

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Effectiveness of diastasis recti abdominis rehabilitation exercises on postpartum low back pain and inter-recti distance in affected women: A randomized controlled trial

Protocol summary

Study aim

This study aimed to investigate the effects of a comprehensive rehabilitation protocol for treating diastasis recti and improving postpartum low back pain, and to investigate the relationship of these changes with brain and muscle activity patterns in women with postpartum low back pain.

Design

Randomized clinical trial with three parallel arms and double-blinded.

Settings and conduct

Participants will be recruited from gynecology and obstetrics clinics, health centers, and social media platforms within Hamadan city. Initial evaluations will take place at the Sports Rehabilitation Laboratory of Bu-Ali Sina University. Before enrollment, all participants will receive clear and comprehensive information regarding the study's procedures, duration, objectives, potential benefits, and possible risks.

Participants/Inclusion and exclusion criteria

Inclusion: Women with postpartum LBP, with multiparity, and diastasis recti greater than 2 cm above, below, and umbilicus. Exclusion: cardiac and respiratory diseases, acute LBP, rheumatic spinal diseases, CNS and PNS diseases, abdominal hernia, lumbar surgery, gestational diabetes, and sports activities.

Intervention groups

Exercise Group 1: Participants will undergo a structured diastasis recti rehabilitation program incorporating progressive core-trunk exercises. Exercise Group 2: A structured rehabilitation program incorporating progressive core-trunk exercises combined with release techniques for erector spinae muscles and TLF. Control Group: Participants will maintain their usual daily routines throughout the study period.

Main outcome variables

Low back pain and disability, Inter-rectus distance, Core

muscle thickness, Thoracolumbar fascia flexibility, EMG-based core muscle activation patterns, EEG-based brain activity patterns

General information

Reason for update

Changes in study design and the number of groups to two experimental groups and one control group

Acronym

IRCT registration information

IRCT registration number: **IRCT20250104064273N1**

Registration date: **2025-10-30, 1404/08/08**

Registration timing: **prospective**

Last update: **2026-07-06, 1405/04/15**

Update count: **1**

Registration date

2025-10-30, 1404/08/08

Registrant information

Name

Nahid Bigdeli

Name of organization / entity

Bu-Ali Sina University

Country

Iran (Islamic Republic of)

Phone

+98 61 3448 1616

Email address

nahid.bigdeli@yahoo.com

Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-06-22, 1405/04/01

Expected recruitment end date

2026-12-21, 1405/09/30	Not used
Actual recruitment start date	Assignment
empty	Parallel
Actual recruitment end date	Other design features
empty	Design of Comprehensive Exercises for Diastasis Recti
Trial completion date	
empty	
Scientific title	Secondary Ids
Effectiveness of diastasis recti abdominis rehabilitation exercises on postpartum low back pain and inter-recti distance in affected women: A randomized controlled trial	empty
Public title	Ethics committees
Effect of Core exercises on postpartum low back pain and DRA	
Purpose	1
Treatment	Ethics committee
Inclusion/Exclusion criteria	Name of ethics committee
Inclusion criteria:	Research Ethics committee of Bu Ali Sina University-Hamedan
Women with postpartum low back pain Age range of 20-45 Having DRA above 2 cm in the 4.5 cm upper, below, and the umbilicus. The vaginal and caesarean delivery	Street address
Exclusion criteria:	Ahmadi Roshan Blvd., Bu Ali Sina University
Cardiovascular diseases Acute low back pain (e.g., spondylolisthesis, herniation, etc.) Rheumatic diseases of the spine CNS and PNS diseases (Parkinson, MS, etc.) Abdominal herniation low back surgery Gestational diabetes Doing sports activities	City
	Hamedan
	Province
	Hamadan
	Postal code
	65178-38695
	Approval date
	2025-10-05, 1404/07/13
	Ethics committee reference number
	IR.BASU.REC.1404.037
Age	Health conditions studied
From 18 years old to 45 years old	
Gender	1
Female	Description of health condition studied
	Diastasis recti abdominis
Phase	ICD-10 code
3	ICD-10 code description
Groups that have been masked	
- Participant - Outcome assessor - Data analyser	Primary outcomes
Sample size	
Target sample size: 90	1
Randomization (investigator's opinion)	Description
Randomized	Postpartum low back pain
Randomization description	Timepoint
In this study, subjects will be randomized based on the Random Number Generator software and then assigned to three groups based on allocation concealment using the SNOSE method. Participants will be randomly assigned to one of the experimental groups (n=2 * 30) or the control group (n=30).	Pre- and Post-test of 8 weeks intervention
Blinding (investigator's opinion)	Method of measurement
Double blinded	VAS scale
Blinding description	Secondary outcomes
The assessors and study participants are blinded to the allocation and randomization of groups. Participants will be fully informed of the study's purpose and inclusion rationale, while remaining blinded to group allocation to minimize bias and ensure methodological integrity.	
Placebo	1
	Description
	Diastasis recti abdominis
	Timepoint
	pre- and post-intervention
	Method of measurement
	Ultrasonography

2

Description

thickness of core muscles

Timepoint

pre- and post-intervention

Method of measurement

Ultrasonography

3

Description

Brain activity patterns

Timepoint

pre- and post-intervention

Method of measurement

EEG

4

Description

Core muscle activity patterns

Timepoint

pre- and post-intervention

Method of measurement

EMG

5

Description

functional disability

Timepoint

pre- and post-intervention

Method of measurement

Oswestry Questionnaire

6

Description

Postpartum Low Back Pain

Timepoint

pre- and post-intervention

Method of measurement

VAS scale

Intervention groups

1

Description

Intervention groups: 8-10 weeks of comprehensive rehabilitation exercises, including core strengthening exercises from beginner to advanced

Category

Rehabilitation

2

Description

Control group: No intervention

Category

Rehabilitation

3

Description

Intervention group: 8-10 weeks of comprehensive rehabilitation exercises, including core strengthening exercises from beginner to advanced, with release of TLF and Erector Spine.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Fatemieh Hospital

Full name of responsible person

Nahid Bigdeli

Street address

Kermanshah Street, Fatemeh Hospital

City

Hamedan

Province

Hamadan

Postal code

3869565178

Phone

+98 81 3838 1423

Email

n.bigdeli@phe.basu.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Bu Ali Sina University

Full name of responsible person

Ali Yalfani

Street address

Ahmadi Roshan Blvd, Bu Ali Sina University

City

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yalfani@basu.ac.ir

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Bu Ali Sina 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**

Bu Ali Sina University

Full name of responsible person

Nahid Bigdeli

Position

Ph.D. Student

Latest degree

Master

Other areas of specialty/work

Exercise rehabilitation and corrective exercise

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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

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

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

Title and more details about the data/document

Only data related to demographic information and outcomes will be shared.

When the data will become available and for how long

After publishing the article/articles extracted from the study

To whom data/document is available

The data can be displayed and shared upon reasonable request by the Iranian Clinical Trial Registry Center, journals, and individuals/academic researchers who are conducting research and scientific activities in this field.

Under which criteria data/document could be used

Data analysis and use of documentation can only be done on the condition that their results are stated in systematic review articles conducted by researchers and academic authors. Conditions for registering the submission of data and documentation include: 1.

Sending an email (preferably with valid academic addresses) to one of the study researchers. 2. A brief and logical explanation regarding how the data or documentation will be used. 3. Ensuring the registration of the protocol of systematic review studies that have given access to the data or documentation.

From where data/document is obtainable

By requesting from the study researcher, Nahid Bigdeli, by email n.bigdeli@phe.basu.ac.ir

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

The applicant can request details from the researchers using an email message within 7 to 10 days.

Comments