Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 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
City
Abadan
Province
Khouzestan
Postal code
6316953111
Phone
+98 61 5353 1988
Email
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
Street address
Koi-e-Asatid Street
City
Khorramshahr
Province
Khouzestan
Postal code
6318911154
Phone
+98 61 5353 1938
Email
davarrezaee@yahoo.com
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

Street address

Koi-e-Asatid Street

City

Khorramshahr

Province

Khouzestan

Postal code

64199-34619

Phone

+98 61 5353 1938

Email

davarrezaee@yahoo.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

University of Marine Sciences and Technologies

Full name of responsible person

Davar Rezaeimanesh

Position

Faculty member

Latest degree

Ph.D.

Other areas of specialty/work

Physiology of exercise

Street address

Koi-e-Asatid Street

City

Khorramshahr

Province

Khouzestan

Postal code

64199-34619

Phone

+98 61 5353 1938

Email

davarrezaee@yahoo.com

Person responsible for updating data

Contact

Name of organization / entity

University of Marine Sciences and Technologies

Full name of responsible person

Davar Rezaeimanesh

Position

Faculty member

Latest degree

Ph.D.

Other areas of specialty/work

Physiology of exercise

Street address

Koi-e-Asatid Street

City

Khorramshahr

Province

Khouzestan

Postal code

64199-34619

Phone

+98 61 5353 1938

Email

davarrezaee@yahoo.com

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