

Psychological Effects of Sport Massage therapy

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A thesis submitted in fulfilment of the requirement for the degree MA (Sport Recreation and Exercise Science) in the department of Sport, Recreation and Exercise Science, University of the Western Cape.



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DECLARATION

I hereby declare that “psychological effects of sport massage therapy” is my own work, that it has not been submitted for any degree at other Universities, and that the sources I have used have been indicated and acknowledged as complete references.

Mignon Schilz

Date

Signed _____



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Pursuing this master's degree has been an eye-opening experience. Whilst looking back at the journey, I can confidently say that I have learnt a lot with regards to discipline and perseverance. Doing the Masters during Covid-19, has been a really big challenge which required a lot of strength that I thought I never had.

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I would like to thank my parents, boyfriend, friends and family for always pushing me to do my best and not giving up, no matter how hard it got. For always motivating me to not let Covid-19 get the best of my willingness to complete my masters.

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ABSTRACT

Background: Sport massage therapy has been understood to have a positive effect on anxiety levels. It has been reported that sport massage therapy psychologically reduces stress levels, decreases nervous system tension and anxiety, as well as improves concentration during and after performances. Researchers tend to agree with these reports and have found that in the psychological area it has indicated that sports massage therapy does have a positive effect on anxiety levels. Research indicates that after receiving a sports massage the parasympathetic activity and the hormonal levels resulted in a relaxation response of the body's physiological mechanism. Researchers stated that receiving a massage tends to have more psychological effects than what it would have physiological effects.

Aim: This study aimed to explore the psychological effects of sport massage therapy amongst sportspersons.

Objectives: During the study, two objectives were used: the first objective was to compare the participants' baseline and post-psychological effects of sports massage and the second objective was to qualitatively explore the post-psychological effects of sport massage therapy among the sportspersons.

Methods: A multi-method research design was used which involved both quantitative and qualitative approaches. The quantitative part involved the use of a sports emotional questionnaire which was completed before and after receiving the sports massage. Semi-structured interviews were performed post-test to gain insight into a sports person's feelings after receiving the sports massage.

Results: The quantitative SEQ results indicated overall post-massage that there was a significant reduction in the participants anxiety levels ($p < 0.001$). There was a significant decrease in their dejection levels ($p < 0.006$). There was a significant decrease in participants'

anger levels post-massage ($p < 0.018$). Post-massage has also shown the significant increases in their excitement levels ($p < 0.020$) and lastly the results indicated that the overall level of happiness had a significant increase ($p < 0.001$). The qualitative results indicated that overall throughout the four semi-structured interview questions there was a significant amount of positive feedback from the participants where they felt more relax and less tense.

Conclusion: The findings of this study showed that there are positive psychological benefits of sport massage therapy amongst sport individuals, where sport massage therapy can ultimately decrease negative emotions and most definitely increase happiness and excitement levels.

Keywords: Sport Massage, Psychology, multi-method study, psychological effects, sport massage techniques.



TABLE OF CONTENTS

DECLARATION	i
ACKNOWLEDGEMENTS	ii
ABSTRACT.....	iii
LIST OF FIGURES	viii
LIST OF TABLES	xi
DEFINITIONS OF TERMS	xii
CHAPTER ONE	1
BACKGROUND OF THE STUDY	1
1.1 INTRODUCTION	1
1.1 BACKGROUND OF THE STUDY	1
1.3 PROBLEM STATEMENT	4
1.4 AIM OF THE STUDY.....	5
1.5 OBJECTIVES OF THE STUDY	5
1.6 HYPOTHESES AND THE RESEARCH QUESTION OF THE STUDY	5
1.7 CONCEPTUAL FRAMEWORK OF THE STUDY	5
1.8 SIGNIFICANCE OF THE STUDY.....	6
CHAPTER TWO	7
LITERATURE REVIEW	7
2.1 BACKGROUND	7
2.1.1 SPORTS MASSAGE THERAPY	7
2.2 PSYCHOLOGY OF SPORT	8
2.3 PSYCHOLOGY OF SPORT MASSAGE	11
2.4 MASSAGE THERAPY AND PHYSICO-CHEMICAL PROCESSES	20
2.4.1 SEROTONIN.....	20
2.4.2 DOPAMINE	21
2.4.3 CORTISOL	21
2.5 SPORTS MASSAGE THERAPY TECHNIQUES	22
SUMMARY	25
CHAPTER THREE	26
METHODOLOGY	26
3.1 INTRODUCTION	26
3.2 RESEARCH DESIGN	26
3.3 RESEARCH SETTING	27
3.4 POPULATION AND SAMPLING	27

3.4.1 INCLUSION CRITERIA.....	28
3.4.2 EXCLUSION CRITERIA.....	28
3.5 RESEARCH INSTRUMENT AND DATA COLLECTION PROCEDURE.....	28
3.5.1 RESEARCH INSTRUMENT (QUANTITATIVE).....	28
3.5.2 QUALITATIVE.....	29
3.6 DATA COLLECTION PROCEDURES	30
3.7 TRUSTWORTHINESS, VALIDITY AND TRANSFERABILITY	31
3.8 DATA ANALYSIS.....	31
3.9 ETHICS CONSIDERATION	32
3.10 CHAPTER SUMMARY.....	33
CHAPTER FOUR.....	34
FINDINGS AND DISCUSSION.....	34
4.1 INTRODUCTION	34
4.2 CHARACTERISTICS OF THE RESEARCH FINDING	34
4.1.1 UNEASY	36
4.1.2 UPSET	37
4.1.4 IRRITATED	39
4.1.5 PLEASED	40
4.1.6 TENSE.....	41
4.1.7 SAD.....	42
4.1.8 EXCITED	43
4.1.9 FURIOUS	44
4.1.10 JOYFUL.....	45
4.1.11 NERVOUS.....	46
4.1.12 UNHAPPY.....	47
4.1.13 ENTHUSIASTIC	48
4.1.14 ANNOYED.....	49
4.1.15 CHEERFUL.....	50
4.1.16 APPREHENSION.....	51
4.1.17 DISAPPOINTED	52
4.1.18 ANGRY	53
4.1.19 ENERGETIC	54
4.1.20 HAPPY	55
4.1.21 ANXIOUS.....	56
4.1.22 DEJECTED.....	57
4.3. EMOTIONAL VARIABLES OF THE SUBSCALES	58



4.3.1 ANXIETY	58
4.3.2 DEJECTION	59
4.3.3 EXCITEMENT	59
4.3.4 ANGER.....	59
4.3.5 HAPPINESS	59
4.4. INTERVIEW QUESTIONS	60
4.5.1 ANXIETY	67
4.5.2 DEJECTION	67
4.5.3 EXCITEMENT	68
4.5.4 ANGER.....	68
4.5.5 HAPPINESS	69
CHAPTER FIVE	70
SUMMARY, CONCLUSION AND RECOMMENDATIONS	70
5.1 SUMMARY	70
5.2 CONCLUSION.....	70
5.3 STUDY LIMITATIONS.....	72
5.4 RECOMMENDATIONS.....	72
REFERENCES	74
APPENDIX A: INFORMATION SHEET	A:1
APPENDIX B: CONSENT FORM	A:3
APPENDIX C: SPORTS EMOTIONAL QUESTIONNAIRE (SEQ)	A:4
APPENDIX D: FOUR SEMI-STRUCTURED INTERVIEW QUESTIONS.....	A:5
APPENDIX E: INFORMATION SHEET (AFRIKAANS)	A:6
APPENDIX F: CONSENT FORM (AFRIKAANS)	A:9
APPENDIX G: FOUR SEMI-STRUCTURED INTERVIEW QUESTIONS (AFRIKAANS)	A:10

LIST OF FIGURES

Figure 1.1: Conceptual framework of the study	6
Figure 4.1.1: Frequency analysis represented with the bar graph of the uneasy sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	37
Figure 4.1.2: Frequency analysis represented with the bar graph of the upset sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	37
Figure 4.1.3: Frequency analysis represented with the bar graph of the exhilarated sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.	38
Figure 4.1.4: Frequency analysis represented with the bar graph of the irritated sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	39
Figure 4.1.5: Frequency analysis represented with the bar graph of the pleased sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	40
Figure 4.1.6: Frequency analysis represented with the bar graph of the tense sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	41
Figure 4.1.7: Frequency analysis represented with the bar graph of the sad sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	42

Figure 4.1.8: Frequency analysis represented with the bar graph of the excited sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	43
Figure 4.1.9: Frequency analysis represented with the bar graph of the furious sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	44
Figure 4.1.10: Frequency analysis represented with the bar graph of the joyful sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	45
Figure 4.1.11: Frequency analysis represented with the bar graph of the nervous sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	46
Figure 4.1.12: Frequency analysis represented with the bar graph of the unhappy sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	47
Figure 4.1.13: Frequency analysis represented with the bar graph of the enthusiastic sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	48
Figure 4.1.14: Frequency analysis represented with the bar graph of the annoyed sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	49
Figure 4.1.15: Frequency analysis represented with the bar graph of the cheerful sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.....	50

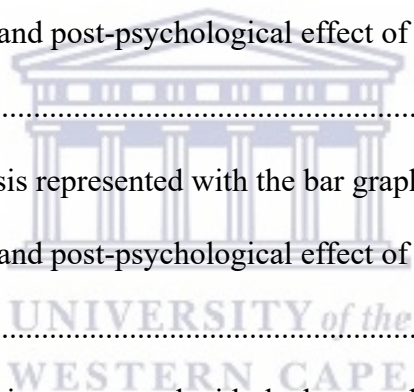
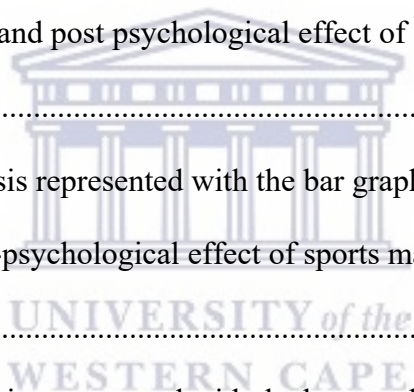


Figure 4.1. 16: Frequency analysis represented with the bar graph of the apprehension sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants.	51
Figure 4.1.17: Frequency analysis represented with the bar graph of the disappointed sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.	52
Figure 4.1.18: Frequency analysis represented with the bar graph of the angry sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.	53
Figure 4.1.19: Frequency analysis represented with the bar graph of the energetic sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants.	54
Figure 4.1.20: Frequency analysis represented with the bar graph of the happy sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.	55
Figure 4.1.21: Frequency analysis represented with the bar graph of the anxious sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.	56
Figure 4.1.22: Frequency analysis represented with the bar graph of the dejected sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.	57



LIST OF TABLES

Table 4.1: Sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants.....	35
Table 4. 2: Sport emotion responses for emotional variables of the subscales for baseline and post-psychological effect of sports massage therapy among the participants.	58



DEFINITIONS OF TERMS

Massage is defined as manipulation of the soft tissue and it is a systematic application of massage (Kenedy et al., 2016).

Sports massage can be defined as the manual manipulation of the muscles to help improve physical abilities in demanding lifestyles or hobbies (Rothstein, 2020).

Sport Psychology is defined as a proficiency that uses psychological knowledge and skills to help address the optimal performance and well-being of athletes, developmental and social aspects of the athlete's sports participation as well as the systemic issues that can be associated with the sports setting and organizations (American Psychological Association, 2008).

Psychology is defined as the study of mind and behaviour, which encompasses the biological influences, social pressure as well as environmental factors that affect how people will think, act and feel (Cherry, 2020).

Perception is defined as the primary form of cognitive contact and is also known as the primary form of awareness (Efron, 1969).

Self-confidence is defined as the type of belief you experience once you have successfully performed a competition or a desired sport (Gurjar & Kakran, 2020).

Arousal regulation is the controlling of the cognitive and physiological activation by using either natural or cognitive behavioural methods (Sam, 2013).

Stress is defined as a physical, mental, or emotional factor that can cause bodily harm or mental tension (Davis, 2021).

Anxiety is defined as feeling some sort of apprehension or fear and can be characterized by some physical symptoms such as palpitations, sweating, and feelings of stress (Stöppler, 2021).

Cognitive anxiety is defined as the mental component that is characterized by negative expectations of your success, self-evaluation, negative self-talk, images of failure, and worries about the performance (Jarvis, 2002).

Somatic anxiety is the physiological element, which relates to autonomic arousal, negative symptoms like feeling nervous, muscle tension, and a rapid heart rate (Jones, 2000).

Depression is defined as a mood disorder that causes a persistent feeling of sadness or loss of interest (Watson, 2018).



CHAPTER ONE

BACKGROUND OF THE STUDY

1.1 INTRODUCTION

This chapter outlines the background of the study, providing a brief overview of sports massage. The problem statement is presented as well as the research aims and objectives and is also followed by the significance of the study.

1.1 BACKGROUND OF THE STUDY

Massage has always been used as muscle conditioning as well as a therapeutic option and has been defined as the mechanical manipulation of the muscle tissues with rhythmic pressures and stroking to help promote health and well-being (Cafarelli & Flint, 1992). Sports massage therapy (SMT) is known to play an extremely valuable role within the healthcare system (Shroff & Sahota, 2013). Over the past few decades, sports massage has been extensively used amongst athletes as well as coaches within a variety of sports disciplines (Gwynne, 2012). Sports massage has become a crucial component within any type of athletic training (Gwynne, 2012) mostly used for performance recovery.

Performance recovery is seen in interventions between the biomechanical, physiological, and psychological systems that have led to various benefits which have resulted in the reduction of muscle tensions as well as pain sensitivity (Huang et al., 2010). Hemming et al. (2000) indicated that there was a positive effect of SMT on the psychological aspects of the individuals' actual performances as well as recovery rates. It is important to understand that post-exercise SMT could improve a sense of calmness and well-being which ultimately leads to a decrease in depression, improved mood, relaxation, and recovery (Armstrong, 1984).

Following on from this work, Guest (2010) reported that mental fatigue and general worsening of the state of mind could be experienced by sports persons during a high-intensity exercise, competition, or training program. Athletes must have a positive mindset as related to sports performance and in all other exercise settings (Szabó et al., 2008). In support of this, study by Hasson et al. (2003), showed that SMT can induce a positive psychological effect and may also reduce athletes' state of anxiety in some clinical populations.

Physiologically, SMT could result in either a sympathetic or parasympathetic effect on a performer's physiological systems linked to the production of adrenaline and endorphins (Luke, 2015). According to Luke (2015), the parasympathetic effect which is also known as the relaxation response is much more desirable with the following few benefits; relaxation, vasodilation of blood and lymphatic vessels and a decrease in neural stimulation. The relaxation occurs due to the stimulation of the parasympathetic nervous system via the various mechanoreceptors which are used to sense touch, pressure, tissue length and warmth, therefore, the muscles relax due to the heat that's generated (Halliday & Harris, 2015).

Luke (2015), also indicated that upon receiving SMT, vasodilation of the blood and lymphatic vessels occurs and is mainly caused by the relaxation of the smooth muscles. It also indicated that there is a reduction in neural stimulation known as the contraction phase (Luke, 2015). This decrease in neural stimulation is due to the relaxation of the various skeletal muscles (Luke 2015). This further stimulates an individuals' mental and physical states thereby causing an individual to be stress-free, comfortable, and have a quick recovery focusing more on the sympathetic nervous system (Luke, 2015).

A study was conducted by Lutjemeier et al. (2005), where they studied the enhancement effects of muscle compression on blood flow. During their study, they indicated that there were lower levels of blood flow during muscle contractions and increased levels of blood flow during

muscle relaxation, which ultimately increases the vasodilation of the blood vessels (Lutjemeier et al., 2005).

Wiltshire et al. (2010), did a study where they tried to determine if sports massage could improve muscle blood flow as well as reduce lactic acid within the muscles. The results of this study indicated that SMT impairs the removal of the lactic acid post-exercise and that this is a result of the increased blood flow from the rhythmic compression on the muscle tissue (Wiltshire et al., 2010).

However, studies have shown that with SMT, some injuries could be prevented during training sessions and competitions (Croiser, 2004 ; Gasibat et al., 2017). It seems that receiving an SMT can play a crucial role in the prevention of injuries in sport with some interventions on functional physical variables, such as flexibility (Croisier, 2004). SMT can be used as an effective way to help prevent acute injuries such as muscle tears in tight muscles or chronic injuries that can be caused by wearing and tearing through the rearrangement of the muscle fibres (Benjamin & Lamp, 1996). It can be a useful modality to enhance the athletes' performance and to prevent future injuries for the athletes who engage in strenuous exercises (Gasibat & Suwehli, 2017).

Pre-sports massage is recommended to ensure the athlete is physically and mentally ready for the approaching events (Tappan & Benjamin, 1998). SMT is used to try and minimize the negative performance factors, such as muscle mass, connective tissue, range of motion, pain and anxiety (Benjamin et al., 1996). Massage therapy is believed to decrease the majority of the injury-risk elements such as increasing your range of motion, and decreasing your pain and anxiety levels (Leivadi et al., 1999).

In the South African context, it was found that there was limited amount of research that has been conducted on the psychological effect of SMT amongst sportspersons who receive sports

massages regularly, especially in sports persons residing in the city of Cape Town in the Western Cape Province. Cape Town is the host of various big and well-known events. Some of these events include the biggest timed cycle race in the world, known as the Cape Town cycle tour, the biggest timed running race in the world (Town Oceans Marathon and the Ultra Marathon), as well as the largest mountain bike event in the world that is known as the Absa Cape Epic. It is important to understand that SMT has played various major roles within prevention of muscle soreness as well as increasing the psychological effects.

1.3 PROBLEM STATEMENT

Rest and recovery are seen as crucial factors when it comes to athletes' training. According to Hemmings (2000), the term recovery is used to describe the two restoration parameters, known as the physiological and psychological aspects. In 1990, Calder started to recognise the psychological regeneration after the athletes completed their intense sport, which was in conjunction with physiological restoration.

Murphy et al. (1990), stated that coaches and athletes must be knowledgeable on the psychological regeneration and importance of SMT when there is a high level of increase in their training volumes and their intensities. The study of Hemmings (2000) indicated that SMT can positively affect the perceptions of recovery, which therefore provided more evidence of the psychological effects of massage. According to Cafarelli and Flint (1992), there were only twenty-nine citations that were related to the physiological effects of SMT and only seven citations were found about the psychological effects of SMT. While this is noted as an older study, active searches has revealed that limited recent research has been done on the topic and further highlights the importance of the limited research in this topic and the need for the research to be done.

1.4 AIM OF THE STUDY

This study aimed to explore the psychological effects of SMT amongst sports individuals.

1.5 OBJECTIVES OF THE STUDY

The objectives of this study are to:

1. To compare the participant's baseline and post-psychological effect of sports massage therapy among sportspersons.
2. To explore the post-psychological effect of sports massage therapy among sportspersons.

1.6 HYPOTHESES AND THE RESEARCH QUESTION OF THE STUDY

1. There is no comparability between the baseline and post-psychological effects of sports massage therapy amongst sportspersons.
2. There is no significant differences in the post-psychological effects of sports massage therapy among sportspersons

1.7 CONCEPTUAL FRAMEWORK OF THE STUDY

This study is therefore based on the conceptual framework presented in Figure 1 that was designed by the researcher of this study, where the post-psychological effect of SMT application resulted in a positive effect and perception which is linked to the reduction in anxiety, dejection, and anger. In addition, the post-psychology effect of SMT application has also been shown to be effective as it improves or enhances excitement and happiness. This positive effect seems to contribute to an improvement in athletes' performance.

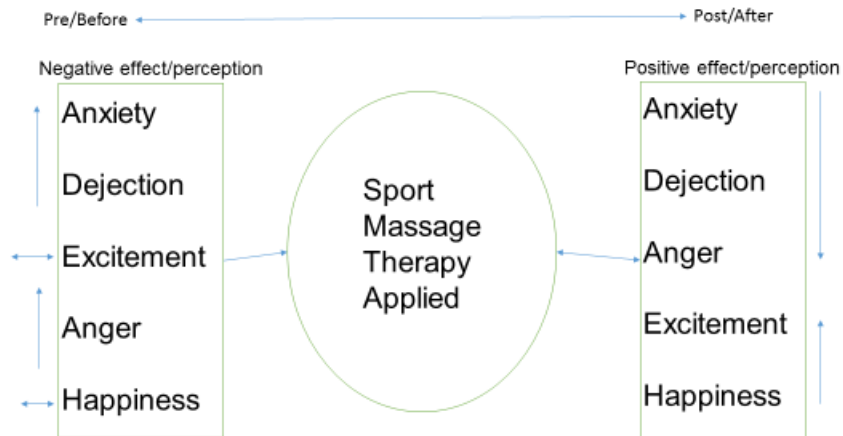


Figure 1.1: Conceptual framework of the study

1.8 SIGNIFICANCE OF THE STUDY

The significance of this study is to increase the level of education on the psychological importance of receiving sports massages, especially in a South African context. SMT has been known to be beneficial, specifically from a physical rehabilitation standpoint, to all sportsmen and women of all categories (both at amateur and professional/elite levels) such as helping prolong athletes playing time and prevent possible body tissues tension and injuries during training and sport performances. The current study will help athletes and their coaches to get a better understanding of why SMT is good from both a physiological and psychological point of view; and specifically what the psychological benefits can hold for their performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 BACKGROUND

2.1.1 SPORTS MASSAGE THERAPY

Sport massage therapy (SMT) can be defined as the manual manipulation of the muscles to help improve physical abilities in demanding lifestyles or hobbies (Rothstein, 2020). SMT is seen as one of the oldest forms of recovery understood as a systematic form of touch that manipulates the soft muscle tissues to enhance and promote health and well-being (Moyer et al., 2004). Likewise, through the research by Zadkhosh et al. (2015), it is understood that SMT is a form of complementary medicine and a drug-free approach.

SMT which can also, commonly be referred to as “recovery massage”, is mostly used to describe certain massage techniques that are delivered to athletes after they have completed intense exercises (Angus, 2001). SMT is now one of the most popular forms of recovery techniques that are based on the twelve principles of body postures that form all athletic movements (Zadkhosh, 2015). SMT can help provide the special effect of feeling lighter (Priyambada et al., 2020). Rothstein (2020) stated that sports massage is seen as a therapeutic form of recovery that focuses on specific joints, muscle groups, tendons, ligaments and the various soft tissue groups. Furthermore, Field et al. (2005), indicated that through SMT there is an increase in serotonin and dopamine and a decrease in cortisol known as the stress hormone.

2.2 PSYCHOLOGY OF SPORT

Sport psychology is mainly defined as a proficiency that uses psychological knowledge and skills to help address the optimal performance and well-being of athletes, and the developmental and social aspects of the athlete's sports participation (American Psychological Association, 2008). Sport psychology and sports massage can work very well hand in hand, that being said, by receiving a sports massage, you ultimately receive some psychological benefits (Brummit, 2008). Combining sports psychology with SMT can lead to increased performance, and increased recovery rates as well as increasing the athlete's and coach's self-confidence and their ability to work together (Priyambada et al., 2021). This was further elaborated when Makepeace and Young (2021), who did a study about professional mental performance consultants (MPCs), and master athletes (MA's) and how applied sport psychology can support middle-aged and older athletes effectively.

With regards to performance readiness, MA and MPC described the importance of traditional mental skills and how they can relate to performance readiness. The MA uses the five traditional mental skills which prepare them to perform well (Makepeace et al., 2021). These mental skills include; goal setting, imagery, arousal regulation, concentration skills and lastly the skills to enhance their self-confidence (Weinberg & Gould, 2015). Goal setting was incorporated and the MA stated that goal setting was used to motivate themselves (Makepeace et al., 2021). Makepeace et al. (2021), stated that the athlete's goals should be controllable and should give a feeling of gratification when the goals are achieved, and the goals must have meaning to the athletes when writing up the various goals. The athlete used goal setting to not only increase their performance readiness but to enhance the performance experience as well (Makepeace et al., 2021). The more meaningful goals athletes have, the greater their sport commitment would be (Vallerand & Young, 2017).

Imagery is also widely known as visualization (Makepeace et al., 2021). In their study, Makepeace et al. (2021), indicated that imagery is one of the popular strategies used when preparing athletes for their competitions. Mental imagery is a multi-sensory procedure that associates the numerous senses to create a certain mental image and then processes the image without the presence of external stimuli (Di Corrado et al., 2020). During the study of Makepeace et al. (2021), they indicated that when athletes use imagery, they run through the various sections of the race in their mind, which is known as the “mind’s eye ” to help them expect more or less what to expect on the day of the race.

The results found by Makepeace et al. (2021), where arousal regulation was further elaborated amongst the MA’s needs to implement various strategies which will increase their pre-competitive arousal, due to the nervous system that does not always start immediately (Makepeace et al., 2021). Athletes engage in emotional regulation for three purposes, down-regulation, maintenance process and up-regulation (Ruiz & Robazza, 2020). In the contrasting study by Ruiz et al. (2020) they described three different purposes down-regulation is used; to excite the emotional state or to decrease the intensity. Maintenance purpose is used to keep the emotional intensity stable over some time (Ruiz et al., 2020). Up-regulation increased the intensity of the overall emotional experience (Peño-Sarrionandie et al., 2015).

The study of Makepeace et al. (2020), was further elaborated by Makepeace et al. (2020), where the MA’s informed the researchers that they need to face concentration strategies to improve their concentration abilities, which will help manage the possible distraction before and after the competition. Positive information that they build through a “self-messaging” system helps them stay concentrated and positive during the competition (Makepeace et al., 2020). According to Makepeace et al. (2020), it is important to concentrate on the positive reminders when the athlete is on their last lap of the competition in which they are competing.

Gurjar and Kakran (2020) stated that high levels of self-confidence can enhance the athletes' positive emotions, concentration, and goal-setting abilities and enhance their ability to increase their effort and develop the effective competitive strategies that they will need.

According to Gurjar et al. (2020), self-confidence has been seen as being one of the critical impacts that it can have on the athletes' sports performance. If you are self-confident, then you will trust in your abilities to perform the desired sport. A coach needs to emphasize the importance of self-confidence and that they as athletes can have and be in control (Cox, 2002).

Villalon and Martin (2020), indicated that increasing the amount of sports psychology on an educational level and being more in contact with sports psychologists can have an increased result of higher training effectiveness. As soon as the coaches are educated on the benefits of SMT, then they can encourage and introduce their athletes to SMT and why they will be able to psychologically benefit from it (Priyambada et al., 2021).

The mentality of an individual will always come naturally, it will also maintain the general health issues of some athletes and try and prevent some mental illnesses (Schinke et al., 2018). The psychological aspects are important and can be challenging in the various sporting codes, whether it is an individual or team sports (Morgan et al., 2017). Morgan et al. (2017), stated that by understanding their psychological states, the athletes will be able to mobilize the various psychological resources to help withstand certain stress factors to achieve their optimal performance.

It is important to know and understand that when the athlete has the opportunity to reflect on themselves can positively change the athlete and the coach's perception of knowledge and self-assessment (Morris-Eyton & Roux, 2019). The measuring of competitive anxiety has been receiving a lot more attention in sport and exercise psychology (Martens et al., 1990). In a study by Hanin (2012), it was found that sports psychologists have always believed that athletes

who receive high levels of anxiety during competitions can be harmful, worsen their performance and can lead to dropping out of the sport. The majority of the athletes who needed consultations were the athletes who were suffering from anxiety before and after sports events (Bull, 2000).

Anxiety has two main branches known as cognitive and somatic anxiety (Parnabas & Mahamood, 2013):

- Cognitive anxiety also known as trait anxiety is the mental component and can be characterized by negative self-talk, fear of failure, etc. (Ampofo-Boateng, 2009; Carlucci et al., 2018). According to Parnabas and Mahamood (2013), coping strategies were designed to help individuals who suffer from cognitive anxiety. These coping mechanisms are positive self-talk, doing physical activity, goal setting, imagery, and focusing on what it is that you can control (Parnabas & Mahamood, 2013).
- Somatic anxiety also known as state anxiety is more of a physiological component (Carlucci et al., 2018). This means that it comes directly from the body and can be characterized as feeling nervous or having symptoms, like difficulty in breathing, high blood pressure, and sweaty palms (Jarvis, 2002). Parnabas and Mahamood (2013), stated that certain techniques can be used to help prevent somatic anxiety, these techniques are meditation, breathing techniques, autogenic training, and progressive relaxation.

2.3 PSYCHOLOGY OF SPORT MASSAGE

During SMT it is known that the massage releases a stimulus for the central nervous system which decreases the heart rate and respiration; which leads to athletes feeling a sense of calmness (Sherman et al., 2005). Weerapong and Kolt (2005) investigated the reduction of anxiety and the improvement in the athlete's mood state after a massage. Research that was

conducted by Weerapong et al. (2005), in the psychological area has indicated that SMT have a positive effect on anxiety levels.

Weerapong et al. (2005), further indicated that after receiving a sports massage, the parasympathetic activity and the hormonal levels resulted in a relaxation response of the body's physiological mechanism. They also indicated that there was a reduction in anxiety and an improvement in the athlete's mood state which causes the psychological mechanisms to relax after receiving SMT (Weerapong et al., 2005). Priyambada et al. (2020), found that individuals who received SMT were influenced by some psychological factors. Furthermore, they explained what some of the positive psychological factors were, namely, how the athletes feel in the sense of calmness, and comfortability and if the individuals have a decrease in their fatigue and lethargy. Priyambada et al. (2020), indicated that some psychological effects include the following:

1. There is a reduction in the athlete's stress levels, due to the muscles and nerves being soothed: and
2. Sports massages stimulate the feeling of well-being and comfort.

Research by Lee et al. (2019), expanded upon this and stated that receiving a massage tends to have more chances of psychological effects than what it would have towards physiological effects.

The findings of Lee et al. (2019) were similar to those of Zadkhosh et al. (2015), where, in their study, they examined the effect of ten sports massages on depression, anxiety and stress of adolescent wrestlers. The final result of the study indicated that after receiving their tenth sports massages, there was a decrease in the wrestlers' depression, anxiety and stress levels (Zadkhosh et al., 2015). Hou et al. (2010), echoed this and found that SMT can reduce depression and stress levels.

Shahri et al. (2016), did a quasi-experimental research study. In their study, thirty participants between the ages of 19 and 22 who are students of the Islam Azad University were divided into two groups, fifteen participants were placed in the experimental group and the other fifteen were placed in the control groups. The experimental group received 25 - 30 minutes of sports massage during each session, they also received ten sports massages during one month, whereas the controlled group avoided activities that decreased their anxiety. The results of their study showed that sports massage significantly decreased the trait anxiety within the experimental group (Shahri et al., 2016).

These results of Shahri et al. (2016), were similar to those found by Nahavandinezhad (2006). In their study, they stated that SMT leads to the activation of the parasympathetic system, where the epinephrine and the norepinephrine hormones are secreted to increase and decrease the levels of your adrenaline. Nahavandinezhad (2006), therefore recommends sports massage as a non-medical method to decrease the anxiety levels of individuals before an event.

According to Draper & Tessier (2005), SMT allows athletes to experience a psychological boost, greater body awareness and increased levels of self-confidence. Psychologically, SMT can be beneficial to athletes because it allows athletes to become relaxed and focus their attention on the visualization and concentration techniques they will use during an athletic performance (Draper et al., 2005).

Brummitt (2008), did a study to try and understand how SMT and its roles affect the psychological readiness of an athlete during their sports performance of pre-competition, their recovery after a competition and how their level of readiness is during their sporting event. It was reported that SMT have beneficial factors concerning the athlete's psychological state (Brummitt, 2008).

Generally, the effects of stress during aerobic training can be felt through the muscle tension that has accumulated in the neck or back, thus receiving SMT can alleviate the stress factors within the body (Jooste et al., 2013). Jooste et al. (2013), indicated that during the research study, participants on a psychological level generally perceived a reduction in their stress levels, a decrease in their nervous system tension and anxiety and improved concentration during an activity. During the massage sessions, participants expressed that they felt they were able to focus on certain objectives of the massage which could enhance their performance and keep them relaxed (Jooste et al., 2013).

After an aerobic sporting event, psychological benefits were experienced more on an emotional level as athletes expressed a greater scale of relaxation (Jooste et al., 2013). All individuals who work out extensively place a great amount of stress on their bodies, and going for regular sports massages can positively reduce stress within their bodies (Gould, 2004). It was emphasized by Ackley and Ladwig (2006), that SMT does give athletes a psychological boost, which provides them with better body awareness as well as increased self-confidence.

Moraska (2005), indicated that one of the most important factors in sports competitions is the psychological components. It was stated that even in non-athletic populations receiving a sports massage can decrease psychological measures which include anxiety, stress, tension, and depression and allows an increase in their mood state and quality of life (Rexilius et al., 2002).

Boguszewski et al. (2010), completed a study where they sought to determine if there is a relation between massage and the level of anxiety amongst sixteen people in various professional environments in the age range of twenty to forty-nine. The results showed that between pre-and post-massage, the participants' level of anxiety as a trait and as a state was diminished (Boguszewski et al. 2010). Boguszewski (2010), concluded that SMT is beneficial to help decrease the level of anxiety as a trait and as a state.

The hypothesized psychological effects of pre-event massage include an increase in performance, the promotion of mental state, feeling prepared in both body and mind, feeling a sense of readiness to perform and an increase in mental toughness (Morales et al., 2011).

According to Davis et al. (2020), during their study, they found no evidence of an increase in the performance measures. The performance measures of their study included strength, jump, sprint and endurance training (Davis et al., 2020).

In a study done by Schilz and Leach (2020), their research question was focused on what perception of their participants were; the answers were as follows and were expressed as percentages; 32% of the participants said that the main benefits of receiving a sports massage are to treat the injury, pain or discomfort. 24% said that it decreased their muscle tension and increased their range of motion. A further 24% of the participants indicated that SMT increased their recovery time as well as their peripheral blood flow. Four percent (4%) indicated that SMT helped by reducing their muscle cramps and an astonishing two percent (2%) of the 100 participants indicated that there were psychological benefits upon receiving a sports massage (Schilz et al., 2020).

In the contrasting studies by Mancinelli et al. (2006), and Ogai et al. (2008), found that even though SMT had no immediate effect on the athlete's performances, with regards to their pain pressure threshold, it did however, reduce their perceived muscle fatigue. This was echoed by the findings of Kargarford et al. (2016), that found that SMT had no significant effect on the performance of the athletes, but did decrease their perception of their perceived muscle soreness.

Despite the above finding, for the most part, it has been shown that going for a pre-event sports massage before you compete, can be seen as a method to increase the psychological benefits, as it would decrease the athlete's pre-competition anxiety (Cassar, 2004). Hemmings et al.

(2000), investigated the possibilities of how SMT can affect the athlete's perception of recovery and regeneration.

Brummitt (2008), stated that there was an improvement in the athletes mood stated, he also indicated that future research should be done on the application of SMT before sporting events, the effect it has on the athlete's perception of recovery and the effects that SMT has on the athlete's mood state. Sriwongtong et al. (2020), stated that SMT did have positive psychological benefits to the university students in the physical education classes that participated in their study. There was a significant amount among the athletes who had decreased levels of tension, fatigue, anxiety and depression. It was believed by Staveski et al. (2018), that going for massages, allows the body to maintain and improve the individual's health.

SMT can be used as a psychological aid along with other factors such as self-talk, imagery and mental rehearsal to help decrease the athlete's level of anxiety (Pa et al., 2021). Pa et al. (2021), stated that during their study the results indicated that SMT did have a significant effect on the athlete's pre-competition anxiety which was known as cognitive anxiety, somatic anxiety and self-confidence amongst the Malaysian Elite Tennis athletes.

Reichert (2020), conducted a research study to determine if the therapist's gender affects the psychological effects of sports massage. Their aim looked at whether the therapist's gender had a mental effect on SMT and if the athlete's mental state improved during the treatment that they received (Reichert, 2020). In their research, Reichert (2020), indicated that the majority of the athletes reported that their positive mental state increased significantly and that their negative mental state decreased after they received their SMT and these positive changes in the mental state were regardless of the therapist's gender. One exception that was indicated during the study was that when male athletes were treated by a female therapist then there would be a

definite increase in their mood (Reichert, 2020). Reichert (2020), further did a randomized control study with 108 half-marathon participants, where they managed to show a significant increase in elevated mood levels and a decrease in their mood during passive resting.

These results of Reichert (2022), were similar to those of Hemmings et al. (2000), did a study where they tried to determine the physiological and psychological effects of SMT amongst nine boxers. The study indicated that there was a significant increase in the perception of recovery after receiving a sports massage rather than the passive rest method (Hemmings et al., 2000). Even though there are minimal changes in their physiological fatigue such as the athlete's blood lactate levels and their heart rate, the boxers reported that SMT did have a positive influence on their perception of restoration after they participated in their boxing match.

Poppendieck et al. (2016), did a study where they performed a systematic review and a meta-analysis of the literature that's available on how massage affects the performance recovery of athletes. The results of their study indicated that of the twenty-two studies, only five therapists used the automated techniques of massage which included vibration, whereas the other seventeen only used the classic manual massage techniques (Poppendieck et al., 2016). The results of Poppendieck et al. (2016), indicated that massages that were less than twelve minutes had a bigger performance effect on the athletes, rather than the massages that carried on longer than twelve minutes. The final results of the study indicated that the untrained athletes benefited more from the sports massages than the trained athletes (Poppendieck et al., 2016).

In contrast, Weerapong et al. (2005), stated that there is very little scientific data that has supported the claim that sports massage can help to enhance the athlete's ability to recover and prepare them for their next upcoming event. Weerapong et al. (2005), state that the majority of the research that they have done on the psychological effects of sports massage has concluded that sports massage does produce a positive effect on athletes' recovery. The massages post-

exercise have shown the researchers that there is a reduction in the severity of muscle soreness but had no changes in muscle functional loss (Weerapong et al., 2005). In an earlier study by Kaada and Torsteinbo (1987), it was found that there was a 16% increase in plasma endorphin concentrations after the athletes received their SMT. It was also suggested that this release of the endorphins could be seen as a mediator within the sensation of well-being after receiving the massages (Kaada et al., 1987).

These results were backed by the subsequent study of Weinberg et al. (1988), where they examined the mood changes that the participants experienced after they received their SMT. The mood states of the 183 university students were measured, using the McNair et al. (1971), Profile of Mood States (POMS) questionnaire before and after the athletes completed 30 minutes of rest, sports massage, swimming, jogging or tennis (Weinberg et al., 1988). During the SMT and running conditions, they indicated that there were positive changes in their mood state which were characterized by an increase in vigour and a decrease in their muscle tension, depression, anger and fatigue (Weinberg et al., 1988). Weinberg et al. (1988), stated that if you compare the energy cost between running and receiving a sports massage, the SMT has a lower energy expenditure, which makes it more effective to receive a sports massage before an event as part of preparation rather than running.

Micklewright et al. (2005), made a comparison on how the importance of SMT grew. They indicated that at the 1983 Boston Marathon, the SMT team consisted of only 20 sports massage therapists, whereas by the 2001 Boston Marathon they had 175 sports massage therapists who performed more than 1200 sports massage treatments. Various pieces of evidence suggested that the usage of SMT has grown exponentially over the past 20 years. Micklewright et al. (2005), went on to state that further research is needed to help increase the knowledge about the psychological relationship between receiving a sports massage and any anaerobic performance. However, during their research study, they found that SMT seemed to have a

positive effect on various unknown psychological factors, which increased the participants' anaerobic performances (Micklewright et al., 2005).

Nunes et al. (2016), conducted a double-blind randomized, control trial test to investigate whether sports massage reduces the pain and perceived fatigue in the quadriceps of seventy-four athletes after they have completed an Ironman triathlon. Effleurage, petrissage and tapotement were the main techniques used during their sports massage (Nunes et al., 2016). The results indicated that the group who received the sports massage had significantly lower pain and fatigue ratings, however, there were no major differences between the two groups' thresholds for pressure pain (Nunes et al., 2016). Arroyo-Morales et al. (2008), focused on the psychophysiological effects of SMT after completing high-intensity exercises. Their study consisted of 62 healthy and active students, where the participants were split into two groups either receiving the SMT or receiving a placebo treatment (ultrasound/magnetotherapy) after they participated in three 30-second Wingate tests (Arroyo-Morales et al., 2008). During the discussion Arroyo-Morales et al. (2008), mentioned that receiving SMT influenced the alternations amongst various muscle functions and influenced the psychological state of relaxation.

Similarly, Bender et al. (2019), did a study where they focused on whether SMT does reduce pain and perceived fatigue in the quadriceps and improves the mood and physical performance of 10km runners. Seventy-eight runners were part of the study and they were split into two groups known as the experimental group who received a massage for 10 minutes on the quadriceps after running the 10km and then there was the control group who received a sham joint mobilization (Bender et al., 2019). To measure the participants' pain and fatigue levels they used a 0 to 10 numerical rating scale, McGill pain questionnaire and the Brunel Mood Scale (Bender et al., 2019). The final results of Bender et al. (2019), indicated that the experimental group had significantly lower scores on the numerical rating scale than the

controlled group and came to a conclusion that the SMT was effective for reducing the pain intensity on the quadriceps of the runners in the experimental group. However, Bender et al. (2019), also stated in the conclusion that there were no significant effects on the perceived fatigue, flexibility, and strength or jump performance of the athletes. These results were contrary to those of Hilbert et al. (2003), who stated that there is constantly growing evidence that shows that SMT can lower the intensity of the delayed onset of muscle soreness (DOMS) that athletes may experience. Hilbert et al. (2003), also indicated that some explanations for the decreased levels of muscle soreness can be due to improved sleep patterns, increased levels of endorphins and serotonin, and decreased levels of stress hormones. Hilbert et al. (2003) also indicated that massage therapy can activate pressure instead of your pain receptors, which alternatively decreases your muscle soreness intensity.

SMT is generally recommended to help all athletes to prepare for both the physical and mental aspects of any upcoming sports event (Tappan et al., 1998). In the conclusion of Gasibat et al. (2017), it is believed that athletes can receive various benefits through the biomechanical, physical, neurological and psychological differences that occur during a sports massage.

2.4 MASSAGE THERAPY AND PHYSICO-CHEMICAL PROCESSES

In order to improve the pain mechanism of the athlete, there has to be an increase in the athletes' serotonin levels as well as their dopamine level and then their cortisol levels has to decrease in order for the athletes to heal and increase their way of thinking in a positive manner.

2.4.1 SEROTONIN

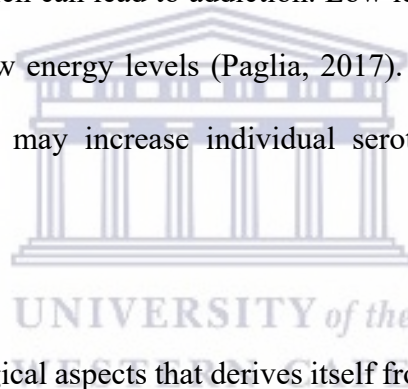
Serotonin can be understood as the activating neurotransmitter of the central nervous system (Field et al., 2005). The synthetic version of serotonin can be found in various antidepressants and anti-pain medications (Field et al., 2005). Field et al. (2005), stated further that serotonin interacts with dopamine and cortisol in various complex ways, generally, it can be said that

serotonin levels increase the production levels of dopamine and decrease the various production levels of cortisol.

2.4.2 DOPAMINE

Dopamine is also described as a central nervous system neurotransmitter that has various activating properties (Field et al., 2005). Dopamine is known to be related to the reward centres of the brain, which is known as the striatum, which is the part of the brain that produces your feelings of reward (Paglia, 2017).

Paglia (2017), described dopamine as being the neurotransmitter that makes you feel happy or positive after you have completed a certain task and being a component that is activated through the usage of various drugs, which can lead to addiction. Low levels of dopamine usually lead to a lack of motivation and low energy levels (Paglia, 2017). Although, Field et al. (2005), indicated that receiving SMT may increase individual serotonin levels and the athlete's dopamine levels by up to 30%.



2.4.3 CORTISOL

Cortisol is part of the physiological aspects that derives itself from various stressful conditions and where it can harm the body's immune function (Field et al., 2005). Field et al. (2005), also stated that cortisol is known as the end-product of the sympathetic nervous system, which is produced by the adrenal gland. The production of cortisol increases due to high levels of stress; therefore, the high cortisol levels can be decreased after receiving relaxation therapies known as massage therapies (Field et al., 2005).

During the study of Pa et al. (2021), the results showed that receiving SMT, had no significant effects on the cortisol levels of Malaysian tennis athletes. These findings of Pa et al. (2021), were supported by Moyer (2004), that there were no significant decreases in their cortisol levels after the athletes have undergone the massage treatment intervention.

Davis et al. (2020), stated that SMT is ubiquitous when it comes to elite sport and is increasingly common amongst the amateur levels in sports, which is generating a multi-million-pound industry through the professional sports massage therapist. Fitness newcomers, amateur athletes, professional athletes and individuals who are in demanding jobs that are related to stress or picking up heavy things can receive sports massages (Rothstein, 2020).

SMT has shown that it has provided athletes with a soothing, sedative and invigorating feeling which can give the athletes the confidence to participate in their sport through the positive reaction that takes place within their body during the sports massages (Hemmings, 2000). SMT can be used to help optimise positive performance factors, which include having healthy muscles and normal mobility (Benjamin & Lamp, 1996).

2.5 SPORTS MASSAGE THERAPY TECHNIQUES

SMT consists of a range of different massage techniques with the main ones that are most commonly used being *effleurage*, *petrissage* and *tapotement* (Moraska, 2005):

- *Effleurage* consists of strokes that are delivered with the hand which follows the contour of the body and it can have different depths of pressure (Moraska, 2005). The effleurage techniques consist of various strokes that are delivered with the sports massage therapists palm, which moves in the direction of your lymphatic drainage and the venous flows (Tappan & Benjamin, 1998). Effleurage is also defined as a gliding movement of the skin which leads to a smooth continuous motion (Tappan & Benjamin, 1998).

Light pressure is used at the beginning of the session to prepare the soft tissue and to warm up the muscles for when the therapist applies deeper pressure (Futral, 2002). The benefits of the effleurage are to help relax the client, warm up the soft tissue, and increase circulation and lymphatic drainage (Weerapong, 2005). Other benefits also

include stretching the muscle and fascia and soothing the areas where the pain is present (Weerapong, 2005). Weerapong et al. (2005), suggested that the clinical advantage of effleurage is that it stimulates the parasympathetic nervous system which evokes the relaxation response.

- *Petrissage* is known as kneading (Moraska, 2005). Kneading involves lifting the muscle tissue away from the muscles that are underneath them, which ultimately improves blood circulation, loosens the adhesions between the tissue muscles and increases lymphatic drainage (Manchester Physio, n.d). Weerapong et al. (2005), stated that the clinical advantage of petrissage is to mobilize the deep muscle tissue and the subcutaneous tissue, it also helps with the increase of blood circulation.
- *Tapotement* is known as various parts of the hand that strikes the muscle tissue at a fairly rapid pace (De Domenico & Wood, 1997). Under tapotement, you also have friction which is a penetrating pressure that is applied through your fingertips (Goats, 1994). The clinical advantage of tapotement is stated that it stimulates the tissue either by direct mechanical force or by a reflex action (Weerapong et al., 2005).

Huang et al. (2010), did a study on the effect of SMT on the range of motion (ROM) of the hamstring musculotendinous junction. Their study consisted of ten (10) active females and was randomized into groups of 30 seconds of massage, ten (10) seconds of friction massage or passive rest. They found a significant increase in the hip flexion with regards to ROM with the thirty (30) seconds massage group at the musculotendinous junction of the distal portion of the hamstrings, however, there were no differences in the passive rest group.

Priyambada et al. (2021), described SMT as providing athletes with a sense of comfort and an increase in blood circulation, which made SMT a huge attraction to sportsmen. SMT has various benefits such as increasing flexibility, and delay of muscle pain also known as delayed onset of muscle soreness (DOMS) and it can also help with preparing athletes for a competition

(Trofa et al., 2020). According to Bishop et al. (2015), indicated that it is well known that most effects of SMT may be due to some non-specific factors. In their study, they stated that manual therapy can result in changes within the neurophysiological function, such as the reduction in the medullary excitability or some of your inflammatory markers, no matter what massage technique is used (Bishop et al., 2015).

When it came to testing the effect of SMT on endurance performances, Rinder and Sutherland (1995), did a study where they recruited thirteen males and seven females in a randomized crossover study. The test consisted of six minutes of effleurage, petrissage or passive resting on the participant who was already fatigued using the ergometer, ski squats and leg extension exercises (Rinder et al., 1995). The participants performed a maximum number of leg extensions against a half maximum load. The participants who received SMT performed significantly more leg extensions post the intervention compared to the control group (Rinder et al, 1995). However, a meta-analysis of these studies mentioned above indicated that receiving SMT had no overall effects on endurance performances (Davis et al., 2020).

This lack of effective result of SMT was echoed by Dawson et al. (2011), did a study on ten (10) recreational runners, where they examined the various effects of SMT on strength recovery after completing a half marathon. The ten (10) recreational marathon runners received a sports massage for thirty minutes, where they used various techniques including effleurage, petrissage and passive stretching. The study concluded that SMT did not affect the rate of return to the baseline strength (Dawson et al., 2011).

Lastly, Priymabada et al. (2021), concluded in their study that the perception of the coaches in sports massage can give encouragement or it can contribute positively and significantly towards the coaches to learn more about SMT and what benefits they and their athletes will be able to achieve. The study also indicated that when the coaches learn more about SMT they

can develop and increase their motivation which will ultimately help the coaches to look for new talents and interest in sports massage (Priyambada et al., 2021).

SUMMARY

While the majority of the research has shown that within the psychological areas SMT has had a positive effect on anxiety levels, there has also been much research that showed no effect at all. This unclear and somewhat mixed results highlights the need of the current study and especially in a South African context where almost no research was found on the topic.



CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This chapter presents the research methodology and describes the quantitative and exploratory qualitative approaches followed. Furthermore, this chapter outlines the research design used and describes the research setting of the study. The population and sampling of the participants are provided, along with the criteria used for the participant's selection. In addition, the research instrument and data collection procedures, data analysis, considerations around trustworthiness and reflexivity, and ethical considerations were also presented in this chapter.

3.2 RESEARCH DESIGN

A multi-method research design was used in this study. This was a one-way pre-/post-test psychological effects of SMT amongst sports individuals' intervention study primarily designed to compare the participant's baseline and post psychological effect of SMT among sportspersons. The study is a multi-method that involves both quantitative and qualitative approaches was considered to be the most appropriate for this study as it allowed for description and exploration of the participant's psychological effects of SMT amongst sports individuals. On the other hand, qualitative research is an approach that enables the researcher to study an individual's experiences extensively, through the use of specific strategies such as in-depth interviews, FGDs, observations, content analysis visual methods, and life histories or biographies (Hennink et al., 2011). The method allowed the researcher to understand the meaning that people ascribe to what they understand and perceive (Sutton & Austin, 2015). The purpose was to develop theory and promote description, understanding and meaning through non-numerical analysis (Andrew et al., 2011). Furthermore, the purpose of an

exploratory qualitative approach is to focus on a concept that has not been described in any great detail, whilst considering the way people behave in their most natural manner, which influences their thoughts and actions in everyday life (Fitzpatrick & Kazer, 2011). Secondly, to qualitatively explore the perception of the participant's post psychological effect of SMT, and gain more insight into the participant's feelings following the sports massage that was applied.

3.3 RESEARCH SETTING

The research data was gathered during cycling running event. African X is a three-day stage trail run which is nestled in the heart of the Houw Hoek Valley, just outside of Cape Town, with magnificent trails and spectacular views. During the three-day stage race, the athletes explore some of the most beautiful mountain terrains that the Western Cape has to offer. This was with the assistance of a sports massage company called EPT (Effleurage, Petrissage and Tapotement) Recovery. The events that were used, were mainly mountain biking events and trail running, however the main focus of the data gathered was those who participated in the mountain biking events. These are the athletes' who continuously receive sports massages; thus it was very beneficial to use these sports participants in the study.

Lauma Fitness, who is a Biokineticist and a sports massage therapist, assisted the researcher to collect additional participants, during the data gathering phase of this study. These participants were athletes who participated in running and cycling events, namely the Cape Town Cycle Tour and Cape Town Marathon.

3.4 POPULATION AND SAMPLING

A population refers to the target group which a study aims at developing knowledge about (Punch, 2013). The population of this study consisted of all sports individuals who participated in the African X event, Cape Town Cycle Tour and the Cape Town Marathon. Purposive and

snowballing sampling was used in this study since the majority of the participants had already been booked for a sports massage at the identified sporting events. Seventy-eight (78) participants aged between 21 and 60 were selected to be part of the study. The participants could only be part of the study if they had received a sports massage before this event.

3.4.1 INCLUSION CRITERIA

- Athletes between the ages 21 and 60 years of age.
- Athletes who have experience a sports massage before.
- Participants from Lauma Fitness who continuously receives sports massage pre- and post-events.
- Athletes who had light injuries such as muscle cramps and/ or back pain.

3.4.2 EXCLUSION CRITERIA

- Athletes with serious injuries (could not carry on competing).
- Athletes who are sick (not feeling well can affect their mood).

3.5 RESEARCH INSTRUMENT AND DATA COLLECTION PROCEDURE

3.5.1 RESEARCH INSTRUMENT (QUANTITATIVE)

Sports Emotional Questionnaire (SEQ)

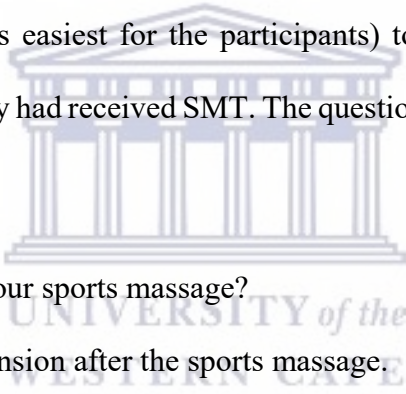
A sports emotional questionnaire (SEQ) was used in this study. There were five main questions that was asked and from the answers received sub categories were designed. The SEQ used the Likert scale as part of the validation of the data. The SEQ was handed out to the participants which was completed before and after the SMT. Jones et al. (2005), indicated that SEQ is a valid instrument to measure emotion in various sports settings. The study of Arnold and

Fletcher (2014), indicated that their findings supported the reliability and validity of the SEQ and the measure of the emotions that were experienced by the sports performers in an organisational environment.

3.5.2 QUALITATIVE

Semi-structured interviews

To understand the psychological effect of SMT among sportspersons, a semi-structured interview was undertaken following the post-test of the SEQ. Four (4) major open-ended questions were developed from a brief literature review of the main construct of the psychological effect of SMT. The participants were asked four open-ended questions in English or in Afrikaans (whichever was easiest for the participants) to gain more insight into their personal points of view after they had received SMT. The questions posed during the interviews at the sport events were:

- 
1. How do you feel after your sports massage?
 2. Describe your muscle tension after the sports massage.
 3. Are there particular areas of your body where you experience muscle tensions, stiffness, or other discomforts? Explain.
 4. Explain why you think that sports massage can affect your mood.

In Afrikaans the interview questions were:

1. Hoe voel jy na die sportmassering?
2. Beskryf jou spierspanning na 'n sportmassering?
3. Is daar enige spesifieke areas op jou lyf waar jy enige spanning, styfheid of ongemaklikheid ervaar? Verduidelik asseblief..
4. Verduidelik hoekom jy dink dat sportmassering jou bui kan beïnvloed?

3.6 DATA COLLECTION PROCEDURES

COVID-19 PROTOCOLS

All COVID-19 protocols were duly observed. The necessary sanitizing precautions were taken. For example, plastic clipboards were used which made it easier to clean with a sanitizing spray and there were multiple pens and they were cleaned before each use. The 1.5-meter distance was kept and masks were constantly worn when the participants completed all the necessary documents and when they received their SMT.

The SEQ was distributed to the participants during the events which were completed before (pre) and after (post) the SMT. Participants who volunteered to be part of the study were verbally informed of the research aim and were provided with an information sheet (Appendix A), which explained the study in more detail and allowed the participant to ask questions. The participants were also asked to sign an informed consent form (Appendix B) and were also ensured that they met the inclusion criteria. After meeting the requirements to participate in the study, athletes were assigned to their sports massage therapist, where the therapist explained in full detail what the study is all about and that it is completely voluntary. Once the participants agrees to participate in the study, they were allowed to complete the SEQ questionnaire. This was then followed by semi-structured interviews. Individual interview procedures were followed for all the participants as this method attempts to elicit discussion based on individual perceptions. The open-ended questions were asked face to face without any audio recording as participants were allowed to respond to the questions asked on the questionnaire. The questions focused on how they felt after they have received the sports massage. The data for this study was collected in November 2020 of which 78 interviews were conducted.

3.7 TRUSTWORTHINESS, VALIDITY AND TRANSFERABILITY

Jones et al. (2005), reported that SEQ is a valid instrument that can be used in various sports settings to assess pre-competitive emotion. In 2015, Arnold and Fletcher conducted a study and concluded that the overall findings of their study support the reliability and validity of the use of an SEQ to assess the emotions experienced by sports performers. During the study, it was ensured that trustworthiness was well harmonized amongst the method of data collection and the nature of the study (Plummer-D'Amato, 2008). Trustworthiness has four main components which are known as credibility, transferability, dependability and confirmability (Kortstjens & Moser, 2018). The credibility was obtained through triangulation, which means that all the participants were asked the same questions from the SEQ as well as the semi-structured interview questions (Kortstjens et al., 2018). Transferability was used to generalize the findings and apply them to context, which enables the reader to assess whether the research findings are transferable (Kortstjens et al., 2018). Dependability was seen through the consistency during the study. The last component known as confirmability is used to describe the neutrality of the research findings, which means that all the research findings were based on the participants' responses (Kortstjens et al., 2018). Validity was used to check the accuracy of the findings and to see if the research approaches remained consistent (Creswell, 2013). Reliability is defined as the extent to which the results of the research study are consistent over time (Joppe, 2002).

3.8 DATA ANALYSIS

Data analyses were carried out using the Statistical Package for Social Science (SPSS) software Version 27.0. All statistical tests were two-tailed, and $p \leq 0.05$ was considered statistically significant. Paired sample t-test was used to compare the baseline and post-line data. Bar charts were used to examine the baseline and post-psychological effects of SMT. Values were worked out and expressed as average /mean \pm SD (standard deviation). An effect size (Cohen's d) to

decide the extent of variation was performed. The effect size was deduced using the subsequent benchmarks: 0.2 (small), 0.5 (moderate), and 0.8 (large) (Cohen, 1988). All p-value was at $p \leq 0.05$. The researcher adopted thematic analysis for this research study, as it has been identified as the most widely used qualitative approach to analysing qualitative data (Jugder, 2016). According to Braun and Clarke (2006), “Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data”. This method was useful as it extracted the meanings and ideas from the data collected and it minimally organized and described the data set in in-depth detail (Javadi & Zarea, 2016). Theoretical thematic analysis was the data analysis strategy used for this study. The post-psychological effect of SMT application (negative and positive perception) conceptual framework was used as a lens for interpretation of data to align key concepts and themes that may arise in this study. This method of thematic analysis presents a description of the data with less richness and provides a more detailed analysis of some aspects of the data collected (Braun & Clarke, 2006; Javadi & Zarea, 2016). Although, no recordings were made since the participants had already responded to the interview questions on the copy of the questionnaire administered. But, the researcher re-read the content of the response severally to make sure that no content of the response of the participants was lost and utilized to support the real data and trustworthiness, and used as a quote for themes.

3.9 ETHICS CONSIDERATION

Ethical clearance and permission to conduct the study were obtained with Ethics Reference number: HS20/5/30 from the Humanities and Social Sciences Research Ethics Committee at the University of the Western Cape. All the participants were verbally informed about the study and also received an information sheet (Appendix A). The information sheet clearly explained the aim of the study and the procedures that were followed to conduct the interview questions. Participants who consented to participate in the study were screened against the inclusion

criteria. All the eligible participants received a consent form (Appendix B) which they signed to show that they gave consent to their involvement in the research study. Participation in the study was voluntary and the participant could withdraw from the study at any time with impunity. All the participants were informed that confidentiality was maintained throughout the study. Numbers were allocated to each qualitative and quantitative survey/ questionnaire that was completed by the participant concerning their personal information. All the information that was gathered was only made available to the researcher and the supervisors of the study. All the data that was captured contained information about the participants were stored securely in a passworded computer while the hardcopies were locked inside the cabinet in the Sport Recreation and Exercise Science (SRES) department office. All the data collected would be kept for a minimum period of five years in the Sport Recreation and Exercise Science (SRES) department and thereafter, they will be destroyed. All the information gathered during the study was used for research purposes only, and if published all the participants' anonymity would be kept. The outcome of the study was made available to all the research participants. The researcher acted ethically, responsibly and professionally at all times to ensure the safety of the participants.

3.10 CHAPTER SUMMARY

This chapter outlines how and why the qualitative and quantitative approach was used in this study in capturing and analysing the various variables that look into the psychological effects of SMT. The procedures used for analysing the data were also outlined. In this chapter, the research setting, as well as the research design, were described in detail. The sampling as well as the procedure and method of data collection was also explained.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 INTRODUCTION

The purpose of this study was to determine and explore the psychological effects of sport massage therapy amongst various sports individuals in the Western Cape. This chapter reported on the findings and discussion of the study per the objectives and hypothesis. Data were organized, analyzed, reported and compared the participant's baseline and post-psychological effects of sports massage therapy among participants. Findings were also presented with the use of direct excerpts from the transcribed individual interviews which serve as the primary source of qualitative information supplied by the sport individuals in support of the quantitative information.

A thematic analysis was conducted in line with the conceptual framework presented in Figure 1.1 of Chapter One, where the post-psychological effect of sports massage therapy application resulted in a positive effect and perception, which is linked to the reduction in anxiety, dejection, and anger. In addition, the post-psychology effect of sports massage therapy application has also been shown to be effective as it improves or enhances excitement and happiness. This positive effect seems to contribute to an improvement in sport persons' performance for themes to emerge organically. The data collection process included a semi-structured questionnaire guided by the conceptual framework and literature review.

4.2 CHARACTERISTICS OF THE RESEARCH FINDING

This study comprised 78 male and female participants. The participants were between the ages of 21 and 60. The participants were engaged in various mountain biking, and road and trail running events (African X, Cape Town Marathon and Cape Town Cycle Tour) across the

Western Cape in South Africa during Covid-19, with lockdown in place. Participants completed the baseline questionnaire, received sport massage therapy, and completed post questionnaires. This was later followed by a semi-structured interview conducted to explore the participant's perceptions of the psychological effect of SMT.

Table 4.1. This table includes the mean, standard deviation, Cohen's *d* and the *p*-value for the sport emotion pre and post psychological effect of sports massage therapy among the participants completed in the post-intervention.

Table 4.1: Sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants.

Variables	N	Pre-Test (M ±SD)	Post-Test (M ±SD)	<i>t</i> -test	p-value	95% confidence interval Cohen's <i>d</i>	
						Lower	Upper
Uneasy	78	0.85±1.21	0.26±0.74	3.64	<0.001***	0.26	0.90
Upsets	78	0.28±0.68	0.12±0.50	1.73	0.086	-0.03	0.59
Exhilarated	78	1.55±1.33	1.97±1.40	-1.92	0.056	-0.62	0.00
Irritated	78	0.45±0.90	0.18±0.57	2.21	0.029*	0.03	0.67
Pleased	78	2.63±1.10	3.45±0.80	-5.30	0.001***	-1.17	-0.52
Tense	78	1.26±1.32	0.28±0.70	5.74	0.001***	0.58	1.24
Sad	78	0.17±0.46	0.05±0.27	1.88	0.062	-0.01	0.61
Excited	78	2.78±1.21	2.74±1.08	0.20	0.835	-0.28	0.34
Furious	78	0.19±0.66	0.14±0.59	0.50	0.613	-0.23	0.39
Joyful	78	2.81±0.88	3.15±0.94	-2.36	0.019*	-0.69	-0.06
Nervous	78	0.73±1.13	0.23±0.62	3.40	0.001**	0.22	0.86
Unhappy	78	0.21±0.49	0.05±0.31	2.31	0.022*	0.54	0.68

Enthusiastic	78	2.26±1.27	2.65±1.28	-1.93	0.054	-0.62	0.00
Annoyed	78	0.32±0.76	0.12±0.53	1.94	0.054	-0.00	0.62
Cheerful	78	2.67±1.08	3.12±0.88	-2.82	0.005**	-0.77	-0.13
Apprehensive	78	0.83±1.09	0.55±1.12	1.58	0.115	-0.06	0.56
Disappointed	78	0.27±0.80	0.08±0.38	1.91	0.059	-0.01	0.62
Angry	78	0.15±0.56	0.00±0.00	2.42	0.018*	0.07	0.70
Energetic	78	2.21±1.27	2.82±1.14	-3.17	0.002**	-0.82	-0.18
Happy	78	3.18±0.78	3.28±0.83	-0.79	0.431	-0.44	0.18
Anxious	78	0.71±1.02	0.22±0.57	3.67	0.001***	0.26	0.90
Dejected	78	0.23±0.77	0.06±0.46	1.63	0.105	-0.05	0.57

$p < 0.05$

*** = High significant difference

** = Moderate significance difference

* = Low Significant difference



4.1.1 UNEASY

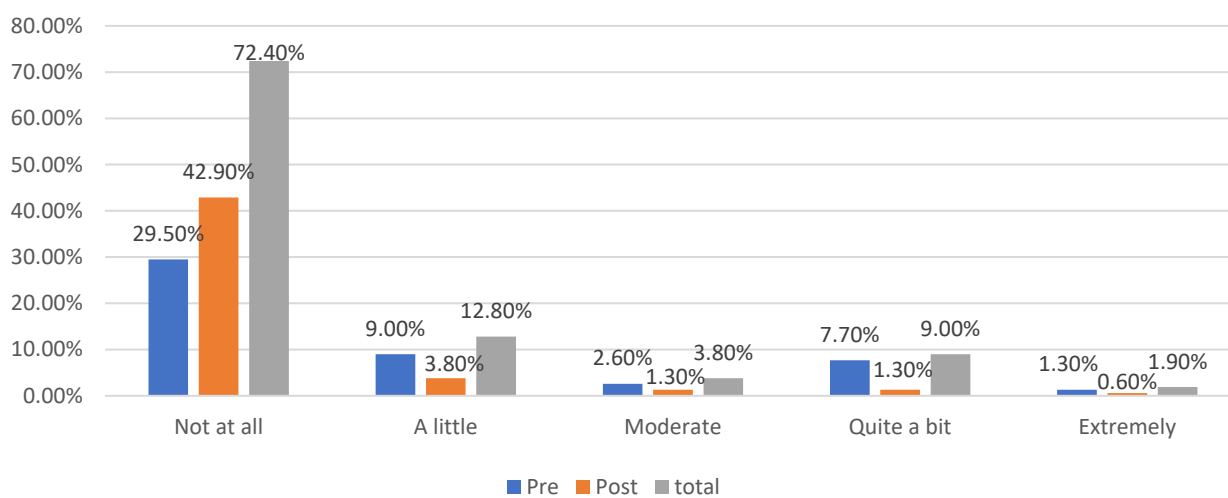


Figure 4.1.1: Frequency analysis represented with the bar graph of the uneasy sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for uneasiness pre and post-test were 0.85 ± 1.21 and 0.26 ± 0.74 respectively. There was also a p -value of <0.001 , which portrays that there was significant differences in the mean value for uneasiness between pre-event and post-event. The results also showed a significant reduction in uneasy emotions. Figure 4.1.1. Showed that 42.9% of the participants indicated that they did not feel uneasy at post-test.

4.1.2 UPSET

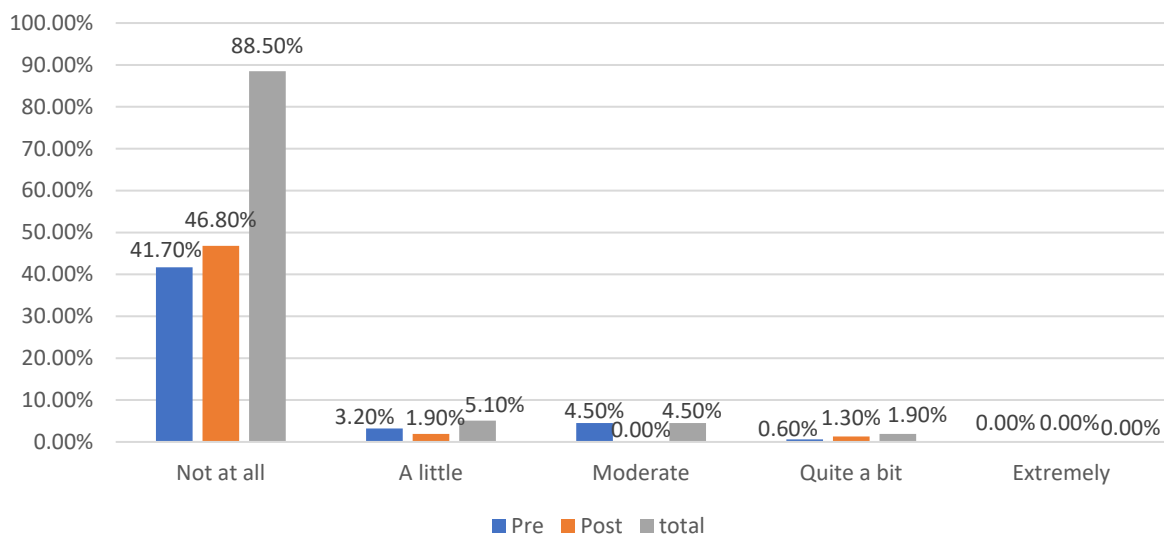


Figure 4.1.2: Frequency analysis represented with the bar graph of the upset sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for upset pre and post-test were 0.28 ± 0.68 and 0.12 ± 0.50 respectively. There was also a p -value of 0.086, which portrays that there are no significant differences in the mean value for upset between pre-event and post-event. Figure 4.1.2: indicates that 46.8% do not feel upset.

4.1.3 EXHILARATED

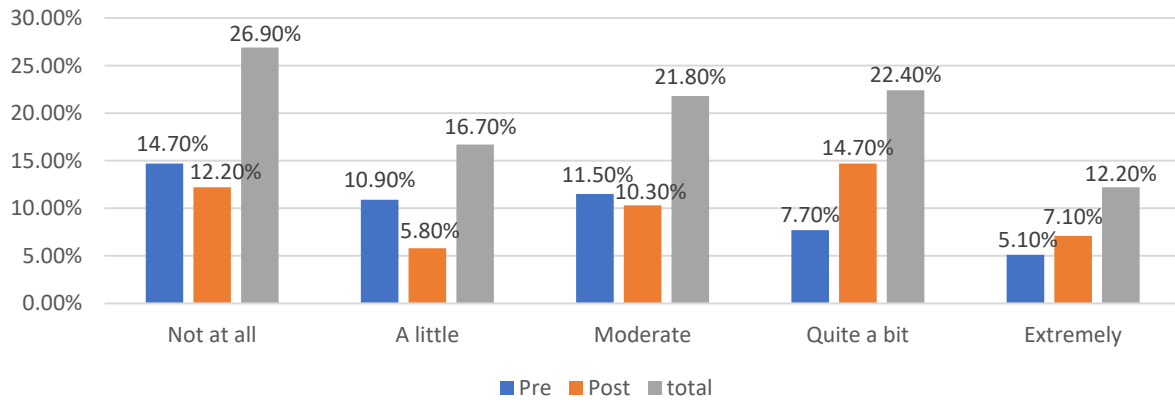


Figure 4.1.3: Frequency analysis represented with the bar graph of the exhilarated sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 1.55 ± 1.33 and 1.97 ± 1.40 respectively. There was also a *p*-value of 0.056, which portrays that there are no significant differences in the mean value for exhilarated between pre-event and post-event massage therapy. Figure 4.1.3. showed that 14.7% felt quite a bit exhilarated post-test.

4.1.4 IRRITATED

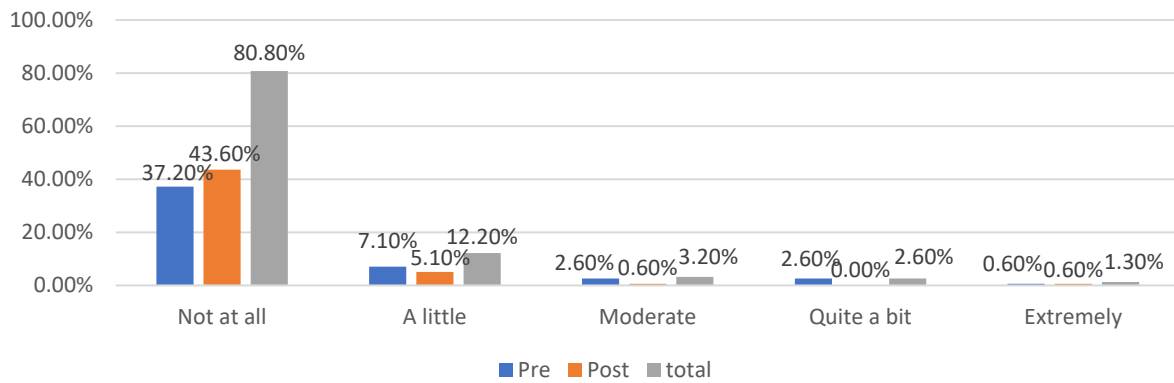


Figure 4.1.4: Frequency analysis represented with the bar graph of the irritated sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.45 ± 0.90 and 0.18 ± 0.57 respectively. There was also a *p*-value of 0.029, which portrays that there was a significant difference in the mean value for irritation between pre-event and post-event massage therapy. There was also a significant reduction in irritated emotion. In Figure 4.1.4, the majority (43.6%) of the participants stated that they did not feel irritated post massage therapy.

4.1.5 PLEASSED

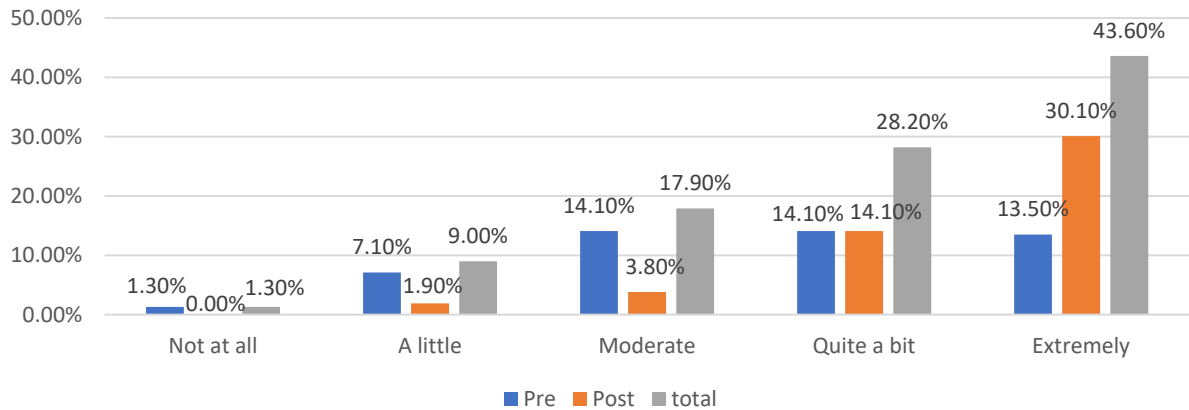


Figure 4.1.5: Frequency analysis represented with the bar graph of the pleased sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 2.63 ± 1.10 and 3.45 ± 0.80 respectively. There was also a p -value of <0.001 , which portrays that there was significant differences in the mean value for being pleased between pre-event and post-event. These the results showed a significant increase in the pleased emotion. In Figure 4.1.5. 30.1% indicated that after their sports massage they felt extremely pleased.

4.1.6 TENSE

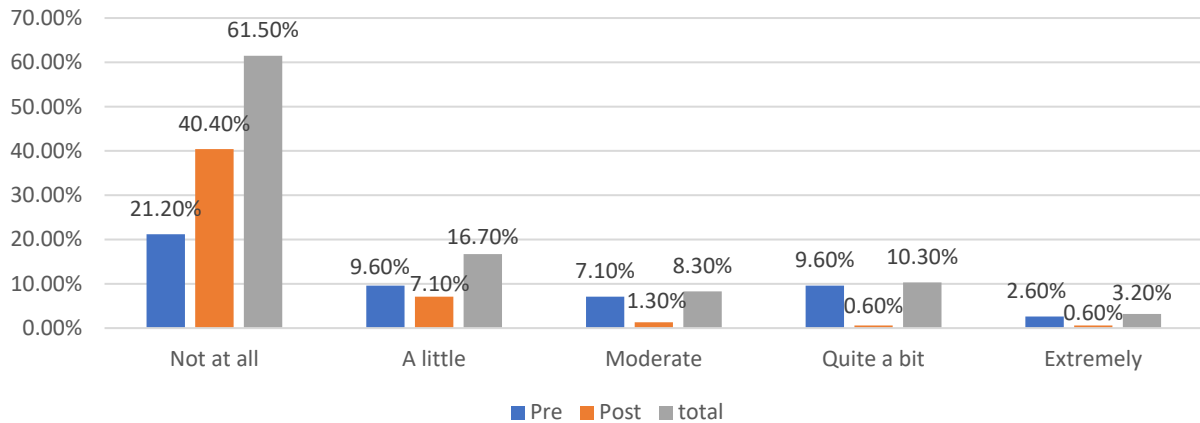


Figure 4.1.6: Frequency analysis represented with the bar graph of the tense sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.28 ± 0.70 and 0.28 ± 0.70 respectively. There was also a p -value of <0.001 , which portrays that there was significant differences in the mean value for tense emotion between pre-event and post-event. In summary the results showed a significant reduction in tense emotions. Furthermore, majority (40.4%) of the participants indicated that after the sports massage they have no tense feeling.

4.1.7 SAD

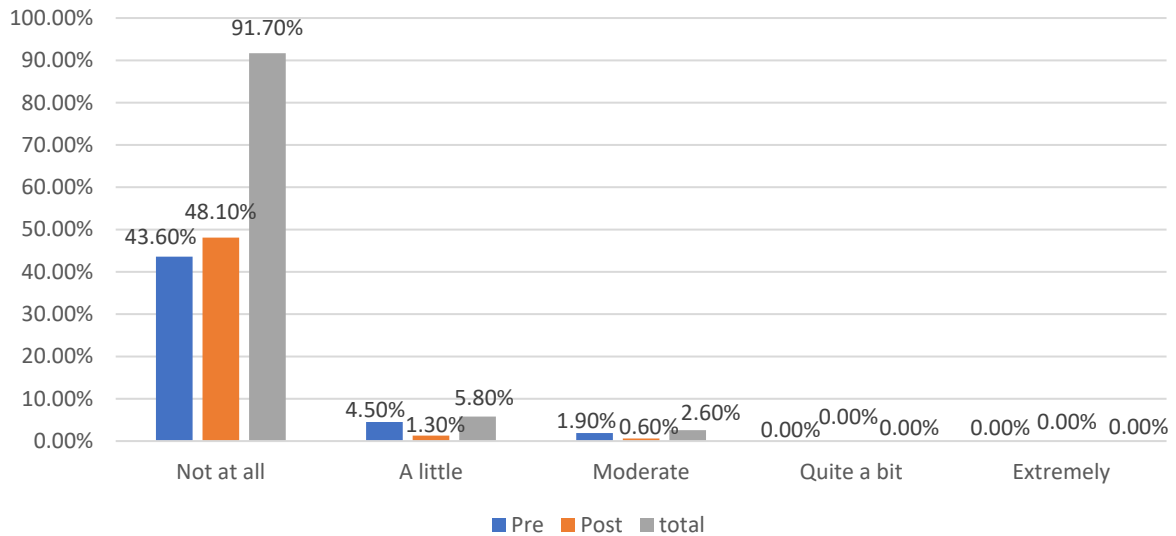


Figure 4.1.7: Frequency analysis represented with the bar graph of the sad sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.17 ± 0.46 and 0.05 ± 0.27 respectively. There was also a *p*-value of 0.062, which portrays that there are no significant differences in the mean value for sad emotion between pre-event and post-event massage, therapy despite a reduction. Furthermore, 48.1% indicated that they did not feel sad at all after receiving body massage therapy.

4.1.8 EXCITED

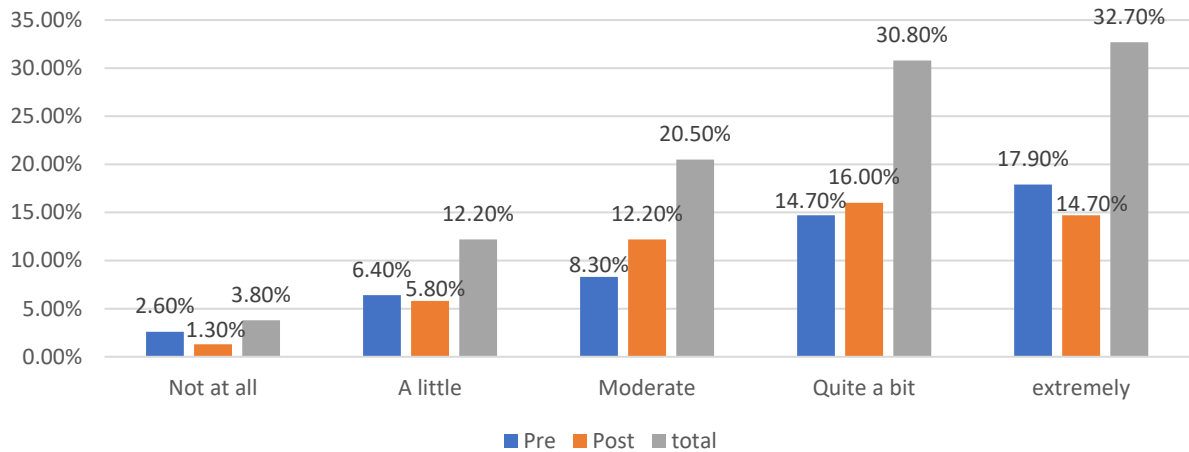


Figure 4.1.8: Frequency analysis represented with the bar graph of the excited sport emotion responses for baseline and post-psycho effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 2.78 ± 1.21 and 2.74 ± 1.08 respectively. There was also a *p*-value of 0.835, which portrays that there are no significant differences in the mean value for excitement during pre-event and post-event. Figure 4.1.8 revealed that majority (16%) of the participants felt quite a bit post-event massage.

4.1.9 FURIOUS

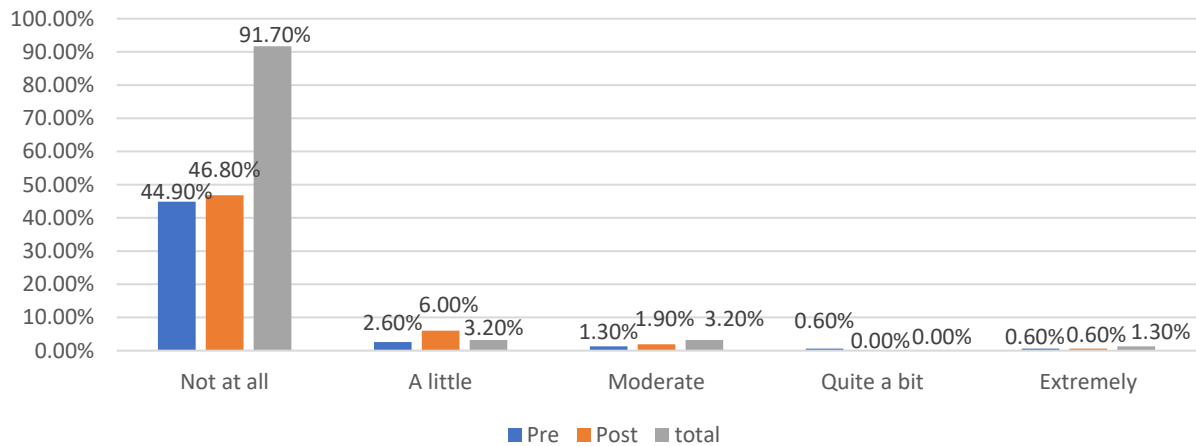


Figure 4.1.9: Frequency analysis represented with the bar graph of the furious sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.19 ± 0.66 and 0.14 ± 0.59 respectively. There was also a *p*-value of 0.613, which portrays that there are no significant differences in the mean value for being furious between pre-event and post-event. The results showed no significant differences in the furious emotions, although demonstrates some levels of reduction. Majority (46.8%) of the participants reported that they did not feel furious at all post event.

4.1.10 JOYFUL

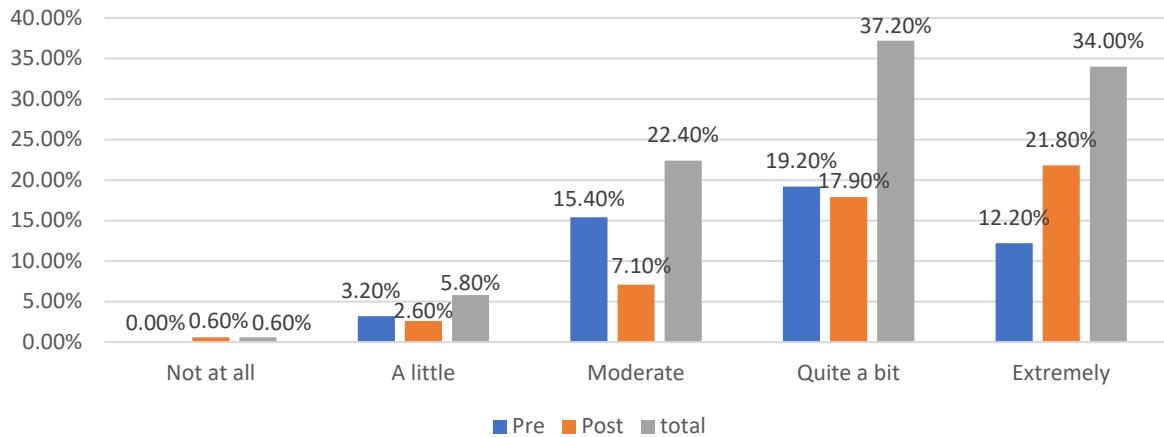


Figure 4.1.10: Frequency analysis represented with the bar graph of the joyful sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 2.81 ± 0.88 and 3.15 ± 0.94 respectively. There was also a *p*-value of 0.019, which portrays that there was a significant difference in the mean value for joyful emotion level when comparing the pre-event and post-event emotion. The results showed that there was a significant increase in the joyful emotion. The results showed that most of the participants felt more joyful after receiving a sports massage. Only 0.6% stated that they did not feel joyful after receiving sports massage.

4.1.11 NERVOUS

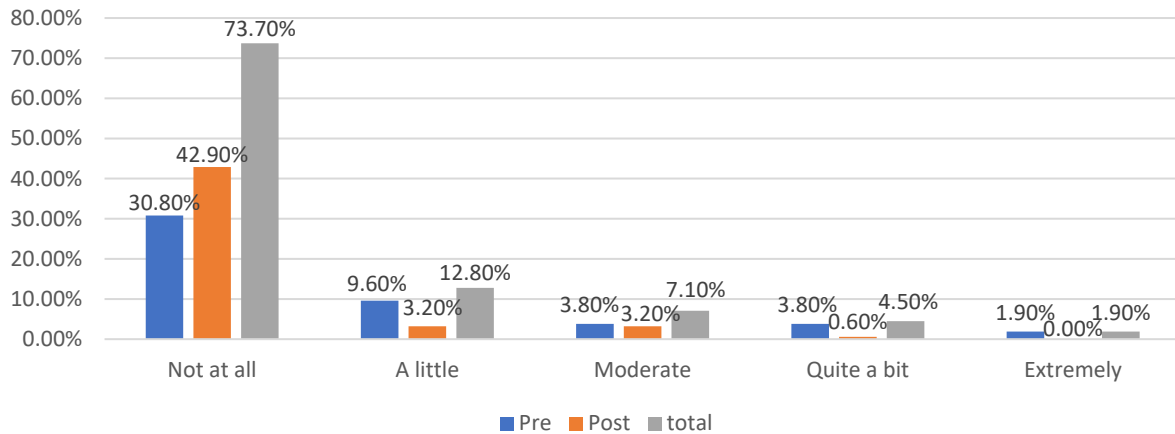


Figure 4.1.11: Frequency analysis represented with the bar graph of the nervous sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.73 ± 1.13 and 0.23 ± 0.62 respectively. There was also a *p*-value of <0.001 , which portrays that there was a significant difference in the mean value for being nervous in pre-event and post-event. Although, the results showed that there was a significant reduction in nervous emotions. However, 42.9% stated that they feel less nervous after receiving sport massage therapy.

4.1.12 UNHAPPY

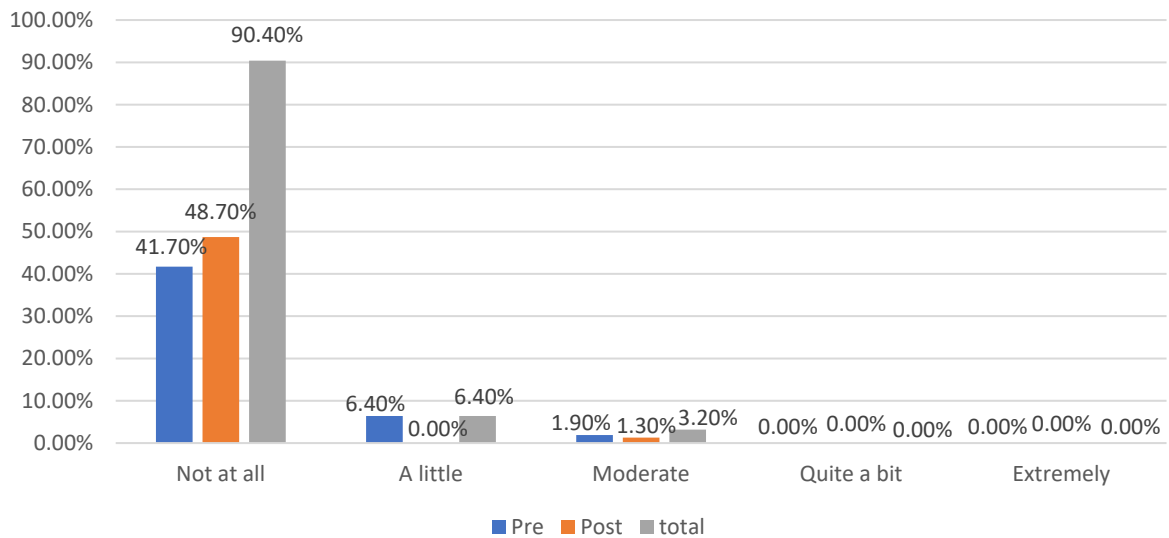


Figure 4.1.12: Frequency analysis represented with the bar graph of the unhappy sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.21 ± 0.49 and 0.05 ± 0.31 respectively. There was also a *p*-value of 0.022, which portrays that there was a significant difference in the mean value for unhappy in pre-event and post-event. Summarily, the results showed a significant reduction in the unhappy emotions. In Figure 4.1.12, the results indicated that majority of the participants were not unhappy after they received their sports massage therapy.

4.1.13 ENTHUSIASTIC

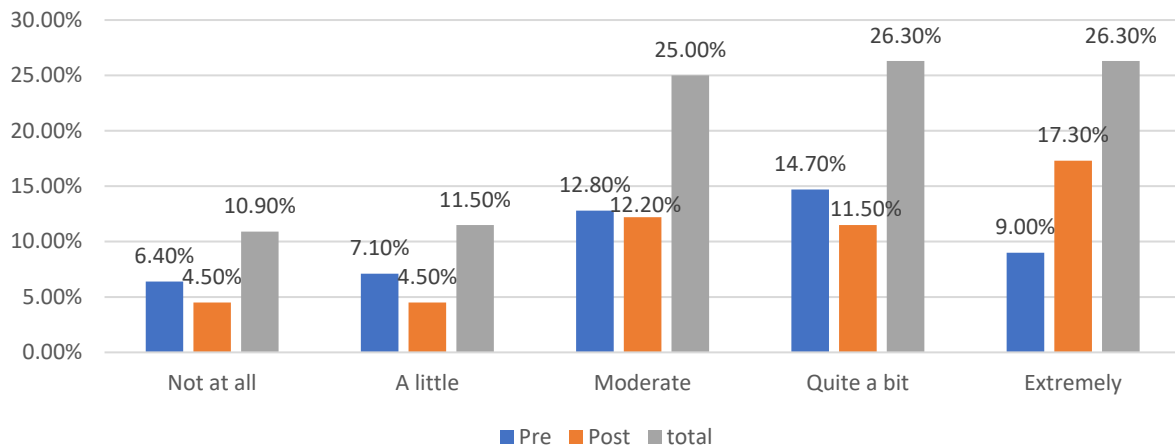


Figure 4.1.13: Frequency analysis represented with the bar graph of the enthusiastic sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 2.26 ± 1.27 and 2.65 ± 1.28 respectively. There was also a *p*-value of 0.054, which portrays that there are no significant differences in the mean value for enthusiastic sport emotion levels during pre-event and post-event. Although, the results did show an increase in the enthusiastic emotions. In Figure 4.1.13, the results shows that 17.3% were extremely enthusiastic after receiving sport massage therapy.

4.1.14 ANNOYED

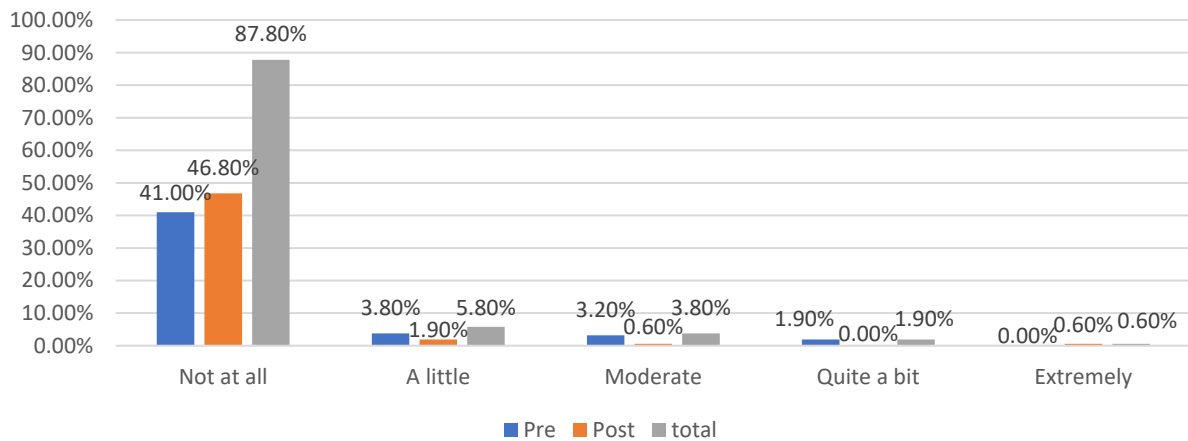


Figure 4.1.14: Frequency analysis represented with the bar graph of the annoyed sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.32 ± 0.76 and 0.12 ± 0.53 respectively. There was also a *p*-value of 0.054, which portrays that there are no significant differences between mean value for annoyance level at pre-event and post-event despite a reduction in the annoyed emotions. In Figure 4.1.13 on the other hand, majority (46.8%) of the participants reported that they did not feel annoyed after receiving the sports massage therapy.

4.1.15 CHEERFUL

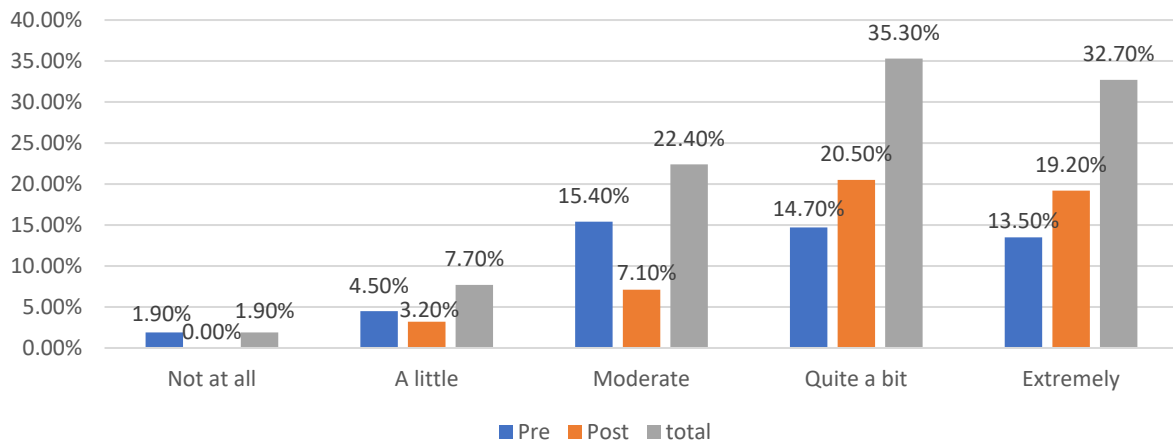


Figure 4.1.15: Frequency analysis represented with the bar graph of the cheerful sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 2.67 ± 1.08 and 3.12 ± 0.88 respectively (p -value of 0.005). This portrays that there was a significant difference between mean value for cheerfulness at pre-event and post-event. Summarily, there was a significant increase in the cheerful emotion. In Figure 4.1.15, combined together, the results shows that majority of the respondent felt either quite a bit (20.5%) or extremely (19.2%) cheerful post-massage compared to pre-massage emotions..

4.1.16 APPREHENSION

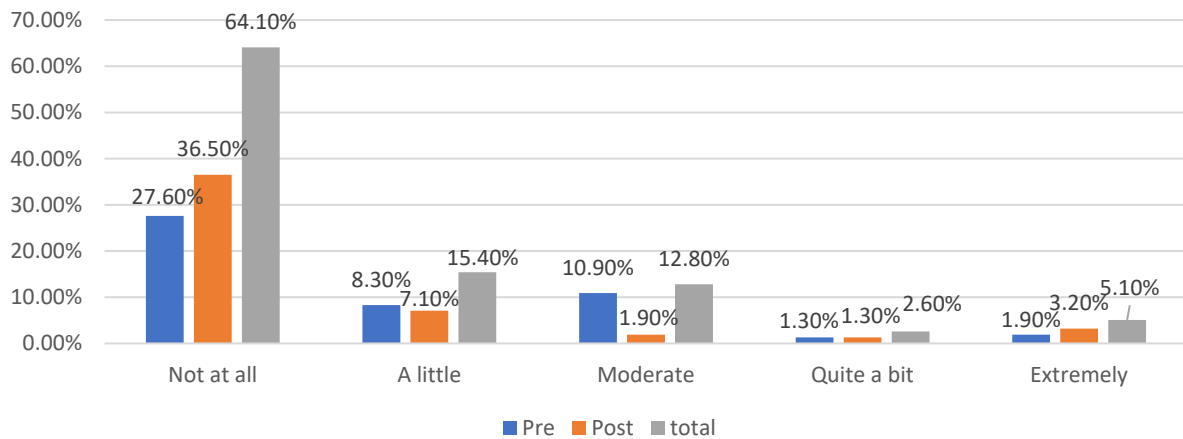


Figure 4.1. 16: Frequency analysis represented with the bar graph of the apprehension sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.83 ± 1.09 and 0.55 ± 1.12 respectively. There was also a *p*-value of 0.115, which portrays that there are no significant differences between mean value for feeling apprehension at pre-event and post-event. Summarily, there were no significant increases in the apprehension emotions. In the Figure above, majority (36.5%) of the participants reported that they did not feel apprehensive after receiving the sports massage therapy.

4.1.17 DISAPPOINTED

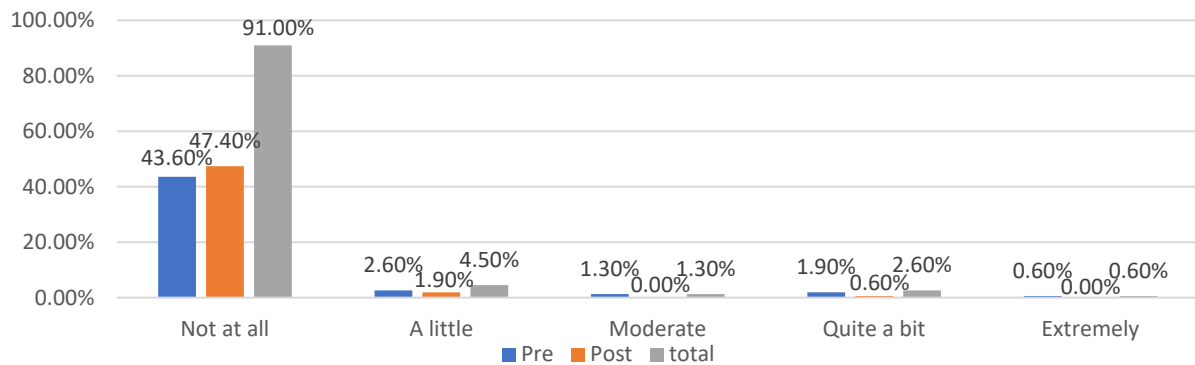


Figure 4.1.17: Frequency analysis represented with the bar graph of the disappointed sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.27 ± 0.80 and 0.08 ± 0.38 respectively. There was also a *p*-value of 0.059, which portrays that there are no significant differences between the mean value for feeling disappointed at pre-event and post-event. Summarily, the results showed no significant increase in feeling disappointed. In Figure, 4.1.17, it shows that majority (47.4%) of the participants reported that they did not feel disappointed after receiving the sports massage therapy.

4.1.18 ANGRY

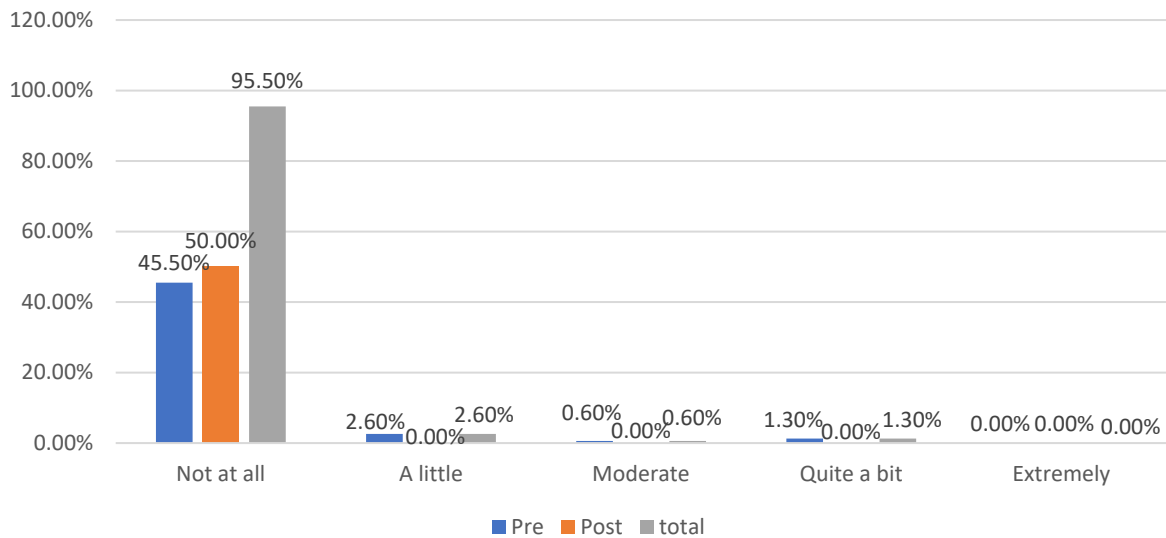


Figure 4.1.18: Frequency analysis represented with the bar graph of the angry sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.15 ± 0.56 and 0.00 ± 0.00 respectively. There was also a *p*-value of 0.018, which portrays that there are significant differences between mean value for feeling angry at pre-event and post-event.. Summarily, the results showed a significant reduction in the angry emotions. In the Figure above, majority (50%) of the participants reported that they did not feel annoyed after receiving the sports massage therapy.

4.1.19 ENERGETIC

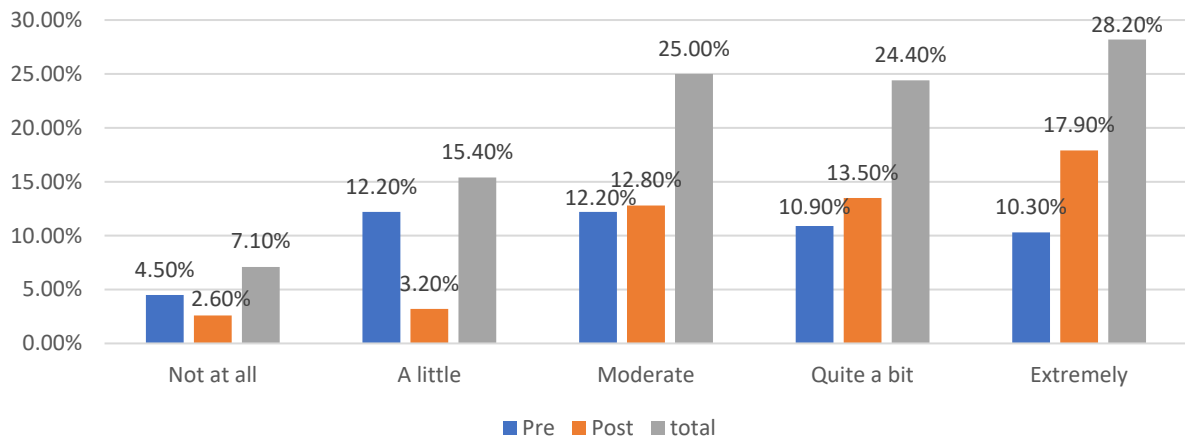


Figure 4.1.19: Frequency analysis represented with the bar graph of the energetic sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 2.21 ± 1.27 and 2.82 ± 1.14 respectively. There was also a p -value of 0.002, which portrays that there are a significant difference between mean value for feeling energetic at pre-event and post-event. Summarily, the results showed that there was significant increase in the energetic emotions. In Figure 4.1.19 combined together, the results shows that majority of the respondent felt either extremely (17.9%) or quite a bit (13.5%) energetic post-massage compared to pre-massage emotions..

4.1.20 HAPPY

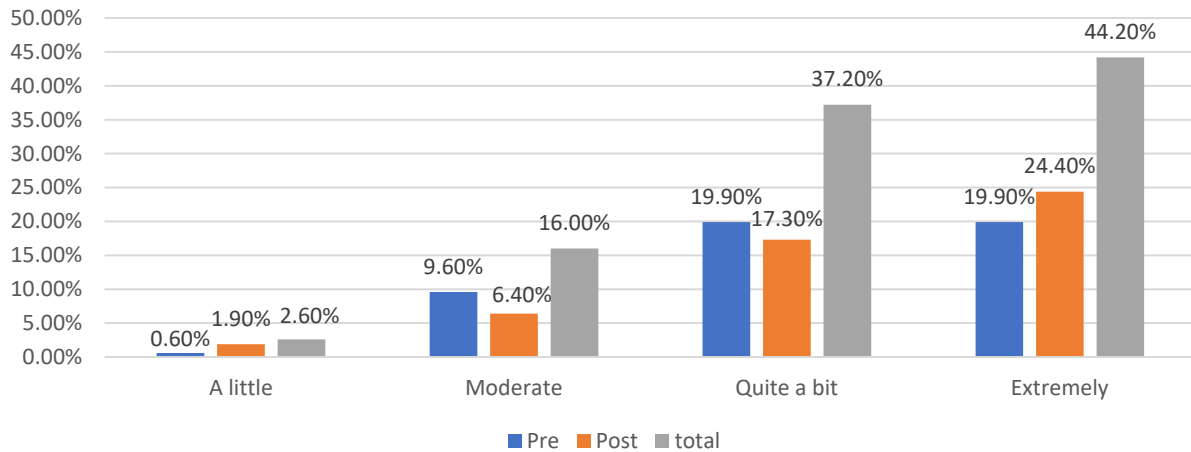


Figure 4.1.20: Frequency analysis represented with the bar graph of the happy sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 3.18 ± 0.78 and 3.28 ± 0.83 respectively. There was also a *p*-value of 0.431, which portrays that there are no significant differences between mean value for feeling happy at pre-event and post-event despite an increase in the happy emotions. In Figure 4.1.20, the results shows that 24.4% were extremely happy after receiving sport massage therapy.

4.1.21 ANXIOUS

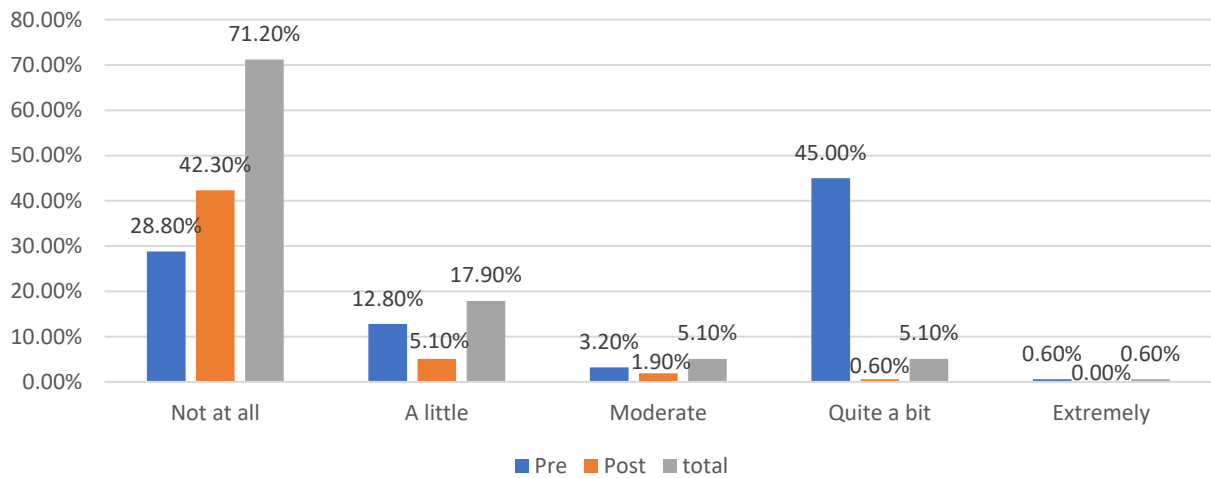


Figure 4.1.21: Frequency analysis represented with the bar graph of the anxious sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.71 ± 1.02 and 0.22 ± 0.57 respectively. There was also a p -value of <0.001 , which portrays that there was a significant difference between the mean value for feeling anxious at pre-event and post-event. Summarily, the results showed a significant reduction in the anxious emotions. In Figure 4.1.21 above, majority (42.5%) of the participants reported that they did not feel anxious after receiving the sports massage therapy.

4.1.22 DEJECTED

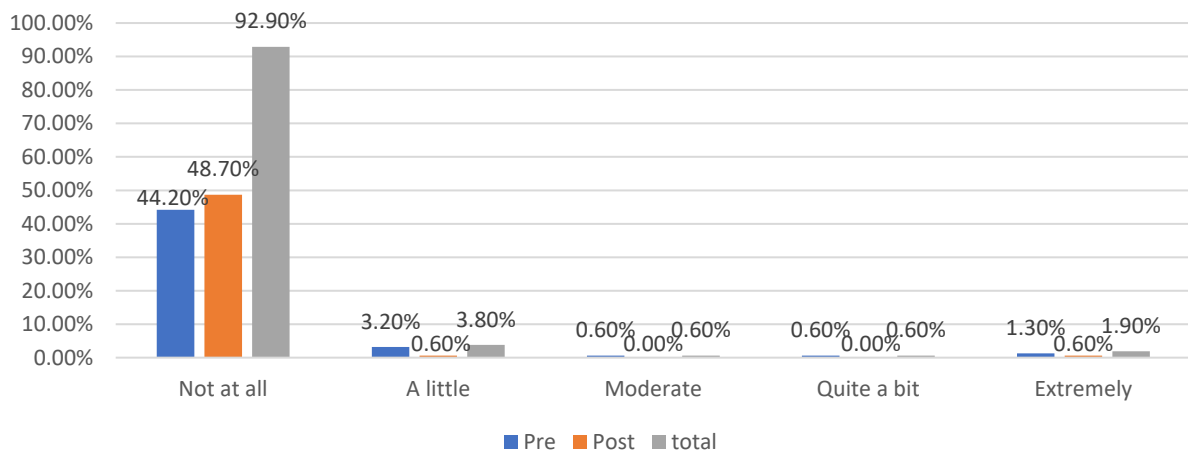


Figure 4.1.22: Frequency analysis represented with the bar graph of the dejected sport emotion responses for baseline and post-psychological effect of sports massage therapy among the participants.

In Table 4.1 The M and SD for pre and post-test were 0.23 ± 0.77 and 0.06 ± 0.46 respectively. There was also a p -value of 0.105, which portrays that there are no significant differences between mean value of feeling dejected at pre-event and post-event. Summarily, the results showed that there was no significant decrease in the dejected emotions. In Figure 4.1.22 on the other hand, majority (48.7%) of the participants reported that they did not feel dejected after receiving the sports massage therapy..

The results indicated that from the Sport emotion responses for baseline and post psychological effect of sports massage therapy among the participants that there was a positive increase in their emotions post sport massage.

4.3. EMOTIONAL VARIABLES OF THE SUBSCALES

The results of the pre-and-post sports massage scores of the five subscales of the SEQ are displayed in Table 4.2. The scores of each of the subscales range from 0 to 4 on a Likert scale.

Table 4. 2: Sport emotion responses for emotional variables of the subscales for baseline and post-psychological effect of sports massage therapy among the participants.

Variables	N	Pre-Test (M ±SD)	Post-Test (M ±SD)	t-test	p-value	95% confidence interval Cohen's d	
						Lower	Upper
Anxiety	78	0.88±0.861	0.31±0.483	5.113	<0.001***	0.491	1.144
Dejection	78	0.23±0.455	0.07±0.206	2.811	0.006**	0.132	0.767
Excitement	78	2.20±0.903	2.55±0.927	-2.384	0.018*	-0.698	-0.064
Anger	78	0.28±0.552	0.11±0.316	2.357	0.020*	0.060	0.963
Happiness	78	2.82±0.776	3.25±0.745	-3.526	0.001**	-0.884	-0.244

p <0.05

*** = High significant difference

** = Moderate significance difference

* = Low significant difference

4.3.1 ANXIETY

The mean value and standard deviation for the psychological effect of massage therapy at the baseline for anxiety on based emotional variables of the subscales were 0.88±0.86 which was higher than the mean value and standard deviation (0.31±0.48) at the post-test. This revealed that there was a significant reduction in the mean value and standard deviation for anxiety among participants of this study at the post-test (*p* <0.001).

4.3.2 DEJECTION

The mean value and standard deviation for the psychological effect of massage therapy at the baseline for dejection on based emotional variables of the subscales were 0.23 ± 0.45 which was higher than the mean value and standard deviation (0.07 ± 0.20) at the post-test. This revealed that there was a significant reduction in the mean value and standard deviation for dejection among participants of this study at the post-test ($p < 0.006$).

4.3.3 EXCITEMENT

The mean value and standard deviation for the psychological effect of massage therapy at the baseline for excitement on based emotional variables of the subscales were 2.20 ± 0.90 which was higher than the mean value and standard deviation (2.55 ± 0.92) at the post-test. This revealed that there was a significant increase in the mean value and standard deviation for excitement among participants of this study at the post-test ($p < 0.018$).

4.3.4 ANGER

The mean value and standard deviation for the psychological effect of massage therapy at the baseline for anger on based emotional variables of the subscales were 0.28 ± 0.55 which was higher than the mean value and standard deviation (0.11 ± 0.31) at the post-test. This revealed that there was a significant reduction in the mean value and standard deviation for anger among participants of this study at the post-test ($p < 0.020$).

4.3.5 HAPPINESS

The mean value and standard deviation for the psychological effect of massage therapy at the baseline for happiness on based emotional variables of the subscales were 2.82 ± 0.77 which was higher than the mean value and standard deviation (3.25 ± 0.74) at the post-test. This revealed that there was a significant increase in the mean value and standard deviation for happiness among participants of this study at the post-test ($p < 0.001$).

4.4. INTERVIEW QUESTIONS

The results of the interview highlighted the participants' insight into the various feelings that the athletes experienced following the SMT intervention program. Participants' perceptions are presented in Table 4.3.

The four main questions that were asked were:

- i. How do you feel after your sports massage?
- ii. Describe your muscle tension after the sports massage.
- iii. Are there any particular areas of your body where you experience muscle tension, stiffness, or other discomforts?
- iv. Explain why you think that sports massage can affect your mood.

Table 4.3 Classification of the research findings based on the post-psychological effect of sports massage therapy intervention program main categories, sub-categories and direct quotation from response.



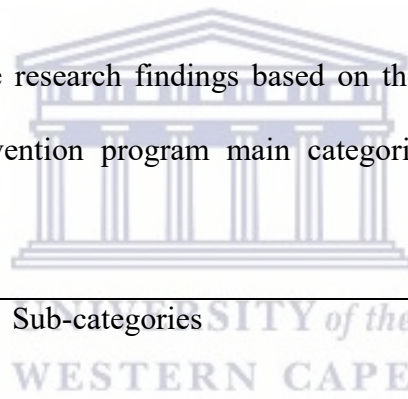
In Table 4.3, the results are described in three main categories. The first category is the main category which contains the main questions that were asked in the semi-structured interviews with the participants.

The second category is the sub-categories, which ultimately describes the feelings code. The feelings code consisted of various feelings that came up amongst all the participants after they received their SMT. Each question had various answers as it was the participants own view and response to the questions. The feelings mentioned in the sub categories were the responses that came up most frequently.

The third category was the direct response. This category contained the most frequent response that was written by the participants. Due to the large number of responses written by the participants the most effective way was to summarise majority of the responses and then write the most common direct quote that relates to correct feelings code.

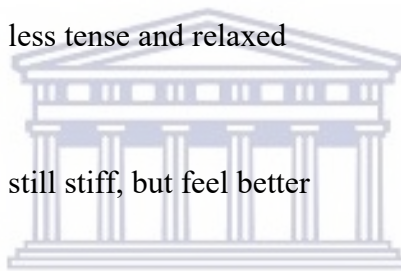
Overall the results concluded that post sport massage the participant had positive feedback to each question. Most of the athletes responded by stating that they feel more relaxed, less sore and muscle tightness has definitely decreased. Majority of the athletes complained about their lower body pains and some upper body parts, however post massage a lot of the parts that experienced tension, stiffness or discomfort has been relieved leaving the participants happy and relaxed.

Table 4.3 Classification of the research findings based on the post-psychological effect of sports massage therapy intervention program main categories, sub-categories and direct quotation from response.



Main categories	Sub-categories	Direct quotation from response
Feeling after sport massage	feelings code	
	Relaxed and calm	I feel relaxed and calm
	Relaxed and relieved of muscle tension	I feel a lot more relaxed and my muscles feel less tense.
	Relaxed and Rejuvenated	I feel relaxed and rejuvenated
	Tender, but good	Sore, but in a good way
	Great/ Fantastic	I feel great

	Pleased/Happy	I feel pleased with the sports massage.
	Relieved and Energetic	I feel relieved and energetic.
	Relaxed and sleepy	I feel relaxed and sleepy after sports massage.
Description of muscle tension after the sports massage	Relaxed and more flexible	I feel relaxed and more flexible. I have more range of movement.
	no muscle tension and relaxed	I don't feel tight and my muscles feel relaxed.
	less tense and relaxed	I feel less tense and more relaxed
	still stiff, but feel better	Some parts still feel stiff, but I feel better than before the massage.
	feels better	It feels far better than before.
	Relaxed fantastic	Muscles feels relaxed. My muscles feel fantastic
Body parts where muscle tension, stiffness or other discomfort is experienced	lower back	It is always stiff after a practice session or a rugby game.



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	legs	My tibialis anterior and calves due to multi trail running.
	upper body	My upper back was very tense and tight.
	lower back & glutes	Tightness is my lower back and glutes.
	glutes	Glutes, I usually struggle with them.
	legs and glutes	Pain in my hips, glutes, psoas and my lower back
	lower & upper back	My shoulders and lower back, when I stand/sit to long.
	back and legs	Currently in my hamstrings and lower back
	oblique	I feel discomfort in the right side of my oblique.
Feeling of sport massage on mood	makes me feel relaxed after a hard day of training and sleep better at night	It makes me feel more relaxed after a hard day of training/work, helps me sleep better at night
	feeling less tense which makes you feel better	When your body feels good and not as tense or stiff then

you are immediately in a better mood.

Helps decrease muscle tension and soreness. Keeps mobile and supple and positive

The massage helps with muscles tightness and soreness. It also keeps me mobile and supple, which helps to keep me positive.

relaxes your body and mind, which enhances your feel-good hormones

The massages relaxes your body and mind, which enhances your feel-good hormones.

massage can improve mood by relieving muscle tension

Sports massage can improve your mood, by relieving said discomfort.

Feel relaxed and not sore. You feel positive

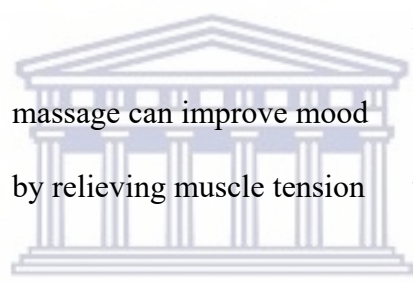
If you feel relaxed and not sore then you feel positive and you will also look forward to the next event.

increase blood flow and mood enhancer

It increases blood flow and the feeling of well-being. It is also a mood enhancer.

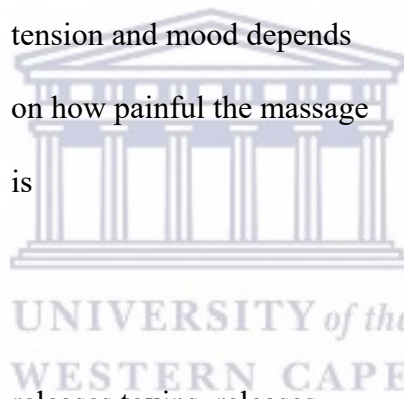
body is in a good condition and in a positive frame of mind

Massage gives confirmation that the body is in a good condition, which prepares you for your next race as



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	well as to keep you in a positive frame of mind.
therapist handled my injury and treated my DOMS	It makes me calm to know that my therapist can treat my injury as well as to help manage DOMS.
massage is good for maintenance on your body	The more you train, the more maintenance (sports massage) you need.
mostly releasing muscle tension and mood depends on how painful the massage is	The massage release the muscle tension usually where we “carry” our tension and my mood usuals depends on how painful the massage is.
releases toxins, releases tension, motivates you and psychological benefits	Massage releases toxins in your bloodstream, releases muscle tension, motivates you and it also has a psychological gain.
when body is tense, that tenses the brain which will affect your mood	When my body is tense the brain can also get tense, which will ultimately affect your mood as well.



message gives you a mental break	It gives you a mental break, this gives your mind time to appreciate the efforts that your body is trying to achieve.
body feels good, then you feel good	After a massage, if your body feels good then you will feel good.
stress less after the massage - body was free	Because I felt there is nothing heavy on my body, especially things like stress, I was stressless after the massage because my body was free.



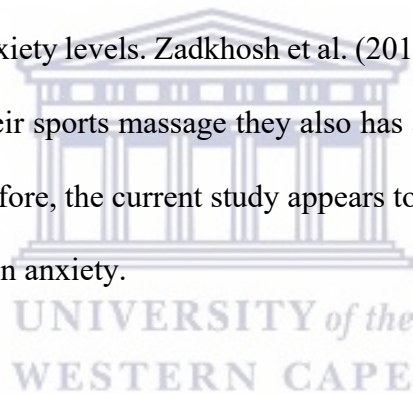
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4.5. DISCUSSION

The study aimed to explore the psychological effects of SMT amongst the sports individuals. Calder (1990), started to recognise the psychological regeneration that sports massage has on athletes after they completed their intense sport. Hemmings (2000), indicated that receiving a sports massage can positively affect their perception of recovery, which provided more evidence of the psychological effects of sports massages.

4.5.1 ANXIETY

Our findings showed that there was a decrease in the anxiety levels among the participants post sport massage therapy. Hasson et al. (2003), reported that sports massage therapy can have a positive psychological effect by reducing the athletes' state of anxiety. Sports massage has been used to try and minimize the negative performance factors, which include anxiety (Benjamin et al., 1996). Leivadi et al. (1999), stated that massage therapy is believed to decrease the majority of the injury-risk elements which could alternatively increase range of motion, reduction of the athletes' pain levels and then ultimately decrease anxiety levels. Weerapong et al. (2005), stated that after investigating the reduction of anxiety levels in the improvement of the athletes' mood states, it indicated that after the sports massage the athletes had a positive effect on their anxiety levels. Zadkhosh et al. (2015), indicated in their study that after the wrestlers' received their sports massage they also has a decrease in their depression, anxiety and stress levels. Therefore, the current study appears to link with existing studies and shows that SMT has an effect on anxiety.



4.5.2 DEJECTION

The findings of this study showed that the dejection levels were reduced post sport massage therapy. This finding corroborated the findings of Zadkhosh et al. (2015), who studied the effects of sports massage on ten adolescent wrestlers and found that there was a decrease in their dejection levels. The majority of the participants indicated that before the sports massage they didn't feel dejected, however even though the other four categories had such low baseline percentages, the result still indicated that there was still some decrease post sports massage. According to Gasibat et al. (2017) and Weinberg et al. (1988) reported a study that is associated with sport massage and the mood improvements. The results of Weinberg et al. (1988), indicated that there was a significant decrease in their anxiety, dejection and depression. Thayer

(1967), used the Thayer's checklist which contains the general activation subscales used in SMT. The results indicated that the groups that has received SMT reported that they has a significant mood enhancement with significant decreases in depression-dejection (Thayer, 1967). Therefore, the current study appears to link with existing studies and shows that SMT has an affect on dejection.

4.5.3 EXCITEMENT

This study also saw an improvement in the excitement levels of the participants post sports massage therapy.. Gurjar et al. (2020), indicated that having high levels of self-confidence can increase positive emotions and enhance their ability to increase athletes' effort in competitive strategies. Priyambada et al. (2020), stated that the athletes who received sports massages could experience some positive psychological factors. These positive psychological factors experienced could lead to an improvement of the athletes' mood state and increase the feeling of relaxation and excitement. Hou et al. (2010), also indicated that sports massage therapy could reduce the athletes' depression and stress levels, which in turn increases the athletes' excitement levels. Reichert (2020), did a study with 185 participants and his results concluded that during pre-massage there were minimal differences amongst the male and female levels of excitement, however post-massage the males indicated a significant increase in their levels of excitement. Therefore, the current study appears to link with existing studies and shows that SMT has an effect on excitement.

4.5.4 ANGER

Our findings revealed a reduction in the anger levels among the participants post sports massage therapy. Weinberg et al. (1988), also found positive changes in the athletes' mood states, such as anger, depression and fatigue. Weinberg et al. (1988), further indicated that when comparing the energy cost of running and receiving a sports massage, the sports massage

has the lowest level of energy expenditure. The lower the energy expenditure, the more effective the sports massage may be before a sports event (Weinberg et al., 1988). Zadkhosh et al. (2018), found that post sport massage the 50 male adolescent wrestlers indicated that their levels of aggression has decreased significantly. Diego et al. (2002), conducted a study on the impact that massage has on aggressive adolescents and his results concluded that the massage therapy had a significant reduction in their anxiety and aggression level. Therefore, the current study appears to link with existing studies and shows that SMT has an affect on anger.

4.5.5 HAPPINESS

Based on this study's results, there was an increase in the happiness levels among the participants post sport massage therapy. Paglia (2017), described dopamine as being the neurotransmitter that is responsible to make you feel happy. Low levels of Dopamine can lead to a lack of motivation and low levels of energy (Paglia, 2017). Field et al. (2005), stated that receiving a sports massage can increase the athlete's dopamine and serotonin levels by up to 30%. Ackley et al. (2006), emphasized that receiving a sports massage can give athletes a psychological boost which shows that they have increased levels of self-confidence. In 2002, Rexilius et al. stated that athletes who receive sports massage have an increase in their mood state and their quality of life. Therefore, the current study appears to link with existing studies and shows that SMT has an effect on happiness. The qualitative exploration of the post psychological effect of sport massage therapy among sportspersons revealed that the majority of the participants indicated that they feel relaxed, rejuvenated, pleased, relieved and energetic. The participants also feel relaxed, flexible, less tight and had an increase in their range of movement.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

In summary, Chapter one of this thesis introduced the problem statement, objectives, hypothesis and the structure of the thesis. The chapter identified the gap in the current literature, which indicated a lack of information based on the psychological effects of SMT. The gap in the research data resulted in the information on the research objectives which was generated for this study. Furthermore, there was not enough data that existed on the psychological effects of sports massage. In addition, there is limited research published on the psychological effects of sports massage amongst athletes. The gap in the current research would indicate a need to examine the various aspects of the psychological effects that sports massage holds amongst athletes.

Based on the findings in the literature review in Chapter two, a wide variety of studies were used to address the gap in the psychological effects of sports massage research among athletes. The literature review also gave a good indication that there is a gap in the psychological effects of sports massage therapy.

Chapter three, which was the methodology was described, whilst the discussion of the study was performed in Chapter four. The results of the study indicated that most of the participants experience some psychological benefits such as, increased mood, decreased levels of anxiety as well as anger.

5.2 CONCLUSION

This study was set out to examine the psychological effects of sports massage amongst the athletes and to qualitatively explore the post-psychological effects that sports massage had

amongst the sport's participants. The findings of chapter four were used to evaluate the following two hypotheses:

Hypothesis 1:

“There is no comparability between the baseline and post-psychological effects of sports massage therapy amongst sportspersons.”

By looking at the five main emotional variables each one will be described by its Mean and Standard Deviation. Anxiety indicated that baseline M and SD was 0.88 ± 0.861 and post-M and SD was 0.31 ± 0.483 , between the baseline and the post-psychological effects there was a clear decrease in the participant's anxiety levels. The mean and standard deviation value for pre and post-test for dejection was 0.23 ± 0.455 and 0.07 ± 0.206 . The low level of the excitement at baseline (2.20 ± 0.903) was found to increase to 2.55 ± 0.927 after post-massage.. The last negative emotion which is seen as anger had some significant changes between their baseline and post mean and standard deviation values. The baseline stands at 0.28 ± 0.552 while a decrease was noticed at post-massage and stands at 0.11 ± 0.316 . Lastly, there was a significant increase for happiness after the massage when compared to the study baseline. Happiness were 2.82 ± 0.776 at baseline which then increased to 3.25 ± 0.745 post-massage. Therefore hypothesis 1 was rejected, because there were significant changes between the baseline and post-psychological effects after the participants received their sport massage.

Research question:

“There is no significant differences in the post-psychological effects of sports massage therapy among sportspersons?.”

When trying to qualitatively explore the post-psychological effects of sports massage amongst the participants, it is important to take into consideration that all the participants have their

perceptions on the four questions that were asked. Table 3 has three main columns, main categories, sub-categories, and lastly the direct quotations from the participant's responses. Common words in the various answers were used to determine some similarities, which does not make it impossible to determine the qualitative side of the post-psychological effects of sports massage. Therefore, 'hypothesis 2 was rejected, because there were some psychological differences found amongst the sport persons after they have received their sport massage.

5.3 STUDY LIMITATIONS

This study has some limitations:

- The study was conducted during the Covid-19, with lockdown in place. This led to the small number of participants. Due to the small number of participants, the study should not be generalised and result should be interpreted cautiously.
- The sporting events and participants used in this study were limited due to the various mountain biking cyclists and marathon athletes that was available during Covid-19 times.
- Time constraints – the majority of the athletes felt that it takes a bit longer to complete the body massage, especially post sports body massage where they had to also complete the SEQ and participate in the interview. The participants wanted to go relax after the post massage and did not want hang around and participating in the SEQ and interviews.

5.4 RECOMMENDATIONS

This study recommends that;

- Future studies should obtain a broader sample size amongst the various athletes to reach greater findings to increase the value of the study and to increase the understanding of the study.

- Due to the lack of demographic information in the current study, future studies should include comprehensive demographic information, such as, age, gender, occupation and sports massage experience in order to provide the most efficient information to the readers of this study.
- Encourage the athletes to participate within the study and explain thoroughly the importance of all the research being done and why you as the researcher would like them to be a part of the study.
- Future studies should obtain a broader field of sport when choosing participants. This will increase the value of the study if more sporting codes are used during research and not just mounting biking and road running.



REFERENCES

- Ackley, B. J., & Ladwig, G. B. (2006). *Nursing diagnosis handbook: a guide to planning care*. 7th ed. St. Louis, Mosby.
- Adamczyk, K. (2014). The effects of sports massage on psychological mood state and the credibility of thermogenic hypothesis. [Master's dissertation]. Cardiff Metropolitan University.
- Ampofo-Boateng, K. (2009). *Understanding Sport Psychology*. Pusat Penerbitan Universiti, Universiti Teknologi MARA.
- Andrew, D. P. S., Pedersen, P. M., & McEvoy, C. D. (2011). Research Methods and Design in Sport Management. *Human Kinetics*. <https://doi.org/10.5040/9781492596417>
- Angus, S. (2001). Massage therapy for sprinters and runners. *Clinics in Podiatric Medicine and Surgery*, 18(2), 329–336. <https://pubmed.ncbi.nlm.nih.gov/11417159/>
- Armstrong, R.B. (1984). Mechanisms of exercise-induced delayed onset muscular soreness: A brief review. *Medicine and Science in Sport and Exercise*. 16(6): 529 – 538.
- Arnold, R., & Fletcher, D. (2014). Confirmatory factor analysis of the Sport Emotion Questionnaire in organisational environments. *Journal of Sports Sciences*. 33(2), 169–179. <https://doi.org/10.1080/02640414.2014.955520>
- Arroyo-Morales, M., Olea, N., Martínez, M. M., Hidalgo-Lozano, A., Ruiz-Rodríguez, C., & Díaz-Rodríguez, L. (2008). Psychophysiological Effects of Massage-Myofascial Release After Exercise: A Randomized Sham-Control Study. *The Journal of Alternative and Complementary Medicine*. 14(10), 1223–1229. <https://doi.org/10.1089/acm.2008.0253>

- Bender, P. U., Luz, C. M. D., Feldkircher, J. M., & Nunes, G. S. (2019). Massage therapy slightly decreased pain intensity after habitual running, but had no effect on fatigue, mood or physical performance: a randomised trial. *Journal of Physiotherapy*. 65(2), 75–80. <https://doi.org/10.1016/j.jphys.2019.02.006>
- Benjamin, P. J., & Lamp, S. P. (1996). Understanding Sports Massage. *Human Kinetics*.
- Bishop, M. D., Torres-Cueco, R., Gay, C. W., Lluch-Girbés, E., Beneciuk, J. M., & Bialosky, J. E. (2015). What effect can manual therapy have on a patient's pain experience? *Pain Management*. 5(6), 455–464. <https://doi.org/10.2217/pmt.15.39>
- Boguszewski, D., Dabek, A., Korabiewska, I., & Białoszewski, D. (2010). Relation between back massage and anxiety level. *New Medicine*. 13(1): 18 - 21.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*. 3: 77 – 101. UNIVERSITY of the WESTERN CAPE
- Brummitt, J. (2008). The role of massage in sports performance and rehabilitation: current evidence and future direction. *North American Journal of Sports Physical Therapy*. <https://pubmed.ncbi.nlm.nih.gov/21509135/>
- Bull, S. J. (2000). *Sport Psychology: A self-help guide*. Ramsbury, Marlborough.
- Cafarelli, E., Flint, F. (1992). The role of massage preparations or and recovery from exercise. *Sport Medicine*. 14(1): 1 - 9.
- Calder, A. (1990). Recovery: Restoration and regeneration as essential components within training programmes. *Excel*. 6(3): 15 – 19. <https://doi.org/10.3389/fpsyg.2018.02345>

Carlucci, L., Watkins, M. W., Sergi, M. R., Cataldi, F., Saggino, A., & Balsamo, M. (2018). Dimensions of Anxiety, Age, and Gender: Assessing Dimensionality and Measurement Invariance of the State-Trait for Cognitive and Somatic Anxiety (STICSA) in an Italian Sample. *Frontiers in Psychology*. 9: 2345 <https://doi.org/10.3389/fpsyg.2018.02345>

Cassar, M. P. (2004). *Handbook of clinical massage*. Churchill Livingstone.

Cherry, K. (2020). What is Psychology. Very well mind. Retrieved from:

<https://www.verywellmind.com/psychology-4014660?print>

Cox, R. H. (2002). *Sports Psychology: Concept and applications*. 5th Ed. McGraw-Hill.

Creswell, J.W. (2013). Qualitative inquiry and research design: Choosing Among Five

Approaches. 3. Retrieved from:

https://books.google.co.za/books?id=Ykruxor10cYC&printsec=frontcover&dq=inauthor:%22John+W.+Creswell%22&hl=en&sa=X&ved=0ahUKEwiD5feqse_nAhURzIUKHd5TC38QuwUINjAB#v=onepage&q&f=false

<https://books.google.co.za/books?id=Ykruxor10cYC&printsec=frontcover#v=onepage&q&f=false>

Croisier, J. L. (2004). Factors Associated with Recurrent Hamstring Injuries. *Sports*

Medicine. 34(10), 681–695. <https://doi.org/10.2165/00007256-200434100-00005>

Davis. C.P. (2021). Medical Definition of Stress. Medicine Net. Retrieved from:

<https://www.medicinenet.com/stress/definition.htm>

Davis, H. L., Alabed, S., & Chico, T. J. A. (2020). Effect of sports massage on performance and recovery: a systematic review and meta-analysis. *BMJ Open Sport & Exercise*

Medicine. 6(1): 1 – 10. e000614. <https://doi.org/10.1136/bmjsem-2019-000614>

Dawson, K. A., Dawson, L., Thomas, A., & Tiidus, P. M. (2011). Effectiveness of regular proactive massage therapy for novice recreational runners. *Physical Therapy in Sport*. 12(4), 182–187. <https://doi.org/10.1016/j.ptsp.2011.02.007>

De Domenico, G., & Wood, E. (1997). *Beard's Massage: Principles and Practice of Soft Tissue Manipulation*. 4th Edition. WB Saunders Company.

Depression: major depressive disorder (n.d.). Mayo Clinic. Retrieved from:

<https://www.mayoclinic.org/diseases-conditions/depression/symptoms-causes/syc-20356007?p=1>

Di Corrado, D., Guarnera, M., Guarrera, C. S., Maldonato, N. M., Di Nuovo, S., Castellano, S., & Coco, M. (2020). Mental Imagery Skills in Competitive Young Athletes and Non-athletes. *Frontiers in Psychology*. 11: 633. <https://doi.org/10.3389/fpsyg.2020.00633>

Diego, M. A., Field, T., Hernandez-Reif, M., & Shaw, J. A. (2002). Aggressive adolescent benefit from massage therapy. *Adolescence*. 37(147): 597.

Draper, D. O., Tessier, D. G. (2005). Sport Massage: An Overview. *Athletic Therapy Today*. 10(5): 67 – 69.

Efron, R. (1969). What is Perception? Proceedings of the Boston Colloquium for the Philosophy of Science. 4: 137 – 173.

Espi-López, G.V., Serra-Añò, P., Cuenca-Marinez, F., Suso-Marti, L., Inglés, M. (2020). Comparison Between Classic and Light Touch Massage on Psychological and Physical Functional Variables in Athletes: A Randomized Pilot Trial. *International Journal of Therapeutic Massage and Bodywork*. 13(3): 30 - 37.

- Field, T., Hernandez-Reif, M., Diego, M., Schanberg, S., & Kuhn, C. (2005). Cortisol decreases and serotonin and dopamine increase following massage therapy. *International Journal of Neuroscience*. 115(10): 1397 – 1413.
<https://doi.org/10.1080/00207450590956459>
- Fitzpatrick, J. J., & Kazer, M. (2011). *Encyclopedia of Nursing Research, Third Edition*. Springer Publishing.
- Futral, K.K. (2002). How to get involved with professional sports. *Massage Therapy Journal*. 40(2): 44 – 56.
- Gasibat, Q., & Suwehli, W. (2017). Determining the Benefits of Massage Mechanisms: A Review of Literature. *Rehabilitation Science*. 2(3), 58 - 67. doi: 10.11648/j.rs.20170203.12
- Goats, G.C. (1994). Massage-the scientific basis of an ancient art: Part 1 the techniques. *British Journal of Sports Medicine*. 28(3): 149 - 152.
- Gould, F. (2004). *Body Massage for Holistic therapist*. Nelson Thomas, London.
- Guest, R.J. (2010). *The Effects of Massage on Mood State, Range of Motion, Sports Performance, and Perceived Performance*. [Masters Dissertation]. University of Montana.
- Gurjar, K. S., & Kakran, S. S. (2020). A comparative study of self confidence amongst female university level cricket players from difference states of North India. *International Journal of Physiology, Nutrition and Physical Education*. 5 (1): 155 – 157.
- Gwynne, S. (2012). *The effects of pre-event sport massage in psychological mood estate and performance*. [Honours thesis]. Cardiff Metropolitan University.

- Halliday, L., & Harris, S. (2015). *Massage for Sport and Fitness*. Fifth edition. ETA Center for Academic Development. 5: 3 - 10.
- Hanin, Y. L. (2012). Emotions in Sport: Current Issues and Perspectives. *Handbook of Sport Psychology*, 31–58. <https://doi.org/10.1002/9781118270011.ch2>
- Hasson, D., Arnetz, B., Jelveus, L., & Edelstam, B. (2003). A randomised clinical trial of the treatment effects of massage compared to relaxation tape recordings on diffuse long-term pain. *Psychotherapy and Psychosomatics*. 73(1): 17-24.
- Hemmings, B. (2000). Psychological and immunological effects of massage after sport. *British Journal of Therapy and Rehabilitation*. 7(12): 516 - 519.
- Hemmings, B. (2000). Sports massage and psychological regeneration. *British Journal of Therapy and Rehabilitation*. 7(4): 184 - 188.
- Hemmings, B., Smith, M., Graydon, J., & Dyson, R. (2000). Effects of massage on physiological restoration, perceived recovery, and repeated sports performance. *British Journal of Therapy and Rehabilitation*. 34(2): 109–114.
- Hennink, M., Hutter, I., & Bailey, A. (2011). *Qualitative Research Methods* (1st Edition) Sage Publications Ltd. London
- Hilbert, J.E., Sforzo, G.A., & Swensen, T. (2003) The effects of massage on delayed onset of muscle soreness. *British Journals of Sports Medicine*. 37(1): 72 – 75.
- Hou, W.H., Chiang, P.T., Hsu, T.Y., Chiu, S.Y., & Yen, Y.C. (2010). Treatment effects of massage therapy in depressed people: a meta-analysis. *Journal of Clinical Psychiatry*. 71(7): 894-901. <https://doi.org/10.4088/jcp.09r05009blu>

Huang, S. Y., Di Santo, M., Wadden, K. P., Cappa, D. F., Alkanani, T., & Behm, D. G.

(2010). Short-duration massage at the hamstrings musculotendinous junction induces greater range of motion. *Journal of Strength and Conditioning Research*. 24(7): 1917–1924. <https://doi.org/10.1519/jsc.0b013e3181e06e0c>

Jarvis, M. (2002). *Sport Psychology*. New York: Routledge.

Javadi, M. & Zarea, K. (2016). Understanding Thematic Analysis and it's Pitfall. *Journal of Client Care*. 1(1). <https://doi.org/10.15412/j.jcc.02010107>

Jones, G. (2000). Stress and anxiety. *Sport Psychology: A self- help guide*. 1: 31-51.

Jones, M., Lane, A.M., Bray, S.R., Uphill, M., & Catlin, J. (2005). Development and Validation of the Sports Emotion Questionnaire. *Journal of Sport and Exercise Psychology*. 27: 407 - 431.

Jooste, K., Khumalo, V., & Maritz, J. (2013). Sportsmen's experiences at a somatology clinic receiving a sports massage. *Health SA*. 18(1): 1- 9. DOI: 10.4102/hsag.v18i1.637

Joppe, M. (2000). *The Research Process*. Scientific Research Publishing.

Judger, N. (2016). The thematic analysis of interview data: An approach used to examine the influence of the market on curricular provision in Mongolian higher education institutions. Hillary Place papers. 3rd Ed. University of Leeds.

Kaada, B., & Torsteinbo. O. (1987). Vasoactive intestinal polypeptides in connective tissue massage. *General Pharmacology*. 18(4): 397 - 384.

- Kargarford, M., Lam, E. T. C., Shariat, A., Shaw, I., Shaw, B. S., & Tamrin, S. B. M. (2015). Efficacy of massage on muscle soreness, perceived recovery, physiological restoration and physical performance in male bodybuilders. *Journal of Sports Sciences*. 34(10): 959 – 965. <https://doi.org/10.1080/02640414.2015.1081264>
- Kenedy, A. B., Cambron, J. A., Sharpe, P. A., Travillian, R. S., & Saunders, R. P. (2016). Clarifying Definitions for the Massage Therapy Profession: The Results of the Best Practices Symposium. *International Journal of Therapeutic Massage and Bodyworks*. 9(3): 15 – 26. DOI: 10.3822/ijtmb.v9i3.312
- Korstjens, I., & Moser, A. (2018), Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*. 24(1): 120 - 124. DOI: 10.1080/13814788.2017.1375092
- Lee, E. J., Van Iterson, E. H., Baker, S. E., Kasak, A. J., Taylor, N. E., Kang, C. H., Lundstrom, C. J., & Snyder, E. M. (2020). Foam Rolling is an effective recovery tool in trained distance runners. *Sport Science for Health*. 16: 105 – 115. <https://doi.org/10.1007/s11332-019-00580-y>
- Leivadi, S., Hernandez-Reif, M., Field, T., O'Rourke, M., D'Arienzo, S., & Lewis, D. (1999). Massage therapy and relaxation effects on university dance students. *Journal of Dance Medicine and Science*. 3(1): 108 – 112.
- Luke, H. (2015). Sports Massage: The Effects and Benefits. *CMS Vocational Training*. Retrieved on: <https://www.cmsfitnesscourses.co.uk/blog/sports-massage-the-effects-and-benefits/>
- Lutjemeier, B. J., Miura, A., Scheuermann, B. W., Koga, S., Townsend, D. K., & Barstow, T. J. (2005). Muscle contraction-blood flow interactions during upright knee extension

exercise in humans. *Journal of Applied Physiology*. 98(4), 1575–1583.

<https://doi.org/10.1152/jappphysiol.00219.2004>

Makepeace, T., Young, B. W., & Rathwell, S. (2021). Masters Athletes' Views on Sport Psychology for Performance Enhancement and Sport Lifestyle Adherence. *The Sport Psychologist*, 35(3), 200–212. <https://doi.org/10.1123/tsp.2020-0110>

Makepeace, T. (2020). *Exploring traditional and novel applications for sport psychology in Masters sport* [MA Thesis]. University of Ottawa.

Manchester Physio. (n.d.). What is Kneading. Retrieved from: <https://www.manchesterphysio.co.uk/treatments/massage/our-massage-techniques/kneading.php>

Mancinelli, C. A., Davis, D. S., Aboulhosn, L., Brady, M., Eisenhofer, J., & Foutty, S. (2006). The effects of massage on delayed onset muscle soreness and physical performance in female collegiate athletes. *Physical Therapy in Sport*. 7(1), 5 – 13. <https://doi.org/10.1016/j.ptsp.2005.10.004>

Martens, R., Vealey, R.S., Burton, D. (1990). *Competitive Anxiety in Sport*. Champaign, IL: Human Kinetics.

Mental Performance Consultation (n.d.). Leaps and Bounds Performance Rehabilitation. Retrieved from: <https://leapsboundsrehab.ca/physiotherapy-treatments/other/mental-performance--consulting/#:~:text=A%20mental%20performance%20consultant%20is,a,mateur%20athletes%20achieve%20their%20goals.&text=Build%20motivation%20and%20goal%20setting,performance%20routines%20to%20improve%20mindset>

McNair, D.M., Lorr, M., Droppleman, L.F. (1971). *Profile of mood state manual*. San Diego, CA: Educational and Industrial Testing Service.

- Micklewright, D., Griffin, M., Gladwell, V., & Beneke, R. (2005). *Mood State Response to Massage and Subsequent Exercise Performance*. *The Sport Psychologist*. Human Kinetics. 19: 234 - 250.
- Morales, M. M., Fernandez, L. C., Ariza, G. A., Toro, V. C., & Winters, M. (2011). Psychophysiological effects of pre-performance massage before isokinetic exercise. *Journal of Strength and Conditioning Research*. 25(2): 481-488.
- Moraska, A. (2005). Sports massage: a comprehensive review. *Journal of Sports Medicine and Physical Fitness*. 45(3): 370 – 380.
- Morgan, P. B., Fletcher, D., & Sarkar, M. (2017). Recent Developments in Team Resilience Research in Elite Sport. *Current Opinion in Psychology*. 16: 159-164.
- Morris-Eyton, H. F., & Roux, C. J. (2019). Curriculum Development in Sport Coach Education within a South African Context: A Case Study. *South African Journal for Research in Sport, Physical Education and Recreation*. 41(2): 87-96.
- Moyer, C.A., Rounds, J., & Hannum, J.W. (2004). A meta-analysis of massage therapy research. *Psychological Bulletin*. 130(1): 3-18.
- Murphy, S., Fleck, D., Dudley, G., & Callister, R. (1990). Psychological and performance concomitants of increased volume training in elite athletes. *Journal of Applied Sport Psychology*. 2(1): 34 -50.
- Nahavandinezhad, S. (2006). The Education of Scientific Ways Massage Therapy. *Faculty of Rehabilitation Sciences*. P.23.
- Nunes, G.S., Bender, P.U., Sprada de Menezes, F., Yamashitafuji, I., Vargas, V.Z., & Wageck, B. (2016). Massage therapy decreases pain and perceived fatigue after long-

distance Ironman triathlon: a randomized trial. *Journal of Physiotherapy*. 62(2): 88 - 7.
doi: 10.1016/j.jphys.2016.02.009.

Ogai,R., Yamane, M., Matsumoto, T., Kosake, M. (2008). Effects of Petrissage massage on fatigue and exercise performance following intensive cycle pedalling. *British Journal of Sports Medicine*. 42(10): 1-2.

Pa, W. A. M. W., Salamuddin, N., Zin, N. M., & Lian, D. K. C. (2021). The effect of sports massage towards cortisol and pre-competition anxiety among Malaysian elite tennis athletes. *Journal of Contemporary Issues in Business and Government*. 27(2): 1518 - 1525. DOI: 10.47750/cibg.2021.27.02.163

Paglia, M. L. (2017). How Massage Affects Your Mood. *Thrive Global. Medium*.
<https://medium.com/thrive-global/how-massage-affects-your-mood-334663052773>

Parnabas, V. A., & Mahamood, Y. (2013). Cognitive and Somatic Anxiety among Football Players of Different Ethnic Groups in Malaysia. *Social and Behavioural Sciences*. 85: 258 - 266.

Peña-Sarrionandia, A., Mikolajczak, M., & Gross, J. J. (2015). Integrating emotion regulation and emotional intelligence traditions: A meta-analysis. *Frontiers in Psychology*. 6: 160.
doi:10.3389/fpsyg.2015.00160

Plummer-D'Amato, P. (2008). Focus groups methodology Part 2: Considerations for analysis. *International Journal of Therapy and Rehabilitation*. 15(3): 123 -129
<https://doi.org/10.12968/ijtr.2008.15.3.28727>

Poppendieck, W., Wegmann, M., Ferrauti, A., Kellman, M., Pfeiffer, M., & Meyer, T. (2016).
Massage and Performance Recovery: A Meta-Analytical Review. *Sports Medicine*.
46(2): 183 – 204.

Priyambada, G., & Sugiharto, T. R. R., Sulaiman (2021). Coach Perception Relationship to
Sport Massage, with Encouragement for Sports Coaches to Learn Sport Massage.
Journal of Human University (Natural Sciences). 48 (5): 232 – 236.

Priyambada, G., Sugiharto, T. R. R., & Sulaiman, (2020). The Propensity of Sports Coach in
Implementing Sport Massage for Athletes Pre and Post Exercises. *Advances in Social
Science, Education and Humanities Research*. 443: 359- 366.

Punch, K. F. (2013). *Introduction to Social Research: Quantitative and Qualitative
Approaches*. SAGE Publications. London

Reichert, B. (2011). *Psychological Effects of a Regeneration Massage for Half Marathon
Runners*. University of Applied Sciences Vienna: Wien, Austria.

Reichert, B. (2020). Does the Therapist's Sex Affect the Psychological Effects of Sports
Massage? – A Quasi-Experimental Study. *Brain Science*. 10(6): 376.
<https://doi.org/10.3390/brainsci10060376>

Rexilius, S. J., Mundt, C., Erickson, M., & Agrawal, S. (2002). Therapeutic effects of
massage therapy and handling touch on caregivers of patients undergoing autologous
hematopoietic stem cell transplant. *Online Exclusive*. 29(3): E35-44.

Rinder, A. N., & Sutherland, C. J. (1995). An investigation of the effects of massage on
quadriceps performance after exercise fatigue. *Complement Therapy of Nursing and
Midwifery*. 1: 99 -102.

- Rothstein, A. (2020). What is Sports Massage Therapy? *Minnesota School of Cosmetology*.
Retrieved from: www.msccollege.edu/blogs/massage-therapy/what-is-sports-massage-therapy/
- Ruiz, M. C., & Robazza, C. (2020). Emotion Regulation. *The Routledge International Encyclopedia of Sport and Exercise Psychology*. 2 (19): 263-280. DOI: 10.4324/97813587228-19
- Salvary, C. (2007). Sports massage: Sport for persons with a disability. *Prospectives*. 7(1): 1–24.
- Sam, N. M. S. (2013). *Arousal regulation*. *Psychology dictionary*. Retrieved From: <https://psychologydictionary.org/arousal-regulation/>
- Schilz, M., & Leach, L. (2020). Knowledge and Perception of Athletes on Sport Massage Therapy (SMT). *International Journal of Therapeutic Massage and Bodywork*. 13(1): 13–21. <https://doi.org/10.4085/1062-6050-223-17>
- Schinke, R. J., Stambulova, N. B., Si, G., & Moore, Z. (2018). International Society of Sport Psychology Position Stand: Athletes' Mental Health, Performance, and Development. *International Journal of Sport and Exercise Psychology*. 16(6): 622-639.
- Shahri, T. S. Y., Golomohammadi, B., & Talepasand, S. (2016). The Effect of a Sport Massage Period on Students Anxiety. *International Congress on Physical Education and Sport Sciences*. 9th edition.

Sherman, K. J., Cherkin, D. C., Kahn, J., Erro, J., Hrbek, A., Deyo, R. A., & Eisenberg, D.

M. (2005). A survey of training and practice patterns of massage therapists in two US states. *BMC Complementary and Alternative Medicine*. 5(1).

<https://doi.org/10.1186/1472-6882-5-13>

Shroff, F. M., & Sahota, I.S. (2013). The perspectives of educators, regulators and funders of massage therapy on the state of the profession in British Columbia, Canada. *Chiropractic and Manual Therapies*. 21(1): 2.

American Psychological Association. (2008). Sport Psychology. Retrieved from:

<https://www.apa.org/ed/graduate/specialize/sports>

Sriwongtong, M., Goldman, J., Kobayashi, Y. & Gottschalk, A.W. (2022). Does Massage Help Athletes After Exercise? *Ochsner Journal*. 20(2): 121 – 122. DOI:

10.31486/toj.20.0008

Staveski, S. L., Boulanger, K., Erman, L., Lin, L., Almgren, C., Journal, C., Roth, S. J., & Golianu, B. (2018). The Impact of Massage and Reading on Children's Pain and Anxiety After Cardiovascular Surgery. *Pediatric Critical Care Medicine*. 19(8), 725–732.

<https://doi.org/10.1097/pcc.0000000000001615>

Stöppler, M. C. (2021) Medical definition of Anxiety. Retrieved from:

<https://www.medicinenet.com/anxiety/definition.htm>

Sutton, J., & Austin, Z. (2015). Qualitative research: data collection, analysis, and management. *The Canadian Journal of Hospital Pharmacy*. 68(3): 226–31.

Szabó, A., Rendi, M., Szabó, T., Velenczei, A., & Kovács, A. (2008). Psychological Effects of Massage on Running. *Journal of Social, Behavioral, and Health Sciences*. 2 (1): 1 – 7.
DOI:10.5590/JSBHS.2008.02.1.01

Tappan, F., & Benjamin, P. (1998). *Tappan's handbook of healing massage techniques: Classic, holistic and emerging methods*. Stamford, TP: Appleton and Lange.

Thayer, R. E. (1967). Measurement through self-report. *Psychological Reports*. 20 (2): 663 – 678.

Trofa, D. P., Obana, K. K., Herndon, C. L., Noticewala, M. S., Parisien, R. L., Popkin, C. A., & Ahmad, C. S. (2020). The Evidence for Common Nonsurgical Modalities in Sports Medicine, Part 1. Kinesio Tape: Sports Massage Therapy and Acupuncture. *Journal of the American Academy of Orthopedic Surgeons Global Research and Reviews*. 4(1): 1 – 8.

Vallerand, J.R., & Young, B.W. (2017). Does having more participatory reasons mean more commitment? The simultaneous influence of participatory motives in sportspersons and exercisers. *International Journal of Sport Psychology*. 48: 18 -36.

Villalon, C. A., & Martin, S. B. (2020). High School Coaches' Coaching Efficacy: Relationship with Sport Psychology Exposure and Gender Factors. *Journal of Applied Sport Psychology*. 32 (1): 64 – 80.

Watson, S. (2018). Depression: Topic Overview. Gale Health and Wellness Online Collection. Retrieved from: <https://www.gale.com/open-access/depression>

- Weerapong, P., & Kolt, G. S. (2005). The mechanisms of massage and effects on performance, muscle recovery and injury prevention. *Journal of Sports Medicine*. 35(3):235-256.
- Weerapong, P., Hume, P. A., & Kolt, G. S. (2005). The Mechanisms of Massage and Effects on Performance, Muscle Recovery and Injury Prevention. *Journal of Sports Medicine*. 35(3): 235–256. <https://doi.org/10.2165/00007256-200535030-00004>
- Weinberg, R.S., & Gould, D. (2015). *Foundations of sport and exercise psychology*. 6th Ed. Champaign, IL: Human Kinetics.
- Weinberg, R., Jackson, A., & Kolodny, K. (1988). the relationship of massage and exercise to mood enhancement. *The Sport Psychologist*. 2: 202 - 211.
- Wiltshire, E. V., Poitras, V., Pak, M., Hong, T., Rayner, J., & Tschakovsky, M. E. (2010) Massage Impairs Postexercise Muscle Blood Flow and “Lactic Acid” Removal. *Journal of Medicine and Science in Sports and Exercise*. 42(6): 1062 – 1071.
- Zadkhosh, S. M., Ariaee, E., Atri, A. E., & Rashidlamir, A. (2015). The effect of massage therapy on depression, anxiety and stress in adolescent wrestlers. *International Journal of Sport Studies*. 5(3): 321- 327.
- Zadkhosh, S. M., Ariaee, E., & Zandi, H. G. (2018). The effect of massage therapy on aggression in youth wrestlers. *Journal of Physical Education, Health and Sport*. 5(1): 6 – 13.

APPENDIX A: INFORMATION SHEET



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INFORMATION SHEET

Project Title: Psychological effects of sport massage therapy.

What is this study about?

This is a research project being conducted by Mignon Schilz at the University of the Western Cape. We are inviting you to participate in this research project because you can help other individuals, athletes and non-athletes to get a better understanding on the psychological effects of sport massage. The purpose of this research project is to determine and explore the psychological effects of sport massage.

What will I be asked to do if I agree to participate?

You will be asked to complete two phases. Phase one is the POMS Questionnaire that needs to be completed before and after the sport massage. In phase two numerous questions will be asked in a semi structured interview which will also occur before and after the sport massage. Both phase one and phase two combined will take approximately 30 minutes for you to complete. Some of the questions that will be used in the semi structured interview will be, describe your muscle tension after the sport massage and how do you feel after the sport massage?

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, no personal information will be asked. Each questionnaire and interview question that belongs to the participant will get a unique code. To ensure your confidentiality, all data gathered will be kept secured at the University of the Western Cape under the supervision of my supervisor. If we write a report or article about this research project, your identity will be protected.

What are the risks of this research?

The only risk that can occur during the study is if the massage therapist applies too much pressure on the participants to the point where it is too painful, however that being said, if the pressure is too much to handle then the participant is obligated to tell the therapist to lighten the pressure. I will act promptly to assist you if you experience any discomfort or psychological stress during the study.

What are the benefits of this research?

The results of the research study may help me and other researcher to learn more about the various psychological effects of sport massage. This research is not designed to help you personally, but the results may help the investigator learn more about psychological effect of sport massage. We hope that, in the future, other people might benefit from this study through improved understanding of the psychological effect of sport massage.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify. If you are sick or very injured or if you're a professional athlete then you unfortunately can't participate within the study

What if I have questions?

This research is being conducted by Mignon Schilz of the Department of Sport, Recreation and Exercises Science at the University of the Western Cape. If you have any questions about the research study itself, please contact:

Mignon Schilz

Cell: 073 332 1062

Address: 9 Jacaranda Avenue, Valmary Park, Durbanville, 7551.

E-mail: 3451431@myuwc.ac.za



Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Prof. Andre Travill

Head of Department: SRES

University of the Western Cape

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Bellville 7535

atravill@uwc.ac.za

Prof. Althea Rhoda

Dean of the Faculty of Community and Health Sciences

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This research has been approved by the University of the Western Cape's Humanities and Social Sciences Research Ethics Committee.

(REFERENCE NUMBER: HS20/5/30)

APPENDIX B: CONSENT FORM



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CONSENT FORM

Title of Research Project: **Psychological effects of sport massage therapy.**

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name

Participant's signature

Date

APPENDIX C: SPORTS EMOTIONAL QUESTIONNAIRE (SEQ)

SPORT EMOTION QUESTIONNAIRE

Below you will find a list of words that describe a range of feelings that sport performers may experience. Please read each one carefully and indicate on the scale next to each item how you feel **at this moment**. There are no right or wrong answers. Do not spend too much time on one item, but choose the answer which best describes your feelings right

	Not at all	A little	Moderately	Quite a bit	Extremely
Upset	0	1	2	3	4
Exhilarated	0	1	2	3	4
Uneasy	0	1	2	3	4
Tense	0	1	2	3	4
Sad	0	1	2	3	4
Pleased	0	1	2	3	4
Nervous	0	1	2	3	4
Joyful	0	1	2	3	4
Irritated	0	1	2	3	4
Happy	0	1	2	3	4
Furious	0	1	2	3	4
Unhappy	0	1	2	3	4
Excited	0	1	2	3	4
Enthusiastic	0	1	2	3	4
Annoyed	0	1	2	3	4
Disappointed	0	1	2	3	4
Dejected	0	1	2	3	4
Cheerful	0	1	2	3	4
Apprehensive	0	1	2	3	4
Anxious	0	1	2	3	4
Energetic	0	1	2	3	4
Angry	0	1	2	3	4

now in relation to the upcoming competition.

Scoring Instructions:

Anxiety = (uneasy + tense + nervous + apprehensive + anxious)/5

Dejection = (upset + sad + unhappy + disappointed + dejected)/5

Anger = (irritated + furious + annoyed + angry)/4

Excitement = (exhilarated + excited + enthusiastic + energetic)/4

Happiness = (pleased + joyful + happy + cheerful)/4

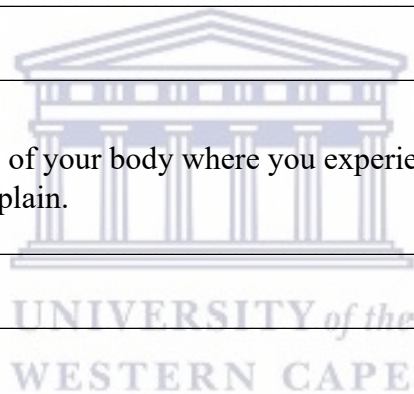
APPENDIX D: FOUR SEMI-STRUCTURED INTERVIEW QUESTIONS

1. How do you feel after your sport massage?

2. Describe your muscle tension after the sport massage?

3. Are there articular areas of your body where you experience muscle tension, stiffness or other discomfort? Explain.

4. Explain why you think that sport massage can affect your mood?



APPENDIX E: INFORMATION SHEET (AFRIKAANS)



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INLIGTENGSBLAD

Projek titel: Sielkunde effekte van sportmasseringsterapie

Waaroor gaan hierdie studie?

Dit is 'n navorsingsprojek wat deur Mignon Schilz aan die Universiteit van Wes-Kaap gedoen word. Ons nooi u uit om deel te neem aan hierdie navorsingsprojek, omdat u ander atlete en nie-atlete kan help om n beter begrip te kry van die sielkundige effekte van sportmassering. Die doel van die navorsingsprojek is om die sielkundige effekte van sportmassering te bepaal en te ondersoek.

Wat sal van my verwag word indien ek instem om deel te neem?

U word gevra om twee fases te voltooi. Fase een is die POMS-vraelys wat voor en na die sportmassering voltooi moet word. In fase twee gaan u 'n semi-gestruktureerde onderhoud voltooi wat ook voor en na die sportmassering sal plaasvind. Dit sal ongeveer 30-minute neem om beide fase een en twee te voltooi. 'n Voorbeeld van 'n vraag wat in die semi-gestruktureerde onderhoud gebruik sal word is: beskryf u spierspanning na die sportmassering en hoe voel u na die sport massering?

Sal my deelneming in die navorsings projek vertroulik gehou word?

Die navorsers onderneem dit om u identiteit en die aard van u bydrae te beskerm. Om u anonimiteit te verseker sal geen persoonlike inligting gevra word nie. Om u vertroulik te verseker, word alle versamelde data by die Universiteit van Wes-Kaap onder die toesig van my lektor bewaar. As n verslag of artikel oor hierdie navorsingsprojek geskryf word, dan sal u se identiteit beskerm word.

Wat is die risiko's van hierdie navorsingsprojek?

Die enigste risiko wat tydens die studie kan gebeur, is as die sportmasseringsterapeut te veel druk op die deelnemers toepas tot so 'n mate dat pyn ervaar word. Bygesê; indien die deelnemer voel dat die druk te veel is om te hanteer, is die deelnemer verplig om vir die terapeut te sê om ligter te masseer. Ek sal ook dadelik optree om u te help as u enige ongemak of enige sielkundige spanning ervaar tydens die studie.

Wat is die voordele van hierdie navorsingsprojek?

Die resultate van die navorsingsprojek kan my en ander navorsers help om 'n beter kennis oor die sielkundige effekte van sportmassering te ontwikkel. Hierdie navorsingsprojek is nie bedoel om u persoonlike te help nie, maar die resultate kan well die navorser help om meer te leer oor die sielkundige effek van sportmassering. Ons hoop dat die studie in toekoms 'n bydrae kan lewer sodat ander mense 'n beter begrip van die sielkundige effek van sportmassering sal kan hê.

Moet ek aan hierdie navorsingsprojek deelneem, en mag ek enige tyd ophou deelneem?

U deelname in die navorsingsprojek is heeltemal vrywillig. U kan kies om glad nie deel te neem nie. As u besluit om wel nie aan die navorsingsprojek deel te neem nie of as u op enige tydstip will ophou deelneem dan sal u nie gepeenaliseer word of enige voordele verloor waarvoor u anders kwalifiseer nie. As u siek of beseer is of as u 'n professionele atleet is, kan u ongelukkig nie aan die studie deelneem nie.

Wat as ek vrae het?

Hierdie navorsing word gedoen deur Mignon Schilz van die Department Sport, Rekreasie en oefeningswetenskap by die Universiteit van Wes-Kaap. As u enige vrae het oor die navorsingsprojek, kontak asseblief:

Mignon Schilz

sel: 073 332 1062

Adres: 9 Jacaranda Avenue, Valmary Park, Durbanville, 7551.

E-pos: 3451431@myuwc.ac.za

Indien u enige vrae het rakende hierdie navorsings studie en u registreer as 'n navorsingsdeelnemer, of as u enige probleme oor die studie wil rapporteer, kontak asseblief:

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Hierdie navorsingsprojek is goedgekeur deur die Universiteit van Wes-Kaap se komitee vir Navorsingsetiek vir Geesteswetenskappe en Sosiale Wetenskappe.

(VERWYSINGSNOMMER: HS20/5/30)

APPENDIX F: CONSENT FORM (AFRIKAANS)



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VRYWARINGS VORM

Titel van navorsings projek: Sielkundige effekte van sportmasseringsterapie

Die studie is aan my beskryf in 'n taal wat ek verstaan. My vrae oor die studie is beantwoord. Ek verstaan wat my deelname sal behels en ek stem in om vrywillig en uit my eie keuse deel te neem. Ek verstaan dat my identiteit aan niemand bekend gemaak sal word nie. Ek verstaan dat ek enige tyd van die studie kan onttrek sonder om 'n rede te gee en sonder vrees vir negatiewe gevolge of verlies aan enige voordele.

Deelnemer se naam

Deelnemer se handtekening.....

Datum

APPENDIX G: FOUR SEMI-STRUCTURED INTERVIEW QUESTIONS

(AFRIKAANS)



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5. Hoe voel jy na die sportmassering?

6. Beskryf jou spierspanning na 'n sportmassering?

A large, faint watermark of the University of the Western Cape logo is centered on the page. It features a classical building with columns and the text 'UNIVERSITY of the WESTERN CAPE' below it.

7. Is daar enige spesifieke areas op jou lyf waar jy enige spanning, styfheid of ongemaklikheid ervaar? Verduidelik asseblief..

8. Verduidelik hoekom jy dink dat sportmassering you bui kan beïnvloed?
