

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

The effects of chest physiotherapy on respiratory capacity and the rate of respiratory gas exchange during walking on the treadmill in patients with COVID-19 after the recovery stage

Protocol summary

Study aim

Evaluation of the effect of respiratory physiotherapy on pulmonary function including respiratory capacity, the tidal volume, residual volume, number of breaths, and its frequency while walking on a treadmill, O₂-CO₂ gas concentration in inhalation and exhalation, parameters related to spirometry In patients with COVID-19 in its recovery period.

Design

A clinical trial with a control group, with parallel groups, double-blind, randomized, phase 2 on 44 patients. The random table of numbers is used for randomization.

Settings and conduct

In the next stage, after assigning patients to intervention and control groups, patients in the intervention group are asked to go to the physiotherapy clinic for 10 days a week for 10 sessions and under the supervision of a physiotherapist with at least 10 years experience in respiratory physiotherapy, interventions To receive. The control group receives its routine treatments prescribed by the relevant physician.

Participants/Inclusion and exclusion criteria

Patients aged 35-55 years old who have a history of hospitalization due to COVID-19 virus. A minimum of 1 month and a maximum of 2 months have elapsed since discharge from the hospital and a positive PCR test or diagnosis of lung involvement based on CT scan of the lung at the time of hospitalization.

Intervention groups

Chest physiotherapy intervention: 1- Segmental breathing exercises for lung lobes in lying and sitting position 2- Proper posture (postural drainage) 3- Deep breathing and diaphragmatic exercises 4- Incentive spirometer 5- Controlled movement and movement and breathing exercises while riding a stationary bike In the control group, after the study phase, 10 sessions of physiotherapy will be performed as mentioned.

Main outcome variables

Tidal volume, Residual volume, FEV₁, FEV time,

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20160808029264N9**

Registration date: **2020-08-15, 1399/05/25**

Registration timing: **prospective**

Last update: **2020-08-15, 1399/05/25**

Update count: **0**

Registration date

2020-08-15, 1399/05/25

Registrant information

Name

Rasool Bagheri

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 23 3344 1022

Email address

rasool.bagheri@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-09-20, 1399/06/30

Expected recruitment end date

2021-06-20, 1400/03/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
The effects of chest physiotherapy on respiratory capacity and the rate of respiratory gas exchange during walking on the treadmill in patients with COVID-19 after the recovery stage

Public title
Effects of chest physiotherapy in COVID-19 patients with respiratory infection

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
 People with a history of hospitalization in the Hospital of Semnan University of Medical Sciences due to the COVID-19 virus. A minimum of 1 month and a maximum of 2 months from the time of discharge from the hospital Positive PCR test or diagnosis of lung involvement based on CT scan of the lung at the time of admission No drug and smoking addiction No previous history of chronic lung disease Lack of musculoskeletal diseases such as tumor fractures and ...
Exclusion criteria:
 Any aggravation of the patient's symptoms due to shortness of breath and pain in the chest and dizziness, abnormal sweating, blurred vision and nausea ... Any cases that are prohibited for performing chest physiotherapy intervention in people with this disease.

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

Gender
Both

Phase
2-3

Groups that have been masked

- Investigator
- Outcome assessor

Sample size
Target sample size: **44**

Randomization (investigator's opinion)
Randomized

Randomization description
In this study, a simple randomization method in the form of a random number table will be used. Patients with odd numbers will be assigned in the intervention group and patients with even numbers will be assigned in the control group.

Blinding (investigator's opinion)
Double blinded

Blinding description
This study is a double-blind randomized clinical trial. In this way, patients are divided into two groups by one researcher who does not interfere in the intervention and evaluation of results, and in addition, the evaluation will be performed by another researcher who is not aware of grouping.

Placebo

Not used

Assignment
Parallel

Other design features

Secondary Ids
empty

Ethics committees

1

Ethics committee
Name of ethics committee
 Ethics committee of Semnan University of Medical Sciences
Street address
 Mashahir Sq., Ghods Ave., Neuromuscular Rehabilitation Research Center.
City
 Semnan
Province
 Semnan
Postal code
 35147-99442
Approval date
 2020-07-05, 1399/04/15
Ethics committee reference number
 IR.SEMUMS.REC.1399.111

Health conditions studied

1

Description of health condition studied
Respiratory infection due to COVID-19

ICD-10 code
U07.1

ICD-10 code description
COVID-19, virus identified

Primary outcomes

1

Description
Tidal volume, residual volume and other lung volumes while resting and running on a treadmill

Timepoint
Before and after the physiotherapy intervention

Method of measurement
Spirometry device

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Chest physiotherapy intervention 5 days in a week for 10 sessions: 1- Segmental breathing exercises for lung lobes in lying and sitting position 2- Proper posture (postural drainage) 3- Deep breathing and diaphragmatic exercises 4- Incentive spirometer 5- Controlled movement and movement and breathing exercises while riding a stationary bike.

Category

Rehabilitation

2

Description

Control group: Standard treatments include medications prescribed for the disease as directed by the treating physician. In the control group, after the study phase, 10 sessions of physiotherapy will be performed as mentioned in the intervention group.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Kowsar Hospital

Full name of responsible person

Dr. Mohammad Memarian

Street address

Basij Ave., Kosar Hospital

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draria2014@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Semnan University of Medical Sciences

Full name of responsible person

Dr Parviz Kokhaei

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Basij Ave., Deputy of research and technology

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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

Semnan 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

Semnan University of Medical Sciences

Full name of responsible person

Dr Rasool Bagheri

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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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

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