

Sep 24, 2025

Version 1

The reproducibility of physical therapy/physiotherapy rehabilitation interventions described in published studies on the clinical management of acute onset and long-standing groin pain: a protocol for a scoping review V.1

DOI

<https://dx.doi.org/10.17504/protocols.io.bp2l6znorgqe/v1>

Shane Malone¹, Eamonn Delahunt^{2,3}, John Kiely⁴

¹University of Limerick;

²School of Public Health, Physiotherapy and Sports Science, University College Dublin, Dublin;

³Ireland Institute for Sport and Health, University College Dublin, Dublin, Ireland;

⁴Department of Physical Education and Sports Sciences University of Limerick PESS Dept. University of Limerick.

Shane Malone: Professional Doctorate Candidate Professional Doctorate in Human Performance and Innovation University of Limerick Email: malone.shanejoseph@ul.ie;



Shane Malone

University of Limerick

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.bp2l6znorgqe/v1>

Protocol Citation: Shane Malone, Eamonn Delahunt, John Kiely 2025. The reproducibility of physical therapy/physiotherapy rehabilitation interventions described in published studies on the clinical management of acute onset and long-standing groin pain: a protocol for a scoping review. **protocols.io** <https://dx.doi.org/10.17504/protocols.io.bp2l6znorgqe/v1>

License: This is an open access protocol distributed under the terms of the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

We use this protocol and it's working

Created: July 21, 2025

Last Modified: September 24, 2025

Protocol Integer ID: 222900

Keywords: Exercise, Groin, Injury, Intervention, rehabilitation, groin injuries, groin pain, long-standing groin pain, athletic pubalgia, osteitis pubalgia, acute-onset groin pain, muscle injuries, rehabilitation, return-to-sport, return to performance, sports injuries, season prevalence of groin injury, review groin injury, groin injury, standing groin injury, scoping review groin injury, seasonal prevalence of groin pain, standing groin pain, rehabilitation interventions for athlete, returning athlete, physiotherapy rehabilitation intervention, athlete, such as australian rules football, injury surveillance study, multidirectional sport, transparent reporting of clinical rehabilitation intervention, australian rules football, clinical rehabilitation intervention, football, rugby league, published rehabilitation intervention, reproducibility of physical therapy, rehabilitation intervention, rehabilitation interventions with varied focus, based sport, physical therapy, informed rehabilitation intervention, gaelic fo

Abstract

Groin injury/pain is a prevalent problem experienced by athletes participating in multidirectional sports. Injury surveillance studies have reported that the seasonal prevalence of groin pain is 4-19% in senior men's football and 2-14% in senior women's football (Walden et al., 2015). The season prevalence of groin injury/pain is similar in other field-based sports that involve a change of direction, sudden acceleration, deceleration and maximal sprinting, such as Australian rules football (Orchard et al., 1998), Gaelic football (Carolan et al., 2022) and rugby league (O'Connor, 2004). Athletes who experience groin injury/pain often have co-existing symptomatic pathology, making clinical diagnosis and management/treatment planning challenging (Falvey et al., 2016). Rehabilitation interventions with varied focuses have been shown to be effective in returning athletes with (acute and long-standing) groin injury/pain to their pre-injury sporting levels (Hölmich et al., 1999; King et al., 2015; Serner et al., 2020).

The transparent reporting of clinical rehabilitation interventions is of interest to clinicians, as this enables them to implement the interventions described in the published literature in their own day-to-day clinical practice. In the absence of a complete description of interventions, clinicians cannot implement evidence-informed rehabilitation interventions. A lack of transparent reporting also constrains the ability of researchers to replicate and expand upon the results of published studies. To date, no research has explored the reproducibility of published rehabilitation interventions for athletes with acute or long-standing groin injury.

Protocol and Registration

- 1 The authors developed the protocol and made it public by registering it on protocols.io

Research Question

- 2 The aim of our scoping review is to evaluate the reproducibility of physical therapy/physiotherapy rehabilitation interventions in published studies describing the clinical management of athletes with acute onset or long-standing groin pain.

The PICO elements of the title are outlined as follows:

Participants: "athletes with acute onset or long-standing groin pain"

Interventions: "physical therapy/physiotherapy clinical management of athletes with acute onset or long-standing groin pain"

Comparators: Not applicable

Outcomes: "the reproducibility of physical therapy/physiotherapy rehabilitation interventions"

Study Selection

- 3 The search strategy will be applied across electronic bibliographic databases (MEDLINE via PubMed, CINAHL, and SPORTDiscus. The search terms will be mapped to Medical Subject Headings (MeSH) terms where possible. Search terms will be applied from 01 January 1990 to July 2025. The reference lists of included articles will be hand-searched to identify other potentially relevant articles.

The following is an example of the search that will be conducted on the PubMed database:

("Groin"[Mesh]) OR (groin[Title/Abstract]) OR ("groin pain"[Title/Abstract]) OR ("groin injur*")[Title/Abstract]) OR ("acute injur*"[Title/Abstract]) OR ("athletic pubalgia"[Title/Abstract])
AND

("Rehabilitation"[Mesh])OR (rehab*[Title/Abstract]) OR ("Return to Sport"[Mesh]) OR ("Return to performance"[Title/Abstract]))

Study selection will be performed by two reviewers (Shane Malone and Eamonn Delahunty) independently. A third reviewer (John Kiely) will be consulted to resolve disagreements amongst these reviewers and to facilitate consensus. The two reviewers will independently screen the titles and abstracts of the identified peer-reviewed articles to assess their eligibility for inclusion in this review. Studies will be considered for inclusion based on their fulfilment of pre-specified eligibility criteria. Full-length texts of remaining peer-reviewed articles will be sought and reviewed in full to determine eligibility if reviewers are uncertain about their eligibility from title and abstract screening.

Identifying Relevant Literature

- 4 To be deemed eligible for inclusion, studies will be required to fulfil the following criteria (framed according to **PICO**).

Participants. "athletes with acute onset or long-standing groin pain"

Interventions. "physical therapy/physiotherapy clinical management of athletes with acute onset or long-standing groin pain"

Comparators. Not applicable

Outcomes.

"the reproducibility of physical therapy/physiotherapy rehabilitation interventions"

Additional eligibility criteria

Studies will also be required to:

1. Be a full-text article published in an English language peer-reviewed journal before June 2025
2. Be a prospective or retrospective intervention study, such as a case series, clinical study, clinical trial, comparative study, controlled clinical trial, observational study, or randomised controlled trial.

Ineligibility criteria

Studies will be deemed ineligible if they:

- Do not explicitly report on physical therapy/physiotherapy clinical management of athletes with acute onset or long-standing groin pain.

- Are opinion pieces, expert commentaries, systematic reviews, conference abstracts, narrative reviews or abstracts without full-text availability.
- Describe physical therapy/physiotherapy clinical management of surgical patients.

Methods

- 5 Our study protocol is developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklists.

Data Extraction (Data Charting Process)

- 6 A standardized data extraction sheet (created in Microsoft Excel) will be used to extract data. Data extraction will be performed by one reviewer (Shane Malone). A second reviewer (Eamonn Delahunt) will perform data extraction for a proportion (20%) of the included studies, as part of a quality assurance process. Data will be organized in the following manner:

Study Characteristics:

1. Study title
2. Study lead author/year of publication
3. Journal
4. study design
5. Use Oxford (UK) CEBM Levels of Evidence

Participant Characteristics:

1. Participants (n=) sample size (total included participants, n =)
2. Sex of participants (male OR female OR mixed (male and female); n-male (%); n-female (%))
3. Age of participants (mean age in years, standard deviation of age in years, range of age in years)
4. Country in which the study was originally conducted.
5. Injury classification.
6. Sport (level) (amateur/professional)
7. Duration of treatment.
8. Impairment addressed (Pathomechanical, Motor-behavioural, Sensory-perceptual)
9. Presence of a maintenance program after return-to-sport.

Intervention Characteristics:

As per TIDieR- Rehab checklist (Signal et al., 2024)

1. Brief name (name of the intervention).
2. Why (rationale of the intervention).
3. Who (target population)
4. When (start point of intervention)
5. A. Materials (physical/informational materials)
B. Procedures (activities/processes)
6. Who provided (providers and expertise).
7. How (describe the modes of delivery of the intervention).
8. Where (describe the type(s), location(s) where the intervention occurred).
9. A. Session duration (Planned session time)
B. Essential elements amount (active participation time)
C. Frequency (Number of sessions/week)
D. Intervention length (Total programme length)
10. How challenging (setting/changing difficulty)
11. Regression/progression
12. A. Needs-based personalisation (strategies for individualised needs)
B. Preference-based personalisation (adapting to individualised preferences)
13. Protocol deviations (changes from plan)
14. A. Fidelity plan (planned monitoring)
B. Fidelity actual (delivery as planned)
15. A. Harms monitoring (Monitoring method)
B. Harms occurred (reported harms)

CERT checklist

(Slade et al., 2016)

- 1 Detailed description of the type of exercise equipment.
- 2 Detailed description of the qualifications, expertise and/or training.
- 3 Describe whether exercises are performed individually or in a group.
- 4 Describe whether exercises are supervised or unsupervised; how they are delivered.

- 5 Detailed description of how adherence to exercise is measured and reported.
- 6 Detailed description of motivation strategies.
- 7a Detailed description of the decision rule(s) for determining exercise progression.
- 7b Detailed description of how the exercise program was progressed.
- 8 Detailed description of each exercise to enable replication.
- 9 Detailed description of any home programme component.
- 10 Describe whether there are any non-exercise components.
- 11 Describe the type and number of adverse events that occur during exercise.
- 12 Describe the setting in which the exercises are performed.
- 13 Detailed description of the exercise intervention.
- 14a Describe whether the exercises are generic (one size fits all) or tailored.
- 14b Detailed description of how exercises are tailored to the individual.
- 15 Describe the decision rule for determining the starting level.
- 16a Describe how adherence or fidelity is assessed/measured.
- 16b Describe the extent to which the intervention was delivered as planned.

The outcomes for which data will be sought, including prioritization of main and additional outcomes, will be:

The Template for Intervention Description and Replication (TIDieR) Rehab framework (Signal et al., 2024) will be used to evaluate the quality of existing interventions that meet our eligibility criteria. The TIDieR Rehab framework is an extended version of the original framework developed by Hoffman et al. (2014), which aims to enhance the reporting of rehabilitation interventions. The framework is intended to support researchers in designing and replicating studies, assessing the quality of interventions, and synthesising evidence for clinical guidelines. The TIDieR-Rehab will offer valuable insights into synthesising rehabilitation research evidence, supporting the identification of knowledge gaps.

The CERT (Consensus on Exercise Reporting Template) developed by Slade et al. (2016) will also be used to evaluate the quality of eligible study interventions. The CERT is a 16-item checklist developed by an international panel of exercise experts and is designed to improve the reporting of exercise programs in all evaluative study designs. In our study, the CERT, in conjunction with the TIDieR-Rehab checklist, will aim to provide a comprehensive assessment of reporting and characterise the essential elements of physical therapy interventions in terms of their reproducibility.

Collating, Summarizing, and Reporting Results

- 7 All analyses will be conducted in Excel 2019 (Microsoft Corporation, Redmond, WA).

The physical therapy/physiotherapy interventions will be categorised under the following headings:

Pathomechanical

Interventions

1. Osteokinematic interventions
2. Soft tissue interventions

Motor-behavioural

Interventions

1. Neuromuscular inhibition interventions
2. Muscle-strengthening interventions
3. Balance interventions
4. Altered movement pattern interventions

Sensory-perceptual

Interventions

1. Pain interventions
2. Somatosensation interventions

The proportion of studies including each of the intervention types listed above will be calculated.

Additionally, categories of interventions may emerge based upon the data charting process. The proportion of studies including each of the intervention types listed above will be calculated. The physical therapy/physiotherapy interventions described in the included studies will be analysed using both the TIDieR-rehab and CERT. This will enable the authors (of the present scoping review) to describe the core elements of the physical therapy/physiotherapy interventions that are reproducible and irreproducible.



Funding

- 8 There is no funder or sponsor associated with this scoping review.