Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Bio Psychomotor Rehabilitation Integrating Pain Neuroscience Education and Motor Control Training Versus McKenzie Therapy in Lumbar Radiculopathy

Protocol summary

Study aim

The aim of the study is to assess how well pain, functional capacity, pain centralization and fear of movement may be improved by integrating pain neuroscience education with motor control exercises.

Design

In order to assess the benefits of bio-psychomotor rehabilitation that incorporates pain neuroscience education and motor control training to McKenzie treatments in patients having lumbar radiculopathy, this study carries out as a forward-looking, single-blind, equal groups randomized clinical experiment.

Settings and conduct

The study subjects will be evaluated at ABWA Hospital Khurrianwala, Prime Care Hospital, Fast Care Hospital and Faisal Hospital Faisalabad. This study is a single blinded study in which participants will be blinded and they will not be informed about their group allocation or which intervention is considered experimental or comparator.

Participants/Inclusion and exclusion criteria

Patients with age between 28-50 years, clinically diagnosed patients with lumbar radiculopathy and both males and females are included in this study. Participants who have a confirmed disc herniation between L4-S1 levels through MRI, have pain for at least 3 months and have a positive SLR between 40 and 70 degrees are included. Patients with fracture, trauma, inflammatory disorder, lumbar instability, scoliosis, patients with RA and other systemic diseases are excluded.

Intervention groups

Group A will receive Pain Neuroscience Education and Motor Control Training. Group B will receive McKenzie Therapy.

Main outcome variables

Numeric Pain Rating Scale to measure pain intensity Roland Morris Disability Questionnaire to measure disability Tampa Scale of Kinesiopjobia to measure fear of movement Michigan Body Map for centralization of symptoms.

General information

Reason for update

Acronym

RCT

IRCT registration information

IRCT registration number: **IRCT20260810070604N1**
Registration date: **2026-08-20, 1405/05/29**
Registration timing: **prospective**

Last update: **2026-08-20, 1405/05/29**
Update count: **0**

Registration date

2026-08-20, 1405/05/29

Registrant information

Name

Lyba Musaddiq

Name of organization / entity

Riphah International University

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Pakistan

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Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-09-01, 1405/06/10

Expected recruitment end date

2026-11-30, 1405/09/09

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Bio Psychomotor Rehabilitation Integrating Pain Neuroscience Education and Motor Control Training Versus McKenzie Therapy in Lumbar Radiculopathy

Public title

Integrated Pain Neuroscience Education and Motor Control Training Versus McKenzie Therapy in the Treatment of Lumbar Radiculopathy

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age between 28-50 years Clinically diagnosed patients with lumbar radiculopathy Both males and females were included Participants who had a confirmed disc herniation between L4-S1 levels through MRI Had pain for at least 3 months Had positive SLR between 40 and 70 degrees

Exclusion criteria:

Fracture Trauma Inflammatory disorder Lumbar instability Scoliosis Patients with RA and other systemic diseases

Age

From **28 years** old to **50 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: **36**

Randomization (investigator's opinion)

Randomized

Randomization description

Participants are randomly allocated individually into two groups (18 participants each) using computer-generated simple randomization. Group A receives PNE with Motor Control Training, while Group B receives McKenzie Theray. Allocation concealment is maintained using sequentially numbered, opaque, sealed envelopes opened after baseline assessment.

Blinding (investigator's opinion)

Single blinded

Blinding description

This is a single-blinded randomized clinical trial with two active intervention groups. Only the participants will be blinded to their group allocation and the study hypothesis. Both groups will receive physiotherapy interventions, with Group A receiving Motor Control Training with Pain Neuroscience Education and Group B receiving McKenzie Therapy. The physiotherapists and outcome assessor will not be blinded.

Placebo

Not used

Assignment

Parallel

Other design features

Parallel-group, single-blinded RCT with two active intervention groups, randomly allocated in a 1:1 ratio. Both groups will receive active physiotherapy interventions, with participants blinded to group allocation.

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research and Ethics Committee (REC)

Street address

Riphah International University Faisalabad Campus, Main Satayana Road (Adjacent to Fish Farm), Faisalabad, Pakistan

City

Faisalabad

Postal code

38090

Approval date

2026-06-04, 1405/03/14

Ethics committee reference number

RCRAHS/DPT/S26/003

Health conditions studied

1

Description of health condition studied

Lumbar radiculopathy is a clinical condition caused by irritation, inflammation or compression of a nerve root in the lumbar spine. it commonly presents with low back pain radiation into buttock and lower extremity, along with symptoms such as numbness, tingling or muscle weakness. Disc herniation and degenerative changes of the lumbar spine are common causes.

ICD-10 code

M47.816

ICD-10 code description

Spondylosis without myelopathy or radiculopathy, lumbar region

Primary outcomes

1

Description

Intensity of pain experienced by patients with lumbar radiculopathy.

Timepoint

At baseline before intervention and immediately after completion of 10 treatment sessions over 2 weeks.

Method of measurement

Numeric Pain Rating Scale to measure pain intensity. NPRS is a 11-point, unidimensional tool (0-10) where o indicates no pain, 1-3 indicates mild pain, 4-6 indicates moderate pain and 7-10 indicates severe pain.

2

Description

Level of disability and functional limitation associated with lumbar radiculopathy.

Timepoint

At baseline before intervention and immediately after completion of 10 treatment sessions over 2 weeks.

Method of measurement

Roland Morris Disability Questionnaire (RMDQ) to measure level of disability and functional limitations where 0 indicates no disability, 1-8 indicates mild disability, 9-16 indicates moderate disability and 17-24 indicates severe disability.

3

Description

Fear of movement and hesitation associated with pain in patients with lumbar radiculopathy.

Timepoint

At baseline before intervention and immediately after completion of 10 treatment sessions over 2 weeks.

Method of measurement

Tampa Scale of Kinesiophobia to measure fear of movement and hesitation of movement. The TSK score ranges from 17-68, with lower scores indicating less fear of movement and higher scores indicating greater fear of movement.

4

Description

Pain distribution and location of pain in patients with lumbar radiculopathy.

Timepoint

At baseline before intervention and immediately after completion of 10 treatment sessions over 2 weeks.

Method of measurement

Michigan Body Map for distribution and location of pain and musculoskeletal symptoms across different body regions. The MBM assesses 35 body regions, with each symptomatic region receiving a score of 1 and each non-symptomation region receiving a score of 0. The total score ranges from 0-35 where a lower score indicating fewer symptomatic body regions while a higher score indicates symptoms in more body regions.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group 1: Group A will receive Pain Neuroscience Education and Motor Control Training (PNE+MCT). Patients will receive PNE and MCT for 2 weeks with five 30 to 40 minute session per week. PNE will be given for 10-15 minutes at the beginning of each session in order to lessen fear-avoidance beliefs and explain neurophysiology of pain. MCT, which concentrated on the activation as well as coordination of deep trunk muscle groups, like the transverse abdominus and multifidus will came next. Exercises will range from basic activation (breathing, drawing in the abdomen) to muscle control (heel slides. knee bent fallout) and functional exercises (bridging, bird-dog, sit-stand) within a pain-free range.

Category

Rehabilitation

2

Description

Intervention group 2: Group B will receive McKenzie Therapy for 2 weeks, with five sessions each week lasting 20 to 30 minutes each. Lumbar extension exercises, such as prone lying down, prone on elbows and prone press-ups will be the main emphasis of the intervention repeated motions and prolonged positions determined by directional preferance. McKenzie exercises will be performed for 10 repetitions per exercise, for 3 sets per session.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Fast Care Hospital Faisalabad

Full name of responsible person

Dr. Urwa Sehar

Street address

Fast Care Hospital Faisalabad, Rehman Garden gate 2 Fish Farm, Satayana Rd, Faisalabad

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Recruitment center

Name of recruitment center

Faisal Hospital

Full name of responsible person

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4

Recruitment center
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Sponsors / Funding sources

1

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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
Academic Research
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
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Full name of responsible person
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD
The deidentified individual participant data will not be made publicly available due to participant privacy and confidentiality considerations. Data will be retained securely by the research team and used only for the purposes specified in the approved research protocol.

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
No - There is not a plan to make this available

Clinical Study Report
No - There is not a plan to make this available

Analytic Code
Not applicable

Data Dictionary
Not applicable

Title and more details about the data/document
Study Protocol and Statistical Analysis Plan for the study “Bio-Psychomotor Rehabilitation Integrating Pain Neuroscience Education and Motor Control Training versus McKenzie Therapy in Lumbar Radiculopathy” The documents will contain the study methodology, intervention procedures, outcome measures, and planned statistical analysis.

When the data will become available and for how long
The study protocol and statistical analysis plan will become available after completion of the study and publication of the study results. They will remain available thereafter for academic and research purposes.

To whom data/document is available
The documents will be available to researchers, healthcare professionals, students, and other individuals with a legitimate academic or research interest.

Under which criteria data/document could be used
The documents may be used for academic, educational, methodological, and research purposes. Requests will be reviewed by the research team to ensure that the intended use is appropriate and consistent with research and ethical requirements.

From where data/document is obtainable
The documents may be requested from the principal investigator or research team using the institutional contact information provided in the IRCT registration. Requests should be submitted through the official institutional email address.

What processes are involved for a request to access data/document
Interested individuals may submit a written request to the principal investigator or research team stating their name, affiliation, purpose of the request, and intended use of the document. The research team will review the request and provide access to eligible applicants within a reasonable period.

Comments