Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Comparison of the effect of 8 weeks of combined exercises and DNS on pain, proprioception, balance, muscular endurance, and motor control ability in men with non-specific chronic low back pain: A randomized clinical trial

Protocol summary

Study aim
The study aims to examine and compare two training methods, namely combined exercises and DNS, in improving pain, proprioception, balance, muscular endurance, and motor control ability in men with chronic non-specific low back pain.

Design
The proposed clinical trial consists of two experimental groups and one control group in a factorial design. It is a randomized, non-blinded study involving 33 patients with chronic non-specific low back pain, utilizing both pre-test and post-test assessments.

Settings and conduct
This study focuses on chronic non-specific low back pain and includes three groups: two experimental groups and one control group. A total of 33 participants will be randomly assigned to the groups and will receive the designated protocols over a period of 8 weeks. Screening, implementation, and delivery of the protocols will take place at the Bamdad Orthotics and Prosthetics Center.

Participants/Inclusion and exclusion criteria
Inclusion Criteria: Men aged 18 to 65 years with chronic non-specific low back pain lasting less than 3 months, with pain (score less than 4), no specific disease or previous surgery, adequate functional ability, no professional training or stability exercises in the past 3 months, and no medical contraindications for exercise. Exclusion Criteria: Withdrawal or absence from sessions, use of supportive devices, non-mechanical pain, use of neurological or psychiatric medications, history of spinal surgery or abnormalities, and serious diseases such as cancer, rheumatism, infections, disc herniation, or neurological and motor disorders.

Intervention groups
Experimental Group 1: Receives combined exercises Experimental Group 2: Receives DNS (Dynamic Neuromuscular Stabilization) exercises Control Group: Will not receive any intervention protocol

Main outcome variables
Pain; proprioception; balance; muscular endurance; motor control ability

General information

Reason for update

Acronym
NSCLBP

IRCT registration information
IRCT registration number: **IRCT20250604066066N1**
Registration date: **2025-11-22, 1404/09/01**
Registration timing: **retrospective**

Last update: **2025-11-22, 1404/09/01**
Update count: **0**

Registration date
2025-11-22, 1404/09/01

Registrant information

Name
Shafe Abbasi

Name of organization / entity
Allameh Tabataba'i University Tehran

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-10-21, 1404/07/29
Expected recruitment end date
2025-11-06, 1404/08/15
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparison of the effect of 8 weeks of combined exercises and DNS on pain, proprioception, balance, muscular endurance, and motor control ability in men with non-specific chronic low back pain: A randomized clinical trial

Public title
Comparison of the effects of combined exercises and DNS on pain, proprioception, balance, muscular endurance, and motor control ability in men with non-specific chronic low back pain
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
Men with chronic non-specific low back pain whose non-specific low back pain is diagnosed by a sports medicine specialist Willingness to participate in the study with written consent Participants should be between the ages of 18 and 65 At least 3 months of back pain experience No specific spinal pathology (such as disc herniation), no history of surgery or fracture, and able to perform daily activities without the need for assistive devices Having a score of 4 or higher on the pain questionnaire Lack of core stability and balance exercises for patients in the past 3 months Not engaging in professional exercise Individuals should have no exercise restrictions
Exclusion criteria:
Withdrawal of consent to continue participation in the research Use of supportive tools such as a corset or brace Incidence of Back Pain with Non-Mechanical Origins and Causes Consumers of psychiatric or other neurological medications during the research History of surgery, acute spinal injuries, and congenital postural deformities Individuals who have diseases such as cancer, osteoporosis, arthritis, urinary tract infections, rheumatism, sciatica, pelvic diseases, inflammatory diseases, herniated discs, malignant tumors, nervous system diseases, progressive motor impairment, and spinal cord injuries
Age
From **18 years** old to **65 years** old
Gender
Male

Phase
N/A
Groups that have been masked

- Participant

Sample size
Target sample size: **33**
Randomization (investigator's opinion)
Randomized
Randomization description
For the random assignment of participants, a complete list of eligible individuals was first prepared. Then, a random sequence was generated using the 'Research Randomizer' website. This sequence included random assignments to the two study groups and was created without any researcher involvement. Based on this sequence, a sealed opaque envelope containing a slip with the assigned group was prepared for each participant number. Upon arrival of each participant, the envelope corresponding to their number was opened sequentially, in a way that could not be predicted by the staff. In this way, the allocation process was entirely random, concealed, and without any researcher interference.
Blinding (investigator's opinion)
Single blinded
Blinding description
In this study, only the participants were blinded to group allocation. After randomization, each participant was placed in one of the three groups without knowledge of the type of intervention, and no explanation was given to them about the differences between the experimental and control groups. The intervention materials and instructions were presented in a way that participants could not clearly discern their group type. However, due to the nature of the study, the researchers and intervention administrators were aware of the group allocation. Therefore, the study is considered a 'single-blind' study, with only the participants being blinded.
Placebo
Not used
Assignment
Factorial
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee in Research at Allameh Tabataba'i University
Street address
Faculty of Physical Education and Sport Sciences, Pardis 2, Allameh Tabataba'i University, Opposite the West Gate of Azadi Stadium, Ali Daei Boulevard, Tehran, Iran
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Approval date
2025-09-17, 1404/06/26
Ethics committee reference number
IR/ethics.2025.86070.1317

Health conditions studied

1

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

Primary outcomes

1

Description
Pain score in patients with chronic non-specific low back pain
Timepoint
Before the intervention begins and after the intervention ends
Method of measurement
VAS questionnaire

2

Description
Deep sensory score in patients with chronic nonspecific low back pain
Timepoint
Before the intervention begins and after the intervention ends
Method of measurement
Using a goniometer by the (Newcomer) method

3

Description
Improving static balance in patients with chronic non-specific low back pain
Timepoint
Before the intervention begins and after the intervention ends
Method of measurement
Single-leg static balance test

4

Description
Improving dynamic balance in patients with chronic nonspecific low back pain
Timepoint
Before the intervention begins and after the intervention ends
Method of measurement
Y balance test

5

Description
Improving muscular endurance in patients with chronic nonspecific low back pain
Timepoint
Before the intervention begins and after the intervention ends
Method of measurement
Half sit-up test

6

Description
Improving lumbopelvic movement control ability in individuals with chronic nonspecific low back pain
Timepoint
Before the intervention begins and after the intervention ends
Method of measurement
Lumajoki motion control test

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group1: Recipient of combined exercises
Category
Rehabilitation

2

Description
Intervention group2: DNS exercises recipient
Category
Rehabilitation

3

Description
Control group: They will not receive any protocol.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Bamdad Technical Orthopedic Clinic
Full name of responsible person
Shafe Abbasi
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No. 121, 21st East St., Shohada-ye Sadeghiyeh Blvd., Sattarkhan St., Sadeghiyeh, Tehran, Iran
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Sponsors / Funding sources

1

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Grant name
Use of laboratory equipment at the Faculty of Physical Education, Allameh Tabataba'i University, Tehran
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Allameh Tabataba'i University, Tehran
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
The University of Allameh Tabatabaei
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Latest degree
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Person responsible for updating data

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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
Due to ethical considerations and adherence to participant confidentiality principles, individual participant data (IPD) from this study will not be publicly available. Additionally, according to institutional regulations and university policies, sharing raw data is not permitted. However, aggregated or analyzed data may be made available to qualified researchers upon formal request and following the necessary legal procedures.
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
Undecided - It is not yet known if there will be a plan to make this available
Analytic Code
Yes - There is 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
All data related to my study, including outcome data, research results, and relevant statistics, will be published.
When the data will become available and for how long
After completing the study
To whom data/document is available
Academic and scientific institutions, researchers and students
Under which criteria data/document could be used
By simply citing and referencing the study
From where data/document is obtainable
Researcher's email, contact number, publishing journal
What processes are involved for a request to access data/document
After sending a message to the researcher, the requesting individual will be provided with information that the researcher can publish upon reasonable request based on the purpose of the study.
Comments
The researcher cannot release specific information about the participants to protect their rights. All information that can be released is released with the aim of helping to improve health and to help other researchers.