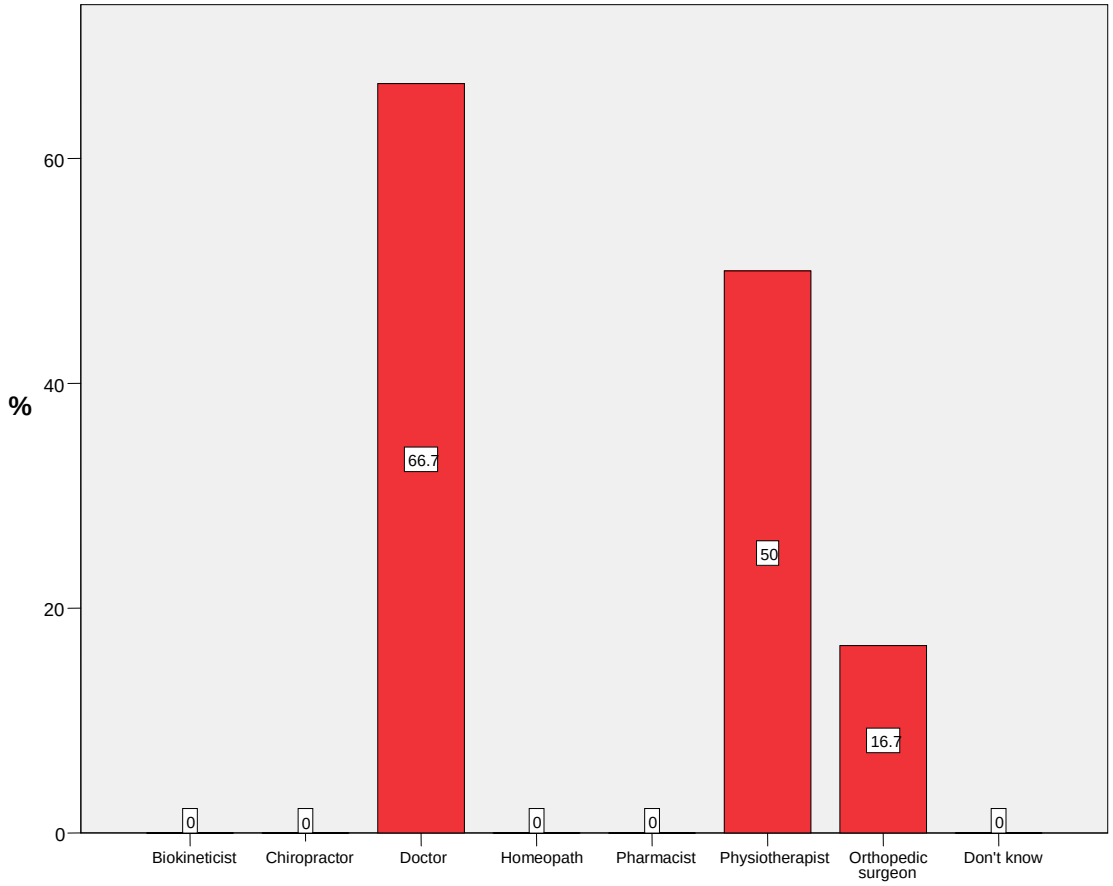

Figure 4.24: Nominated practitioners for joint instability by medical commission respondents

4.5.3.1.4 Overuse Syndromes

For overuse syndromes, the medical commission respondents equally nominated Medical Doctors and Physiotherapists (58.3%).

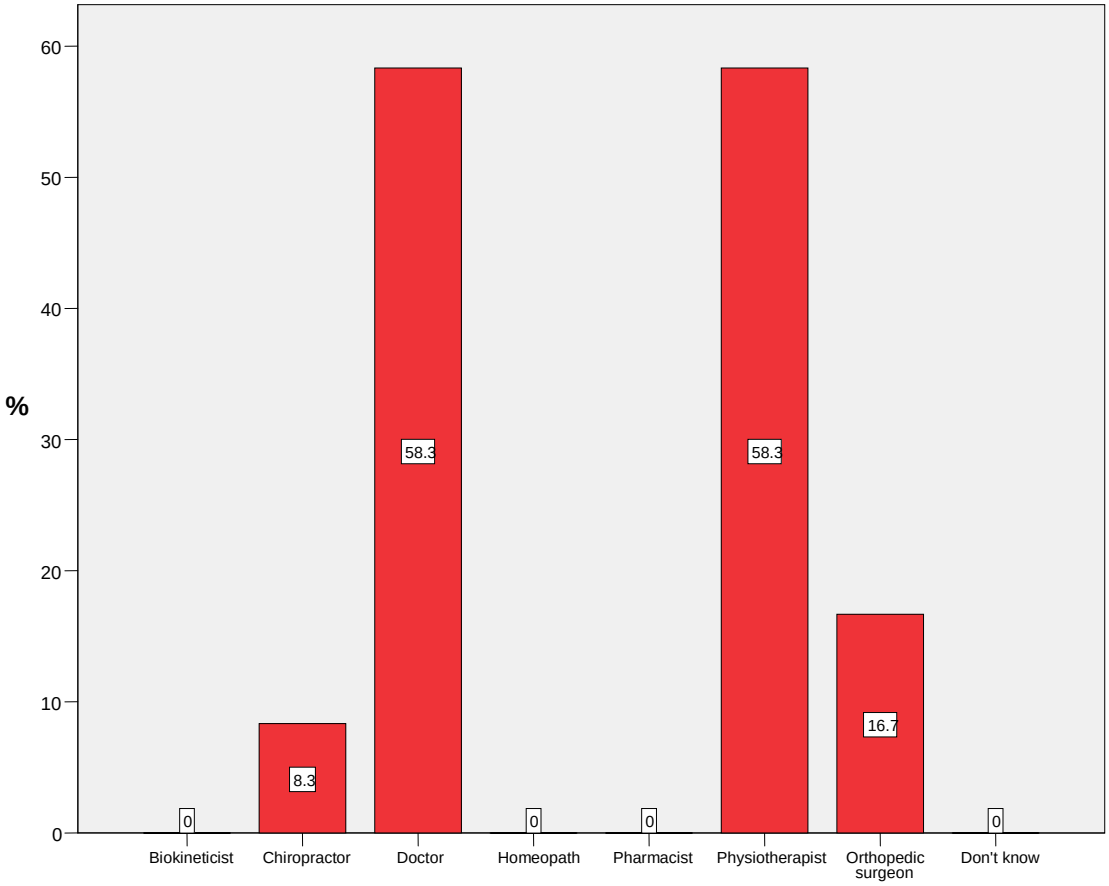

Figure 4.25: Nominated practitioners for overuse syndromes by medical commission respondents

4.5.3.1.5 Patellofemoral Pain Syndrome (PFPS)

Physiotherapists were nominated by the medical commission respondents (58.3%) to treat PFPS. This was followed closely by their choice of Medical Doctors (50%).

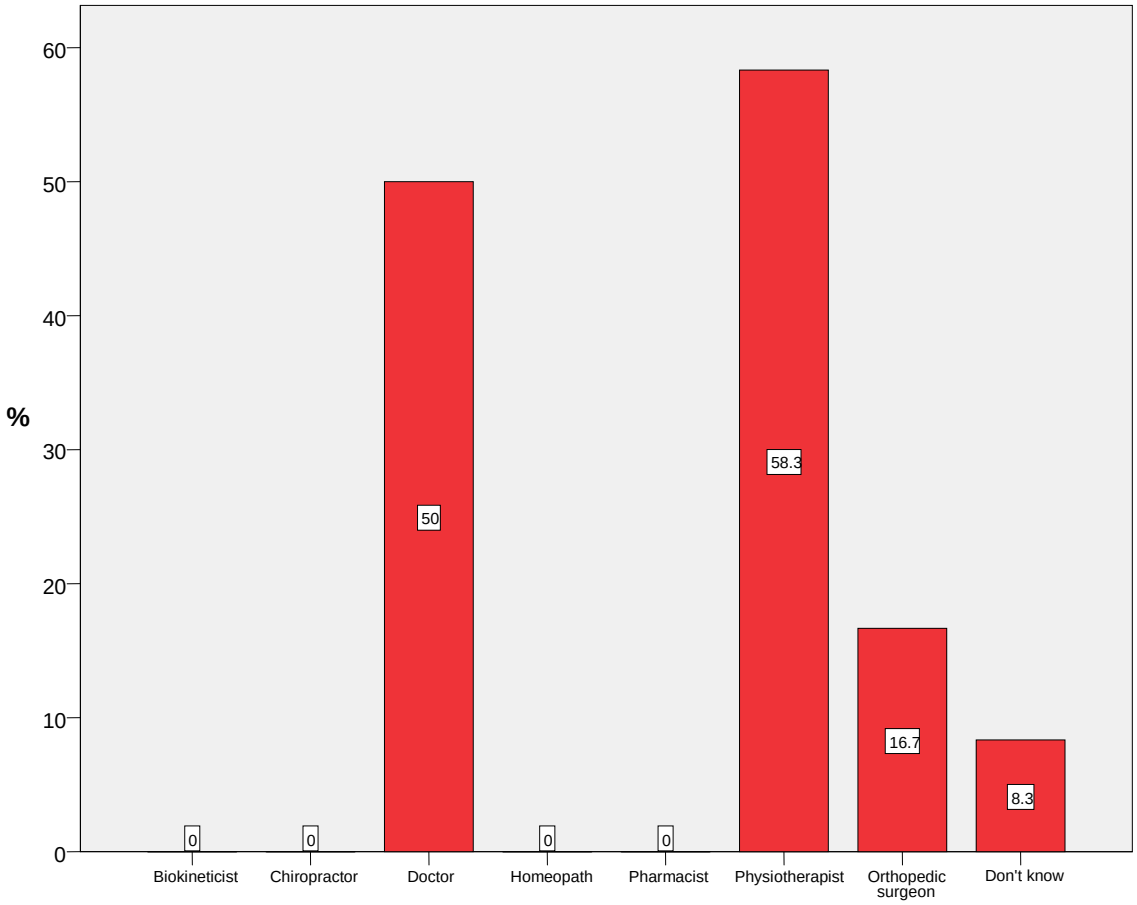

Figure 4.26: Nominated practitioners for PFPS by medical commission respondents

4.5.3.1.6 Muscle Strains

Muscle strains were perceived to be treated equally by Medical Doctors (58.3%) and Physiotherapists (58.3%).

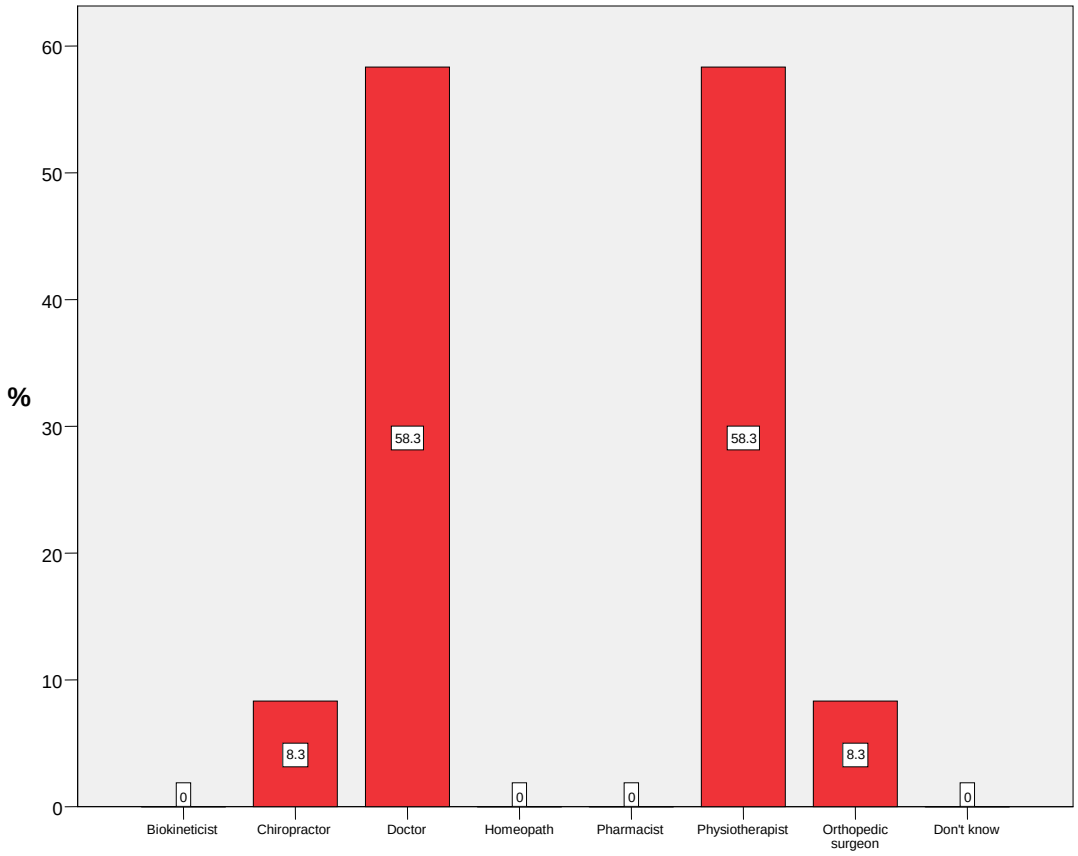

Figure 4.27: Nominated practitioners for muscle strains by medical commission respondents

4.5.3.1.7 Whiplash

Whiplash was mainly perceived to be treated by Medical Doctors (66.7%) followed by Physiotherapists (58.3%).

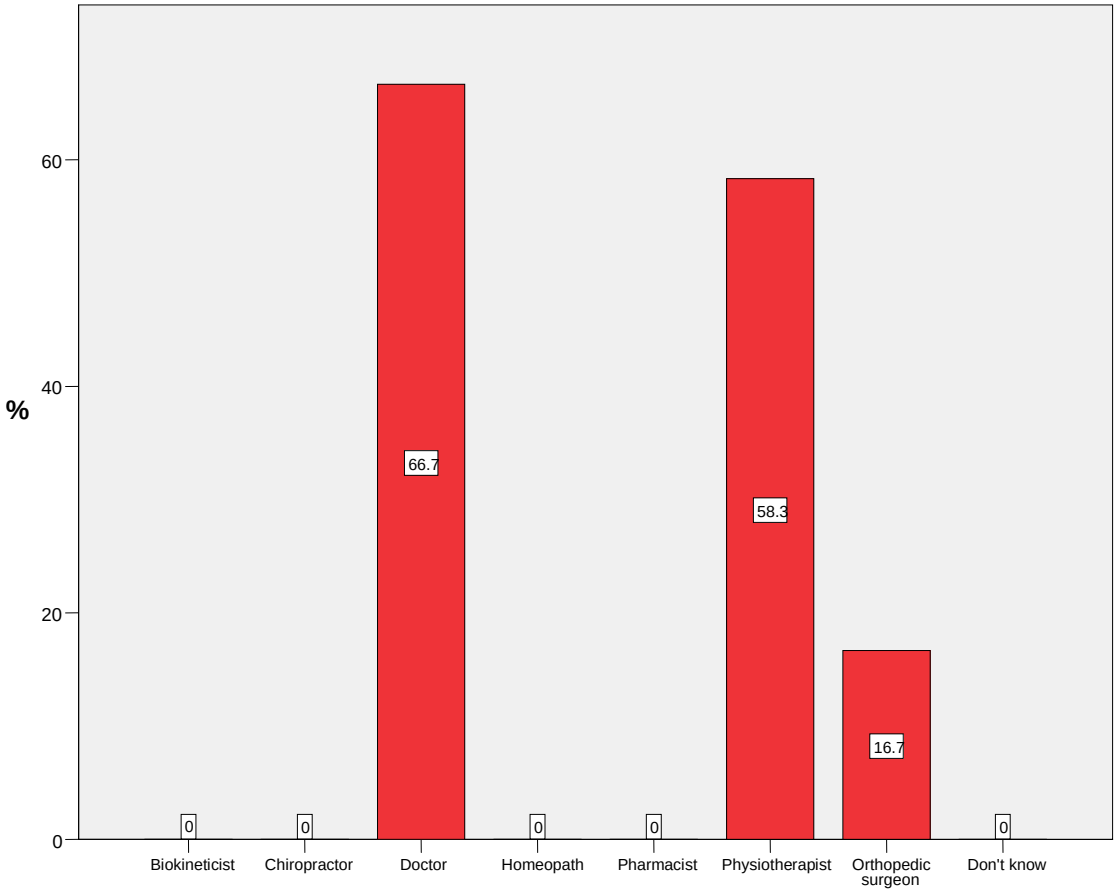

Figure 4.28: Nominated practitioners for whiplash by medical commission respondents

4.5.3.1.8 Dislocations

Dislocations were mainly perceived to be treated by Medical Doctors (75%) followed at a distance by Physiotherapists (41.7%).

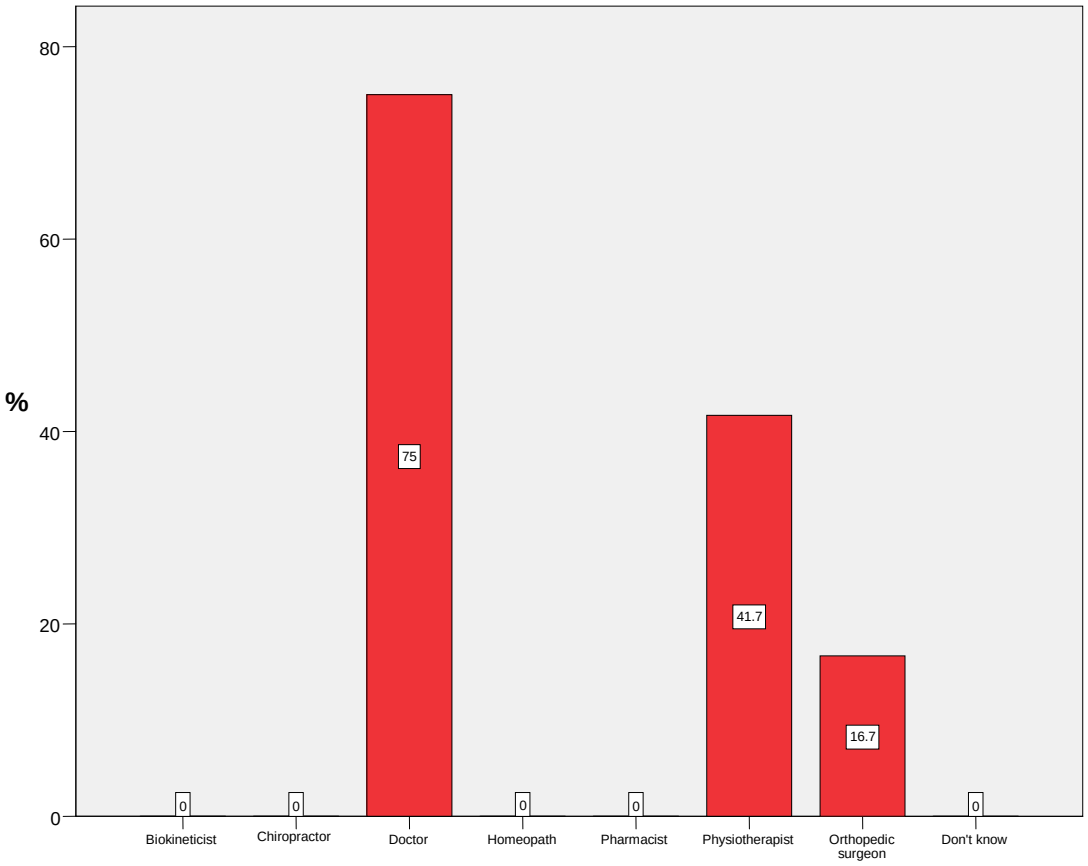

Figure 4.29: Nominated practitioners for dislocations by medical commission respondents

4.5.3.1.9 Headaches

Headaches were perceived to be treated mainly by Medical Doctors (83.3%) with smaller roles for Physiotherapists (25%) and Orthopaedic Surgeons (8.3%).

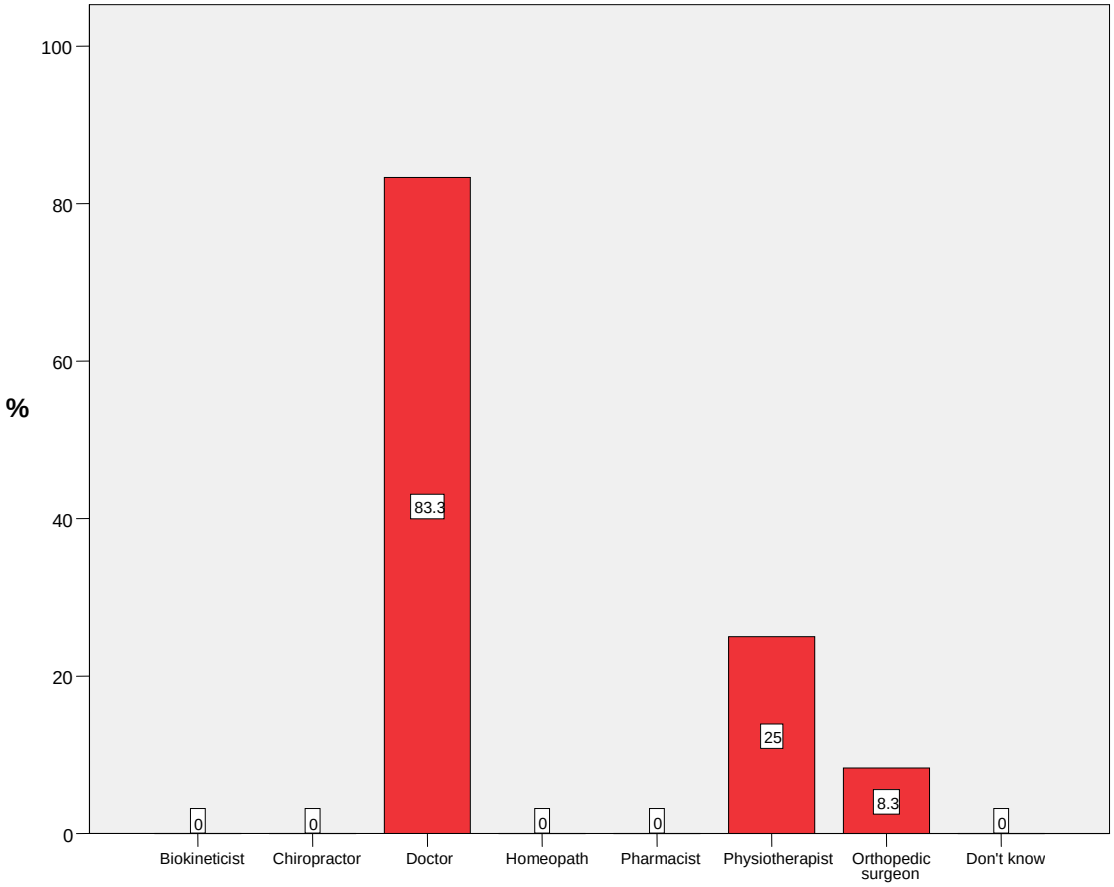

Figure 4.30: Nominated practitioners for headaches by medical commission respondents

4.5.3.1.10 Fractures

Fractures were perceived to be treated mainly by Medical Doctors (75%) with smaller roles for Physiotherapists (25%) and Orthopaedic Surgeons (16.7%).

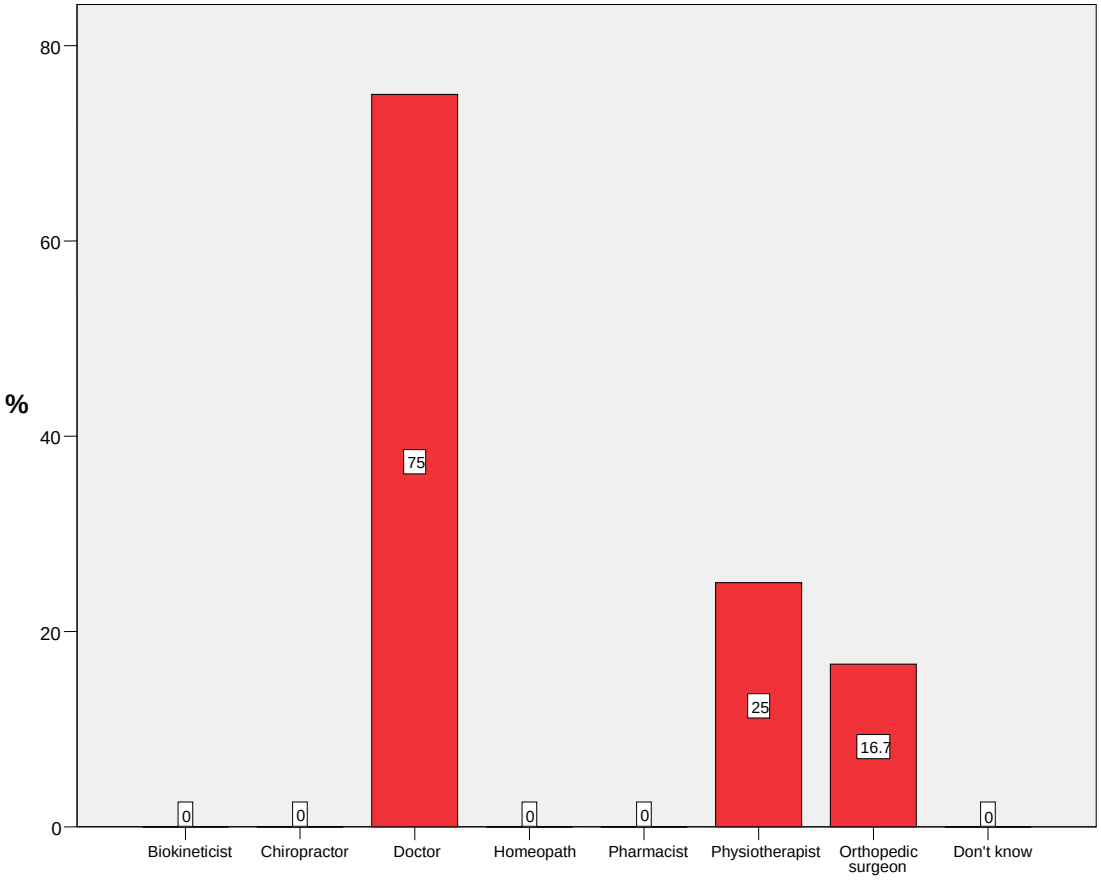

Figure 4.31: Nominated practitioners for fractures by medical commission respondents

4.5.3.1.11 Disc Herniation

Disc herniation was mainly perceived to be treated by Medical Doctors (75%), although a role for Chiropractors was also noted (8.3%).

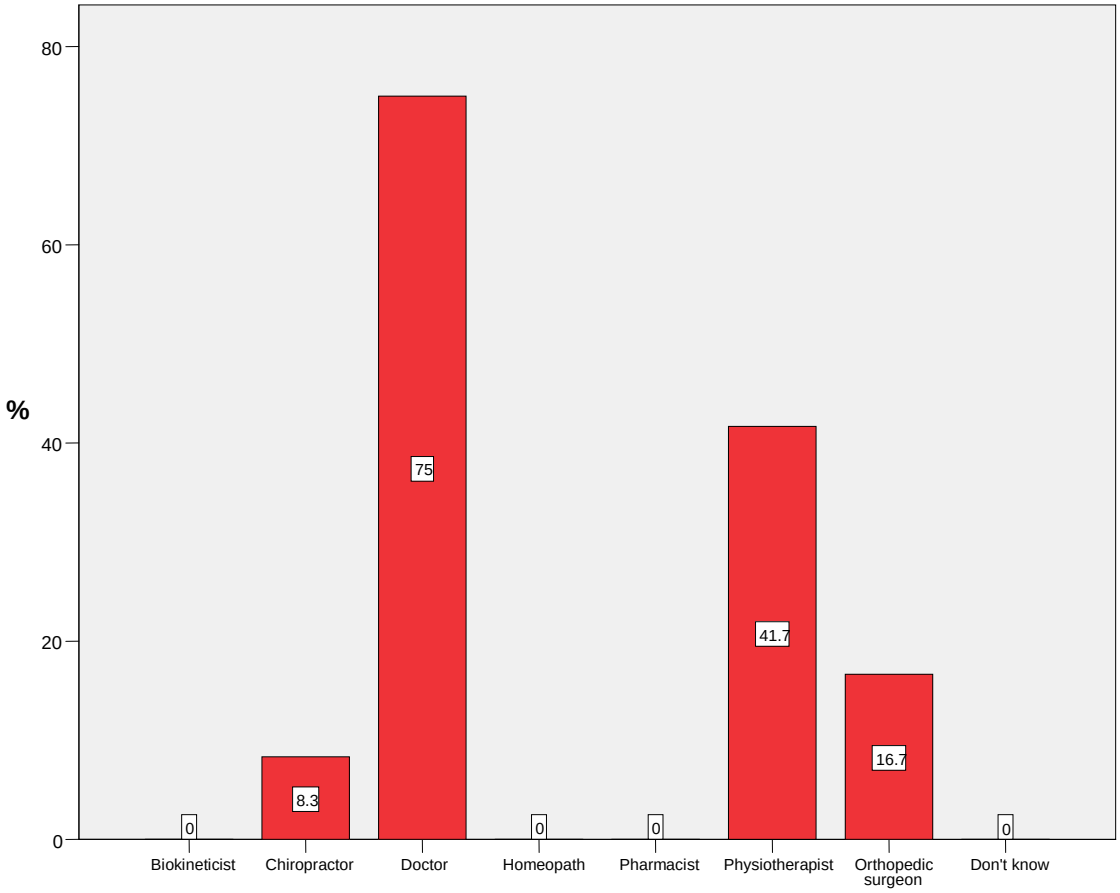

Figure 4.32: Nominated practitioners for disc herniation by medical commission respondents

4.5.3.1.12 Impingement

Similarly, impingement syndrome was perceived to be treated mainly by Medical Doctors (75%) with a role for Chiropractors also being noted (8.3%).

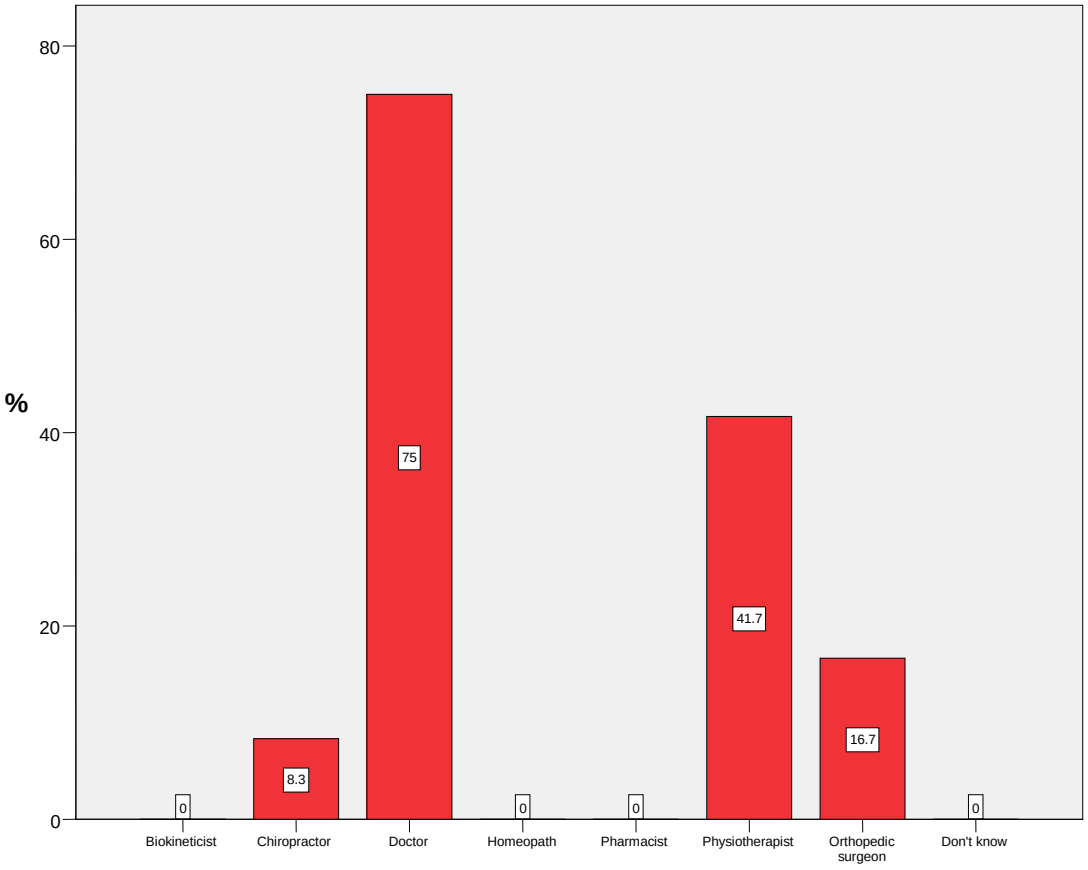

Figure 4.33: Nominated practitioners for impingement by medical commission respondents

4.5.3.1.13 Patella Tendonitis

Patella tendonitis was predominantly perceived to be treated by Physiotherapists (75%) and Medical Doctors (58.3%).

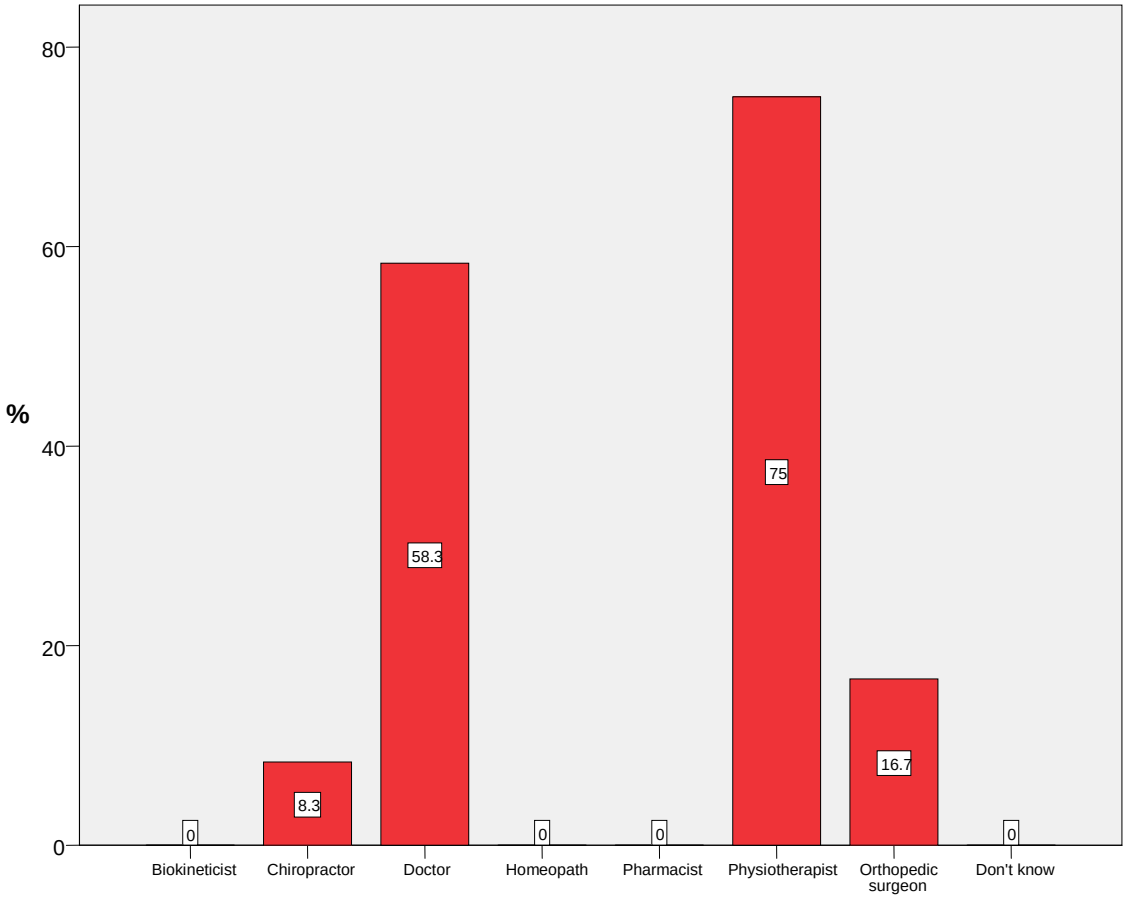

Figure 4.34: Nominated practitioners for patella tendonitis by medical commission respondents

4.5.3.1.14 Frozen Shoulder

Frozen shoulder was mainly perceived to be treated by Medical Doctors (75%).

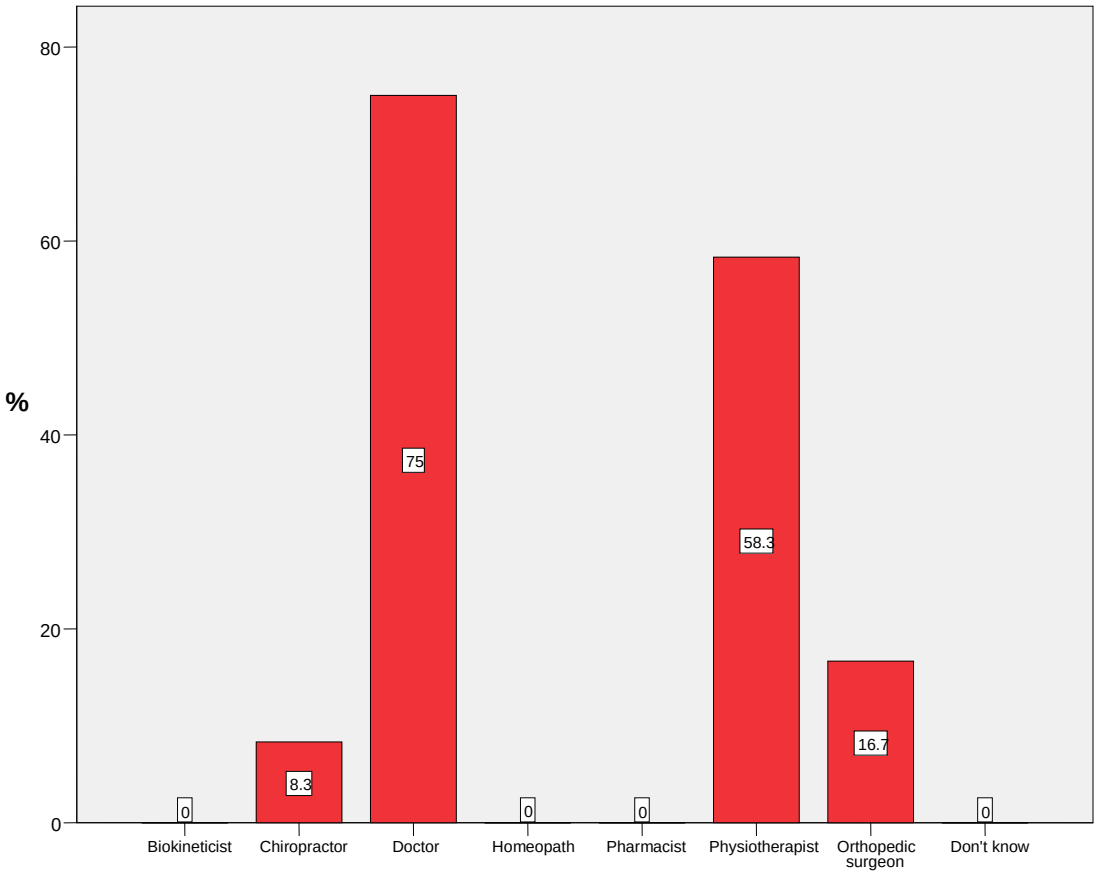

Figure 4.35: Nominated practitioners for frozen shoulder by medical commission respondents

4.5.3.1.15 Ligament Injuries

Ligament injuries were mainly perceived to be treated by Physiotherapists (75%) and Medical Doctors (58.3%).

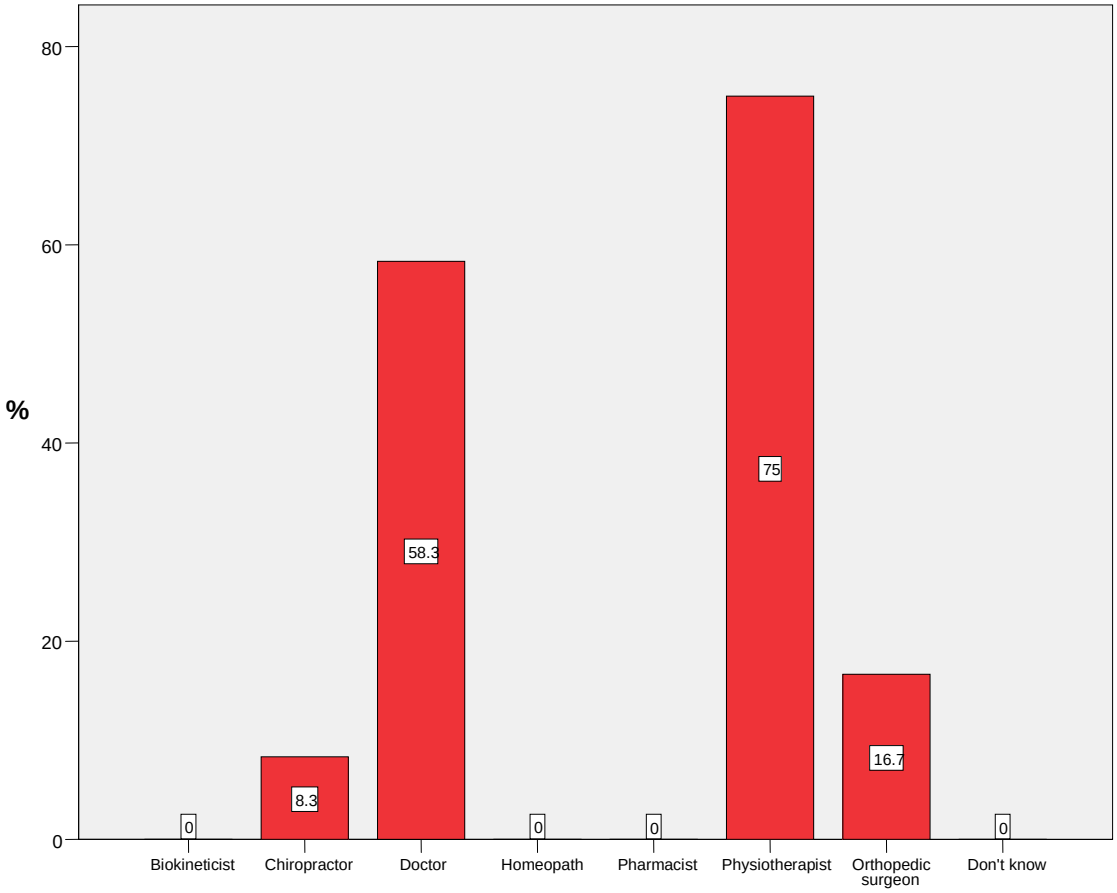

Figure 4.36: Nominated practitioners for ligament injuries by medical commission respondents

4.5.3.1.16 Low Back Pain (LBP)

LBP was perceived to be treated equally by Medical Doctors (66.7%) and Physiotherapists (66.7%).

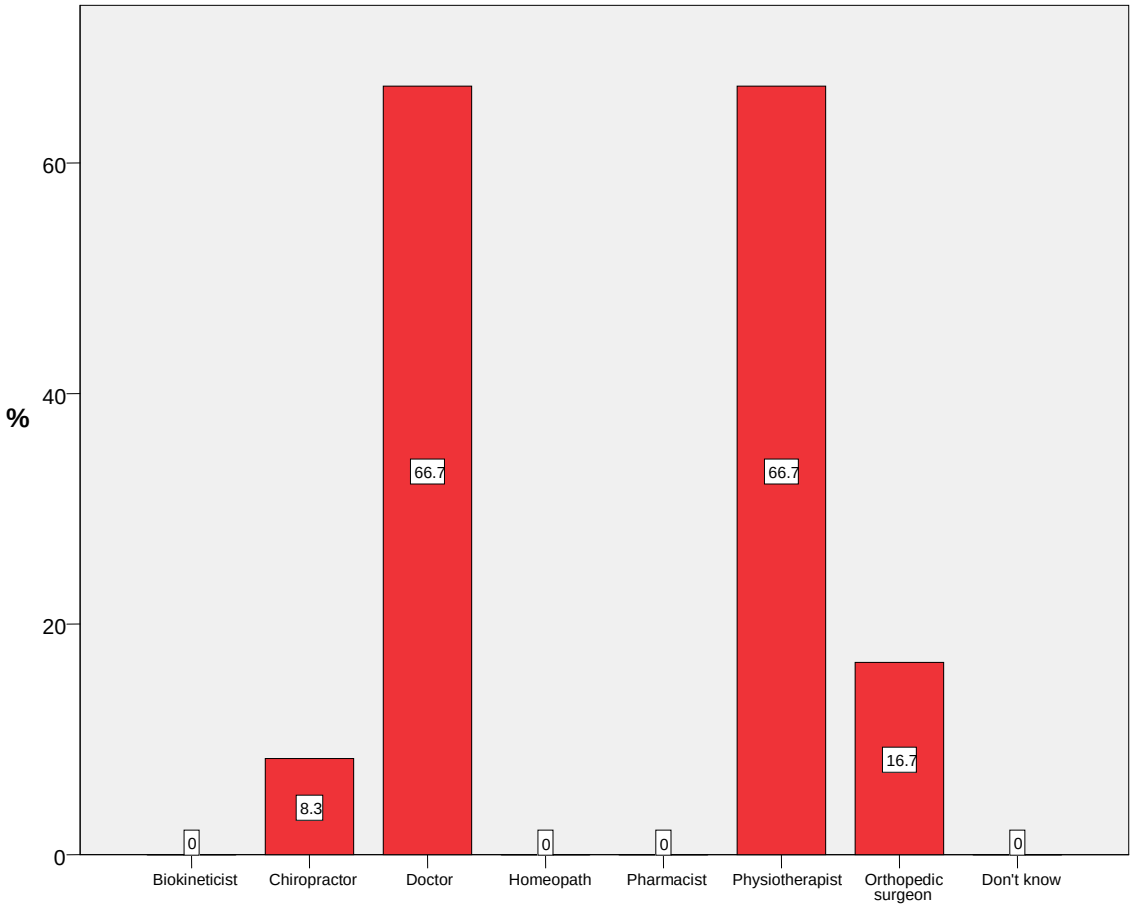

Figure 4.37: Nominated practitioners for LBP by medical commission respondents

4.5.3.1.17 Muscle Stiffness

Muscle stiffness was mainly perceived to be treated by Physiotherapists (75%).

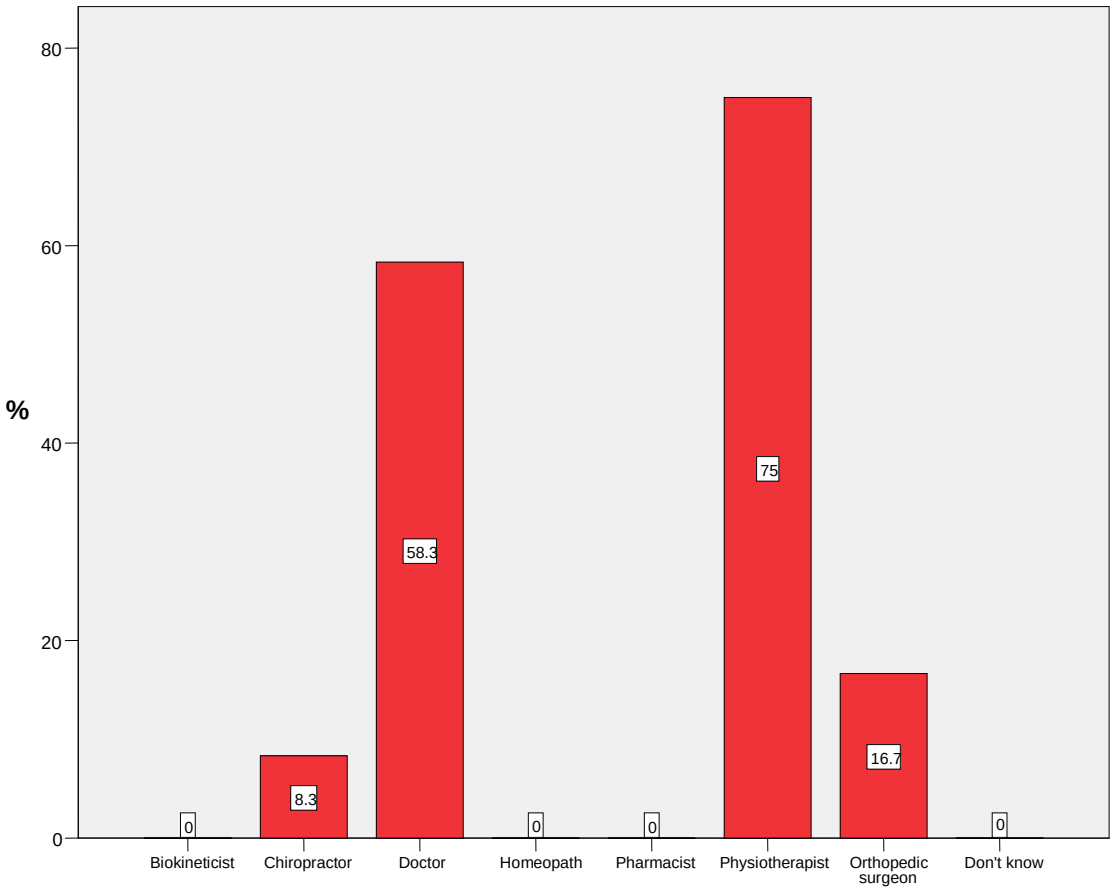

Figure 4.38: Nominated practitioners for muscle stiffness by medical commission respondents

4.5.3.2 Question 8

With reference to question 8:

"Please rank the following health care providers from 1 to 12, based on who your NOC believes to be most important to any sports medical team (1 being most important and 12 being least important)" (Appendix C-2).

The medical members ranked Medical Doctors first, followed by Orthopaedic Surgeons and Physiotherapists. Chiropractors were ranked 8th.

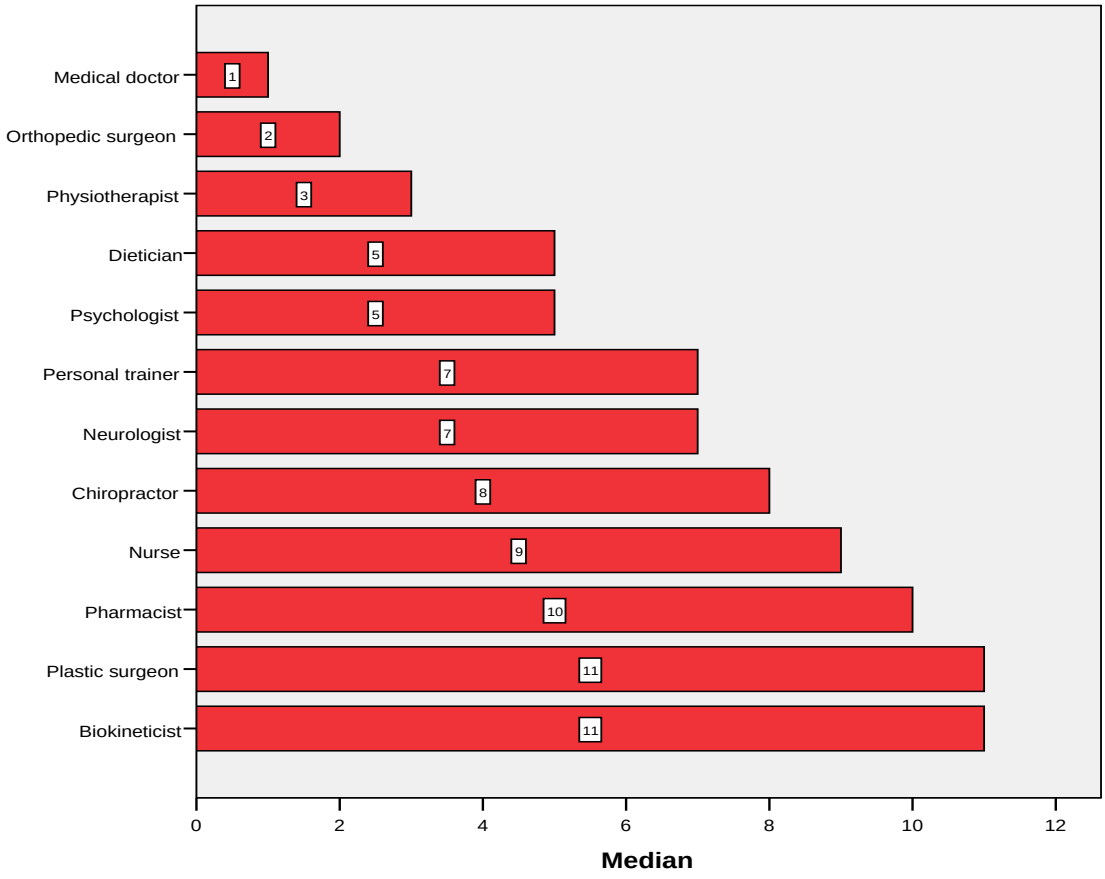

Figure 4.39: Median ranking of health care professionals by medical commission respondents

4.5.3.3 Question 11

With reference to question 11:

"Which of the following roles would you classify Chiropractic care as fulfilling in the health care system." (Appendix C-2).

Medical commission respondents felt equally strongly about Chiropractic's role being both curative (58.33%) and rehabilitative (58.33%) (Figure 4.40).

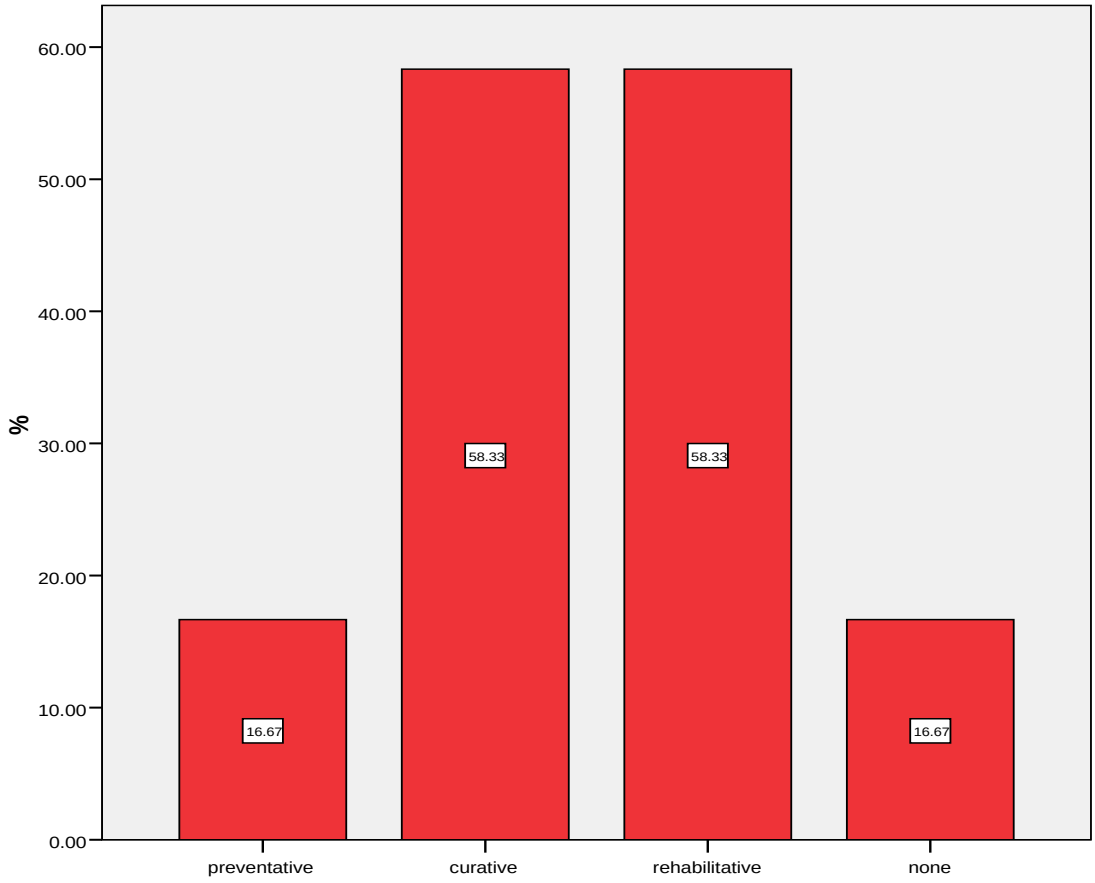

Figure 4.40: Median ranking of the role of Chiropractic by medical commission respondents

4.5.4 Objective THREE of the Study

OBJECTIVE THREE:

To determine the NOCs *utilisation* of Chiropractic.

4.5.4.1 Question 9

With reference to question 9:

"Which of the following techniques / modalities should be provided by the health care practitioner taking care of your Olympic athletes? " (Appendix C-2).

Figure 4.41 shows the percentage of respondents who ticked each of the listed modalities for question 9. The most frequently chosen modality was dietary advice (96.3%) followed by massage (88.9%). The least commonly chosen treatment was manipulation of the spine and extremities (51.9%).

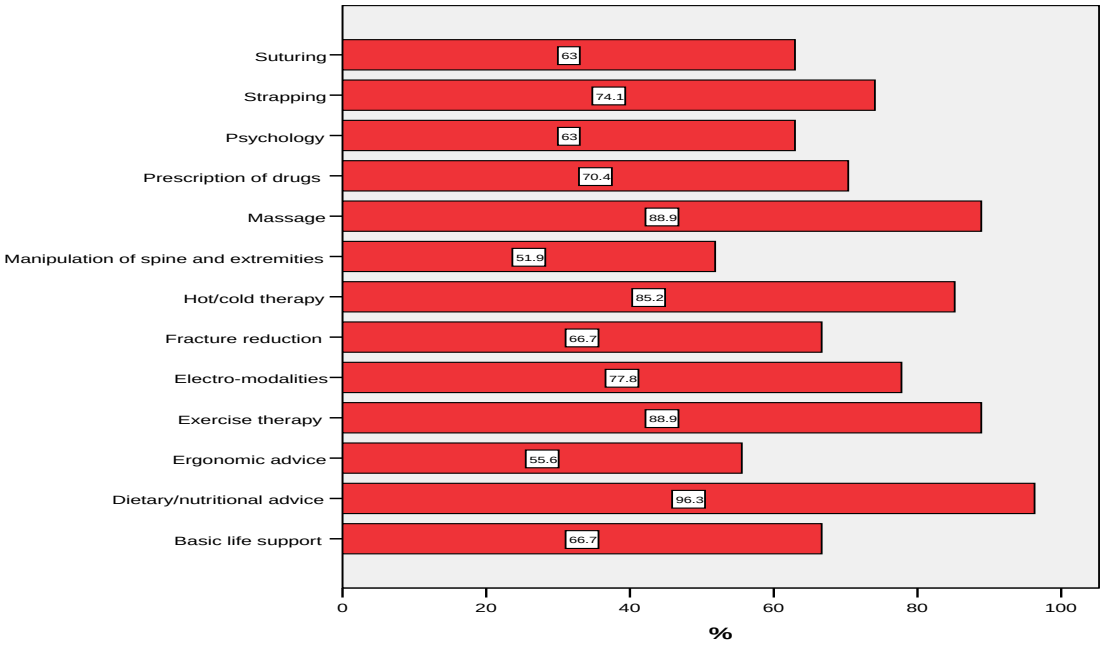

Figure 4.41: Techniques provided by the health care practitioner raking care of the Olympic teams

4.5.4.2 Question 10

With reference to question 10:

"Which of the following health care providers are currently part of your Olympic medical team? (minimum requirements for competition)" **(**Appendix C-2).

Figure 4.42 shows that only 14.8% of the respondents had a Chiropractor as part of their team. 88.9% had a Medical Doctor on the team, while 81.5% had a Physiotherapist.

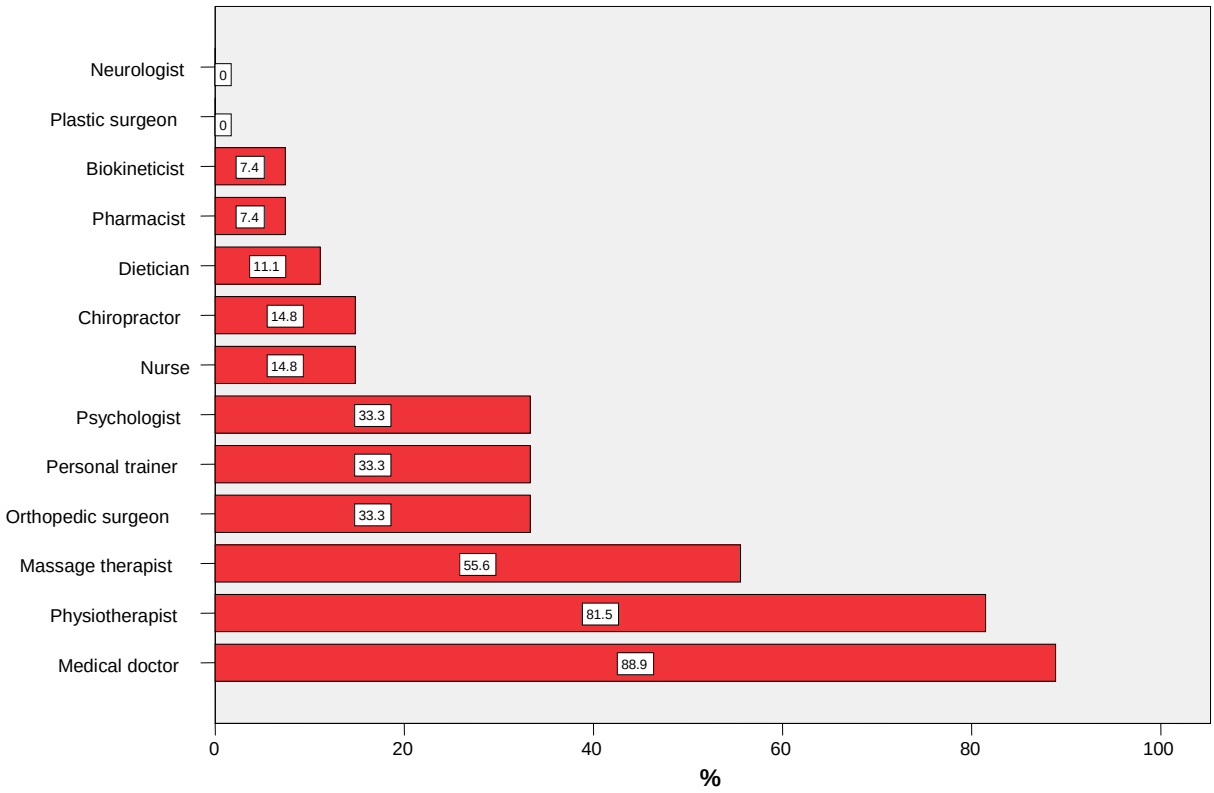

Figure 4.42: Median ranking of the role of Chiropractic by medical commission respondents

4.5.4.3 Question 12

4.5.4.3.1 Question 12a

With reference to question 12a:

"Do athletes within your Olympic team make use of Chiropractic care?" (Appendix C-2)

Just over half the sample reported that their team's athletes do use Chiropractic care (51.9%).

Table 4.9: Do athletes within your Olympic team make use of Chiropractic care?

		Frequency	Percent
Valid	No	7	25.9
	Yes	14	51.9
	Don't know	6	22.2
	Total	**27**	**100.0**

4.5.4.3.2 Question 12b

With reference to question 12b:

"If YES, when?

- **Any time, Chiropractors are always available**
- **During competition, when Chiropractors are provided**
- **On their own time, and without the support or knowledge of the medical team"**

(Appendix C-2)

Of the 14 who answered "yes" to question 12a, only 7 went on to answer question 12b (Table 4.10). Of the 7 that responded, 85.7% of these said it was during competition.

Table 4.10: If YES (Table 4.9), when?

		Frequency	Percent
Valid	Any time	1	14.3
	During competition	6	85.7
	Total	**7**	**100.0**

4.5.4.4 Question 13

With reference to question 13:
"Have you had any requests for Chiropractors by athletes?" (Appendix C-2).

40.8% of respondents said that they had had requests for Chiropractors by athletes (Table 4.11).

Table 4.11: Have you had any requests for Chiropractors by athletes?

		Frequency	Valid Percent
Valid	No	16	59.2
	Yes	11	40.8
	Total	**27**	**100.0**

4.5.4.5 Question 14

With reference to question 14:
"**Would you be more likely to utilise a Chiropractor with specialized, post-graduate training in sports injuries? (ICSSD)"** (Appendix C-2).

74.1% answered positively to question 14 (Table 4.12).

Table 4.12: Would you be more likely to utilise a Chiropractor with specialized, post-graduate training in sports injuries? (ICSSD)

		Frequency	Percent
Valid	No	7	25.9
	Yes	20	74.1
	Total	**27**	**100.0**

4.5.4.6 Question 15

4.5.4.6.1 Question 15a

With reference to question 15a:
"**Have you ever been treated by a Chiropractor**?" (Appendix C-2).

Only 29.6% of respondents had ever been treated by a Chiropractor (Table 4.13). Of these 8 respondents who had been treated by a Chiropractor, 6 gave positive feedback.

Table 4.13: Have you ever been treated by a Chiropractor?

		Executive Committee	Medical Commission	Frequency	Percent
Valid	No	11	8	19	70.4
	Yes	4	4	8	29.6
	Total	**15**	**12**	**27**	**100.0**

4.5.4.6.2 Question 15b

With reference to question 15b:
"If YES, what has been your experience?" (Appendix C-2).

Written responses:

"excellent helped to correct alignment particular after travelling and carrying heavy bags etc"

"I am a chiropractor"

"the quality of the information and education of Chiropractic is very disparate"

"excellent"

"good experience 10 years ago"

"temporary effects"

"good"

"positive"

4.5.5 Objective FOUR of the Study

OBJECTIVE FOUR:

To compare the knowledge and perception differences between the executive committees and medical commissions of the NOCs.

4.5.5.1 Question 7

With reference to question 7:

"Which health care practitioner would your NOC nominate for athletes to consult if they suffered from each of the following conditions:
(choose from Biokineticist, Chiropractor, Physiotherapist, GP, Pharmacist, Homeopath or Don't Know)" (Appendix C-2)

It should be noted that with respect to question 7, the respondents were able to select more than one option, therefore total percentages for the figures may not total 100% (see Figure 4.3 to Figure 4.19).

Even though there were a set number of practitioners in the questionnaire for the respondents to choose from, some respondents chose to give an alternative option (e.g. Orthopaedic Surgeon). As a result, this was included in the data capturing to accurately reflect their views.

4.5.5.1.1 Ankle sprain

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for ankle injuries (p=0.031).

Table 4.14: Ankle sprain[6]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Medical Doctor	No	10	66.7%	3	25.0%	0.031
	Yes	5	33.3%	9	75.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	5	33.3%	3	25.0%	0.696
	Yes	10	66.7%	9	75.0%	
Orthopaedic Surgeon	No	14	93.3%	10	83.3%	0.569
	Yes	1	6.7%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[6] Grey highlighted areas indicate significant difference.

4.5.5.1.2 Tendonitis

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for tendonitis (p=0.038).

Table 4.15: Tendonitis[7]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	
Chiropractor	No	12	80.0%	12	100.0%	0.231
	Yes	3	20.0%	0	.0%	
Medical Doctor	No	11	73.3%	4	33.3%	0.038
	Yes	4	26.7%	8	66.7%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	8	53.3%	6	50.0%	0.863
	Yes	7	46.7%	6	50.0%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	

[7] Grey highlighted areas indicate significant difference.

4.5.5.1.3 Joint Instability

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for joint instability (p=0.038).

Table 4.16: Joint Instability[8]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	
Chiropractor	No	11	73.3%	12	100.0%	0.106
	Yes	4	26.7%	0	.0%	
Medical Doctor	No	11	73.3%	4	33.3%	0.038
	Yes	4	26.7%	8	66.7%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	9	60.0%	6	50.0%	0.603
	Yes	6	40.0%	6	50.0%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	

[8] Grey highlighted areas indicate significant difference.

4.5.5.1.4 Overuse Syndromes

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for overuse syndromes (p=0.040).

Table 4.17: Overuse Syndromes[9]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Chiropractor	No	12	80.0%	11	91.7%	0.605
	Yes	3	20.0%	1	8.3%	
Medical Doctor	No	12	80.0%	5	41.7%	0.040
	Yes	3	20.0%	7	58.3%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	6	40.0%	5	41.7%	1.000
	Yes	9	60.0%	7	58.3%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[9] Grey highlighted areas indicate significant difference.

4.5.5.1.5 Patellofemoral Pain Syndrome (PFPS)

No significant difference was noted between the executive committee respondents and the medical commission respondents in terms of the providers that they felt were appropriate for the treatment of athletes with PFPS.

Table 4.18: Patellofemoral Pain Syndrome

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Chiropractor	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	
Medical Doctor	No	12	80.0%	6	50.0%	0.127
	Yes	3	20.0%	6	50.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	10	66.7%	5	41.7%	0.194
	Yes	5	33.3%	7	58.3%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	11	73.3%	11	91.7%	0.342
	Yes	4	26.7%	1	8.3%	

4.5.5.1.6 Muscle Strains

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for muscle strains (p=0.037).

Table 4.19: Muscle Strains[10]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	15	100.0%	11	91.7%	0.444
	Yes	0	.0%	1	8.3%	
Medical Doctor	No	13	86.7%	5	41.7%	0.037
	Yes	2	13.3%	7	58.3%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	3	20.0%	5	41.7%	0.398
	Yes	12	80.0%	7	58.3%	
Orthopaedic Surgeon	No	13	86.7%	11	91.7%	1.000
	Yes	2	13.3%	1	8.3%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[10] Grey highlighted areas indicate significant difference.

4.5.5.1.7 Whiplash

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for whiplash (p=0.038).

Table 4.20: Whiplash[11]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	12	80.0%	12	100.0%	0.231
	Yes	3	20.0%	0	.0%	
Medical Doctor	No	11	73.3%	4	33.3%	0.038
	Yes	4	26.7%	8	66.7%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	9	60.0%	5	41.7%	0.343
	Yes	6	40.0%	7	58.3%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	

[11] Grey highlighted areas indicate significant difference.

4.5.5.1.8 Recurrent Dislocation

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for recurrent dislocations (p=0.013). Executive respondents were significantly more likely than medical respondents to chose Chiropractors for dislocations (p=0.047).

Table 4.21: Recurrent Dislocation[12]

		group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Chiropractor	No	10	66.7%	12	100.0%	0.047
	Yes	5	33.3%	0	.0%	
Medical Doctor	No	11	73.3%	3	25.0%	0.013
	Yes	4	26.7%	9	75.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	11	73.3%	7	58.3%	0.448
	Yes	4	26.7%	5	41.7%	
Orthopaedic Surgeon	No	12	80.0%	10	83.3%	1.000
	Yes	3	20.0%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[12] Grey highlighted areas indicate significant difference.

4.5.5.1.9 Headaches

No significant difference was noted between the executive committee respondents and the medical commission respondents in terms of the providers that they felt were appropriate for the treatment of athletes with headaches. The only difference that approximated significance was that seen in terms of Physiotherapy and it is possible that with a larger response sample, this may have become significant.

Table 4.22: Headaches[13]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Medical Doctor	No	2	13.3%	2	16.7%	1.000
	Yes	13	86.7%	10	83.3%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	
Physiotherapist	No	15	100.0%	9	75.0%	0.075
	Yes	0	.0%	3	25.0%	
Orthopaedic Surgeon	No	14	93.3%	11	91.7%	1.000
	Yes	1	6.7%	1	8.3%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[13] Grey highlighted areas indicate significant difference.

4.5.5.1.10 Fractures

No significant difference was noted between the executive committee respondents and the medical commission respondents in terms of the providers that they felt were appropriate for the treatment of athletes with fractures.

Table 4.23: Fractures

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Medical Doctor	No	4	26.7%	3	25.0%	1.000
	Yes	11	73.3%	9	75.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	12	80.0%	9	75.0%	1.000
	Yes	3	20.0%	3	25.0%	
Orthopaedic Surgeon	No	12	80.0%	10	83.3%	1.000
	Yes	3	20.0%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

4.5.5.1.11 Disc Herniation

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for disc herniation (p=0.031).

Table 4.24: Disc Herniation[14]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	
Chiropractor	No	13	86.7%	11	91.7%	1.000
	Yes	2	13.3%	1	8.3%	
Medical Doctor	No	10	66.7%	3	25.0%	0.031
	Yes	5	33.3%	9	75.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	11	73.3%	7	58.3%	0.448
	Yes	4	26.7%	5	41.7%	
Orthopaedic Surgeon	No	12	80.0%	10	83.3%	1.000
	Yes	3	20.0%	2	16.7%	
Don't know	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	

[14] Grey highlighted areas indicate significant difference.

4.5.5.1.12 Impingement Syndromes

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for impingement syndromes (p=0.031). It is however also worth noting that there was a significant difference between the two responding groups where less medical commission respondents indicated that they didn't know who the best provider was in the treatment of impingement syndromes.

Table 4.25: Impingement Syndromes[15]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Chiropractor	No	13	86.7%	11	91.7%	1.000
	Yes	2	13.3%	1	8.3%	
Medical Doctor	No	10	66.7%	3	25.0%	0.031
	Yes	5	33.3%	9	75.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	13	86.7%	7	58.3%	0.185
	Yes	2	13.3%	5	41.7%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	10	66.7%	12	100.0%	0.047
	Yes	5	33.3%	0	.0%	

[15] Grey highlighted areas indicate significant difference.

4.5.5.1.13 Patella Tendonitis

Executive respondents were significantly less likely than medical respondents to choose Medical Doctors in the treatment of patella tendonitis (p=0.057).

Table 4.26: Patella Tendonitis[16]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Chiropractor	No	14	93.3%	11	91.7%	1.000
	Yes	1	6.7%	1	8.3%	
Medical Doctor	No	12	80.0%	5	41.7%	0.057
	Yes	3	20.0%	7	58.3%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	8	53.3%	3	25.0%	0.137
	Yes	7	46.7%	9	75.0%	
Orthopaedic Surgeon	No	12	80.0%	10	83.3%	1.000
	Yes	3	20.0%	2	16.7%	
Don't know	No	13	86.7%	12	100.0%	0.487
	Yes	2	13.3%	0	.0%	

[16] Grey highlighted areas indicate significant difference.

4.5.5.1.14 Frozen Shoulder

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for the treatment of a frozen shoulder (p=0.001).

Table 4.27: Frozen Shoulder[17]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	11	73.3%	11	91.7%	0.342
	Yes	4	26.7%	1	8.3%	
Medical Doctor	No	13	86.7%	3	25.0%	0.001
	Yes	2	13.3%	9	75.0%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	8	53.3%	5	41.7%	0.547
	Yes	7	46.7%	7	58.3%	
Orthopaedic Surgeon	No	12	80.0%	10	83.3%	1.000
	Yes	3	20.0%	2	16.7%	
Don't know	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	

[17] Grey highlighted areas indicate significant difference.

4.5.5.1.15 Ligament Injury

No significant difference was noted between the executive committee respondents and the medical commission respondents in terms of the providers that they felt were appropriate for the treatment of athletes with ligament injury.

Table 4.28: Ligament Injury

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	14	93.3%	11	91.7%	1.000
	Yes	1	6.7%	1	8.3%	
Medical Doctor	No	10	66.7%	5	41.7%	0.194
	Yes	5	33.3%	7	58.3%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Physiotherapist	No	5	33.3%	3	25.0%	0.696
	Yes	10	66.7%	9	75.0%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

4.5.5.1.16 Lower Back Pain (LBP)

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for LBP (p=0.038).

Table 4.29: LBP[18]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Chiropractor	No	10	66.7%	11	91.7%	0.182
	Yes	5	33.3%	1	8.3%	
Medical Doctor	No	11	73.3%	4	33.3%	0.038
	Yes	4	26.7%	8	66.7%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	10	66.7%	4	33.3%	0.085
	Yes	5	33.3%	8	66.7%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[18] Grey highlighted areas indicate significant difference.

4.5.5.1.17 Muscle Stiffness

Medical respondents were significantly more likely than executive respondents to choose Medical Doctors for muscle stiffness (p=0.014).

Table 4.30: Muscle Stiffness[19]

		Group				p value
		Executive		Medical		
		Count	%	Count	%	
Biokineticist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Chiropractor	No	13	86.7%	11	91.7%	1.000
	Yes	2	13.3%	1	8.3%	
Medical Doctor	No	13	86.7%	5	41.7%	0.014
	Yes	2	13.3%	7	58.3%	
Homeopath	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	
Pharmacist	No	14	93.3%	12	100.0%	1.000
	Yes	1	6.7%	0	.0%	
Physiotherapist	No	5	33.3%	3	25.0%	0.696
	Yes	10	66.7%	9	75.0%	
Orthopaedic Surgeon	No	13	86.7%	10	83.3%	1.000
	Yes	2	13.3%	2	16.7%	
Don't know	No	15	100.0%	12	100.0%	-
	Yes	0	.0%	0	.0%	

[19] Grey highlighted areas indicate significant difference.

4.5.5.2 Question 8

With reference to question 8:

"Please rank the following health care providers from 1 to 12, based on who your NOC believes to be most important to any sports medical team (1 being most important and 12 being least important)" (Appendix C-2).

The medical and executive respondents tended to rank the health care providers similarly, except for Orthopaedic Surgeons (p=0.041) which was the only health care provider which was ranked significantly differently between the groups. The medical respondents ranked them much higher than the executive respondents. Figure 4.42 shows the median rankings by group.

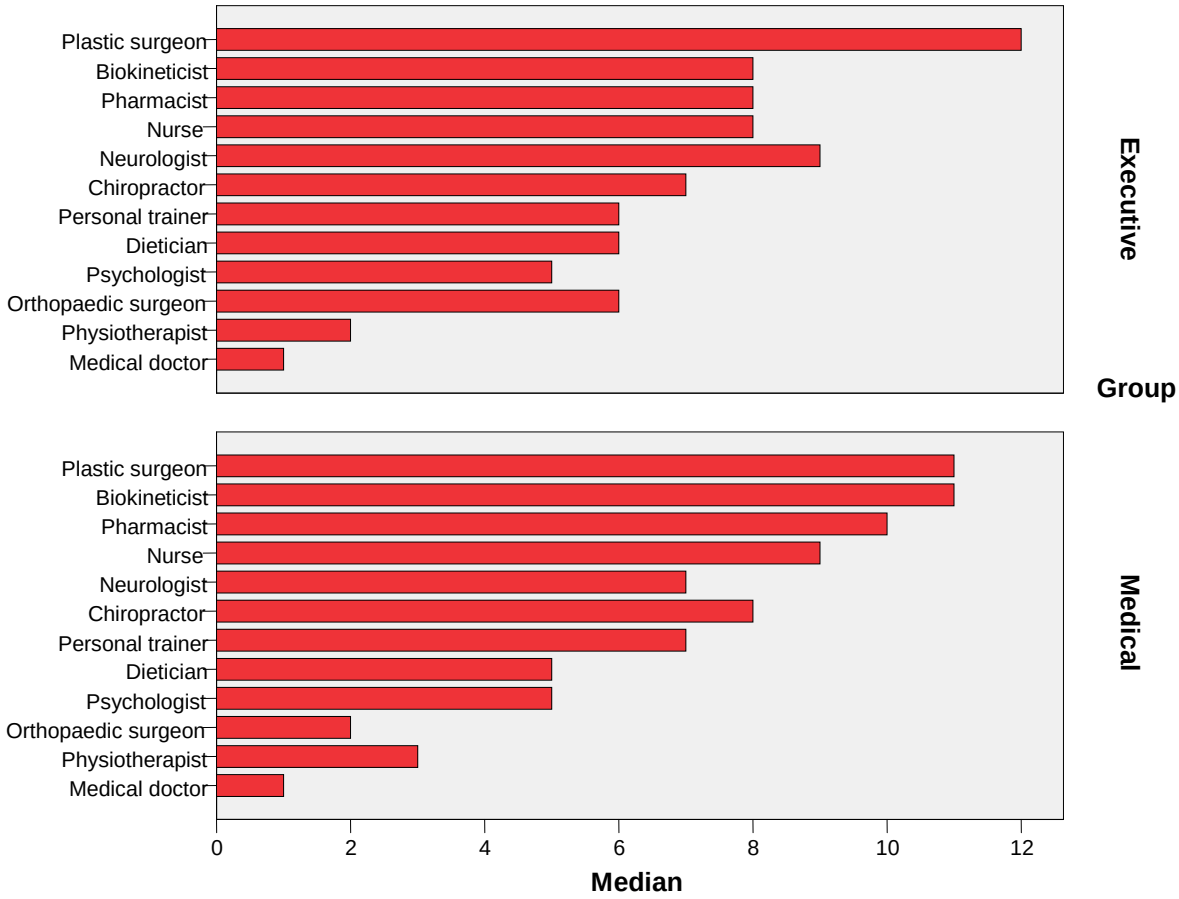

Figure 4.43: Median ranking of health care providers by group

Table 4.31: Mann- Whitney test for comparison of median ranking between the groups.

group	Biokineticist	Chiropractor	Dietician	Medical Doctor	Nurse	Neurologist	Orthopaedic Surgeon	Personal trainer	Pharmacist	Physiotherapist	Plastic Surgeon	Psychologist
Executive	8.00	7.00	5.50	1.00	8.00	9.00	6.00	6.00	8.00	2.00	12.00	5.50
Medical	11.00	8.00	5.00	1.00	8.50	7.00	2.50	7.00	10.00	3.00	11.00	5.50
Total	9.00	7.50	5.00	1.00	8.00	8.00	3.00	6.50	9.00	2.50	12.00	5.50
p value	0.067	0.392	0.494	0.829	0.403	0.057	0.041	0.531	0.101	0.297	0.209	0.820

4.5.5.3 Question 11

With reference to question 11:

"Which of the following roles would you classify Chiropractic care as fulfilling in the health care system." (Appendix C-2).

There was a significant difference between the groups in terms of perceiving Chiropractors' roles as preventative (p=0.009). The executive committees were more likely to state that the role of Chiropractors was preventative (66.7%) as opposed to the medical commission respondents (16.7%). This is shown in Table 4.32.

Table 4.32: Role perceived as being preventative

			Preventative		**Total**
			No	Yes	
group	Executive	Count	5	10	**15**
		% within group	33.3%	66.7%	**100.0%**
	Medical	Count	10	2	**12**
		% within group	83.3%	16.7%	**100.0%**
Total		Count	15	12	**27**
		% within group	55.6%	44.4%	**100.0%**

Pearson's chi square = 6.75, p=0.009

There was a non-significant difference between the groups in terms of perceiving Chiropractors' roles as curative (p=0.096). The medical commission respondents were more likely to state the Chiropractors role as curative (58.3%) than the executive committee respondents (26.7%). This is shown in Table 4.33.

Table 4.33: Role perceived as being curative

			Curative		**Total**
			No	Yes	
group	Executive	Count	11	4	**15**
		% within group	73.3%	26.7%	**100.0%**
	Medical	Count	5	7	**12**
		% within group	41.7%	58.3%	**100.0%**
Total		Count	16	11	**27**
		% within group	59.3%	40.7%	**100.0%**

Pearson's chi square = 2.77, p=0.096

There was a non-significant difference between the groups in terms of perceiving Chiropractors' roles as rehabilitative (p=0.060). The executive committee respondents were more likely to state the Chiropractors role as rehabilitative (93.3%) than the medical commission respondents (58.3%). This is shown in Table 4.34.

Table 4.34: Chiropractic perceived as rehabilitative

			rehabilitative		**Total**
			No	Yes	
group	Executive	Count	1	14	**15**
		% within group	6.7%	93.3%	**100.0%**
	Medical	Count	5	7	**12**
		% within group	41.7%	58.3%	**100.0%**
Total		Count	6	21	**27**
		% within group	22.2%	77.8%	**100.0%**

Fisher's exact p=0.060

4.5.6 Objective FIVE of the Study

OBJECTIVE FIVE:

To determine any correlations between the knowledge and perception of Chiropractic, and the utilisation of Chiropractic.

4.5.6.1 Knowledge and Perception:

Table 4.35 shows that the respondents who viewed Chiropractic as both curative and rehabilitative tended to rank Chiropractic slightly higher (lower ranking score means higher rank) than the respondents with other views (viz. rehabilitative). However, there was no significant difference in the rankings between the groups (p=0.939). Therefore, knowledge and perception of Chiropractic were not associated.

Table 4.35: Median rank of knowledge of Chiropractic (Question 8) by role of Chiropractic (Question 11)

Role of Chiropractic (Perception)	Median rank of Chiropractic (Knowledge)
Curative	7.50
Rehabilitative	8.00
Both preventative and rehabilitative	7.50
Both curative and rehabilitative	5.50
p value	0.939

4.5.6.2 Knowledge and Utilisation of Chiropractors:

There was a statistically significant association between use of Chiropractors on the Olympic medical team and knowledge of Chiropractic (p=0.037). Those who utilise a Chiropractor on the medical team ranked Chiropractors higher (lower ranking score means higher rank) compared to those who did not use Chiropractors.

Table 4.36: Median rank of Chiropractic by use of Chiropractor

Chiropractor as part of a medical team (Utilisation)	Median rank of Chiropractic (Knowledge)
No	8.00
Yes	4.00
p value	0.037

4.5.6.3 Perception and Utilisation of Chiropractic

There was no association between perception and use of Chiropractic (Table 4.37). Those who thought that Chiropractic had a preventative role were more likely to have a Chiropractor as part of the team but it was not statistically significant (p=0.294). Those who thought Chiropractic had a curative role were less likely to have a Chiropractor on the team but the difference was not statistically significant (p=0.624). Those who thought that Chiropractic had a rehabilitative role were more likely to have a Chiropractor as part of the team but it was not statistically significant (p=0.545). Those who thought Chiropractic had no role were less likely to have a Chiropractor on the team but the difference was not statistically significant (p=1.000).

Table 4.37: Knowledge of Chiropractic by use of Chiropractor

Role of Chiropractic (Perception)		Chiropractor as part of a medical team (Utilisation)				p value
		No		Yes		
		Count	%	Count	%	
Preventative	No	14	60.9%	1	25.0%	0.294
	Yes	9	39.1%	3	75.0%	
Curative	No	13	56.5%	3	75.0%	0.624
	Yes	10	43.5%	1	25.0%	
Rehabilitative	No	6	26.1%	0	.0%	0.545
	Yes	17	73.9%	4	100.0%	
None	No	21	91.3%	4	100.0%	1.000
	Yes	2	8.7%	0	.0%	

4.6 Conclusion

In conclusion, the above results will be further analysed and discussed in Chapter Five. In Chapter Five, the above results will be analysed in terms of the literature reviewed in terms of the objectives of the study as outlined in Chapter One (section 1.2).

CHAPTER FIVE : DISCUSSION

5.1 Introduction

The following chapter will cover a more detailed discussion of the results obtained in Chapter Four. Analysis of any trends that became evident will also be discussed.

5.2 Demographics and Response Rate

5.2.1 Demographics

Of the 410 possible questionnaires sent out to the 205 NOCs worldwide, there were 76 NOCs who responded to the study. Of the responding NOCs, 26 completed and returned 27 questionnaires (Table 4.1). Fifteen of the responses were from the executive committee and 12 were from the medical commissions (Figure 4.1). The remaining 50 responding NOCs responded negatively.

Five of the questionnaires were completed by the medical commission Chair / Head / President / Director, and 3 by the executive committee President or Vice President. This shows that 30% of the respondents were high ranking in their respective NOCs and had numerous years of experience within that NOC (Table 4.2). The remaining 70% of the respondents were ordinary members.

Fourteen of the respondents had less than 10 years experience as a member of their NOC. Eight respondents had between 10-19 years experience; 4 respondents had between 20-29 years experience and only 1 respondent had over 30 years experience. From this it can be seen that half of the respondents (i.e. 13) had a considerable amount of experience and spent over a decade serving their respective NOC (Table 4.3).

With respect to the respondents' country of residence (Table 4.4), 10 were from Europe (EOC), 7 from America (PASO), 5 from Africa (ANOCA), 4 from Oceania (ONOC) and 1 was from Asia (OCA). Surprisingly, 2 of the countries with the longest history of Chiropractic (USA and Canada) did not respond to the questionnaires sent to them.

Only 33% of the respondents had represented their country as an athlete (Table 4.5), the majority of which represented their country during the 1980's. Of the rest 3, were in the 1970's, 5 in the 1990's and 2 after 2000 (Table 4.6).

Most of the respondents were highly educated with 93% having been awarded a bachelor's degree or a qualification higher than a bachelor's degree.

5.2.2. Response Rate Norms According to Literature:

According to Lindorff-Larsen et al (2007), questionnaire return rates that fall below 30% are *not* generalisable to the population under study. This is supported by the findings of Louw and Myburgh (2007), Mearns and Reader (2007), Suter, Vanderheyden, Trojan, Verhoef and Armitage (2007) and Symon, McStea and Murphy-Black (2006). A more ideal minimum return rate is one that is over 30% because studies have shown that a better response rate is more generalizable to the population under study. An example of this was seen in the study undertaken by Copp, Caldwell, Atwal, Brett-Richards and Coleman (2007) where the response rate yield was 43%.

There are a number of factors that have been found to affect response rates. According to Barclay, Todda, Finlay, Grande and Wyatt (2002) and Etzel and Walker (1974), the timing of reminders is important, and at least 3 reminders should be sent. In a study by Asch, Jedrziewski and Christakis (1997), it was found in their study of published surveys of physicians that the mean response rate was less (54%) than that of non-physicians (68%). Other factors to consider are questionnaire colour and design (LaGarce and Kuhn, 1995), questionnaire length, follow-up methods, and geographical location and how they have an effect on response rate (Sheth and Roscoe, 1975). With particular

reference to this study, the most significant impact with respect to response rate was directly related to the pre Olympic Games preparation, 2008 Olympic Games and the post Olympic Games briefings. It is therefore recommended that in the event of future Olympic related research being conducted, that the data collection does not take place within an Olympic year.

As a result of the above, this study had more non-medical responses (56%) than medical responses (44%).

Follow up methods involved contacting the NOCs telephonically at 2 week intervals. Of the responding NOCs, only 1 did not need to be contacted by phone as they returned the questionnaire immediately (New Zealand); 5 NOCs only required 1 follow up call; 6 required 2 follow up calls and the rest required 3 or more follow up calls.

5.3 Results

5.3.1 Objective One

OBJECTIVE ONE:
To determine the NOCs executive committee's knowledge, and perception of Chiropractic.

In the Olympic Games setting it is vital that the health care provider fulfil the role of being both preventative and curative in the treatment of Olympic athletes. These athletes want both to prevent injuries during the Games and cure injuries incurred before / during the Games so that they may still compete (Theberge, 2008). Therefore, Table 5.1 lists some of the most common problems an athlete could be faced with during training and/or competition (e.g. the Olympic Games). It can be seen from these that most respondents of the executive committee felt that their first choice in practitioner for the majority of the above conditions was a Physiotherapist and/or Medical Doctor. The 3 conditions where Chiropractic had been chosen was "dislocation" (33.3%), "frozen shoulder" (26.7%) and "LBP" (33.3%). These results show a poor understanding of the scope of practice of Chiropractic by the executive committee respondents.

Table 5.1: Comparison in executive committees' knowledge and perception of Chiropractic based on question 7 (Figure 4.3 - Figure 4.19)[20]

Condition	Practitioner 1st choice	%	Practitioner 2nd choice	%	Chiropractic %
Ankle sprain	Physiotherapist	66.7	Medical Doctors	33.3	6.9
Tendonitis	Physiotherapist	46.7	Medical Doctors	26.7	20
Joint instability	Physiotherapist	40	Medical Doctors	26.7	26.7
Overuse syndromes	Physiotherapist	60	Medical Doctors	20	20
PFPS	Physiotherapist	33.3	Don't know Medical Doctor	26.7 20	13.3
Muscle strains	Physiotherapist	80	Medical Doctors	13.3	0
Whiplash	Physiotherapist	40	Medical Doctors	26.7	20
Dislocation	Chiropractors	33.3	Medical Doctors Physiotherapist	26.7 26.7	33.3
Headaches	Medical Doctors	86.7	Pharmacists	13.3	6.7
Fractures	Medical Doctors	73.3	Physiotherapist Orthopaedic Surgeon	20 20	6.7
Disc herniation	Medical Doctors	33.3	Physiotherapist	26.7	13.3
Impingement	Medical Doctors	33.3	Don't know	33.3	13.3
Patella tendonitis	Physiotherapist	46.7	Medical Doctor Orthopaedic Surgeon	20 20	6.7
Frozen shoulder	Physiotherapist	46.7	Chiropractor	26.7	26.7
Ligament injury	Physiotherapist	66.7	Medical Doctor	33.3	6.7
LBP	Chiropractor Physiotherapist	33.3 33.3	Medical Doctor	26.7	33.3
Muscle stiffness	Physiotherapist	33.3	Chiropractor Medical Doctor	13.3 13.3	13.3

[20] Grey indicates conditions where Chiropractic had over 25% or was a 1st or 2nd choice by practitioners.

The above results are possible in that the majority of conditions reflected in Table 5.1 are amenable to Chiropractic care according to the Associated (Allied) Health Professions Act (1982) (see section 2.2.2).

However, it could be seen that the outcomes of this research indicate that the respondents view Chiropractic in line with the WFC (as delineated in the Identity Document) (Carey et al., 2005). This document indicates that the emphasis for Chiropractic care should be spinal care, even though it is acknowledged in the same document that the Chiropractor should encompass:

> "A patient-centered and biopsychosocial approach, emphasizing the mind/body relationship in health, the self-healing powers of the individual, and individual responsibility for health and encouraging patient independence."

This latter statement indicates that the scope of practice of Chiropractic is actually larger than just the emphasised spinal care. This may however be lost on the general public and thus also the respondents to this study in that they would naturally focus on the principle branding which as stated by the WFC is that of spinal care.

The views of the respondents may be further enhanced by the fact that the FICS website (FICS, 2008) does not actually specify that there is any deviance from or specific additions to the WFC definition and therefore the views of the respondents may not actually be from their experience within the sports arena, but rather from a wider less specific general source (viz. marketing on websites).

With respect to question 8 (Figure 4.20), the executive committee respondents ranked Medical Doctors first among the professionals who are important to a sports medical team. Physiotherapists followed in second place, followed by Psychologists in third. Dieticians, Orthopaedic Surgeons and personal trainers were ranked in fourth. Chiropractors were ranked seventh out of twelve.

With respect to the results of question 11 (Figure 4.21), 93.3% of the executive respondents felt that the role of Chiropractic was rehabilitative. Only 26.7% thought the role was curative[21].

Similarly to question 8, question 11 once again showed that the executive committee respondents had a poor knowledge and perception of Chiropractic. As Chiropractors perceive themselves to be both curative and preventative (Health Professions Act, 1982) the problem regarding the poor knowledge and perception by the executive respondents may be a result of shortcomings such as the Chiropractic profession not marketing themselves correctly, or there is confusion regarding their role and scope of practice (Butt, 2008; Theberge, 2008; Rattan, 2007). Another possible problem could be that there were interpretation difficulties, as many of the responding countries did not have English as their first language. This may have led to poor understanding of the terminology as well as translation errors (Scollen and Scollen, 1995).

[21] The percentages do not add up to 100% since many respondents chose more than one role.

Table 5.2: Legal status of Chiropractic by responding NOC (Chapman-Smith, 2008)

(Green = legal pursuant to legislation to accept and regulate Chiropractic practice. Yellow = Legal pursuant to general law.)

RESPONDING NOC's by Country	
Andorra	Malta
Barbados	New Zealand*
British Virgin Islands	Norway
Cayman Islands	Puerto Rico
Chinese Taipei	Romania
Cyprus	Slovakia
Dominica	South Africa *
Eretria	Swaziland
Fiji	Tonga
Germany	Trinidad and Tobago
Ghana	Vanuata
Great Britain*	Zimbabwe
Italy	
Luxemburg	

Further problems could have arisen due to the fact that of the responding 26 NOCs, only three have Chiropractic schools in their country (indicated by a '*') (Tetrault. 2008), and most of them have few or no Chiropractors practicing in their country (Chapman-Smith, 2008; Chiropractic Diplomatic Corps, 2008(a)). Table 5.2 shows that of the responding NOCs, only 10 (38%) (in green highlight) fall within countries that require a licence following the successful completion of examinations.

Seven NOCs (27%) (in yellow highlight) are in countries where Chiropractic is legal under general law. In these seven countries, the problem where unqualified persons can also practice as "Chiropractors" could potentially occur. This left unregulated can potentially lead to incorrect knowledge and poor perception of the Chiropractic profession.

Of the remaining 9 NOCs (35%), the legal status of Chiropractic is unclear (Chapman-Smith, 2008).

From the above, it can be seen that even though 65% of the responding NOCs are in countries where Chiropractic is practiced, the profession is still poorly represented in the total population (e.g. 0.01% of the populace in South Africa as opposed to 2.6% of the populace in the United States of America (USA Census, 2008). Hence, the majority of the responding NOC's are poorly exposed to Chiropractic, and this has most likely had an effect on their responses.

5.3.2 Objective Two

OBJECTIVE TWO:
To determine the NOCs *medical* commission's knowledge and perception of Chiropractic.

As shown in Table 5.3 there was an overwhelming trend among the medical commission respondents of their first choice of either a Medical Doctor or Physiotherapist in the treatment of the stated conditions.

In contrast to the executive committee respondents, where Chiropractic was more commonly featured, Chiropractic was not selected at all for the treatment in ankle sprain, tendonitis, joint instability, PFPS, whiplash, dislocations, headaches and fractures.

Table 5.3: Comparison of medical commissions' knowledge and perception of Chiropractic based on question 7 (Figure 4.22 - Figure 4.38)[22]

Condition	Practitioner 1st choice	%	Practitioner 2nd choice	%	Chiropractic %
Ankle sprain	Medical Doctor Physiotherapist	75 75	Orthopaedic Surgeon	16.7	0
Tendonitis	Medical Doctors	66.7	Physiotherapist	50	0
Joint instability	Medical Doctors	66.7	Physiotherapist	50	0
Overuse syndromes	Medical Doctors Physiotherapist	58.3 58.3	Chiropractor	8.3	8.3
PFPS	Physiotherapist	58.3	Medical Doctor	50	0
Muscle strains	Medical Doctor Physiotherapist	58.3 58.3	Chiropractor Orthopaedic Surgeon	8.3 8.3	8.3
Whiplash	Medical Doctor	66.7	Physiotherapist	58.3	0
Dislocation	Medical Doctor	75	Physiotherapist	41.7	0
Headaches	Medical Doctor	83.3	Physiotherapist	25	0
Fractures	Medical Doctor	75	Physiotherapist	25	0
Disc herniation	Medical Doctor	75	Physiotherapist	41.7	8.3
Impingement	Medical Doctor	75	Physiotherapist	41.7	8.3
Patella tendonitis	Physiotherapist	75	Medical Doctor	58.3	8.3
Frozen shoulder	Medical Doctor	75	Physiotherapist	58.3	8.3
Ligament injury	Physiotherapist	75	Medical Doctor	58.3	8.3
LBP	Medical Doctor Physiotherapist	66.7	Orthopaedic Surgeon	16.7	8.3
Muscle stiffness	Physiotherapist	75	Medical Doctor	58.3	8.3

[22] Grey indicates when Chiropractic featured as a 1st or 2nd choice. Orange indicates when Chiropractic was chosen by none of the respondents.

Possible reasons for the difference between the medical commissions and the executive committees could be that there is:

- the complete lack of faith held by the medical fraternity (commission) with regards to the Chiropractic profession (Halderman, 2002; Paris, 2000; Stranack, 1995; Coulter, 1992);
- "residual animosity" between the medical fraternity and Chiropractic (Haldeman, 2002; Paris, 2000; Stranack, 1995; Coulter, 1992), whereas the public sector continues to support the profession;
- a long history and close relationship / understanding exists between Medical Doctors and Physiotherapists, which may be the reason they choose to remain loyal to one another (Louw, 2005; Hunter, 2004; Rubens 1996). So whereas a member of the medical commission would select Medical Doctors and Physiotherapists onto their medical teams, a member of the executive commission is more likely to be more open minded in their selection choice. This was seen in section 4.5.5 (particularly 4.5.5.2);
- according to Theberge (2008), Medical Doctors perceive themselves and Physiotherapists to have a complementary role in a sports team, in that they diagnose and Physiotherapists perform the therapy required. But Medical Doctors perceive Chiropractors as having a therapeutic role, although Chiropractors feel they are primary care physicians (Health Professions Act, 1982). This indicates there are conflicting perceptions of the role of the profession. The factor that seems to determine whether a Chiropractor is part of a sports team is through the request of an athlete. Therefore in the cases of the NOCs medical commission and the executive committee, the former is more likely to exclude Chiropractic and the latter to include this profession in their sports team.

The above findings were supported by the medical commissions ranking of the various professions in question eight (Figure 4.39). In first position were the Medical Doctors, followed in second and third place by the Orthopaedic Surgeons and Physiotherapists. Dieticians and Psychologists ranked tie in fifth place, and personal trainers and

Neurologists tied for seventh place. Chiropractors were ranked eighth. These results were interesting in that even though the Orthopaedic Surgeons were ranked second only to the Medical Doctors by the medical commissions, they still seemed to prefer to utilise the services of the Physiotherapists more than the Orthopaedic Surgeons as seen in Table 5.3 and Figures 4.22 – Figure 4.38. The perceived difference between the executive committee and medical commission in the importance of the Orthopaedic Surgeons' role was also interesting, especially in light of the fact that the Orthopaedic Surgeon is part of the medical fraternity. This however will be discussed in detail at a later stage.

With regards to question 11, although the medical commission respondents felt equally strong about Chiropractic's role as being both curative and rehabilitative (Figure 4.40), the results from this study showed they still chose Medical Doctors and Physiotherapists in the treatment of the majority of injuries. Possible reasons for this could be (Theberge, 2008):

- That there is still confusion held by the Medical Doctors regarding the role of the Chiropractic profession in sports medicine;
- A perceived inability of Chiropractors to work efficiently within a team framework alongside Medical Doctors and Physiotherapists;
- The tension that exists between Chiropractors and Medical Doctors, Physiotherapists and Athletic Therapists who don't perceive Chiropractors as primary care physicians;

Therefore, even though the medical commission respondents perceived Chiropractic to be both rehabilitative and curative, they still may not select them in the inclusion of their medical teams over other professions (e.g. Physiotherapy).

5.3.3 Objective Three

OBJECTIVE THREE:

To determine the NOCs *utilisation* of Chiropractic.

The utilisation of Chiropractic was evaluated using questions 9, 10, 12- 15.

Question 9 (Figure 4.41) investigated which modalities / techniques were viewed as important with regards to the treatment of the Olympic athletes. The results were summarized in Table 5.4.

Table 5.4: Summary of the ranking of modalities/techniques

Technique	Percentage YES	Rank
Dietary/nutritional advice	**96.3%**	**1**
Massage	**88.9%**	**2**
Exercise therapy	**88.9%**	**2**
Hot/cold therapy	**85.2%**	**4**
Electro-modalities	**77.8%**	**5**
Strapping	**74.1%**	**6**
Prescription of drugs	**70.4%**	**7**
Fracture reduction	**66.7%**	**8**
Basic life support	**66.7%**	**8**
Suturing	**63.0%**	**10**
Psychology	**63.0%**	**10**
Ergonomic advice	**55.6%**	**12**
Manipulation of the spine and extremities	**51.9%**	**13**

It is of interest to note the importance NOC's place on diet and nutrition. This is most likely a reflection of the importance that the Olympic athletes' place on diet, nutrition and performance (Theberge, 2008). As enhanced, drug free performance is the goal of the athletes, especially in today's sporting environment, it makes sense that the NOCs would rank nutrition and diet number one (Theberge, 2008; The Olympic Movement, 2007).

Furthermore the results demonstrated in Table 5.4 showed that manipulation of the spine and extremities was ranked last, with only 51.9 % of the NOC's viewing it as a necessary technique. This supports the findings in sections 5.3.1 and 5.3.2 indicating that the perception of Chiropractic is biased to being only a manipulative therapy and to the exclusion of the possibility that it also has a primary care physician role.

The specialisation of Chiropractic is the adjustment / manipulation, however, as primary care physicians, Chiropractors study and acquire numerous skills required by primary care physicians. Thus as primary care physicians, most of the modalities listed in Table 5.4 (dietary / nutritional advise, massage, exercise therapy, hot / cold therapy, electro-modalities, strapping, basic life support, ergonomic advice and manipulation of the spine and extremities) fall within the Chiropractic scope of practice (Associated Health Professions Act, 1982). If Chiropractic is mainly being perceived by the respondents as being purely a therapy for the manipulation of the spine and extremities, it may indicate the reason the profession is being underutilised by NOC's. The above assertion is supported with regards to the modalities / techniques most highly ranked, in that the top seven all fall within the Chiropractors scope of practice, especially those ranked two - six (Associated Health Professions Act 1982). Further to this, the services deemed to be most important (dietary and massage) are incongruent with the conditions (e.g. fractures and dislocations) deemed to be treated by Medical Doctors and Physiotherapists.

There is also clearly a bias towards the use of Medical Doctors by the medical respondents, as Medical Doctors (and no other health care provider, except perhaps physiotherapists) are deemed to be able to treat all of the modalities listed in Table 5.4 – including muscle strain/sprain.

With regards to question 10 (Figure 4.42) and the practitioners currently being utilised by the NOCs, the results could be summarized in Table 5.5.

Table 5.5: Practitioners currently part of the NOC medical team.

(Grey = over 80%)

Practitioner	Percentage YES	Rank
Medical Doctor	88.9	1
Physiotherapist	81.5	2
Massage therapist	55.6	3
Orthopaedic Surgeon	33.3	4
Psychologist	33.3	4
Personal trainer	33.3	4
Nurse	14.8	7
Chiropractor	14.8	7
Dietician	11.1	9
Pharmacist	7.4	10
Biokineticist	7.4	10
Plastic Surgeon	0	12
Neurologist	0	12

The results from Table 5.5 indicates that Medical Doctors (88.9%) and Physiotherapists (81.5%) are the two favoured professionals currently serving on the Olympic medical teams. Chiropractors were only on 14.8% of the participating NOCs. This once again supports the findings in section 5.3.1 and 5.3.2 where knowledge and perception of Chiropractic appeared to be poor. It was interesting to note that 33.3% of the NOC's were currently utilising Orthopaedic Surgeons, yet based on the results found in response to question seven (Section 4.5.2.1 – 4.5.3.1.17), Orthopaedic Surgeons did not reflect as well as it would have been expected.

With regards to question 12a (Table 4.9), it was found that 14 (51.9%) of the responding NOCs' Olympic teams already utilised a Chiropractor. Seven (25.9%) did not use a Chiropractor, and 6 (22.2%) did not know. These figures support the findings in Table 5.2 which showed that geographically, 65% of the responding NOCs' are known to have Chiropractic regulated by law at some level and therefore recognised as a legitimate profession.

Of the 14 NOCs who used Chiropractors, 6 reported to only utilise Chiropractors during competitions (87%) and one said they utilised them at any time, not just during competition (Table 4.10). Nevertheless, 40.8% of respondents said that they ***had*** had requests for Chiropractors by athletes (Table 4.11); and 74.1% responded that they would be more likely to utilise a Chiropractor if they had specialized / post-graduate training in sports injuries (e.g. ICSSD) (Table 4.12).

Based on the above geographic locations as well as the requests by athletes for Chiropractic care, it would seem that the percentage utilisation of Chiropractic should be higher than was reported in this study. The reported utilisation may have been affected by the fact that only 8 (29.6%) of the respondents had ever been treated by a Chiropractor; with only 6 of these respondents having had a positive interaction with their Chiropractor (Table 4.13).

The results show that 40.8% of the respondents said that they had had requests for Chiropractors by athletes and a high percentage of the respondents (74.1%) claimed that they would be more likely to utilise a Chiropractor if they had specialized / post-graduate training in sports injuries (e.g. ICSSD) (Table 4.12). From the responses it seemed that this was in most instances a recommendation and that there is little consistency in terms of the application of this recommendation. This is supported by the literature which indicates that while ***some*** NOCs' require their supporting medical staff to meet certain requirements in order to treat Olympic Athletes (FICS, 2008), not all apply the same guidelines. An example of this is the USA NOC (USOC) which requires applicants to have a minimum of 5 years experience as a team physician, national level experience in world-class sporting events, and sports-related degree(s) / certifications. Once these requirements are met, the applicant then serves a 2 week internship where the USOC staff evaluate them thoroughly (FICS, 2008). However, the above example of USOC would appear to be the exception to the rule, and that in general there is a lack in structure when it comes to selecting Olympic team professionals. Thus, it would seem that when an athlete does / does not request certain professionals, the inclusion

of one professional over another would most likely depend on circumstance as opposed to set criteria.

The results of questions 7-10 reveal that there is an overall preferential treatment to certain medical professionals, especially by members of the medical commissions (Section 5.3.1 and 5.3.2). A possible reason for this could be that there is possibly a lack of structure within most of the medical commissions with regards to practitioner selection (Cloete, 2008).

To enhance the profile of the Chiropractor and improve chances of being selected by NOC's, the Chiropractic profession should encourage sports programmes such as ICSSD (FICS qualification), CCSP (USA), Chiropractic Sports Diplomate (USA) or CCSS (Fellowship; Canada).

An interesting point to note is that 14 of the 27 (51.8%) NOCs reported that their athletes currently utilised a Chiropractor. In addition, 11 of the 27 (40.7%) NOCs had had a prior request by athletes for a Chiropractor (Table 4.9 and Table 4.11). These results possibly indicate that when athletes make a request for a specific practitioner (e.g. a Chiropractor) it would seem that their requests are being handled effectively in order to meet their needs. However, although 85.7% of the respondents said their Olympic athletes used Chiropractors during competition, it was unclear as to whether the NOCs themselves were providing the Chiropractors, or if the athletes were receiving treatment independently of their NOCs.

In order for an Olympic athlete to exercise their rights as per the Olympic Medical Code (2006), they can follow one of a number of channels (see section 2.4.2, page 18).

Based on the three communication channels athletes can use to make requests regarding their medical care (section 2.4.2), one can see that the executive committees are more likely to be exposed to the athletes' requests and suggestions. From there on,

the executive committee will delegate which of their sub-committees (e.g. the NOC medical commission) are suitable for dealing with these requests.

This supports the findings found in sections 5.3.1 and 5.3.2 where the NOC executive committee respondents were more open and varied in their selection of care modalities and practitioners, compared with that of the NOC medical commissions.

As stated above, only 29.6% of respondents had ever been treated by a Chiropractor. There was little differentiation between the 2 groups, as seen in Table 5.6, where only 26.7% of the executive committees and 33.3% of the medical commissions had had personal experience of Chiropractic. Poor exposure to the Chiropractic profession has most likely had an effect on both committees' perceptions of the profession (and can partly explain the results in sections 5.3.1 and 5.3.2), in that the respondents had limited personal interaction with Chiropractic and thus only a theoretical knowledge base from which to develop perceptions. This is supported by the findings of Louw and Myburgh (2007) who found similar results with regards to perception and the low percentage (32%) of their respondents (Medical Doctors) who had been treated by a Chiropractor.

Table 5.6: Response to question 15 by group, "Have you ever been treated by a Chiropractor?"

		Executive Committee	% within group	Medical Commission	% within group	Frequency	**TOTAL %**
Valid	No	11	73.3%	8	66.7%	19	**70.4%**
	Yes	4	26.7%	4	33.3%	8	**29.6%**
	Total	15	100%	12	100%	27	**100.0**

5.3.4 Objective Four

OBJECTIVE FOUR:

To compare the knowledge, perception and utilisation differences between the executive committee and medical commissions of the NOCs.

The results Table 5.7 show that a significant difference in opinion exists between the executive committee and medical commission with respect to the Medical Doctor. In most instances there is a favouring by the medical commissions of the Medical Doctor over the other professions. In contrast, the executive committee were more likely to select another profession over the Medical Doctor.

In the case of dislocations, there was a significant difference in opinion between the medical commissions and the executive committees; with the executive committees selecting Chiropractors as their practitioners of choice. In the case of impingement, the executive committee did not seem to be familiar with the term enough to make comment.

With regards to disc herniation (Table 4.24), the executive committees and medical commissions both indicated that they would not select an Orthopaedic Surgeon. This was an interesting observation considering it falls within the Orthopaedic Surgeons scope of practice and expertise (Yong-Hing, 1992). Instead they chose Medical Doctor.

Table 5.7: Significances between medical and executive groups based on question 7 (Tables 4.13 - 4.30)[23]

(In the cases of PFPS, Fractures and Ligament Injury the fields were left empty as no significant difference was found.)

Significant Difference		Favoured By	
Condition	**Practitioner**	**p-value**	**Medical vs. Executive**
Ankle sprain	Medical Doctor	0.031	Executive
Tendonitis	Medical Doctor	0.038	Medical
Joint instability	Medical Doctor	0.038	Medical
Overuse syndromes	Medical Doctor	0.040	Medical
PFPS	-	-	-
Muscle strains	Medical Doctor	0.037	Medical
Whiplash	Medical Doctor	0.038	Medical
Dislocation	Medical Doctor Chiropractor	0.013 0.047	Medical Executive
Headaches	Physiotherapist	0.075	Medical
Fractures	-	-	-
Disc herniation	Medical Doctor	0.031	Medical
Impingement	Medical Doctor Don't Know	0.031 0.047	Medical Executive
Patella tendonitis	Medical Doctor	0.057	Medical
Frozen shoulder	Medical Doctor	0.001	Medical
Ligament injury	-	-	-
LBP	Medical Doctor	0.038	Medical
Muscle stiffness	Medical Doctor	0.014	Medical

With regards to question 8 (Figure 4.43 and Table 4.31), in general, the executive committee and medical commission tended to rank the professionals similarly. The only exception was in the case of the Orthopaedic Surgeons (p=0.041), which were ranked

[23] Orange highlight indicates there was a significant difference and the Medical commission and Executive committees selected completely different professions.

significantly higher by the medical commission respondents. This result is not surprising considering the Orthopaedic Surgeon, along with the Medical Doctor and Physiotherapist, form part of the allopathic medical fraternity. This supports findings in section 5.3.2 where there appeared to be a trend for the medical commissions to favour the allopathic medical fraternity. Neurologists (p=0.05) and Biokineticists (p=0.06) were borderline significant. This may indicate that these 2 professions are viewed more as a luxury and not an essential component of their medical teams.

Question 10 looked at which professionals were currently serving on the Olympic medical teams. Table 5.8 and Figure 5.1 shows that, once again, the medical commission respondents tended to utilise Medical Doctors, Physiotherapists and Orthopaedic Surgeons far more than the executive committee respondents. It also highlighted that the executive committee are more open to utilising other practitioners other than Medical Doctors, Physiotherapists and Orthopaedic Surgeons.

Table 5.8 Current utilisation of care providers by the executive committees and medical commissions, based on question 10 (section 4.5.4.2)

Professional	Executive		Medical		Total	
	Count	%	Count	%	Count	%
Biokineticist	1	7%	1	8%	2	7%
Chiropractor	3	20%	1	8%	4	15%
Dietician	1	7%	2	17%	3	11%
Massage therapist	9	60%	6	50%	15	56%
Medical Doctor	12	80%	12	100%	24	89%
Nurse	2	13%	2	17%	4	15%
Neurologist	0	0%	0	0%	0	0%
Orthopaedic Surgeon	2	13%	7	58%	9	33%
Personal trainer	6	40%	3	25%	9	33%
Pharmacist	1	7%	1	8%	2	7%
Physiotherapist	10	67%	12	100%	22	81%
Plastic Surgeon	0	0%	0	0%	0	0%
Psychologist	5	33%	4	33%	9	33%

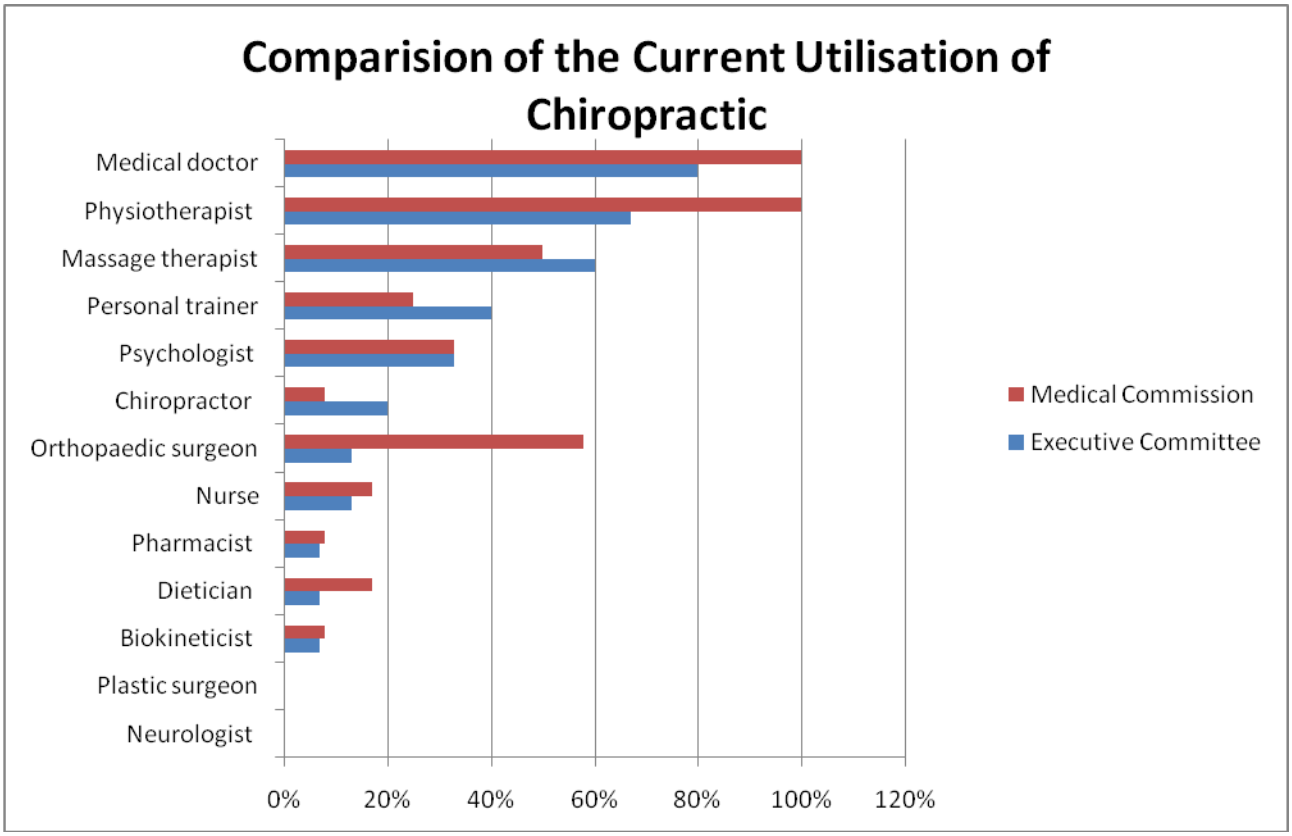

Figure 5.1: Comparison of the current utilisation of Chiropractic between the executive committees and the medical commissions (formulated from question 10 and table 5.4).

Table 5.9: Significances in perceived role of Chiropractic based on question 11 (Tables 4.32 – 4.34)

	Preventative	Curative	Rehabilitative
Medical Commission	16.7%	58.3%	58.3%
Executive Commission	66.9%	26.7%	93.3%
p-value	0.009	0.096	0.060

Table 5.9 shows there was a significant difference between the groups in terms of perceiving Chiropractors' roles as preventative (p=0.009). The executive committees were more likely to state that the Chiropractors role was preventative (66.7%) more than the medical commissions (16.7%). There was a non-significant difference between the

groups in terms of perceiving Chiropractors' roles as curative and rehabilitative. The medical commissions were more likely to state that the Chiropractors role was curative (58.3%) more than the executive committees (26.7%), and the executive committees were more likely to state the Chiropractors role was rehabilitative (93.3%) more than the medical commission (58.3%).

The results from Table 5.9 indicate a conflict as to the reasoning why the medical commissions perceive that Chiropractic's role is curative more than preventative and yet ranked Chiropractic poorly compared to other health care professionals (Figure 4.39 and 4.43). In contrast, the executive committees, who overall appear to be more open to other professionals than the medical commissions (Table 5.1); perceived the role of Chiropractic to be more preventative and rehabilitative and were more favourable in the ranking allotted to Chiropractic (Figure 4.20). This conflict highlights that the executive committee has the ideal practitioner in mind to treat Olympic athletes (one that can encompass the role of being both curative and rehabilitative (Theberge, 2008)) whilst the medical commissions have a more limited view. This is the converse of what one would have expected of the medical commission, which is expected to have the best interests of the athletes at heart (Table 5.9).

Thus overall, there is a tendency for the medical commission to favour mainstream medicine, particularly the Medical Doctor, and this may reflect a misunderstanding or ignorance regarding the scope of practice of Chiropractic (Health Professions Act, 1982). There also seems to be more of an open 'ended' policy with respect to the executive committee respondents' willingness to explore other alternate, holistic professional fields.

This perception seems to align itself more with that of the general public (Butt, 2008; Van As, 2002; Brussee, 2001) whereas the findings regarding the medical commission seems to support those studies regarding other medical professions as expressed in Chapter Two (Kew, 2006; Louw, 2005; Hunter, 2004; Langworthy and Birkelid, 2001; Langworthy and Smink, 2000; Rubens, 1996).

5.3.5 Objective Five

OBJECTIVE FIVE:

To determine any correlations between the knowledge and perception of Chiropractic, and the utilisation of Chiropractic.

Previous studies have shown that there is a tendency for a directly proportional relationship to exist between knowledge and perception, and the utilisation of Chiropractic (Butt, 2008; Cloete, 2008; Rattan, 2007). This however was not the case in this study as no significant difference was found between the knowledge of Chiropractic and the perception of Chiropractic. Respondents who viewed Chiropractic as both curative and rehabilitative ranked Chiropractic slightly higher than those who perceived Chiropractic as curative, rehabilitative or both preventative and rehabilitative (Table 4.35).

A statistically significant correlation between the use of Chiropractors on the Olympic medical team and the knowledge of Chiropractic was found. Those who utilised a Chiropractor on the medical team ranked Chiropractors more favourably compared to those who did not use Chiropractors (Table 4.36).

No correlation was found between the perception and use of Chiropractic (Table 4.37). Despite no statistical significance being found:

- Those who thought that Chiropractic had a preventative role were more likely to have a Chiropractor as part of the team. This supports the findings in sections 5.3.1-5.3.4 as well as the findings of Theberge (2008) who found that one of the major concerns of athletes is how to maximise performance and minimise the risk of injury. Therefore, if Chiropractic is perceived as being able to fulfil the needs of the athlete with regards to preventing injury then it is more likely that a Chiropractor will be part of the medical team.
- Those who thought Chiropractic had a curative role were less likely to have a Chiropractor on the team. This finding does not support the above findings in

sections 5.3.1-5.3.4. Athletes have reported that during a competition they want to be treated by a professional, who can help them to recover as quickly as possible so they can still compete (Theberge, 2008). It is expected that the *more* Chiropractic is perceived as being curative, the more likely it will be for Chiropractors to be part of the medical team, but this was not the case in this study. A possible reason for this could be due to the small number of respondents from countries that have limited exposure to the Chiropractic profession, leading to a low statistical significance.

- Those who thought that Chiropractic had a rehabilitative role were more likely to have a Chiropractor as part of the team. Once again, this finding does not support the above findings in sections 5.3.1-5.3.4. In fact, it is expected that the converse should be true because for the athlete, especially the Olympic athletes, rehabilitation is preferred for after and before the games, not during (Theberge, 2008). Prevention and cure is of more importance in the selection choice of their practitioners (Theberge, 2008).
- Those who thought Chiropractic had no role were less likely to have a Chiropractor on the team. This supports the findings in sections 5.3.1-5.3.4.

5.4 Discussion of the Hypotheses

At the beginning of this research, four research hypotheses were formulated and subsequently analysed for final evaluation. The results were as follows:

Hypothesis 1

This stated that the NOCs executive committee's knowledge and perception of Chiropractic was not congruent.

Based on the results of this research (section 5.3.1) the above Hypothesis One was accepted (implying that there was incongruency).

Hypothesis 2

The NOCs medical commission's knowledge and perception of Chiropractic was not congruent.

Based on the results of this research (section 5.3.2) the above Hypothesis Two was accepted (implying that there was incongruency).

Hypothesis 3

The knowledge, perception and utilisation of Chiropractic held by the executive committees and that of the medical commissions was not congruent.

Based on the results of this research (section 5.3.4) the above Hypothesis Three was accepted (implying that there was incongruency).

Hypothesis 4

No relationship exists between the knowledge and perception of Chiropractic and the utilisation of Chiropractic by NOCs.

Based on the results of this research (section 5.3.5) the above Hypothesis Four was rejected.

5.5 Summary

From the above discussions, a number of conclusions can be drawn from the results found in this chapter.

In the analysis of the knowledge and perception of Chiropractic by the executive committees, it was found that the role of Chiropractic was perceived by them to be spinal care specialists. While this is not entirely incorrect, it does however exclude a large portion of the profession's scope of practice as detailed by the Associated Health Professions Act (1982) and WFC (2007). This disparity may be due to a number of features: primarily the exposure/lack thereof to the profession; NOCs country and whether there is any governing law/legislature regarding Chiropractic or a Chiropractic school present; language barriers with not all the countries having a good grasp of the English language; and terminology confusion, especially in translation. The confusion regarding the identity of the profession and the role it played in the multidisciplinary medical teams may have affected the results as well. This confusion supports the WFC Identity Consultation of 2005 where the task force found that there is confusion among the Chiropractic profession regarding their role in the health care system (Carey et al., 2005).

Similar results were found with regards to the knowledge and perception of Chiropractic by the medical commissions. However, compared to the executive committee, medical commissions first choice for treating athletes was either a Medical Doctor or Physiotherapist.

In analysing the utilisation of Chiropractic, it was found that over 50% of the NOCs indicated that they were currently using Chiropractors. This 50% correlated with the countries where currently there is law and legislature governing the profession. The remaining NOCs were in areas where there were few or no Chiropractors. This being

said, only 3 of the NOCs were known to have Chiropractic schools in their countries. This overall lack of exposure to the profession, as well as the small sample size, has no doubt had an effect on the ability for the NOCs to access Chiropractic care.

By analysing the executive committee and medical commissions separately, it was seen that there was disparity between the perceived views of the two groups with regard to Chiropractic. While the medical commission respondents tended to support the more allopathic medical professions (i.e. Medical Doctors and Physiotherapists), the executive committee respondents were more 'open-minded' with regards to their inclusion of various non-allopathic practitioners, such as Chiropractic (see sections 5.3.1.-5.3.5). This was seen with the executive committee ranking Chiropractic care higher than the medical commissions. It would therefore appear that the executive committees' views seem to align with that of the public (Section 4.5.5.2) who are more open to the CAM therapies.

An area where both the executive committee and medical commission did however agree was the importance of a post-graduate sports qualification, and the weight it held in determining the selection of Chiropractic onto the sports teams. Even though it appears that the selection criteria vary from one NOC to the next, the presence of this qualification adds weight and enhances the profile of the Chiropractor. It therefore would be in the interest of the profession to support the development of post-graduate programmes, and ensuring that they are recognised and standardised internationally among both CAM and mainstream medicine.

CHAPTER SIX : CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The following chapter concludes the study to determine the National Olympic Committees' knowledge, perception and utilisation of Chiropractic. Conclusions are drawn from chapters 4 and 5, and the recommendations made regarding possible methodological shortcomings, as well as recommendations based on the outcomes of the study.

6.2 Conclusions

The main conclusions of the study were:

1. The knowledge, perception and utilisation of Chiropractic differs between the various NOCs, as well as between the medical and executive committees within the NOCs. This difference highlights the propensity for the medical commissions to favour mainstream medical professions, while the executive committees seem to have a more holistic, open-minded approach to various treatment options.

2. The differences that were observed regarding Chiropractic may be partly due to the confusion regarding the identity and scope of practice of the profession, and hence the role it is meant to play among the multidisciplinary teams that support the athletes.

3. Over 50% of the participating NOC's were currently utilising Chiropractic. Yet, Chiropractic was still ranked poorly by the NOCs compared with the mainstream medical choices like the Medical Doctor and the Physiotherapists. This was despite Chiropractors being able to provide for the majority of the techniques/modalities required for competition.

6.3 Recommendations

6.3.1 Methodological recommendations

1. The response rate for this study was 37% (of the NOCs (n=205)). However, considering 2 questionnaires were sent to each NOC, the response rate could be viewed as 7% (assuming that all the NOCs had a medical commission (n=410)). This small sample size places a limitation on the representation of all the NOCs, and hence the statistical significance in the hypotheses tested. Ideally, the study should be repeated on a larger scale with more NOCs participating to gain a better representation in the sample.

2. Due to unforeseen circumstances, the data collection took place in an Olympic year. This was not ideal because this is an extremely busy time for the NOC committee members. Many of the NOC representatives are, during this period, travelling a great deal with regards all the Olympic preparation meetings. The Summer Olympic Games were held in August 2008. During the six month period over the games (May through October) no one was willing to participate in the study, no correspondence via email was received, and no one was reachable by telephone. If this study were to be repeated, it would be advisable not to collect data during, and especially not immediately preceding, an Olympic Year (i.e. Vancouver 2010 (Winter Games); London 2012 (Summer Games); Sochi 2014 (Winter Games) (Olympic Org Media, 2008).

3. Few of the countries, e.g. USA and Canada, where Chiropractic is well established participated in this study. A recommendation would be to make a special effort to try to obtain responses from these countries as they have the longest history.

4. Language barriers also proved to be a problem. This was despite the fact that the NOCs were required to speak one of the two IOC official languages (i.e. English or French). A recommendation would be to try minimise the number of languages to a

single language so that the need for translation / back translation is avoided. This would help increase the validity (Guilleminet al., 1993).

5. Incorrect email addresses; full email boxes and automated answering machines (e.g. USA NOC) made it very difficult to get in direct / personal contact with anyone. In many cases, email accounts were not checked frequently enough/ or were incorrect. When the first follow up calls were made many of the Secretary Generals said they had never received the emails sent. Alternate email accounts were then exchanged. Some of the NOCs did not have email. In these cases they were faxed and telephoned. Nevertheless few of the NOCs were contactable with these updated details. In future it would be recommended to call the NOC first, and then get direct contact addresses and names and not rely on internet databases.

6. In an effort to improve the response rate, the IOC was contacted telephonically. It was suggested that the Assistant to the Medical Director be emailed to see if they could help. No correspondence was ever received by the Assistant to the Medical Director despite repeated attempts to contact them. When the IOC was contacted, they commented that the researcher of this study was experiencing the same problems that they often incurred with respect to obtaining information and correspondence with the NOCs (Noirat, 2008). It would therefore appear that communication problems with the NOCs is not a new issue and may have impacted negatively on this study. To obtain a better response rate, it is suggested that the IOC's cooperation and support of the research process be obtained, perhaps in the form of a cover letter. Ideally, it would be easier if permission was granted for the researcher to attend one of the meetings where NOC representatives were present.

7. It was announced on the 7th August 2008 that Durban has been selected as the location for the 123rd IOC Session in 2011 (Olympic Org Media, 2008). This would be the perfect opportunity to repeat this research topic, provided the researcher was permitted to attend and collect the data at the meeting.

6.3.2 Recommendations based on the outcomes of the study

1. The Chiropractic profession needs to educate the public and fellow medical colleagues regarding the identity and scope of practice of the profession.

2. The sporting fraternity needs to be better educated regarding the profession, and a greater awareness needs to be established. Chiropractors need to improve on their perceived ability to work in the multidisciplinary field of the sporting arena, both locally, nationally and internationally, especially alongside Medical Doctors and Physiotherapists.

3. Chiropractors wishing to work with athletes should be encouraged to gain post-graduate sports qualifications to better enhance their skills and professional profile, as well as ensuring that these programmes are internationally recognised.

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Appendix A

Dear Sir / Madam

I am a student pursuing a Masters Degree in Technology of Chiropractic at the Durban University of Technology.

Study Title:

Knowledge, perception and utilization of chiropractic by National Olympic Committees.

Background to the study:

Chiropractors have been offering their services in the treatment of Olympic athletes since 1980 by forming integral parts of various country teams. However, this involvement has been far less than that of other medical professionals.

At present, very little quantifiable information on the NOC's opinion of chiropractic exists, and no studies involving their opinions have been carried out before.

It is therefore the intention of the researcher to determine the current knowledge, perception and utilization that members of the National Olympic Committees have of chiropractic.

Objective of the study:
The data obtained by means of this questionnaire will allow for further assessment of the role of chiropractic in sport at an Olympic and International level. The questions are concerned with the NOCs' use and perception of various health care practitioners, including chiropractors, as well as their current and future utilization of chiropractors.

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 required and it is estimated that you would require at most 15 minutes to complete the questionanaire.

The deadline for return of the questionnaires is : *to be inserted on the dateafter ethics approval (however the timeline as outlined in the research is 6 weeks).*

Confidentiality:
As with all surveys, the information which you furnish will be treated in the utmost confidence. A neutral party (the Department Research Administrator) at the Durban University of Technology in South Africa, will receive the questionnaire and code them before returning them to the researcher. Thus the researcher will never have access to your identities. You are free to withdraw from the study at any stage. Please return the completed questionnaire by forwarding it to email address provided: inezi@dut.ac.za

Please return your informed consent form – signed and dated to : fax +27 (0) 31 2023632.

Your time, opinion and assistance is with this project is invaluable and greatly appreciated.

Yours sincerely

.....

Kerry Labuschagne
Research Student
(B.Tech.:Chiropractic)

.....

Charmaine Korporaal
Supervisor
(M.Tech.:Chiropractic, CCFC, CCSP, ICSSD)

Appendix B
INFORMED CONSENT FORM

(TO BE COMPLETED BY THE PARTICIPANTS OF THE STUDY)

DATE: :

TITLE OF RESEARCH PROJECT:

Knowledge, perception and utilization of chiropractic by National Olympic Committees.

NAME OF SUPERVISOR : Dr C. Korporaal (M.Tech: Chiropractic, CCFC, CCSP, ICSSD)

NAME OF CO-SUPERVISOR : Dr B. Nook (D.C., DACBSP, ICSSD, FICC)

NAME OF RESEARCH STUDENT : Kerry Labuschagne (B.Tech:Chiropractic)

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:

NOC Member: _____ Signature: _____

Witness Name: _____ Signature:_____

Researcher's Name: _____ Signature:_____

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

Appendix C-1

NATIONAL OLYMPIC COMMITEES

1. List the National Olympic Committee (NOC) of which you are a member

   _____

2. List your current position within this committee _____

3. For how many years have you been a member of your respective NOC?
   _____years

4. What country do you reside in? _____

5. Did you represent your country as an athlete at a national or international level?
   - □ N
   - □ Y

   b. If YES, list the events and year of competition_____

   _____

6. Please enter your qualification / highest level of education

   _____

7. Which health care practitioner would your federation nominate for athletes to consult if they suffered from each of the following conditions:
    a. (choose from biokinetisist, chiropractor, physiotherapist, medical practitioner, personal trainer, pharmacist or homeopath)

	Biokinetisist	Chiropractor	Medical Practitioner	Homeopath	Pharmacist	Physiotherapist	Personal Trainer
i. ankle sprain							
ii. rotator cuff tendonitis (“painful shoulder”)							
iii. joint instability / laxity							
iv. overuse injuries e.g. Lateral epicondylitis (“tennis elbow”)							
v. patella tracking syndrome (“knee and thigh pain”)							
vi. muscle strains							
vii. whiplash							
viii. recurrent dislocation e.g. shoulder							
ix. headaches							
x. fractures							
xi. disc herniation (“slipped disc”)							
xii. impingement syndromes (“pinched nerve or tendon”)							
xiii. patella tendonitis (“painful knee”)							
xiv. adhesive capsulitis (“frozen shoulder”)							
xv. ligament injury							
xvi. lower back pain							
xvii. general muscle stiffness							

8. Please rank the following health care providers from 1 to 12, based on who your NOC believes to be most important to any sports medical team (1 being most important and 12 being least important)

i. Biokinetisist	
ii. Chiropractor	
iii. Dietician	
iv. Medical doctor	
v. Nurse	
vi. Neurologist	
vii. Orthopaedic surgeon	
viii. Personal trainer	
ix. Pharmacist	
x. Physiotherapist	
xi. Plastic surgeon	
xii. Psychologist	

9 .Which of the following techniques / modalities should be provided by the health care practitioner taking care of your Olympic athletes?

√

- Basic Life Support
- Dietary / nutritional advice
- Ergonomic advice (e.g. designing the job to fit the worker with respect to physical and environmental factors)
- Exercise / rehabilitative therapy
- Electro-modalities (e.g. Ultrasound therapy, IFC)
- Fracture reduction
- Hot / /cold therapy
- Manipulation of the spine and extremities
- Massage
- Prescription of drugs and injections
- Psychology
- Prescription of drugs and injections
- Strapping
- Suturing / Stitches
- Other _____

10. Which of the following health care providers are currently part of your Olympic medical team? (minimum requirements for competition) Please tick

a. Biokinetisist	
b. Chiropractor	
c. Dietician	
d. Massage therapist	
e. Medical doctor	
f. Nurse	
g. Neurologist	
h. Orthopaedic surgeon	
i. Personal trainer	
j. Pharmacist	
k. Physiotherapist	
l. Plastic surgeon	
m. Psychologist	
n. Other , please specify	

11. Which of the following roles would you classify Chiropractic care as fulfilling in the health care system

- □ curative
- □ preventative
- □ rehabilitative
- □ both preventative and rehabilitative
- □ both curative and rehabilitative
- □ none of the above
- □ other, please specify _____

12a. Do athletes within your Olympic team make use of chiropractic care?

- □ Yes
- □ No
- □ Don't know

b. If YES, when?

- □ Any time, Chiropractors are always available
- □ During competition, when chiropractors are provided
- □ On their own time, and without the support or knowledge of the medical team

13. Have you had any requests for Chiropractors by athletes?

- □ Yes
- □ No

14. Would you be more likely to utilize a Chiropractor with specialized, post-graduate training in sports injuries? (ICSSD)

- □ Yes
- □ No

15a. Have you ever been treated by a chiropractor

- □ Y
- □ N

b. If YES, what has been your experience? _____

_____

_____
__

16. Do you have any other comments?

_____
_____
_____
_____

Thank you for taking time to complete this questionnaire, your participation is very much appreciated.

Appendix C-2

NATIONAL OLYMPIC COMMITEES

1. List the National Olympic Committee (NOC) of which you are a member

   _____

2. List your current position within this committee _____

3. For how many years have you been a member of your respective NOC? _____years

4. What country do you reside in? _____

5. Did you represent your country as an individual athlete at a national or international level?
   - □ N
   - □ Y

   b. If YES, list the events and year of competition_____

   _____

6. Please enter your qualification / highest level of education

   _____

   _____

7. Which health care practitioner would your federation nominate for athletes to consult if they suffered from each of the following conditions:
    a. (choose from biokinetisist, chiropractor, physiotherapist, GP, pharmacist or homeopath)

	Biokinetisist	Chiropractor	GP	Homeopath	Pharmacist	Physiotherapist	Personal trainer	Don't know
i. ankle sprain								
ii. rotator cuff tendonitis								
iii. joint instability / laxity								
iv. overuse injuries eg. Lateral epicondylitis ("tennis elbow")								
v. patella tracking syndrome								
vi. muscle strains								
vii. whiplash								
viii. recurrent dislocation eg.shoulder								
ix. headaches								
x. fractures								
xi. disc herniation								
xii. impingement syndromes								
xiii. patella tendonitis								
xiv. adhesive capsulitis ("frozen shoulder")								
xv. ligament injury								
xvi. lower back pain								
xvii. general muscle stiffness								

8. Please rank the following health care providers from 1 to 12, based on who your NOC believes to be most important to any sports medical team (1 being most important and 12 being least important)

i. Biokinetisist	
ii. Chiropractor	
iii. Dietician	
iv. Medical doctor	
v. Nurse	
vi. Neurologist	
vii. Orthopaedic surgeon	
viii. Personal trainer	
ix. Pharmacist	
x. Physiotherapist	
xi. Plastic surgeon	
xii. Psychologist	

9 .Which of the following techniques / modalities should be provided by the health care practitioner taking care of your Olympic athletes?

√

- Basic Life Support
- Dietary / nutritional advice
- Ergonomic advice
- Exercise / rehabilitative therapy
- Electro-modalities eg. Ultrasound therapy, IFC
- Fracture reduction
- Hot / /cold therapy
- Manipulation of the spine and extremities
- Massage
- Prescription of drugs and injections
- Psychology
- Strapping
- Suturing
- Other _____

10. Which of the following health care providers are currently part of your Olympic medical team? (minimum requirements for competition) Please tick

a. Biokinetisist	
b. Chiropractor	
c. Dietician	
d. Massage therapist	
e. Medical doctor	
f. Nurse	
g. Neurologist	
h. Orthopaedic surgeon	
i. Personal trainer	
j. Pharmacist	
k. Physiotherapist	
l. Plastic surgeon	
m. Psychologist	
n. Other , please specify	

11. Which of the following roles would you classify Chiropractic care as fulfilling in the health care system

- curative
- preventative
- rehabilatative
- both preventative and rehabilitative
- both curative and rehabilitative
- other, please specify _____

12a. Do athletes within your Olympic team make use of chiropractic care?

- Yes
- No
- Don't know

b. If YES, when?

- Any time, Chiropractors are always available
- During competition, when chiropractors are provided
- On their own time, and without the support or knowledge of the medical team

13. Have you had any requests for Chiropractors by athletes?

- Yes
- No

14. Would you be more likely to utilize a Chiropractor with specialized, post-graduate training in sports injuries? (ICSSD)

- Yes
- No

15a. Have you ever been treated by a chiropractor

- Y
- N

b. If YES, what has been your experience? _____

_____

_____

16. Do you have any other comments?

_____

_____

_____

_____

Thank you for taking time to complete this questionnaire, your participation is very much appreciated.

Appendix D

NOC: POSSIBLE QUESTIONS for the QUESTIONAIRE

A) Respondent Info

1. What NOC are you a committee member of _____
2. What country were you reside in _____
3. What is your position within your NOC _____
4. For how many years have you been a member of your respective NOC?
   _____ Years
5. Have you competed in a sport/s at a national or international level?
   - ☐ N
   - ☐ Y

5.1 If yes, which sport/s? _____

5.2 How many years have you participated in the sport/s? _____

5.3 What was your highest level of participation in the sport/s_____

6. Please enter your highest level of tertiary education and fields of qualification

   _____

B) Knowledge about Chiropractic

7. Are you familiar with the Chiropractic profession
   - ☐ Y If yes answer 7.1 below
   - ☐ N

   7.1 How did you become familiar with it

   - o I have been treated by a Chiropractor
   - o I have a friend / relative who has been treated by a Chiropractor
   - o Read – medical journal
   - o Read – newspaper / magazine
   - o Internet
   - o TV
   - o Other…… please specify_____

8. How many years does it take to qualify as a Chiropractor? _____

9. What is your perception of the level of training required to qualify as a Chiropractor?

_____

10. The chiropractic course includes grounding in <u>which</u> of the following subjects:

    Please Tick

    - ☐ Accounting
    - ☐ Auxiliary Therapeutics
    - ☐ Anatomy
    - ☐ Business Management
    - ☐ Biochemistry
    - ☐ Chemistry
    - ☐ Diagnostics
    - ☐ Economics
    - ☐ Geratrics
    - ☐ Gynaecology
    - ☐ Mathematics
    - ☐ Microbiology
    - ☐ Paediatrics
    - ☐ Pathology
    - ☐ Pharmacology
    - ☐ Physiology
    - ☐ Physics
    - ☐ Psychiatry
    - ☐ Radiography
    - ☐ Radiology
    - ☐ Sociology
    - ☐ Somatology

11. In which fields can Chiropractors specialize in:

    - ☐ Dermatology
    - ☐ Extremities
    - ☐ Geriatrics
    - ☐ Gynaecology
    - ☐ Neuromusculoskeletal system
    - ☐ Neurology
    - ☐ Paediatrics
    - ☐ Radiography
    - ☐ Rehabilitation
    - ☐ Sports injuries
    - ☐ Surgery
    - ☐ Veterinary Science

12. A chiropractor that qualifies from his/her studies does so with which one of the following?

    - ☐ Diploma
    - ☐ Undergraduate degree
    - ☐ Bachelors degree
    - ☐ Double Bachelors degree
    - ☐ Graduate degree
    - ☐ Masters Degree
    - ☐ Doctorate
    - ☐ DC (Doctor of Chiropractic)
    - ☐ MTech Masters in Technology (Chiropractic)
    - ☐ Other…. Please specify _____

13. Are you aware that Chiropractic is regulated by a Statutory Body?
    - ☐ Y
    - ☐ N

14. Are you aware that Chiropractic has an organized Professional Body?
    - ☐ Y
    - ☐ N

C) Personal Experience and Beliefs

15. Which of the follows best reflects your personal view of Chiropractic
    - □ I am uncomfortable with it.
    - □ Chiropractic is effective for some people with neuromuscular skeletal conditions.
    - □ Chiropractic is quackery and does more harm than good.
    - □ Not informed enough to comment.

16. Have you ever been treated by a chiropractor
    - □ Y
    - □ N

17. Have you, or anyone you know ever had a bad experience with a chiropractor
    - □ Y
    - □ N

    If yes, please specify _____

    _____

    _____

18. Which health care practitioner would you choose to consult if you suffered from each of the following conditions:
    - ☐ (choose from biokinetisist, chiropractor, physiotherapist, GP, pharmacist or homeopath)

	Biokinetisist	Chiropractor	Physiotherapist	GP	Pharmacist	Homeopath
i. Attention deficit disorder						
ii. Appendicitis						
iii. Arthritis						
iv. Asthma						
v. Cervicogenic headaches						
vi. Colic						
vii. Chronic visceral disorders (responding poorly to medical intervention)						
viii. Disc herniations/protrusions						
ix. Dysmenorrhoea						
x. Fractures						
xi. Low back pain						
xii. Meningitis						
xiii. Neck and shoulder pain						
xiv. Nocturnal enuresis						
xv. Non-organic/migraine headaches						
xvi. Osteoporosis						
xvii. Pregnant females with low back pain						
xviii. Sprains/strains (eg. Ankle, wrist)						
xix. Stress related disorders						
xx. Tension headaches						

xxi. Whiplash						

19. Please rank the following health care providers from 1 to 10, based on who you believe to be most essential to any sports medical team (1 being most important and 10 being least)

i. Physiotherapist	
ii. Medical doctor	
iii. Chiropractor	
iv. Nurse	
v. Occupational therapist	
vi. Orthopeadic surgeon	
vii. Neurosurgeon	
viii. Dietician	
ix. Biokinetisist	
x. Other, please specify	

D: Utilization Within Your National Olympic Team

19. Do athletes within your national Olympic team make use of chiropractic care?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know

    - o If yes, what feedback have you received from them regarding their experience

    _____

    _____

20. What do you believe to be the most important with respect to techniques/modalities required by a health care provider taking care of elite athletes (tick)

    ☑

    - ☐ Acupuncture
    - ☐ Basic Life Support
    - ☐ Cold therapy/ice therapy
    - ☐ Dietary advice
    - ☐ Ergonomic advice
    - ☐ Exercise therapy
    - ☐ Hot packs
    - ☐ Interferential electrotherapy
    - ☐ Laser
    - ☐ Low frequency electrotherapy
    - ☐ Manipulation of the extremities
    - ☐ Manipulation of the spine
    - ☐ Massage
    - ☐ Mobilisation
    - ☐ Neurological examination
    - ☐ Physical examination
    - ☐ TENS
    - ☐ Traction
    - ☐ Ultra short wave
    - ☐ Ultrasound
    - ☐ Ultraviolet light therapy

21. Which of the following health care providers do your National Olympic Teams require to be present at major sporting events for use by your athletes (tick from list)

- ☐ Biokinetisist
- ☐ Chiropractor
- ☐ GP
- ☐ Neurologist
- ☐ Orthopaedic surgeon
- ☐ Pediatrician
- ☐ Paramedic
- ☐ Physiotherapist
- ☐ Sports Physician
- ☐ Other, please state, _____

22. Are there any health care providers that you would like to see present, who are not already there
    - ☐ No
    - ☐ Yes, please specify, _____

23. Do you think it could be beneficial for athletes to see chiropractors on a regular basis to maintain peak physical condition and prevent injuries
    - ☐ Yes
    - ☐ No

E: In the Future

24. Would you like to know more about the benefits of chiropractic treatment

    - ☐ No, proceed to 27
    - ☐ Yes, answer 25

25. In what format would you like this information to be presented (tick from list)

    - ☐ a printed information package
    - ☐ an informative lecture/seminar
    - ☐ email
    - ☐ media/press
    - ☐ personal contact by local chiropractor
    - ☐ research publications

26. Do you believe Chiropractors will continue to gain recognition within the sports medical arena
    - ☐ Yes
    - ☐ No, please answer 27

27. What in your opinion is currently hampering Chiropractic involvement in sport at an International level, and how the current situation be improved ?

_____
_____
_____
_____
_____
_____
_____
_____

28. Please feel free to add any other comments you have about the questionnaire or its content below.

_____

_____

_____

_____

_____

_____

Thank you very much for taking time to complete this questionnaire!

Appendix E

CODE OF CONDUCT

This form needs to be completed by every member of the Focus Group prior to the commencement of the focus group meeting.

As a member of this committee I agree to abide by the following conditions:

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. 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.
3. 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.

Member represents	Member's Name	Signature	Contact Details

Appendix F

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

<u>CONFIDENTIALITY STATEMENT – FOCUS GROUP DECLARATION</u>

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.

<u>Please Print in block letters:</u>

Focus Group Member: _____ Signature:_____

Witness Name: _____ Signature:_____

Researcher's Name: _____ Signature:_____

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

Appendix G
INFORMED CONSENT FORM

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

DATE: :

TITLE OF RESEARCH PROJECT:

An investigation to determine the knowledge and perceptions of members of the National Olympic Committees (NOCs) towards Chiropractic, as well as to determine the current utilization and future role which they would like chiropractic to play in national and international sport.

NAME OF SUPERVISOR : Dr C. Korporaal

NAME OF CO-SUPERVISOR : Dr B. Nook

NAME OF RESEARCH STUDENT : Kerry Labuschagne

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 H
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 to determine the knowledge and perceptions of members of the National Olympic Committees (NOCs) towards Chiropractic, as well as to determine the current utilization and future role which they would like chiropractic to play in national and international sport.

Background to the study:

The National Olympic Committees (NOCs) are organizations that propagate the fundamental principles of Olympism at a national level within the framework of sports activity. There are currenty 203 NOCs spread out across the continents. They are committed to the development of athletes and support the development of sport for all programs and high performance sport in their countries. They also participate in the training of sports administrators by organizing educational programs. Another objective of the NOCs is to ensure that athletes from their respective nations attend the Olympic Games. Only a NOC is able to select and send teams and competitors for participation in the Olympic Games . Due to the influential nature of this organization it is therefore not difficult to see that it would be highly beneficial for Chiropractic to know what the current perceptions of the NOCs are, as well as their current utilization and the role they perceive Chiropractors to play in national and international sporting events in the future.

It is therefore the intention of the researcher to determine the current knowledge and perception that members of the NOC's have of chiropractic.

Objective of the study:
The data obtained by means of this questionnaire will allow for further assessment of the role of chiropractic at a National and International level.
The questions are concerned with the NOC's:

- Knowledge and perceptions of chiropractic
- Current role and utilization of chiropractic in National and International sport
- And the potential role that the NOCs 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.

Kerry Labuschagne

Appendix I

25th May 2007

To whom it may concern,

I, Mrs Ireland, agree to receive completed questionnaires for research on behalf of Kerry Labuschagne.

I agree to then tick off completed questionnaires against a list of the potential participants and remove any names or email addresses that might indicate who it is from. A copy shall then be printed, and then the unidentifiable completed questionnaire will be forwarded to Kerry Labuschagne.

I shall maintain confidentiality at all times.

Sincrely,

Mrs Ireland

Appendix J

Voulez vous rester anonyme pour ce questionaire?

oui	
Non	

Si non, veuillez ajouter votre nom complet

1 Donnez une liste complete des Comités Nationaux Olympiques, (CNO) auquelles vous etes afCNOlié

2 Donnez votre position actuelle dans cette comité

3 Pendant combien d'années avez vous été membre de votre CNO.

4 Quel est votre pays de residence?

5a Avez vous representé votre pays en tant qu'athlete au niveau national ou international?

oui	
Non	

b Si OUI, listez les sports et annees de participation

6 Donnez vos qualifications et plus haut niveau de scolarisation

7 Quel serrait les profesionnels que votre comité nommerait pour consultation des athletes s'ils souffraient des conditions suivantes? Indique avec un "X"

	Biochimiste	chiropracteur	GP	Homeopath	Pharmacien	Physiothérapeute
Cheville Tordue						
tendonitis - membre supérieur						
instabilité/laxisme communs						
dommages d'abus						
syndrome patellofemoral de douleur						
contraintes de muscle						
whiplash						
dislocation récurrente						
maux de tête						
ruptures						
herniation de disque						
syndromes d'impact						
tendonitis - membre inférieur						
épaule congelée						
dommages de ligament						
lombalgie						
rigidité générale de muscle						

8 Donnez une note de 1 a 12 selon ce que votre comité pense etre le plus important pour une equipe medicale de sport? (1 etant le plus important et 12 le moins)

Biochimiste	
chiropracteur	
Diététicien	
Docteur Generaliste	
InCNOmiere	
Neurologue	
chirurgien orthopédique	
Entraineur personnel	
Pharmacien	
Physiothérapeute	
Chirurgien Esthétique	
Psychologue	

9 Quelles sont les modalites/techniques suivantes dont votre comité demande une presence lors de competitions sousignees part des profesionnels

	Indique avec un "X"
Appui De base De la Vie	
Conseil diététique/alimentaire	
Conseil ergonomique	
Exercice/thérapie réhabilitative	
Électro-modalités par exemple. Thérapie d'ultrasons	
Réduction de rupture	
Thérapie chaude/à froid	
Manipulation de l'épine et des extrémités	
Massage	
Psychologie	
Presciption des drogues et des injections	
Cerclage	
Suturer	

Si d'autre, merci de specifier

10 Quels profesionels medicaux font partis de votre comité? (Minimum requis pour competition)

Indique avec un "X"

Biokinetisist	
Chiroprakteur	
Diététicien	
Docteur médical	
InCNOrmière	
Neurologue	
Chirurgien orthopédique	
Entraîneur personnel	
Pharmacien	
Physiothérapeute	
Chirurgien de plastique	
Psychologue	

Si d'autre, merci de specifier

11 Quels roles suivants considerez vous que les soins chiropractiques remplissent dans le systeme de sante

Indique avec un "X"

curatif	
préventif	
rehabilatative	
préventif et réhabilitatif	
curatif et réhabilitatif	
ne sais pas	

Si d'autre, merci de le specifier

12a Est-ce que les athletes dans votre equipe nationale utilisent des soins chiropractique
Indique avec un "X"

oui	
Non	
ne sais pas	

Si OUI, quand?
12b Noter avez un "X"

Quand, les chiroprakteurs sont toujours disponibles				
Pendant la concurrence, quand des chiroprakteurs sont fournis				
Leur propre temps, et sans appui ou connaissance de l'équipe médicale				

Avez vous eu des demandes de nom de chiropracteur par des athletes?

13 oui	
Non	

Seriez vous plus tenter d'utiliser un Chiropracteur sur recommendation d'athletes?

14a oui	
Non	

Est-ce que votre descision, (14a), peut-etre influencee si vous saviez que le chiropracteur soit specialise,
14b hautement diplome dans les accidents de sport?(ICSSD)

oui	
Non	

Avez vous été soigné par un chiropracteur?

15a oui	
Non	

Si OUI, quelle fut votre experience?
15b

Mauvais **Satisfaisante** **Excellente**

1	2	3	4	5

16 **Quellles sont les regulations, si aucune, pour la selection de personnels medicaux pour traiter les athletes dans votre equipe medicale.**

Avez vous autre chose a ajouter?

17

Merci de votre temps pour remplir ce questionaire, votre participation est tres appreciée

ETHICS CLEARANCE CERTIFICATE

Student Name	**Miss K. Labuschagne**	**Student No**	**20200726**
Ethics Reference Number	**FHSEC** 001/08	**Date of FRC Approval**	13 MARCH 2008
Research Title:	**Knowledge, perception and utilization of chiropractic by National Olympic Committees.**		

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 — DATE: 10-3-08

SIGNATURE OF SUPERVISOR/S — DATE: 10-3-08

SIGNATURE OF HEAD OF DEPARTMENT — DATE: 10-3-08

SIGNATURE: CHAIRPERSON OF RESEARCH ETHICS COMMITTEE — DATE: 10/03/2008