Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The effect of six weeks of Thrower's Ten program on performance indicators and shoulder injuries prevention in Premier League volleyball players: randomized controlled trial

Protocol summary

Study aim

1. To determine the effect of Thrower's Ten exercises on upper limb explosive power, serve accuracy, shoulder joint stability and functional stability, internal and external rotation range of motion, internal and external rotation joint position sense of the shoulder joint.

Design

A randomized controlled trial with parallel groups, single-blind (outcome assessor-blinded), phase 3, on 40 male Premier League volleyball players (20 intervention, 20 control). Simple randomization was performed using Random Allocation Software, and allocation concealment was done using sequentially numbered, opaque, sealed envelopes (SNOSE).

Settings and conduct

Study conducted in Premier League volleyball halls with pre-test, 6-week intervention (Thrower's Ten vs. routine warm-up), post-test, and assessor-blinding.

Participants/Inclusion and exclusion criteria

1. Voluntary written consent 2. Male volleyball players aged 18–30 years 3. At least 2 years of regular training (≥3 sessions/week) 4. No severe injury (>3 weeks absence) in the past 6 months 5. No history of fracture or surgery affecting shoulder function 6. No local steroid injection in the past month

Intervention groups

1) 6 weeks of Thrower's Ten exercises (4 sessions/week, 10–15 min/session) as warm-up 2) routine warm-up without any structured intervention.

Main outcome variables

Upper limb explosive power; Volleyball serve accuracy; Shoulder joint stability and functional stability; Internal and external rotation range of motion; Internal and external rotation joint position sense.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260727070383N1**
Registration date: **2026-08-03, 1405/05/12**
Registration timing: **prospective**

Last update: **2026-08-03, 1405/05/12**
Update count: **0**

Registration date

2026-08-03, 1405/05/12

Registrant information

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-08-23, 1405/06/01

Expected recruitment end date

2026-10-23, 1405/08/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of six weeks of Thrower's Ten program on performance indicators and shoulder injuries prevention in Premier League volleyball players: randomized controlled trial

Public title

Effect of Thrower's Ten Exercise Program on Performance and Shoulder Injury Prevention in Volleyball Players

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria:

Voluntary consent to participate in the research. Male volleyball players with at least 2 years of regular training history in volleyball (at least 3 sessions per week). Age between 18 and 30 years. No severe injury (more than three weeks of absence from sports) in the past six months. No history of fracture or surgery in the shoulder or upper extremity that would affect shoulder joint function. No medication use, such as local steroid injection, in the past month.

Exclusion criteria:

Unwillingness to continue participation in the research. Absence in 3 consecutive sessions (during the protocol implementation). Absence in the pre-test or post-test. Occurrence of any injury during the research implementation. Performing any injury prevention or rehabilitation exercises outside the research program during the study.

Age

From **18 years** old to **30 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Data analyser

Sample size

Target sample size: **40**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization Method: Simple randomization with a 1:1 allocation ratio will be used. Unit of Randomization: The unit of randomization is individual; each participant will be independently assigned to either the experimental or control group. Stratification: Due to the relative homogeneity of the target population (male Premier League volleyball players aged 18–30) and the use of simple randomization, no stratified randomization will be performed. Randomization Tool and Sequence Generation: The random allocation sequence will be generated using specialized randomization software (Random Allocation Software version 2.0 / Sealed Envelope). After entering the participant's demographic data and unique code, the software will automatically generate a random sequence assigning each individual to either the intervention or control group. Allocation Concealment: To ensure allocation concealment and prevent selection bias, the Sequentially Numbered, Opaque, Sealed Envelopes (SNOSE) method will be employed. The allocation codes generated by the software will be placed in identical, opaque, sealed envelopes numbered sequentially (1 to 40). These envelopes will be prepared and kept by a third party not involved in the assessment or intervention process. The envelopes will be opened sequentially only after the completion of baseline (pre-test) assessments for each participant.

Blinding (investigator's opinion)

Single blinded

Blinding description

Blinding Description: Due to the nature of the exercise-based intervention, it is not feasible to blind the participants or the intervention providers (principal investigator and coaches). However, to minimize detection bias, the outcome assessor and the statistician will be blinded to group allocation. Participants: Not blinded (aware of their allocated group due to the nature of the warm-up protocol). Intervention Providers (Principal Investigator/Coaches): Not blinded (supervise the execution of the specific exercises). Outcome Assessor: Fully Blinded. All pre- and post-intervention assessments (ROM, Joint Position Sense, UQYBT, Medicine Ball Throw, and Serve Accuracy) will be performed by an independent assessor who has no knowledge of the participants' group assignments. Participants will be instructed not to reveal their training protocol to the assessor. Data Analyst: Blinded. Data will be analyzed using coded groups (e.g., Group A vs. Group B) until the final statistical analysis is completed. The allocation codes will be revealed only after the main analysis is finalized. Support Staff/Data Collectors: Blinded to group allocation. Overall, this trial is classified as a Single-Blind (Assessor-Blind) randomized controlled trial.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research Ethics Committee Of Shahid Beheshti University

Street address

Shahid beheshti university, shahid shahriari, Evin, Tehran

City

Tehran

Province

Tehran

Postal code

1983969411

Approval date

2026-07-15, 1405/04/24

Ethics committee reference number

IR.SBU.REC.1405.104

Health conditions studied

1

Description of health condition studied

Shoulder injuries in volleyball players

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Unilateral seated medicine ball throw test with a two-kilogram ball (maximum throwing distance in centimeters).

Timepoint

at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement

Upper limb explosive powerUnilateral seated medicine ball throw test with a two-kilogram ball (maximum throwing distance in centimeters).

2

Description

Volleyball serve accuracyMeasured by the AAHPER volleyball serve accuracy test (10 serves from the baseline) with scoring based on 4–1 zone system (maximum score 40).

Timepoint

at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement

Volleyball serve accuracyAmerican Alliance for Health, Physical Education, Recreation and Dance volleyball serve accuracy test consisting of ten serves from the baseline with scoring based on zones one to four (maximum score of forty).

3

Description

Shoulder joint stability and functional stabilityMeasured by the Upper Quarter Y-Balance Test (UQYBT) in three directions (superolateral, medial, inferolateral), normalized to upper limb length (%).

Timepoint

at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement

Shoulder joint stability and functional stabilityUpper Quarter Y-Balance Test in three directions (superolateral, medial, and inferolateral) normalized to upper limb length (percentage).

4

Description

Shoulder internal rotation range of motionMeasured by a Mobeemed electronic goniometer in seated position (90° shoulder abduction, 90° elbow flexion)

Timepoint

at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement

Shoulder internal rotation range of motionMobeemed electronic goniometer in seated position with shoulder at ninety degrees abduction and elbow at ninety degrees flexion (degrees).

5

Description

Shoulder external rotation range of motionMeasured by a Mobeemed electronic goniometer in seated position (90° shoulder abduction, 90° elbow flexion) – degrees.

Timepoint

at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement

Shoulder external rotation range of motionMobeemed electronic goniometer in seated position with shoulder at ninety degrees abduction and elbow at ninety degrees flexion (degrees).

6

Description

Shoulder internal rotation joint position senseMeasured by the active angle reproduction method at target angles of 30°, 45°, and 60° using a Mobeemed device – angular error in degrees.

Timepoint

at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement

Shoulder internal rotation joint position senseMobeemed electronic goniometer using active angle reproduction method at target angles of thirty, forty-five, and sixty degrees (angular error in degrees).

7

Description
Shoulder external rotation joint position senseMeasured by the active angle reproduction method at target angles of 30°, 45°, and 60° using a Mobeemed device – angular error in degrees.

Timepoint
at two time points:Pre-test: Three days before the start of the intervention (in two separate sessions with a 24-hour interval to prevent fatigue)Post-test: Three days after the completion of the 6-week intervention period

Method of measurement
Shoulder external rotation joint position senseMobeemed electronic goniometer using active angle reproduction method at target angles of thirty, forty-five, and sixty degrees (angular error in degrees).

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Participants in this group perform the Thrower's Ten exercise program for 6 weeks, 4 sessions per week (total of 24 sessions), 10–15 minutes per session, as part of their warm-up before the main volleyball training. The program consists of 6 main exercises:Diagonal Pattern D2 Extension (with elastic resistance band)Diagonal Pattern D2 Flexion (with elastic resistance band)External Rotation at 15° Abduction (with resistance band or light dumbbell)Internal Rotation at 45° Abduction (with resistance band or light dumbbell)Prone Rowing (with resistance band)Scaption with External Rotation (with light dumbbell)Equipment used: Elastic resistance bands (light to medium resistance) and dumbbells weighing 1 to 3 kilograms.Progressive overload: Exercise intensity is progressively increased based on the Borg Rating of Perceived Exertion scale (score 5 to 9). In weeks 1 to 4, the number of sets increases from 3 to 4 and repetitions from 10 to 12. Week 5 is considered a deload week with reduced volume and intensity. Week 6 continues with moderate to high intensity.Supervision: The principal investigator supervises each session to ensure correct exercise technique, form, and full range of motion.

Category
Prevention

2

Description
Control group: Participants in this group continue their usual daily warm-up routine for 6 weeks (4 sessions per week) without receiving any additional structured intervention (prevention or rehabilitation exercises). The routine warm-up includes general movements such as light jogging, static and dynamic stretching for upper and lower extremities, and general volleyball preparation exercises (including passing, serving, and light spiking) for 10–15 minutes. This group receives no specific shoulder or rotator cuff exercises. After the study completion and if the intervention proves effective, the Thrower's Ten program will also be offered to this group.

Category
N/A

Recruitment centers

1

Recruitment center

Name of recruitment center
Shahid Beheshti University

Full name of responsible person
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Sponsors / Funding sources

1

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Full name of responsible person
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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
No

Title of funding source
Shahid Beheshti University

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
shahid beheshti University
Full name of responsible person
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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
No - There is not 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
De-identified individual participant data including demographic information (age, height, weight, sports history), as well as all raw data related to primary outcome variables (scores of explosive power, serve accuracy, functional stability, range of motion, and joint position sense tests) after complete anonymization.
When the data will become available and for how long
Three months following publication of the main results. Up to two years after publication of the main results.

To whom data/document is available

Data and documents from this study will be available to all researchers affiliated with academic, research, and scientific institutions (both public and private), as well as clinical specialists (physiotherapists, sports medicine physicians) and sports coaches who provide a methodologically sound proposal and demonstrate the capacity to analyze data related to sports pathology and corrective exercises. Access for individuals working in the industry sector (e.g., sports equipment manufacturers) is also possible upon submission of a valid research proposal and approval by the ethics committee.

Under which criteria data/document could be used

Permitted Purpose of Data/Document Usage: Data and documents from this study will be made available exclusively for scientific research and educational purposes in the fields of sports pathology, corrective exercises, shoulder injury prevention, and sports biomechanics. Any commercial use, legal use, or attempts at participant re-identification are strictly prohibited. Conditions for Data/Document Usage: Submission of a formal written request to the principal investigator (corresponding author), including the title and objectives of the proposed analysis. Provision of a methodologically sound analytical proposal (specifying variables, statistical tests, and software to be used). Obtaining ethics committee approval from the requesting institution (if applicable). Signing a data confidentiality agreement, in which the requester commits to: Using the data solely for the approved purposes. Refraining from any attempt to re-identify participants. Not sharing the data with third parties without the principal investigator's written permission. Not using the data for commercial or for-profit purposes. Acknowledging the data source (citing the main research article and this proposal) in all publications and reports resulting from the received data. Providing a summary report of their analytical findings to the principal investigator upon completion of the analysis.

From where data/document is obtainable

1. Email (First Priority) Name: Dr. Amirhossein Barati (Supervisor and Principal Investigator) Email Address: ah_barati [at] sbu.ac.ir 2. Postal Mail (Second Priority) Name: Dr. Amirhossein Barati Faculty: Faculty of Sport Sciences and Health, Shahid Beheshti University Address: Shahid Shahriari Square, Daneshjou Boulevard, Shahid Chamran Highway, Tehran, Iran Postal Code: 1983969411 3. Telephone Contact (Third Priority) Faculty Phone Number: +98-21-29905824 (extension to the Faculty of Sport Sciences and Health)

What processes are involved for a request to access data/document

Step 1: Initial Request (Days 1–3) The applicant sends a formal email to the principal investigator (Dr. Amirhossein Barati). The email must include: request title, analytical proposal (objectives, variables, statistical methods, and proposed software), and identification documents proving organizational affiliation. Step 2: Initial Review by Principal Investigator (Days 4–7) The principal investigator reviews the request for completeness of documents and scientific validity of the proposal. If modifications or additional documents are required, the applicant will be asked to submit revisions within 5 working days. Step 3: Submission of Commitment and Confidentiality Forms (Days 8–10) After initial approval, the principal investigator sends the Data Confidentiality Agreement and the Formal Data Access Request Form to the applicant. The applicant must sign and return these forms, along with their institution's ethics committee approval (if required). Step 4: Final Review by the Data Access Committee (Days 11–14) In this study, the Data Access Committee consists of the principal investigator, the advisor (if any), and an independent faculty member from the Faculty of Sport Sciences and Health. This committee reviews the final request for alignment with the main study objectives and absence of conflicts of interest, and issues final approval. Step 5: Data Preparation and Delivery (Days 15–21) After final approval, the principal investigator de-identifies the requested data (removing all identifying information) and sends the data files (in Excel or CSV format) along with a Data Dictionary via email or a secure file-sharing link.

Comments