Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Effects of Alfredson and Silbernagel exercise therapy on pain, range of motion, and muscle performance among athletes with Achilles tendinopathy.

Protocol summary

Study aim
To determine the effects of Alfredson and Silbernagel exercise therapy on pain, range of motion, and muscle performance among athletes with Achilles tendinopathy.

Design
The study design will be a Randomized Clinical Trial (RCT).

Settings and conduct
The study will be conducted in • Pakistan Sports Board, • Rangers Hospital • CMH Lahore Study duration= 12 months

Participants/Inclusion and exclusion criteria
Inclusion Criteria: • Both male and female athletes • Age between 18 to 30 years • Duration of playing at least 1 to 2 years • Athletes with chronic Achilles tendinopathy for more than 3 months • Participating in sports involving Achilles tendon loading (i.e., sports characterized by walking, running, and/or jumping) Exclusion Criteria: • Corticosteroid injections in the region of the Achilles tendon in the previous 12 months • Any neurological disease • History of fracture • Players having any co-morbidities • Athletes have systemic diseases that can hinder training • Any surgery in the lower limb region in the past two years

Intervention groups
Group A (Alfredson Protocol): Participants will follow a 12-week eccentric exercise program, performed twice daily. It includes 4 exercises targeting Achilles tendinopathy: - Straight-knee eccentric heel drops - Bent-knee eccentric heel drops - Isometric holds during heel raises - Calf raises Group B (Silbernagel Protocol): Participants will follow a 12-week mixed-mode program performed once daily, focusing on concentric, eccentric, and plyometric exercises: - Isometric heel raises - Concentric + eccentric heel raises - Plyometric hopping exercises and sport-specific drills Progression is also achieved by adding a 5 kg load as tolerated in both protocols.

Main outcome variables
Data collection tools for, Pain= NPRS ROM= Goniometry Muscle performance calf raise test and hop test Achilles Tendinopathy= VISA-A questionnaire

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20250525065886N1**
Registration date: **2025-05-26, 1404/03/05**
Registration timing: **registered_while_recruiting**

Last update: **2025-05-26, 1404/03/05**
Update count: **0**

Registration date
2025-05-26, 1404/03/05

Registrant information

Name
Laiba Rizwan

Name of organization / entity
Riphah International University, Gulberg Green Campus, Gulberg-III, Lahore, Punjab, Pakistan

Country
Pakistan

Phone
+92 42 35960926

Email address
l.rizwann2@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2024-07-07, 1403/04/17

Expected recruitment end date
2025-07-22, 1404/04/31
Actual recruitment start date
2025-01-15, 1403/10/26
Actual recruitment end date
2025-08-25, 1404/06/03
Trial completion date
2025-08-28, 1404/06/06

Scientific title
Effects of Alfredson and Silbernagel exercise therapy on pain, range of motion, and muscle performance among athletes with Achilles tendinopathy.

Public title
Alfredson and Silbernagel exercises in athletes with Achilles tendinopathy
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Both male and female athletes Age between 18 to 30 years Duration of playing at least 1 to 2 years Athletes with chronic Achilles tendinopathy for more than 3 months Participating in sports involving Achilles tendon loading (i.e., sports characterized by walking, running, and/or jumping)
Exclusion criteria:
Corticosteroid injections in the region of the Achilles tendon in the previous 12 months Any neurological disease History of fracture Players having any co-morbidities Athletes have systemic diseases that can hinder training Any surgery in the lower limb region in the past two years
Age
From **18 years** old to **30 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Participant

Sample size
Target sample size: **30**
Actual sample size reached: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
Participants will be randomly assigned to two groups using the sealed envelope method to ensure allocation concealment and reduce bias. A set of numbered envelopes will be prepared, each containing a predetermined treatment assignment. Upon obtaining patient consent, Group A will receive Alfredson exercises, while Group B will follow the Silbernagel exercise protocol.
Blinding (investigator's opinion)
Single blinded
Blinding description
Blinding in this study means that participants will not be told which treatment group they are in or what treatment they will get. This will be done using the sealed envelope method so it will be a single-blind study.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Riphah College of Rehabilitation and Allied Health Sciences
Street address
26-M Gulberg-3 Campus Lahore
City
Lahore
Postal code
05450
Approval date
2024-07-30, 1403/05/09
Ethics committee reference number
REC/RCR & AHS/24/0469

Health conditions studied

1

Description of health condition studied
Achilles Tendinopathy
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Pain. Range of motion and Muscle performance
Timepoint
Baseline and after 12 weeks.
Method of measurement
NPRS, Goniometry, Calf Raise Test, Hop Test, VISA-A Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Group A – Alfredson Protocol. After

basic stretching and mobility exercises, participants performed a 12-week eccentric training program, twice daily. It includes 4 exercises targeting Achilles tendinopathy: Weeks 1–2: Straight-knee eccentric heel drops (3×15, twice daily)Weeks 2–6: Bent-knee eccentric heel drops (3×15, twice daily)Weeks 6–8: Isometric holds during heel raises (30–45 sec hold, twice daily)Weeks 8–12: Calf raises (3×15–20, twice daily) Progression is achieved by adding 5 kg load when tolerated.

Category

Treatment - Other

2

Description

Intervention group: Group B – Silbernagel Protocol. After the same basic intervention, participants followed a 12-week combined loading program, once daily, focusing on concentric, eccentric, and plyometric exercises: Weeks 1–2: Isometric heel raises (45 sec hold × 5 reps) Weeks 2–6: Concentric + eccentric heel raises (3×15) Weeks 6–12: Plyometric hopping exercises (3×10) and sport-specific drills. Progression is also achieved by adding 5 kg load as tolerated.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center
Pakistan Sports Board Coaching Centre, Lahore

Full name of responsible person
Mr. Yasir Pirzada

Street address
PSB- Coaching Centre, Lahore

City
Lahore

Postal code
54600

Phone
+92 42 99230382

Email
infopsb@sports.gov.pk

Web page address

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Riphah International University, Gulberg Green Campus, Gulberg-III, Lahore, Punjab, Pakistan

Full name of responsible person
Dr. Danish

Street address
25 Raza Saeed Road, Bhabra Block M Gulberg III Lahore, Punjab

City
Lahore

Postal code
54660

Phone
+92 345 7946009

Email
54192@students.riphah.edu.pk

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Riphah International University, Gulberg Green Campus, Gulberg-III, Lahore, Punjab, Pakistan

Proportion provided by this source
40

Public or private sector
Private

Domestic or foreign origin
Domestic

Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding
Other

Person responsible for general inquiries

Contact

Name of organization / entity
Riphah International University, Gulberg Green Campus, Gulberg-III, Lahore, Punjab, Pakistan

Full name of responsible person
Laiba Rizwan

Position
Student

Latest degree
Bachelor

Other areas of specialty/work
Physiotherapy

Street address
25 Raza Saeed Road, Bhabra Block M Gulberg III, Lahore Punjab

City
Lahore

Province
Punjab

Postal code
54660

Phone
+92 343 7251576

Email
l.rizwann2@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity
Riphah International University, Gulberg Green Campus, Gulberg-III, Lahore, Punjab, Pakistan

Full name of responsible person
Laiba Rizwan
Position
Student
Latest degree
Master
Other areas of specialty/work
Physiotherapy
Street address
25 Raza Saeed Road, Bhabra Block M Gulberg III, Lahore Punjab
City
Lahore
Province
Punjab
Postal code
54660
Phone
+92 343 7251576
Email
l.rizwann2@gmail.com

Person responsible for updating data

Contact
Name of organization / entity
Riphah International University, Gulberg Green Campus, Gulberg-III, Lahore, Punjab, Pakistan
Full name of responsible person
Laiba Rizwan
Position
Student
Latest degree
Bachelor
Other areas of specialty/work
Physiotherapy
Street address
25 Raza Saeed Road, Bhabra Block M Gulberg III, Lahore Punjab
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Province
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Postal code
54660
Phone
+92 343 7251576
Email
l.rizwann2@gmail.com

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
Undecided - It is not yet known if there will be 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
yet to be decided, as the study will be complete in next 3 months
When the data will become available and for how long
yet to be decided, as the study will be complete in next 3 months
To whom data/document is available
To all the researchers community and clinicians
Under which criteria data/document could be used
For research purposes and evidence-based practice in clinics
From where data/document is obtainable
Google Scholar and PubMed
What processes are involved for a request to access data/document
Nil
Comments