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Therapist language versus dry needling effects on hip strength and time to stabilisation

Submission date
08/11/2019

Recruitment status
No longer recruiting

Registration date
09/12/2019

Overall study status
Completed

Last Edited
19/08/2021

Condition category
Other

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
Trigger points are more generally referred to as muscular "knots" which can often be found in both sporting and general populations. Dry needling is among the most common treatment techniques used by allied health professionals to treat trigger points. Dry needling consists of inserting an acupuncture type needle directly into the trigger point in order to cause the muscle fiber to loosen its low-level contraction. With dry needling's widespread use, researchers are unsure as to the bext timing of its use before performance or function and also, how its effects are perceived by patients. Gluteus medius is just one muscle in which trigger points frequently are found. It contributes to the strength of the hip and also plays an important role in maintaining stability during single-leg standing, moving and indeed sporting activities. By treating gluteus medius trigger points, there may be some temporary decreases in hip strength and stability, but it is not known if this weakness stems from an inability of the muscle to perform, or the patients' reluctance to exert themselves in response to having been treated. Therefore, this study aims to assess both the treatment effect of dry needling vs placebo dry needling, and also the contextual influence of the message given by the therapist just before applying the treatment. One message will warn of possible adverse effects that are typically felt after receiving dry needling, the other will focus on the beneficial performance effects typically reported after dry needling. It is hoped to investigate the close interaction of the treatment effect and the context in which the treatment is applied, and that overall effect on both objective and subjective treatment outcomes.

Who can participate?
Third-level students of the Institute of Technology Carlow, aged 18 to 40, participating in a multi-directional jump-sport (e.g. Gaelic football, hurling, soccer, volleyball, basketball or handball) for more than 3 hours per week, who have two or more latent trigger points present in the gluteus medius muscle of their preferred jumping leg

What does the study involve?
Participants are randomly allocated to one of four treatments:
1. Dry needling with a positive message
2. Dry needling with a neutral message
3. Placebo dry needling with a positive message

4. Placebo dry needling with a neutral message
Participants receive a single treatment to between 2 and 5 trigger points with a pre-scripted message given to the participant immediately before the administration of the intervention. Hip strength and time to stabilisation are measured before and immediately after and 24 and 48 hours after the treatment. At each follow-up participants also complete a short questionnaire in which they are asked to rate and describe the sensations and effects felt after dry needling and how this affected their daily activities or sporting participation.

What are the possible benefits and risks of participating?
There may be immediate or direct benefits such as 'loosening' of the muscle. Participation will help to determine which treatment should be used in the treatment of athletes in the future and would be extremely useful to athletes, coaches and therapists. Participants may experience minor pain or discomfort in the area where the dry needling or manual pressure release is applied. This pain or discomfort is commonly associated with myofascial trigger point treatment. This pain or discomfort will last for a short period of time.

Where is the study run from?
Institute of Technology Carlow (Ireland)

When is the study starting and how long is it expected to run for?
May 2019 to December 2021 (updated 19/08/2021, previously: December 2020)

Who is funding the study?
Institute of Technology Carlow (Ireland)

Who is the main contact?
Mr Aaron Byrne
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
238

Study information

Scientific Title
Positive message versus neutral message with dry needling to gluteus medius and its effect on single leg stability and hip strength. A randomised placebo-controlled trial

Study objectives
1. Dry needling will cause a short-term decrease in hip strength
2. The positive message will attentuate the initially negative effect of dry needling on strength

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 19/07/2019, Ethics in Research Committee in the Department of Science and Health of Institute of Technology Carlow (Sandra Kirwin, Academic Administration Officer; Tel: +353 (0) 59-9175707; Email: ethicscommittee@itcarlow.ie), ref: 238

Primary study design
Interventional

Study design
Randomized placebo-controlled intervention study

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Latent myofascial trigger points in gluteus medius muscle

Interventions
All participants will randomly be assigned one of four treatment arms, via random number sequence, without knowing which arm they have been assigned (single-blinded).
The four treatment arms are as follows:
1. Dry needling with positive message
2. Dry needling with neutral message
3. Placebo dry needling with positive message
4. Placebo dry needling with neutral message
Participants will receive a single treatment to between 2 and 5 trigger points with a pre-scripted message given to the participant immediately before the administration of the intervention.

Hip strength and single leg stability will be measured immediately prior to and immediately post intervention as well as 24, 48 hours post intervention.

Intervention Type

Other

Primary outcome(s)
Measured immediately before the intervention, immediately after and 24 and 48 hours after the intervention:
1. Hip abduction strength (maximal voluntary isometric contraction), measured using a portable strain gauge (hand-held dynamometer)
2. Hip internal rotation strength (maximal voluntary isometric contraction), measured using a portable strain gauge (hand-held dynamometer)
3. Hip external rotation strength (maximal voluntary isometric contraction), measured using a portable strain gauge (hand-held dynamometer)

Key secondary outcome(s)
1. Single-leg vertical time to stabilisation following a 20 cm drop landing onto a forceplate, measured immediately before the intervention, immediately after and 24 and 48 hours after the intervention
2. Objective feedback will be attained from all participants at the end of each testing session in the form of a web-based (Microsoft forms) questionnaire focusing on sensations felt, perceived effect of treatment on performance in strength tests, single-leg time to stabilisation, perceived effect of treatment on performance if a hypothetical competition was imminent and if any effect was felt on physical activity between follow-up days

Completion date
31/12/2021

Eligibility

Key inclusion criteria
1. Third-level students of IT Carlow
2. Aged between 18 and 40 years of age
3. At the time of testing, are participating in a multi-directional jump-sport including but not limited to; gaelic football, hurling, soccer, volleyball, basketball, handball more than 3 hours per week
4. Have 2 or more Latent Trigger Points present in the gluteus medius muscle of their "self-selected preferred jumping leg" - identified by physical palpation examination conducted by the researcher

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex

All

Key exclusion criteria
1. Have, at the time of testing, any injury to the lower limb or low back. Injury is defined as "any injury that prevents a player from taking a full part in all training and match play activities" (Brooks et al. 2005)
2. Present with signs of or report during screening process, any neurological or bleeding disorders
3. Have a needle phobia or aicmophobia

Date of first enrolment
18/11/2019

Date of final enrolment
20/09/2020

Locations

Countries of recruitment
Ireland

Study participating centre
Institute of Technology Carlow
Department of Science and Health
Kilkenny Road
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Ireland
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Sponsor information

Organisation
Institute of Technology Carlow

Funder(s)

Funder type
University/education

Funder Name
Institute of Technology Carlow

Results and Publications

Individual participant data (IPD) sharing plan
All statistical analyses and anonymised participant-level data-sets will be made available upon completion of the trial and can be requested from the lead researcher Aaron Byrne (aaron.byrne@itcarlow.ie).

IPD sharing plan summary
Available on request