Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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)
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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

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Basij Ave., Kosar Hospital

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Semnan University of Medical Sciences

Full name of responsible person
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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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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