Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Comparison the effect of 6 weeks of combined training with different rest intervals on serum levels of some anabolic and catabolic markers, aerobic and anaerobic performance, and strength in volleyball players

Protocol summary

Study aim

The aim of this study is to compare the effect of a concurrent training protocol with three different rest intervals on the hormonal profile and performance of young volleyball players

Design

In this clinical trial, with a randomized design, phase 4 was conducted on 48 volleyball players in 4 parallel groups with a control group, and "Random allocation" software was used for randomization. Before the test protocol, a 5 cc initial sample was taken from the subjects' elbow vein for subsequent analysis. The second sampling phase was performed within 48 hours after the end of the 6-week combined training protocol.

Settings and conduct

Blood sampling would be performed at the Shomal university Club by a technician (nurse) in 5 cc from Ulnar vein (before and 48 hours after exercise). The examiner (clinical caregiver) and the laboratory expert (responsible for evaluating blood samples) will not be aware of the content and titles of the groups.

Participants/Inclusion and exclusion criteria

- The subject must have a history of regular participation in league training for at least 3 years; - The subject must be at least 18 years old; - No previous medical history of chronic conditions such as diabetes, hypertension, cancer, myocardial infarction, persistent cough, and bronchitis; - No use of androgenic and ergogenic supplements for at least 3 months before the experiment

Intervention groups

4 groups of 12 people, including: 1. Control group (volleyball training), 2. Simultaneous cocurrent training (resistance + Aerobic) group, 3. Concurrent training (aerobic+resistance) with 3 hours of rest, 4. Concurrent training (aerobic+resistance) with 24 hours of rest

Main outcome variables

Serum levels of anabolic hormones (testosterone, growth hormone, and insulin-like growth factor), catabolic (cortisol), and performance (aerobic, anaerobic, and definite strength)

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20240513061779N2**
Registration date: **2025-12-20, 1404/09/29**
Registration timing: **registered_while_recruiting**

Last update: **2025-12-20, 1404/09/29**
Update count: **0**

Registration date

2025-12-20, 1404/09/29

Registrant information

Name

Nader Hamedchaman

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 41 3332 2230

Email address

nader.hamedchaman@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-12-06, 1404/09/15

Expected recruitment end date

2025-12-21, 1404/09/30

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparison the effect of 6 weeks of combined training with different rest intervals on serum levels of some anabolic and catabolic markers, aerobic and anaerobic performance, and strength in volleyball players

Public title
Comparison the effects of combined training with different rest intervals on anabolic and catabolic status, strength, and aerobic and anaerobic performance of volleyball players
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
A documented history of 5 years of participation in the Premier League No records of smoking Absence of previous cardiovascular disease, and no history of blood, liver, kidney, or respiratory diseases. Eligibility age at least 18 years old No use of androgenic and ergogenic supplements for at least 3 months prior to the experiment
Exclusion criteria:
Outfit the prerequisitive age range of 18 to 30 years old Athletes with new functional injuries Adding drug treatments that interfere with the hormonal profile or performance of athletes
Age
From **25 years** old to **30 years** old
Gender
Male

Phase
N/A
Groups that have been masked

- Care provider
- Outcome assessor

Sample size
Target sample size: **48**
Randomization (investigator's opinion)
Randomized
Randomization description
Block randomization with block size = 4 will be divided between the groups; the randomization list will be generated using the "Random allocation" software. So that first, the subjects will be grouped in consecutive blocks of fixed size of 4 in the order of their entry into the study. For each block, a random sequence of group assignments will be generated by specialized "Random allocation" software. This software ensures that the order of the groups within each block is completely random. Then, each new volunteer is assigned to one of the study groups based on their
Blinding (investigator's opinion)
Double blinded
Blinding description
In order to prevent the Hawthorne and Avis effect, in the present study, the examiner (clinical caregiver) and the laboratory expert (responsible for evaluating blood samples) will not be aware of the content and titles of the groups.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Sport Sciences Research Institute
Street address
No. 3, 5th Alley, Miremad Street, Motahhari Street
City
Tehran
Province
Tehran
Postal code
1587958711
Approval date
2025-07-15, 1404/04/24
Ethics committee reference number
SSRI.REC-2506-2978

Health conditions studied

1

Description of health condition studied
Hormonal profile and performance of volleyball players
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Serum testosterone levels
Timepoint
Before and 48 hours subsequent to the 8 weeks of complex training
Method of measurement
ELISA technique

2

Description
Serum cortisol levels
Timepoint
Before and 48 hours subsequent to the 8 weeks of

complex training

Method of measurement

ELISA technique

3

Description

Serum growth hormone levels

Timepoint

Before and 48 hours subsequent to the 8 weeks of complex training

Method of measurement

ELISA technique

4

Description

Serum insulin-like growth factor levels

Timepoint

Before and 48 hours subsequent to the 8 weeks of complex training

Method of measurement

ELISA technique

5

Description

Anaerobic power

Timepoint

Before and 48 hours subsequent to the 8 weeks of complex training

Method of measurement

Sargent jump test

6

Description

Aerobic training

Timepoint

Before and 48 hours subsequent to the 8 weeks of complex training

Method of measurement

1600 meter running test

7

Description

Definite strength

Timepoint

Before and 48 hours subsequent to the 8 weeks of complex training

Method of measurement

Dynamometer

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Implementation of 6 weeks of simultaneous concurrent (resistance training with 75% to 95% of 1 repetition maximum + Aerobic training with 60% to 80% maximum oxygen uptake) training + Volleyball training

Category

Treatment - Other

2

Description

Intervention group: Implementation of 6 weeks of concurrent (resistance training with 75% to 95% of 1 repetition maximum + Aerobic training with 60% to 80% maximum oxygen uptake) training with a 3-hour interval ratio + Volleyball training

Category

Treatment - Other

3

Description

Intervention group: Implementation of 6 weeks of concurrent (resistance training with 75% to 95% of 1 repetition maximum + Aerobic training with 60% to 80% maximum oxygen uptake) training with a 24-hour interval ratio + Volleyball training

Category

Treatment - Other

4

Description

Control group: Implementation of 6 weeks of volleyball training

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Volleyball club of Shomal University

Full name of responsible person

Ehsan Alizadeh

Street address

Haraz street

City

Amol

Province

Mazandaran

Postal code

۴۶۱۶۱۸۴۵۹۶

Phone

+98 11 4420 3711

Email

info@shomal.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Shomal university
Full name of responsible person
Hossein Ranjbar
Street address
Haraz street
City
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Province
Mazandaran
Postal code
۴۶۱۶۱۸۴۵۹۶
Phone
+98 11 4420 3711
Email
info@shomal.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Shomal university
Proportion provided by this source
10
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
Other

Person responsible for general inquiries

Contact
Name of organization / entity
Shomal university
Full name of responsible person
Mohammadreza Esmaelzadeh Toloee
Position
Assisstant professor
Latest degree
Ph.D.
Other areas of specialty/work
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Person responsible for scientific inquiries

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Person responsible for updating data

Contact
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Other areas of specialty/work
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD

No more information available.

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Not applicable

Title and more details about the data/document

Some of the volunteers' general characteristics, including their age, military service history, and body composition, will be shared.

When the data will become available and for how long

The access period will begin after the results are printed.

To whom data/document is available

Trainers, clubs and health centers

Under which criteria data/document could be used

Research centers can use non-personally identifiable data to conduct screenings or conduct meta-analysis studies with the aim of examining various aspects of individual health and performance

From where data/document is obtainable

Corresponding author's email address: Dr. mohammadreza esmailzadeh toloee/r48.toloee@gmail.com

What processes are involved for a request to access data/document

Send an email to the corresponding author - Check the organizational affiliation and purpose of the requester

Comments