

Clinical Trial Protocol

Iranian Registry of Clinical Trials

09 Jun 2026

Investigating the effect of aerobic exercise on immune and inflammatory indicators in patients improved from COVID-19

Protocol summary

Study aim

The effect of aerobic activity on immune and inflammatory system indicators in recovered patients of COVID-19

Design

This research is a clinical trial, semi-experimental field type. Among the male patients recovered from COVID-19, 24 people are voluntarily selected under the supervision of a doctor specializing in infectious diseases and based on the inclusion criteria. Volunteers are placed in two groups of aerobic exercise and control based on a simple random method and in the form of a lottery.

Settings and conduct

Place of study: Khorramshahr University of Marine Sciences and Techniques, study population: patients with COVID-19, blinding is not done in this study.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Male patients recovered from COVID-19; Maximum oxygen consumption at least 25; Ability to participate in the training program; No other diseases. Non-inclusion criteria: having sports activity during the last 6 months; taking medication

Intervention groups

Intervention group: Aerobic exercise group that implements the aerobic exercise protocol including 3 sessions per week for eight weeks with an intensity of 50 to 70% of the reserve heart rate. Control group: who do not perform any regular physical activity during the training period.

Main outcome variables

Interleukin 6 (IL-6); Interleukin 10 (IL-10); C-Reactive Protein (CRP); Leukocytes; Lymphocytes; Neutrophils; Monocytes

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20221012056156N1**

Registration date: **2023-07-02, 1402/04/11**

Registration timing: **retrospective**

Last update: **2023-07-02, 1402/04/11**

Update count: **0**

Registration date

2023-07-02, 1402/04/11

Registrant information

Name

Davar Rezaeimanesh

Name of organization / entity

Khorramshahr university of Marine Science and Technology

Country

Iran (Islamic Republic of)

Phone

+98 61 5353 3819

Email address

d.rezaimanesh@kmsu.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-02-04, 1401/11/15

Expected recruitment end date

2023-03-11, 1401/12/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Investigating the effect of aerobic exercise on immune and inflammatory indicators in patients improved from

COVID-19

Public title

The effect of aerobic activity on recovered patients from COVID-19

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Male patients who recovered from COVID-19 VO₂ max above 25 mL/Kg.min⁻¹ Ability to participate in the training program

Exclusion criteria:

participation in sports within the past year Taking medicines Smoking and alcohol drinking Suffering from other diseases

Age

From **18 years** old to **30 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

First, calls are made in Abadan and Khorramshahr cities. Then, among the volunteers who declare their readiness, 24 are selected based on the criteria for entering the research. Subjects are placed in two groups by simple random method. In the simple random method, lottery is used. In this way, each person is assigned a number. Then the folded sheets containing the number of each candidate are placed in a container. Based on the lottery, the above numbers will be placed in two aerobic training group (12 people) and the control group (12 people), respectively.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Abadan University of Medical Sciences

Street address

At the beginning of Simeteri-e-Zulfikari

City

Abadan

Province

Khouzestan

Postal code

631981115426

Approval date

2022-09-18, 1401/06/27

Ethics committee reference number

IR.ABADANUMS.REC.1401.067

Health conditions studied

1

Description of health condition studied

COVID-19

ICD-10 code

U07.1

ICD-10 code description

COVID-19, virus identified

Primary outcomes

1

Description

IL-6 plasma levels

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

2

Description

IL-10 plasma levels

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

3

Description

C-Reactive Protein - CRP

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

4

Description

Leukocytes

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

5**Description**

Lymphocytes

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

6**Description**

Neutrophils

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

7**Description**

Monocytes

Timepoint

One day before the training protocol and 48 hours after the last training session

Method of measurement

special kit

Secondary outcomes**1****Description**

Maximum oxygen consumption

Timepoint

Before and after the intervention

Method of measurement

Rockport walking test

Intervention groups**1****Description**

Intervention group: The intensity of training in the first four weeks is 50 to 60% of the maximum reserve heart rate, and from the fifth to the eighth week, 60 to 70% of the reserve heart rate is considered. The training time started from 15 minutes in the first week and 5 minutes are added to the training time every week until the fourth week. Due to the increase in training intensity, 20 minutes will be added to the training time in the fifth week and 5 minutes will be added to the training time every week until the end of the training period.

Category

Behavior

2**Description**

Control group: they don't receive any exercise intervention.

Category

Behavior

Recruitment centers**1****Recruitment center****Name of recruitment center**

Abadan Taleghani Hospital

Full name of responsible person

Davar Rezaeimanesh

Street address

Ayatollah Taleghani Hospital; Station 12; In front of Azad University

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Abadan

Province

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6316953111

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davarrezaee@yahoo.com

Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

University of Marine Sciences and Technologies

Full name of responsible person

Davar Rezaeimanesh

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Koi-e-Asatid Street

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Khorramshahr

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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

University of Marine Sciences and Technologies

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
Khorramshahr Marine Science and Technology
University
Full name of responsible person
Davar Rezaeimanesh
Position
Faculty member
Latest degree
Ph.D.
Other areas of specialty/work
Physiology of exercise
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Person responsible for updating data

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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