

Clinical Trial Protocol

Iranian Registry of Clinical Trials

12 Sep 2026

The effect of different dimensions of cognition on the kinematics parameters of single leg hop test in athletes with anterior cruciate ligament reconstruction

Protocol summary

Study aim

The purpose of this study was to investigate the effects of cognitive tasks with different cognitive domains, including executive function, visuospatial processing, and working memory, on lower-extremity kinematic parameters during single-leg hopping in athletes with ACLR

Design

50 samples were placed in parallel groups without cognitive tasks and with cognitive tasks (auditory Stroop task, visual-spatial task (Dots) and backward counting). Randomization and blinding were not performed in this study.

Settings and conduct

Rehabilitation Research Center, School of Rehabilitation Sciences, Ahvaz Jundishapur University of Medical Sciences,

Participants/Inclusion and exclusion criteria

Inclusion criteria: age 18–45 years; unilateral ACLR performed at least 6 months prior to testing; Tegner Activity Scale score ≥ 6 ; ability to perform jumping and rotational activities without pain; and return to pre-injury level of sports participation. Exclusion criteria included: self-reported knee instability; osteochondral lesions; neuromuscular disorders affecting the lower extremities or spine; rupture of other knee ligaments; meniscal tears greater than grade I; severe cognitive impairments; uncorrected visual or auditory deficits; use of medications affecting cognition, or neuromuscular functions; diabetes mellitus; or dermatological conditions precluding marker placement.

Intervention groups

Athletes with ACL performed the single-leg hopping test under no cognitive task conditions, along with an auditory Stroop task, a visuospatial task (Dots), and a backward counting task.

Main outcome variables

Hip, knee, and ankle joint angles in the sagittal, frontal, and transverse planes at initial contact during a single-leg hop

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260727070388N1**

Registration date: **2026-08-03, 1405/05/12**

Registration timing: **retrospective**

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

Update count: **0**

Registration date

2026-08-03, 1405/05/12

Registrant information

Name

Nahid Pirayeh

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 61 3554 3611

Email address

pirayeh-n@ajums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-07, 1402/01/18

Expected recruitment end date

2025-09-21, 1404/06/30

Actual recruitment start date

2023-04-07, 1402/01/18

Actual recruitment end date

2025-09-21, 1404/06/30

Trial completion date

empty

Scientific title

The effect of different dimensions of cognition on the kinematics parameters of single leg hop test in athletes with anterior cruciate ligament reconstruction

Public title

The effect of different dimensions of cognition on the kinematics parameters of single leg hop test in athletes with anterior cruciate ligament reconstruction

Purpose

Health service research

Inclusion/Exclusion criteria**Inclusion criteria:**

Age 18–45 years full active knee range of motion Tegner Activity Scale score ≥ 6 unilateral ACLR performed at least 6 months prior to testing ability to perform jumping and rotational activities without pain completion of a standard postoperative rehabilitation program return to pre-injury level of sports participation

Exclusion criteria:

self-reported knee instability osteochondral lesions neuromuscular disorders affecting the lower extremities or spine rupture of other knee ligaments; meniscal tears greater than grade I severe cognitive impairments uncorrected visual or auditory deficits use of medications affecting cognition, or neuromuscular functions history of lower-extremity or spinal surgery other than ACLR diabetes mellitus

Age

From **18 years** old to **45 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **50**

Actual sample size reached: **50**

Randomization (investigator's opinion)

N/A

Randomization description**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**

Ethics committee of Shiraz University of Medical Sciences

Street address

Ahvaz, Golestan, Esfand Street, Ahvaz University of Medical Sciences, University Research and Technology Center

City

Ahvaz

Province

Khouzestan

Postal code

61357-15794

Approval date

2022-12-10, 1401/09/19

Ethics committee reference number

IR.AJUMS.REC.1401.449

Health conditions studied**1****Description of health condition studied**

Anterior cruciate ligament reconstruction

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Kinematic parameters of single leg hop test

Timepoint

Before and after applying tasks with different cognitive dimensions

Method of measurement

Three-dimensional motion capture

Secondary outcomes

empty

Intervention groups**1****Description**

Participants performed the single-leg hopping test in one of four experimental conditions: hoping without a cognitive task, hoping with an auditory Stroop task, hoping with a visuospatial task, and hoping with a backward counting by 3. These interventions were performed for one session.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Rehabilitation Research Center

Full name of responsible person

Nahid Pirayeh

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Ahvaz University of Medical Sciences

Full name of responsible person

Abdullah Rafiei

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Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Ahvaz University of Medical Sciences

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

Ahvaz University of Medical Sciences

Full name of responsible person

Nahid Pirayeh

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Person responsible for updating data

Contact

Name of organization / entity

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Sharing plan**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

Study Protocol

No - There is not 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

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

Most data is shareable.

When the data will become available and for how long

Access period begins after results are published.

To whom data/document is available

The data will be available to physiotherapists.

Under which criteria data/document could be used

Researchers and physiotherapists

From where data/document is obtainable

Applicants can contact the following email for more
information: nahid_pt8287@yahoo.com

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

After authentication and if approved by the people
participating in the study, the individual can receive the
information.

Comments