Clinical Trial Protocol
Iranian Registry of Clinical Trials

13 Jun 2026

Prophylactic and therapeutic effects of active isolated stretching, myofascial release and olive oil phonophoresis in exercise induced muscle damage

Protocol summary

Study aim

Comparison of Prophylactic and therapeutic effects of active isolated stretching, myofascial release and olive oil phonophoresis in exercise induced muscle damage

Design

The current study investigated the prophylactic and therapeutic effects of myofascial release (MFR), Active isolated stretching (AIS) and Olive oil phonophoresis protocol versus control over a period of seven days in experimentally induced muscle soreness. The study design was a single blinded, 4 X 2 X 9 factorial design with repeated measures, the three factors were intervention (s), limb (s) and time. The repeated measures involved the time factor

Settings and conduct

The study was carried out in Healthy, untrained and sedentary college/university students age ranging between 18-30 years without any upper arm injury or musculoskeletal disease at university of Sargodha. After screening, Randomization was carried out by stratified block randomization scheme. The subjects was allocated to one of the interventional group or control group. The outcome measures was recorded by a trained physical therapist of the department who was blinded about treatment and time status.

Participants/Inclusion and exclusion criteria

Healthy, untrained and sedentary adults age ranging between 18-30 years, without any upper arm injury or musculoskeletal disease

Intervention groups

The study constitutes Active isolated stretching , Myofacial release, olive oil Phonophoresis, and a control group. We had used limb to limb comparison model in each group, randomly one limb was allocated to prophylactic intervention limb (PIL) and the other to therapeutic intervention limb (TIL)

Main outcome variables

1. Muscle pain intensity by VAS 2 Muscle Soreness Score by VAS 3. Pain pressure Threshold by Algometer 4. Passive Range of motion by univeral goniometer 5.Grip strength by dynamometer

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20181228042154N1**
Registration date: **2019-06-08, 1398/03/18**
Registration timing: **retrospective**

Last update: **2019-06-08, 1398/03/18**
Update count: **0**

Registration date

2019-06-08, 1398/03/18

Registrant information

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Muhammad Mustafa Qamar
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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-09-01, 1397/06/10

Expected recruitment end date

2018-12-10, 1397/09/19

Actual recruitment start date
2018-09-01, 1397/06/10
Actual recruitment end date
2018-12-10, 1397/09/19
Trial completion date
2020-12-31, 1399/10/11

Scientific title
Prophylactic and therapeutic effects of active isolated stretching, myofascial release and olive oil phonophoresis in exercise induced muscle damage

Public title
exercise-induced muscle damage; prophylactic and therapeutic countermeasures
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Healthy, untrained and sedentary adults age ranging between 18-30 years, without any upper arm injury or musculoskeletal disease. Absence of any known history of cardiovascular, neurological or metabolic disorders. Not trained for resistance training in the previous 6 months.
Exclusion criteria:
Participants were excluded who are Using Corticosteroid, NSAID or other painkillers• Taking some herbal medicine• Having a history of Psychiatric illness including anxiety, depression or bipolar disorder• Having a Previous history of any surgical procedure of the shoulder, elbow or wrist within 6 months before the participation• Having symptomatic osteoarthritis of shoulder, elbow, or wrist, • Having any skin abnormalities of upper extremity that may affect local tolerability• Having a History of allergy (cutaneous) • Having a History of known analgesic, alcohol or narcotic abuse• Having Joint hypermobility
Age
From **18 years** old to **30 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **130**
More than 1 sample in each individual
Number of samples in each individual: **2**
We used limb to limb comparison model in each group , randomly one limb was allocated to prophylactic intervention limb (PIL) and the other to therapeutic intervention limb (TIL)
Actual sample size reached: **120**
More than 1 sample in each individual
Actual sample size in each individual: **2**
We had used limb to limb comparison model in each group , randomly one limb was allocated to prophylactic intervention limb (PIL) and the other to therapeutic intervention limb (TIL)
Randomization (investigator's opinion)
Randomized
Randomization description
Randomization was carried out by stratified block randomization scheme. The subjects were allocated to one of the interventional group or control group. An independent allocator randomly allocated the participants for the allocated group. The subjects were instructed and explained about the study protocol and rating criteria of the variables.
Blinding (investigator's opinion)
Single blinded
Blinding description
All the data was recorded by a trained physical therapist of the department who was blinded about treatment and time status. He kept all record of performed intervention which was collected at the end of the study for statistical analysis.
Placebo
Not used
Assignment
Factorial
Other design features
The study design of the current study was a 4 X 2 X 9 factorial design with repeated measures, the three factors were intervention (s), limb (s) and time. The repeated measures involved the time factor. The study constitutes Active isolated stretching, Myofacial release, olive oil Phonophoresis, and a control group. We had used limb to limb comparison model in each group , randomly one limb was allocated to prophylactic intervention limb (PIL) and the other to therapeutic intervention limb (TIL)

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
University of Sargodha ethics committee
Street address
Main university road, university of sargodha
City
Sargodha
Postal code
40100
Approval date
2017-10-30, 1396/08/08
Ethics committee reference number
no/uos/oric/1266

Health conditions studied

1

Description of health condition studied
Exercise induced muscle damage

ICD-10 code
M79
ICD-10 code description
Other and unspecified soft tissue disorders, not elsewhere classified

Primary outcomes

1

Description
Pain intensity
Timepoint
Recorded at baseline, after one hour and from day 1 to 7 after the induction of muscle soreness.
Method of measurement
Pain intensity was assessed by Visual analog scale.

2

Description
Muscle Soreness Score
Timepoint
Recorded at baseline, after one hour and from day 1 to 7 after the induction of muscle soreness.
Method of measurement
Muscle soreness was assessed by Visual analog scale.

3

Description
Pain pressure Threshold
Timepoint
Recorded at baseline, after one hour and from day 1 to 7 after the induction of muscle soreness.
Method of measurement
Pain Pressure threshold was measured by algometer (Baseline, Fabrication Enterprises, USA).

4

Description
Passive Range of motion at wrist joint
Timepoint
Recorded at baseline, after one hour and from day 1 to 7 after the induction of muscle soreness.
Method of measurement
It was measured by a universal goniometer (ISOM Plastic, Isokinetics incorporation, USA)

5

Description
Grip strength
Timepoint
Recorded at baseline, after one hour and from day 1 to 7 after the induction of muscle soreness.
Method of measurement
Recorded by a hand-held dynamometer (Baseline, Fabrication Enterprises, USA).

Secondary outcomes

empty

Intervention groups

1

Description
Active isolated stretching Group: The participants recieved an unassisted AIS (Agonist contraction stretching) of the flexor of the hand at the wrist joint. After sitting on a comfortable, height adjusted chairs (90 degrees of hip and knee flexion and feet on floor), each participant was advised to actively move the hand into extension at the wrist joint, beginning the stretch of the flexors.Then requested to use their left hand to gently move the hand into further extension and apply a gentle stretch (Force should not exceed 1 pound). The stretch phase was not exceeded more than 2 seconds. After performing the stretch, A time of 10 seconds was given to relax. The same protocol and procedure were used for all participants during the project. The participants repeated the same protocol for 8- 10 times . The prophylactic limb recieved AIS before the induction of muscle soreness, while therapeutic limb recieved AIS after the induction of muscle soreness.
Category
Rehabilitation

2

Description
Myofascial Release Group: The subjects in MFR group was performed self-myofascial release technique by using Tennis ball with an invariant stroking rhythm from wrist all the way to the elbow on flexor aspect of the forearm with speed of 2-3 seconds a with moderate pressure. Circular, back and forth stroking were performed in the prescribed area.The prophylactic limb recieved MFR before the induction of muscle soreness, while therapeutic limb recieved MFR after the induction of muscle soreness.
Category
Rehabilitation

3

Description
Olive oil Phonophoresis group. The participants recieved 1 MHz continues ultrasound (Enraf Nonius Sonopuls 490) with a power of 1 Watt/cm2 was used with a 3.5 cm diameter probe to the flexor aspect of the forearm from elbow to wrist in circular and figure of 8 manners. To ensure absorption, the probe was used at right angles. The session comprised of 10 minutes. The prophylactic limb recieved phonophorosis before the induction of muscle soreness, while therapeutic limb recieved phonophorosis after the induction of muscle soreness.
Category
Rehabilitation

4

Description
Control group: They follow the same routine of physical activity and diet
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
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Full name of responsible person
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Sponsors / Funding sources

1

Sponsor
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Full name of responsible person
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Grant name
National Research Program for Universities
Grant code / Reference number
10094
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Higher Education Commission, Pakistan
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact
Name of organization / entity
University of Sargodha
Full name of responsible person
Muhammad Mustafa Qamar
Position
Assistant Professor
Latest degree
Specialist
Other areas of specialty/work
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available

Study Protocol
Yes - There is a plan to make this available

Statistical Analysis Plan
Yes - There is a plan to make this available

Informed Consent Form
Yes - There is a plan to make this available

Clinical Study Report
Yes - There is a plan to make this available

Analytic Code
Yes - There is a plan to make this available

Data Dictionary
Yes - There is a plan to make this available

Title and more details about the data/document
After completion of the study, I will publish it

When the data will become available and for how long
Twelve months

To whom data/document is available
Faculty members and students

Under which criteria data/document could be used
Request through email

From where data/document is obtainable
Email to mmustafaqamar@gmail.com

What processes are involved for a request to access data/document
Email to mmustafaqamar@gmail.com

Comments