Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The comparison of flexi-bar and lumbar stability exercises on postural control of people with nonspecific low back pain

Protocol summary

Study aim
Changes in static stability indices, changes in dynamic stability, changes in pain, changes in isometric tolerance of dorsal muscles, changes in functional disability

Design
The trial included two intervention and control groups in which patients were randomly assigned to one group and only patients were kept blind to the type of treatment.The intervention group received Flexibar exercises and the control group received stabilizer exercises.

Settings and conduct
After enrollment of 30 patients with low back pain, the study was divided into intervention and control groups based on having inclusion criteria and no exclusion criteria. Initially, the variables of static and dynamic balance, functional disability, pain and isometric tolerance of the dorsal muscles of the two groups will be measured as "pre-assessment". Patients in the two groups will then be enrolled in a progressive exercise program for 10 sessionsEvery other day, then repeat the same assessments as the "next assessment" one day after treatment.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Body mass index of 20 to 25, local pain in the lumbar spine (between l1 and gluteal fold), chronic or recurrent pain for more than three months, pain intensity between 1 and 5 based on VAS scale Exclusion criteria: Diabetic neuropathy, cardiovascular disease, respiratory, orthopedic, neurological and vestibular disorders, history of spine surgery, pregnancy, history of lumbar spine injection

Intervention groups
The intervention group received Flexibar exercises and the control group received stabilizer exercises.

Main outcome variables
Static and dynamic balance; Functional disability; Pain and isometric tolerance of the dorsal muscles

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20191015045122N1**
Registration date: **2019-11-06, 1398/08/15**
Registration timing: **prospective**

Last update: **2019-11-06, 1398/08/15**
Update count: **0**

Registration date
2019-11-06, 1398/08/15

Registrant information

Name
Fatemeh Amiri doomari

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2019-11-22, 1398/09/01

Expected recruitment end date
2020-03-11, 1398/12/21

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title

The comparison of flexi-bar and lumbar stability exercises on postural control of people with nonspecific low back pain

Public title
"The comparison of the effect of flexi-bar and lumbar stability exercises in treatment of low back pain"
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
All persons aged 20 to 45 years with chronic low back pain who have chronic or recurrent pain for more than three months Local pain in the lumbar spine (between l1 and gluteal fold) Pain severity between 1 and 5 based on VAS scale BMI 20 to 25
Exclusion criteria:
History of lumbar spine injection Pregnancy History of spine surgery Orthopedic, neurological, vestibular or cardiovascular, respiratory disorders Diabetic neuropathy
Age
From **20 years** old to **45 years** old
Gender
Both

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
Simple random method: Patients were given a number according to the order of their choice; then, with the help of a draw, the patients were divided into treatment and control groups. The first number was assigned to the treatment group and the next number entered the two groups, respectively.
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 Shahid Beheshti University of Medical Sciences
Street address
Third Floor, Faculty of Medicine, Next to Taleghani Hospital, Evin, Shahid Chamran Highway, Tehran Town
City
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Province
Tehran
Postal code
1985717434
Approval date
2019-09-23, 1398/07/01
Ethics committee reference number
IR.SBMU.RETECH.REC.1398.341

Health conditions studied

1

Description of health condition studied
Nonspecific low backpain
ICD-10 code
M54.5
ICD-10 code description
Low back pain

Primary outcomes

1

Description
Static posture control
Timepoint
Before the intervention and at the end of the intervention
Method of measurement
Bertec Force plate machine

2

Description
Dynamic posture control
Timepoint
Before the intervention and at the end of the intervention
Method of measurement
Star Excursion Balance Test

Secondary outcomes

1

Description
Severity of pain
Timepoint
Before the intervention and after the intervention
Method of measurement
Visual analogue scale (VAS)

2

Description
Functional disability
Timepoint

Before the intervention and after the intervention

Method of measurement

Oswestry questionnaire

3

Description

Isometric Tolerance of the Dorsal Muscle

Timepoint

Before the intervention and after the intervention

Method of measurement

Sorensen Test

Intervention groups

1

Description

Intervention group: This group receives 20 minutes of routine physiotherapy treatment including TENS, Hot pack, US, each session, followed by 15 minutes of bike warm-up and stretching exercises including cuff, hamstring, iliopsoas and back muscles, followed by 30 minutes Flexi-Bar exercises (Flexi-Bar of an elastic rod about 7.0 mm in diameter and 5.1 meters long with two ends fluctuating. Shaking flexi-load produces vibrational excitation at a low frequency of 5 HZ). They do it progressively. These exercises include shaking the bar on the horizontal, sagittal, and frontal plates. At the end, they do stretching exercises, such as stretching the cuff muscles, hamstring, iliopsoas, and back muscles for cool down.

Category

Rehabilitation

2

Description

Control group: This group receives 20 minutes of routine physiotherapy treatment including TENS, Hot pack, US, each session, followed by 15 minutes of bike warm-up and stretching exercises including cuff, hamstring, iliopsoas and back muscles, followed by 30 minutes stability exercises including abdominal drawing-in, bridging, bird-dog exercise, Supine Dead Bugs progressively, 10 to 20 repetitions of each exercise. At the end, they do stretching exercises, such as stretching the cuff muscles, hamstring, iliopsoas, and back muscles for cool down.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Physiotherapy clinic in Shahid Beheshti Rehabilitation School

Full name of responsible person

Fatemeh Amiri Doomari

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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Full name of responsible person

Dr. Afshin Zarqi

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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

Shahid Beheshti 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
Shahid Beheshti University of Medical Sciences
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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
Not applicable
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