Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

Evaluation of serum oxygen level following the use of three-layer, five-layer and n95 masks after intervals of 1,2,3 hours in dental students

Protocol summary

Study aim

Evaluation of serum oxygen level after using five-layer ,three-layer and n95 face masks after 1, 2 and 3 hours in dental students

Design

This cross-sectional analytical study was performed on 38 dental students of Islamic Azad University in 1401-1400 will be. Students will enter the study based on entry and exit criteria. Age and gender of students Will be registered

Settings and conduct

This cross-sectional study will be performed on 38 dental students of Islamic Azad University in 2021-2022. Students will enter the study based on entry and exit criteria. Students' age and gender will be recorded. Their arterial oxygen percentage will be measured 22 minutes before the start of the study and at rest using a pulse oximeter, Datascope (Passport 2), USA. The pulse oximeter shows the average pulse oximeter every five seconds. Pulse oximeter probe to the finger that makes the best wave Will be connected. The finger should be clean and free of henna, paint or tattoos and should not be cold. This study will be done in three days.

Participants/Inclusion and exclusion criteria

Entry Conditions : Complete health and satisfaction in the study No entry conditions: Heart, respiratory, kidney disease and smoking

Intervention groups

Control group: Evaluation of blood serum oxygen before usage of 3-layer, 5-layer and N95 face mask . Intervention group 1: Students are asked to put a three-layer mask on their face. After 1, 2 and 3 hours, their arterial oxygen level will be measured. Intervention group 2: Students are asked to put a five-layer mask on their face. After 1, 2 and 3 hours, their arterial oxygen level will be measured. Intervention group 3: Students are asked to put a N95 mask on their face. After 1, 2 and 3 hours, their arterial oxygen level will be measured.

Main outcome variables

Evaluation of blood serum oxygen before usage and then after 1, 2 and 3 hours usage of face mask.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20211021052832N1**
Registration date: **2021-11-16, 1400/08/25**
Registration timing: **registered_while_recruiting**

Last update: **2021-11-16, 1400/08/25**
Update count: **0**

Registration date

2021-11-16, 1400/08/25

Registrant information

Name

Ebrahim Fakouri joybari

Name of organization / entity

Azad tehran dental university

Country

Iran (Islamic Republic of)

Phone

+98 21 2264 9758

Email address

ebi.fakouri1987@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-11-07, 1400/08/16

Expected recruitment end date

2021-11-19, 1400/08/28

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Evaluation of serum oxygen level following the use of three-layer, five-layer and n95 masks after intervals of 1,2,3 hours in dental students

Public title

The effect of the mask on blood oxygen

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria:

Complete health satisfaction in the study

Exclusion criteria:

Heart, respiratory, kidney disease, smoking

Age

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **38**

Randomization (investigator's opinion)

N/A

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of the School of Dentistry, Islamic Azad University of Medical Sciences

Street address

No. 9, Neyestan 9th alley, Pasdaran Avenue, Tehran, Iran

City

Tehran

Province

Tehran

Postal code

1946853314

Approval date

2021-10-25, 1400/08/03

Ethics committee reference number

IR.IAU.DENTAL.REC.1400.081

Health conditions studied

1

Description of health condition studied

Blood serum oxygen level changes after using face masks.

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Blood serum oxygen level before usage of 3-layers, 5-layers and N95 face masks.

Timepoint

Before usage of 3-layers, 5-layers and N95 face masks.

Method of measurement

Pulse oximetry

2

Description

Blood serum oxygen level after 1 hour usage of 3-layers, 5-layers and N95 face masks.

Timepoint

After usage of 3-layers, 5-layers and N95 face masks for 1 hour.

Method of measurement

Pulse oximetry

3

Description

Blood serum oxygen level after 2 hours usage of 3-layers, 5-layers and N95 face masks.

Timepoint

After usage of 3-layers, 5-layers and N95 face masks for 2 hour.

Method of measurement

Pulse oximetry

4

Description

Blood serum oxygen level after 3 hours usage of 3-layers, 5-layers and N95 face masks.

Timepoint

After usage of 3-layers, 5-layers and N95 face masks for 3 hour.

Method of measurement

Pulse oximetry

Secondary outcomes

empty

Intervention groups

1

Description
Control group: Control group 1: Blood Serum oxygen level in students is measured before applying the face mask.
Category
N/A

2

Description
Intervention group 1: Students are asked to put a three-layer mask (Rainik, Iran) on their face. After 1, 2 and 3 hours, their arterial oxygen level will be measured by pulse oximeter. In the meantime, the mask will not be removed from the students' faces.
Category
Prevention

3

Description
Intervention group2 : Students are asked to put a Five-layer mask (Rainik, Iran) on their face. After 1, 2 and 3 hours, their arterial oxygen level will be measured by pulse oximeter. In the meantime, the mask will not be removed from the students' faces.
Category
Prevention

4

Description
Intervention group 3: Students are asked to put a N95 mask (Mellat Bloon, Iran) on their face. After 1, 2 and 3 hours, their arterial oxygen level will be measured by pulse oximeter. In the meantime, the mask will not be removed from the students' faces.
Category
Prevention

Recruitment centers

1

Recruitment center
Name of recruitment center
Comprehensive treatment department of the dental school
Full name of responsible person
Ebrahim fakouri juibary
Street address
No. 9, Neyestan 9th alley, Pasdaran Avenue, Tehran, Iran
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Email
Ebi.fakouri1987@yahoo.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University
Full name of responsible person
Ebrahim Fakouri Jouybari
Street address
No. 9, Neyestan 9th alley, Pasdaran Avenue, Tehran, Iran
City
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Email
ebi.fakouri1987@yahoo.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University
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
Islamic Azad University
Full name of responsible person
Ebi Fakouri Jouybari
Position
Student
Latest degree
A Level or less
Other areas of specialty/work
Dentistry
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Person responsible for scientific inquiries

Contact
Name of organization / entity
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Alireza Makkinejad
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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