Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

EFFECTS OF DIAPHRAGMATIC STRETCH WITH AND WITHOUT RIB CAGE MOBILIZATION ON CHEST EXPANSION, DYSPNEA, PULMONARY FUNCTION TEST AMONG COPD PATIENTS

Protocol summary

Study aim
To find the effects of diaphragmatic stretch with and without rib cage mobilization on chest expansion, dyspnea and pulmonary function test in COPD patients.

Design
36 participants will be recruited. Two parallel groups, double blinded, randomized controlled trial with pre and post assessment.

Settings and conduct
The study will be conducted in Pulmonology ward at Shalamar hospital Lahore. Participants and outcome assessor will be blinded.

Participants/Inclusion and exclusion criteria
Inclusion Criteria: • Age group of 35-55 years • Both male and female • At least history of COPD from 1 year • Decrease FEV1/FEV ratio • History of smoking.(11) Exclusion Criteria: • Acute exacerbations of COPD • COPD diagnosed at severe stage • Patients with comorbidities • Patients with other life- threatening conditions • Patients who are vitally unstable.

Intervention groups
Diaphragmatic stretch with and without rib cage mobilization. Diaphragmatic Stretch Technique with Rib Cage Mobilization: Group A will be treated with diaphragmatic stretch technique with rib cage mobilization. This treatment duration will be 10 minutes, once a day, 5 days per week for 2 weeks. Diaphragmatic Stretch Technique: Group B will be treated by diaphragmatic stretch technique only. This treatment duration will be 20 minutes, once a day, 5 days per week for 2 weeks.

Main outcome variables
Dyspnea using Modified Medical Research Council Dyspnea Scale, Chest expansion using Measuring Tape, Pulmonary Function Test using Portable Spirometer.

General information

Reason for update

Acronym
EDSWRMCEDPFTA

IRCT registration information
IRCT registration number: **IRCT20191117045462N10**
Registration date: **2023-11-30, 1402/09/09**
Registration timing: **registered_while_recruiting**

Last update: **2023-11-30, 1402/09/09**
Update count: **0**

Registration date
2023-11-30, 1402/09/09

Registrant information

Name
Wajeeha Zia

Name of organization / entity
Riphah International University

Country
Pakistan

Phone
+92 42 35126110

Email address
wajeeha_z@yahoo.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2023-11-01, 1402/08/10

Expected recruitment end date
2024-01-31, 1402/11/11

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
EFFECTS OF DIAPHRAGMATIC STRETCH WITH AND WITHOUT RIB CAGE MOBILIZATION ON CHEST EXPANSION, DYSPNEA, PULMONARY FUNCTION TEST AMONG COPD PATIENTS

Public title
EFFECTS OF DIAPHRAGMATIC STRETCH WITH AND WITHOUT RIB CAGE MOBILIZATION ON CHEST EXPANSION, DYSPNEA, PULMONARY FUNCTION TEST AMONG COPD PATIENTS

Purpose
Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:
Age group of 35-55 years Both male and female At least history of COPD from 1 year Decrease FEV1/FEV ratio History of smoking

Exclusion criteria:
Acute exacerbations of COPD COPD diagnosed at severe stage Patients with comorbidities Patients with other life-threatening conditions Patients who are vitally unstable

Age
From **35 years** old to **55 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size
Target sample size: **40**

Randomization (investigator's opinion)
Randomized

Randomization description
Convenient sampling technique will be used to recruit the COPD patients in the study and then they will be divided into two groups by simple random sampling through sealed opaque enveloped.

Blinding (investigator's opinion)
Double blinded

Blinding description
Participants will be aware of the research but they will not be aware of the groups and study hypothesis. So, we will divide the participants into two different groups and they will not have any knowledge about these techniques and objective of the study. So, the participants will be blinded. The second one assessor therapist will do the assessment before and after the treatment. So, the assessor therapist will not be aware of your objective and research project.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Riphah college of Rehabilitation & Allied Health Sciences

Street address
25 Raza Saeed road, Bhabra block M Gulberg 3, Lahore, Punjab 25-Block Lahore

City
Lahore

Postal code
54000

Approval date
2023-06-14, 1402/03/24

Ethics committee reference number
REC/RCR & AHS/23/0327

Health conditions studied

1

Description of health condition studied
Chronic Bronchitis

ICD-10 code
J41

ICD-10 code description
Simple and mucopurulent chronic bronchitis

2

Description of health condition studied
Emphysema

ICD-10 code
J43

ICD-10 code description
Emphysema

Primary outcomes

1

Description
Dyspnea

Timepoint
Pre-Post Treatment

Method of measurement
Modified Medical Research Council Dyspnea Scale (MMRC)

2

Description
Chest Expansion

Timepoint
Pre-Post Treatment

Method of measurement
Measuring Tape

3

Description
Pulmonary Function Test
Timepoint
Pre-Post Treatment
Method of measurement
Portable Spirometer

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Diaphragmatic stretch with rib cage mobilization Diaphragmatic Stretch Technique: The diaphragmatic stretch techniques will be applied on patient. Patient will be positioned in seated with your knees bent and feet flat on the floor. Place one hand on your chest, and the other on your belly. Take a deep breath in through your nose and focus on expanding your belly, allowing it to push out against your hand. Hold for a few seconds and then exhale slowly through your mouth, contracting your belly muscles as you do so. The treatment duration will be 10 minutes, once a day, 5 days per week for 2 weeks. Rib Cage Mobilization: Rib cage mobilization will be applied on patients in the seated position, the patients remained seated on the stretcher, keeping the feet on the floor, while the therapist stood in front of him or her. The patient's head (frontal region) was positioned over his or her overlapping arms, which were placed on the therapist's trunk. The therapist then positioned his or her fingertips at the costal angles (bilaterally), moving from the lateral region to the anterior midline throughout the patient's inspiration and returning to the initial position on expiration. The therapist's fingers were then placed 1 level below the rib, repeating this procedure until his or her fifth finger reached the 10th rib. This technique was then carried out toward the 1st rib, completing a treatment cycle. Another cycle was conducted after a 1-minute rest period. The treatment duration will be 20 minutes, once a day, 5 days per week for 2 weeks.
Category
Rehabilitation

2

Description
Control group: Diaphragmatic stretch Diaphragmatic Stretch Technique: The diaphragmatic stretch techniques will be applied on patient. Patient will be positioned in seated with your knees bent and feet flat on the floor. Place one hand on your chest, and the other on your belly. Take a deep breath in through your nose and focus on expanding your belly, allowing it to push out against your hand. Hold for a few seconds and then exhale slowly through your mouth, contracting your belly muscles as you do so. The treatment duration will be 10 minutes, once a day, 5 days per week for 2 weeks.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Riphah college of Rehabilitation & Allied Health Sciences
Full name of responsible person
Riphah college of Rehabilitation & Allied Health Sciences
Street address
25 Raza Saeed road, Bhabra block M Gulberg 3, Lahore, Punjab 25-Block Lahore
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Phone
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Web page address
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2

Recruitment center
Name of recruitment center
Riphah college of Rehabilitation & Allied Health Sciences
Full name of responsible person
Hamna Nasir
Street address
25 Raza Saeed road, Bhabra block M Gulberg 3, Lahore, Punjab 25-Block Lahore
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hamnaawan281@gmail.com
Web page address
https://www.riphah.edu.pk

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Riphah International University
Full name of responsible person

Wajeeha

Street address

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Web page address

Grant name

Educational

Grant code / Reference number

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

No

Title of funding source

Riphah International University

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

Riphah International University

Full name of responsible person

Hamna Nasir

Position

Student

Latest degree

Master

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

Wajeeha

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Person responsible for updating data

Contact

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Full name of responsible person

Hamna Nasir

Position

Student

Latest degree

Master

Other areas of specialty/work

Physiotherapy

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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

There is no further information.

Study Protocol

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

Statistical Analysis Plan

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

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