

Name: Tizana Latham

Student number: 2114017

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Tutor: David Gardner

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills		
	25	
2. Knowledge and Understanding Skills		
	25	
3. Cognitive and Intellectual Skills		
	30	
4. Practical Application Skills		
	10	
5. Transferable Skills for Life and Professional Practice		
	10	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)		%
	Up to 1 week late (40% Max)		
	Over 1 week late (0%)		

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Statement of research: The Effect of Deep-tissue Massage on Functional Fitness and Wellbeing:
Quantitative research

Introduction

In the relentless pursuit of holistic health and well-being, people have used numerous lifestyle intervention to improve and maximise their health and well-being. Numerous holistic approaches (Daundasekara, Arlinghaus and Johnston, 2020) have been sought for better quality of life (Rippe, 2018). These includes fitness training (Liu *et al.*, 2014) and therapeutic intervention such as massage (Dakić *et al.*, 2023). Massage, a multifaceted modality (Poppendieck *et al.*, 2016) is define as a mechanical manipulation of soft tissues applying different movements, pressure, and speed (Dakić *et al.*, 2023) . Research from Koren and Kalichman (2018) suggest massage stimulates muscular relaxation, lessens tension, boosts local circulation, and promoting the enhancement of overall health and well-being (Hemmings *et al.*, 2000). Sports massage is frequently utilised by athletes as a recovery aid (Davis, Alabed and Chico, 2020) from vigorous training and exercise (Brummitt, 2008) and it is prescribed by allied health care professionals and coaches for pre-events, post-events and maintenance (Davis, Alabed and Chico, 2020). Deep tissue massage has gained popularity amongst different allied professions including physical and occupational therapy (Koren and Kalichman, 2018) and sports therapy. This massage techniques focuses on the myofascial. It involves performing trigger point pressure release and myofascial release. Functional fitness also known as physical functioning capacity is define as a person's ability to perform daily tasks and activities effectively (Aguilar-Cordero *et al.*, 2022). Some main components of functional fitness include motor coordination, dynamic balance, strength and flexibility(Kaczorowska *et al.*, 2022). These components are similar to the physical components of fitness(Liguori, 2018). However functional fitness is goes beyond that scope where maintaining one's functional fitness is vital for independence(Liu *et al.*, 2014) and the continuous improvement of quality of life(Aguilar-Cordero *et al.*, 2022). Studies have highlighted the benefits of working on your different aspects of functional fitness. (Dahab and McCambridge, 2009) found that working on functional fitness in children not only help with improving athletic skills but improves the overall quality of life. This shows that is not only important in older population but also for everyone since aging is inevitable(Maden *et al.*, 2023). Good quality of life doesn't equal wellbeing. Wellbeing has been defined as "the combination of feeling good and functioning well; the experience of positive emotions such as happiness and contentment"(Ruggeri *et al.*, 2020a). This includes every aspect of health

(Ruggeri *et al.*, 2020b; Jarden and Roache, 2023) and can be enhance through several arena including reduction of stress by relaxing(Medvedev and Landhuis, 2018a) and in good physical health(Jarden and Roache, 2023).

Over the years it is perceived that sports massage provides physiological benefits (Medvedev and Landhuis, 2018) through a range of different techniques including effleurage and petrissage (Hemmings *et al.*, 2000). However current literature done by Davis, Alabed and Chico, (2020) in a systematic review and meta-analysis highlights that sports massage was only effective on the flexibility components of fitness. A comprehensive study by (Dakić *et al.*, 2023) reported similar findings. Additionally, Brummitt, (2008) found that massage had some effect on mood state. Upon reviewing the existing literature most studies have focussed on what massages can do to make their performance and recovery better. In addition, most studies had an adequate length of massage time however the frequency of the massage could have led to the results they acquired.

This study overall aim is to bridge the gap by investigating all the potential impacts deep-tissue massage has on the different categories of functional fitness and overall perceived wellbeing. There has been no study combining the themes of deep-tissue massage and functional fitness and well-being. Therefore, it is believed that it would be helpful to fill the gap in the current research by examining the effects of deep-tissue massage on functional fitness and well-being.

Significance of study

The prevalence of sedentary behaviours, lack of physical activity/exercise and musculoskeletal conditions such as osteoporosis and arthritis make this research significant. Providing that the alternative hypothesis is true, allied health professionals such as occupational therapist can utilise this approach by prescribing this treatment to their clients for improvement to the quality of life. This will be very beneficial for persons such as stroke victims, persons who are aging or those that have muscular-skeletal issues. Additionally, deep-tissue massage can become an official prescription for the general population. Thus, it reduces the cost of spending on pharmacology interventions.

Limitation of the study

1. Recruitment may be difficult because university students are present on campus for limited period of times.
2. Lack of replicability of previous studies.

Aim, Objectives and Hypotheses

Aim

This study aims are to:

- Investigate and determine whether deep-tissue massage positively affect functional fitness over a course of treatment.
- Assess if functional fitness positively enhances the overall wellbeing of an individual over a course of treatment.
- Examine the subjective wellbeing of deep-tissue massage.
- Contribute to existing research.

Objectives

- Examine how influential the deep tissue massage is on the different categories of functional fitness and overall wellbeing among the general population.
- To measure and analyse changes in the functional fitness parameters such as mobility, flexibility, endurance before and after treatment.
- To assess the wellbeing which includes perceived state of mind, overall feeling and satisfaction before and after treatment

Null Hypothesis

Deep tissue massage does not have any effect on functional fitness or wellbeing.

Alternative Hypothesis

Deep tissue massage positively affects functional fitness and wellbeing.

Method

Study design & Rationale

The scientific experimental research will adopt a quantitative research design using within subject method where the group will conduct a pretest after being exposed to the variable will conduct the post-test. This approach will be used because it is the most suitable design for this type of study. Quantitative research is best suited for the expression of results using numerical statistics (Borgstede and Scholz, 2021) and is more resistant to bias when compared to qualitative design (Almeida, Faria and Queirós, 2017). According to (Verhoef and Casebeer, 1997) quantitative study design is beneficial for testing. Furthermore, it encourages objectivity and accuracy of results from the researcher (Noble and Smith, 2015). Using the within subject gives the advantage of needing only a few participants (Greenwald, 1976; Fawcett and Ozubko, 2016). The testing method will allow quick but efficient testing for the researcher.

Participant

The study will target the general student population of the University of Wales Trinity St David (UWTSD). However only 10 students will be selected to participate in the study using convenience sampling. This is to facilitate the availability and the willingness of participants. It is easy, convenient (Elfil and Negida, 2017) and a less time-consuming method of recruiting participants (Winton and Sabol, 2022). Conversely this method has risk for bias (Stratton, 2021).

Ethical considerations

This study will be conducted in accordance with the ethical principles of the university of Wales Trinity St David. Ethical approval will be sorted from the ethics committee prior to working with participants and conducting the study.

Procedure

Prior to conducting, there will be a recruitment drive to recruit participants. Participants will be given a par-q and consent form to be filled out. Participants who meet the criteria will be brief about what to expect in a deep tissue massage and agree to an appropriate massage schedule. However, they will not be informed of the research objectives nor expected outcome as they can threaten the research validity. After which, they will receive a course of six (6) 30 minutes deep tissue massage on their body for approximately 3 weeks then they will retest. Participants that have any absolute contra-indicators (listed Appendix I) for sports massage that can negatively affect the experiment or put their health at risk will be excluded from the study.

Instrumentation

This study will use a par-Q and consent form.

36 questionnaires called the SF 36-Questionnaire to measure perceived quality of life shown in Appendix III. This questionnaire reliability and validity has been assessed by (Anderson, Laubscher and Burns, 1996) in their cohort study of stroke victims and (Bunevicius, 2017) in a cross-sectional study and found it to be adequate. Participant will have different categories of their functional fitness tested. Participants will test their strength, flexibility, endurance, speed, balance and agility.

Sit-to-Stand (30 seconds, 1 minute & 5 times sit-to-stand)

Both type of testing will measure lower body strength and will be used in this study, according to established protocols (Jones, Rikli and Beam, 1999; Morita *et al.*, 2018; Muñoz-Bermejo *et al.*, 2021). Protocols can be found in Appendix IV.

6 minutes' walk

Cardiorespiratory endurance will be tested using a 6-minute walk. This walk will follow protocols and will be measured by the distance and recorded which will be marked using cones (Kaman, 2022).

Single leg stance test

This is a one-leg stance that is used to test static posture and dynamic balance(Ageberg *et al.*, 2003; Berg-Hansen *et al.*, 2023). Protocol is listed in appendix.

Stair climb

Speed will be measured will participants perform this test. Participants are to climb a flight of stairs as fast as possible while remaining safe as per protocol(Rodriguez, 2020).

Data Analysis

The raw data collected from the questionnaire will be converted into numerical data and transferred to excel. In addition, the data collected from the pre-testing and post-testing of the different functional fitness test will be inputted into excel into their respective category and sub-headings based on the test done. These data will be exported to Statistical Package for Social Science (SPSS) version 28.0 for statistical analysis. A paired t-test will be used to compare the group results from the testing pre and post intervention. This is the most suitable suited statistical test to use to determine the differences between two different occasion from the same group (Ross Amanda and Willson, 2017). In comparison to other analysis tool such as excel and Stata, it is the most preferred tool for data analysis (Alili and Krstev, 2019; Masuadi *et al.*, 2021)due to its in-dept statistical capacity and efficiency(Rahman and Muktadir, 2021). The paired t-test will calculate and highlight the essential values for this research and compare the baseline. These values include the mean difference, the significant difference, the effect size (Cohen's d) and the p-value. Furthermore, excel will be used for depicting of graphical representation of the results in tables, charts and graphs because it is popularly (Divisi *et al.*, 2017).

Proposed Plan of work

Disertation section	October	November	December	January	February	March	April
Research proposal							
Participants recruitment							
Ethics form							
Pre-health questionnaire							
Selection of participant							
Experiment & Data collection							
Data analysis							
Introduction & literature review							
Results							
Discussion							
Conclusion & Abstract							
References							
Final Editing							
Submission							

Reference

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Appendix I : Absolute Contra-indication

Absolute Contra-indication

- **Blood Pressure and Circulatory Problems: Uncontrolled Hypertension, Deep Vein Thrombosis**
- **Infections: Viral, Bacterial, Fungal**
- **Rheumatoid Arthritis**
- **Sensory deficiency: Anaesthesia**
- **Myositis Ossificans**
- **Acute Trauma: Up to 48-72 hours**
- **Haematoma**
- **Ligament or tendon (sprain or strain)**
- **Rupture**
- **Fracture**
- **Bleeding (ongoing or open wound)**

(Paine, 2007)

Appendix II

Par-Q and consent form

Please bring form for your first training session; **YOU WILL NOT BE PERMITTED** to participate without it

Par-Q-Form

Title:		Date of Birth:	
First Name:			
Surname:			
Address:			
Email address:			
Tel:	Day time:	Evening:	Mobile:

Please answer all the questions YES or NO below, held in strictest confidence by Southwest Military Fitness

Has your doctor ever said you have heart trouble?	
Have you ever had pain in your chest?	
Do you often feel faint or have spells of dizziness?	
Has a doctor said that your blood pressure is too high?	
Has a doctor said that you might have bone or joint problems, arthritis, that is aggravated by exercise?	
Have you been in hospital in the last 3 years?	
Are you currently taking any medication?	
Are you pre/post natal?	
Do you suffer from asthma, or breathing difficulties?	
Do you suffer from diabetes or epilepsy?	
Do you suffer from an allergy?	
Is there a good reason not mentioned here why you should not take part in training sessions with Southwest Military Fitness?	

If you answer yes to any of the questions above please provide a doctor's note before training

Signature of Participant	Date	Signature of Parent or Guardian	Date
Required for participant under 18			

NEXT OF KIN FORM

Title:		Date of Birth:	
First Name:			
Surname:			
Address:			
Email:			
Tel:	Day time:	Evening:	Mobile:

Emergency contact during activity:

Name:		Relationship	
Contact Details			

Declaration:

1. The information I have provided is to the best of my knowledge true and accurate.
2. I have read and understand the terms and condition of Southwest Military Fitness and agree to be bound by them.
3. I understand that the activity provided by Southwest Military Fitness, by their nature involves an element of risk, which cannot be totally eliminated. Whilst every care to ensure the safety of the participant; activities involve the acceptance of risk and of responsibility of the consequences of one actions.

Signature of Participant	Date	Signature of Parent or Guardian	Date
		Required for participant under 18	

Do you currently suffer from any of the following?

Please tick what is relevant to you:

Condition	✓	Condition	✓
Uncontrolled Hypertension		Viral chicken pox	
Deep Vein Thrombosis		Hypertensive or Hypotensive	
Vital infection		Heart condition/heart attack	
Acute Trauma: Up to 48-72 hours		Haematoma	
Ligament or tendon (sprain or strain)		Rupture	
Fracture		Bleeding (ongoing or open wound)	
Bacterial infection e.g. boils, folliculitis		Heart surgery/bypass	
Fungal infection e.g. Athlete's foot		Rheumatoid Arthritis	
Sensory deficiency e.g. Anaesthesia		Myositis Ossificans	
Pregnant		Burns	
Cancer		Varicose Vein	

Liability Waiver (Informed Consent)

In consideration of being allowed to participate in the activities and programmes of South West Military Fitness and use the facilities and equipment owned and/or under the control of South West Military Fitness, in addition to the payment of any fee or charge I do hereby waiver release and, forever discharge South West Military Fitness from all responsibility or liability for injuries or damages resulting from participation in any activities or my use of equipment or facilities in the above-mentioned activities.

I understand and I am aware that strength, flexibility and aerobic exercise, including the use of relevant equipment, in the outdoors, are potentially hazardous activities. I also understand that exercise and fitness activities involve a risk of injury and even death and that I am voluntarily participating in these activities and using equipment and facilities with the knowledge of the dangers involved I here/by agree to expressly assume and accept all and risk of any injury or death.

I am aware that I have the right to request advice from any of the South West Military Fitness staff, at any time in relation to the activities and exercise being undertaken and, but not exclusively, their suitability for me, with particular regard to my health and equipment clothing. If I choose not such to take advice, or to disregard any advice so given, I do so voluntarily and accept liability for all resulting injuries or damage.

I do hereby declare myself to be physically sound and suffering from no condition, impairment, disease or infirmity or other illness (other than those declared on the attached medical questionnaire) that would prevent my participation or use of equipment or facilities except as herein stated.

I acknowledge that I have either had a physical examination and have been given my doctors permission to participate, or that I have decided to participate in activity and use equipment and machinery without the approval of my doctor and hereby assume all responsibility for my participation and activities, utilisation of equipment and machinery in my activities. In addition, South West Military Fitness cannot accept responsibility for valuables left with the instructors or vehicles.

Signature

Date

Print Name

Please print this form complete, date and sign it then bring it with you to you first class

Appendix III SF36- Questionnaire

QU9- SF-36 Survey

This survey asks for your views about your health

Please Circle the number that best describes your answer

1. In general, would you say your health is?

Excellent	Very Good	Good	Fair	Poor
1	2	3	4	5

2. Compared to one year ago, how would you rate your health in general now?

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago
1	2	3	4	5

3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much: (circle one number on each line)

	Yes, Limited A Lot	Yes, Limited A Little	No, Not Limited At All
A. Vigorous activities , such as running, lifting heavy objects participating in strenuous sports	1	2	3
B. Moderate activities , such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	1	2	3
C. Lifting or carrying groceries	1	2	3
D. Climbing several flights of stairs	1	2	3
E. Climbing one flight of stairs	1	2	3
F. Bending, kneeling, or stooping	1	2	3
G. Walking more than a mile	1	2	3
H. Walking several hundred yards	1	2	3
I. Walking one hundred yards	1	2	3
J. Bathing or dressing yourself	1	2	3

4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?
(Circle one number on each line)

	Yes	No
A. Cut down on the amount of time you spend on work or other activities	1	2
B. Accomplished less than you would like	1	2
C. Were limited in the kind of work or other activities	1	2
D. Had difficulty performing the work or other activities (for example, it took extra effort)	1	2

5. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? (Circle one number on each line)

	Yes	No
A. Cut down on the amount of time you spend on work or other activities	1	2
B. Accomplished less than you would like	1	2
C. Did work or activities less carefully than usual	1	2

6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your social activities with family, friends, neighbours, or groups? (Circle one)

Not at all	Slightly	Moderately	Quite a bit	Extremely
1	2	3	4	5

7. How much bodily pain have you had during the past 4 weeks? (Circle one)

None	Very Mild	Mild	Moderate	Severe	Very Severe
1	2	3	4	5	6

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? (Circle one)

Not at all	Slightly	Moderately	Quite a bit	Extremely
1	2	3	4	5

9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks... (Circle one number on each line)

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
A. did you feel full of pep?	1	2	3	4	5	6
B. have you been a very nervous person?	1	2	3	4	5	6
C. have you felt so down in the dumps nothing could cheer you up?	1	2	3	4	5	6
D. have you felt calm and peaceful?	1	2	3	4	5	6
E. did you have a lot of energy?	1	2	3	4	5	6
F. have you felt downhearted and blue?	1	2	3	4	5	6
G. did you feel worn out?	1	2	3	4	5	6
H. have you been a happy person?	1	2	3	4	5	6
I. did you feel tired?	1	2	3	4	5	6

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

All of the Time	Most of the Time	Some of the Time	A Little of the Time	None of the Time
1	2	3	4	5

11. How TRUE or FALSE is each of the following statements for you? (Circle one number on each line)

	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
A. I seem to get sick a little easier than other people	1	2	3	4	5
B. I am as healthy as anybody I know	1	2	3	4	5
C. I expect my health to get worse	1	2	3	4	5
D. My health is excellent	1	2	3	4	5

Appendix IV *Chair Sit to stand test procedure*

Sit to stand test

For the 5-rep sit to stand test, participants are to performed 5 movements of standing up and sitting down as quickly as they can. A stopwatch was used to measure the time spent doing this movement. For the 30 seconds and the 1 minute sit to stand participants are instructed to sit down on a chair and stand as many times as possible within 30 seconds then 1 minute. There results will be recorded. Participants were given a break between the different sit to stand test. After the 5-rep STS test, there was at least a 5-min break before the other test. Data is recorded after each session. (Muñoz-Bermejo *et al.*, 2021)

Appendix V *Single stance test*

Participants must have their with eyes open and arms on the hips. The participant must be able to stand unassisted on one leg which is timed in seconds from the time one foot is flexed off the floor to the time when it touches the ground or the standing leg or an arm leaves the hips(Ageberg *et al.*, 2003).

Appendix VI *Massage technique& plan*

5-8 minutes -effleurage

3 minutes wringing

6-8 kneading

2 trigger pointing,

2 minutes gliding

2 effleurage