Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The Effect of a Shoulder Injury Prevention Program on Glenohumeral Range of Motion and Upper-Limb Function in Front-Crawl Swimmers

Protocol summary

Study aim
Effect of Eight Weeks of Shoulder Injury Prevention Exercises on the Range of Motion and Performance of Adolescent Swimmers

Design
This is a Phase 0, simple randomized clinical trial involving 32 swimmers, comprising an intervention group and a control group without blinding; the Excel `rand` function was used for randomization.

Settings and conduct
This study is being conducted at the Fajr Pool of Shahid Beheshti University with 32 adolescent swimmers aged 10 to 15. The intervention consists of an eight-week shoulder injury prevention program (three 20-minute sessions per week) incorporated into the warm-up routine. Range of motion will be assessed using a goniometer, and upper-limb function will be evaluated via a closed-kinetic-chain functional test.

Participants/Inclusion and exclusion criteria
Inclusion criteria: At least three regular training sessions per week; no history of spinal or upper-limb surgery; three years of swimming experience. Exclusion criteria: Age outside the specified range; presence of limb injuries.

Intervention groups
The shoulder injury prevention exercises were developed by the Oslo Sports Trauma Research Center specifically to prevent shoulder injuries. The exercise group will perform this protocol as a dry-land warm-up—consisting of three 20-minute sessions per week—over a period of eight weeks. The control group will not receive the intervention and will continue with their regular training routine.

Main outcome variables
The primary outcomes include the range of motion for internal and external rotation of the shoulder joint, upper limb functional status, and the incidence rate of sports injuries.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20240306061185N8**
Registration date: **2026-07-04, 1405/04/13**
Registration timing: **prospective**

Last update: **2026-07-04, 1405/04/13**
Update count: **0**

Registration date
2026-07-04, 1405/04/13

Registrant information

Name
Hossein Rezaei

Name of organization / entity
The University of Shahid Beheshti

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2026-07-11, 1405/04/20

Expected recruitment end date
2026-07-18, 1405/04/27

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The Effect of a Shoulder Injury Prevention Program on Glenohumeral Range of Motion and Upper-Limb Function in Front-Crawl Swimmers

Public title
shoulder injury prevention exercises for swimmers
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Having three training sessions per week Age range of 10 to 15 years No history of spinal or lower extremity issues Having three years of experience in swimming.
Exclusion criteria:
Age
From **10 years** old to **15 years** old
Gender
Male

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **32**
Randomization (investigator's opinion)
Randomized
Randomization description
In this study, simple randomization method is used and the randomization unit is "individual". Random sequence is generated in Excel software using RAND function and MOD ROW function is used for grouping. In order to observe allocation concealment, each individual's allocation code is placed in illegible and sealed envelopes after being determined in Excel.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Shahid Beheshti University Ethics Committee
Street address
Shahid Beheshti University, Shahriari square, Volanjek Town, Tehran
City
Tehran
Province
Tehran
Postal code
1983969411
Approval date
2025-10-11, 1404/07/19
Ethics committee reference number
IR.SBU.REC.1404.184

Health conditions studied

1

Description of health condition studied
preventing shoulder pain and injury
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Range of motion
Timepoint
Before the intervention and eight weeks later
Method of measurement
360-degree goniometer

2

Description
Closed-chain upper extremity functional test
Timepoint
Before the intervention and eight weeks later
Method of measurement
To perform this test, two strips are placed parallel on the ground, spaced 90 centimeters apart. The hands are positioned on the strips in a push-up stance; then, while maintaining balance on one hand, the other hand (the "moving" hand) is lifted from the ground, moved toward the hand providing support, and used to touch the strip beneath that supporting hand. The hand then returns to the initial push-up position, and the movement is repeated with the other hand. The action is performed continuously and alternately for both hands over a period of 15 seconds.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: The shoulder injury prevention exercises were developed by the Oslo Sports Trauma Research Center. The exercise group will perform this protocol as a dry-land warm-up—consisting of three 20-minute sessions per week—over an eight-week period. A 360-degree goniometer will be used to measure shoulder internal and external rotation range of motion, while a

closed-kinetic-chain functional test will be employed to assess performance during both pre-test and post-test evaluations.

Category

Prevention

2

Description

Control group: During the study period, the control group will not receive any intervention and will continue with their routine exercises; additionally, a 360-degree goniometer will be used to measure the range of motion for shoulder internal and external rotation, and a closed-chain functional test will be employed to assess performance in both the pre-test and post-test phases.

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Sports Science Laboratory of Shahid Beheshti University

Full name of responsible person

Sirus Sheikhi

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Shahid Beheshti University, Shahriari square, Volanjek Town, Tehran

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The University of Shahid Beheshti

Full name of responsible person

دکتر سید محمد حسینی

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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

The University of Shahid Beheshti

Proportion provided by this source

100

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

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

The University of Shahid Beheshti

Full name of responsible person

Hossein Rezaei

Position

PhD student

Latest degree

Master

Other areas of specialty/work

sport injury and corrective exercises

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be 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

Undecided - It is not yet known if there will be a plan to make this available