

Clinical Trial Protocol

Iranian Registry of Clinical Trials

03 Jun 2026

The effect of Phoenix Dactylifera pollen supplementation on eccentric resistance exercise-induced delayed-onset muscle soreness in female athletes

Protocol summary

Study aim

This study aimed to investigate the effects of Phoenix Dactylifera pollen on indices of delayed-onset muscle soreness following a bout of eccentric resistance exercise.

Design

A double-blind, randomized, placebo-controlled trial

Settings and conduct

Thirty-six female athletes have participated. Participants were equally divided into groups including 100 mg of PD, 200 mg of PD and 100 mg of starch as placebo. The participant has a 10-day supplement consumption. After that, a bout of leg curl performed. The blood samples were collected before and several times after exercise (1, 2, 3, 4, day).

Participants/Inclusion and exclusion criteria

The inclusion criteria were: complete skeletal and neuromuscular health, no presence of any serious medical conditions including cardiovascular diseases, diabetes, hypertension, hepatic diseases, renal diseases and respiratory disorders, no history of food allergies, and no consumption of antioxidants or anti-inflammatory supplements. Exclusion criteria included incidence of any chronic or acute disease during the study, non-compliance with the study protocol, use of tobacco products, alcohol consumption, recent surgery or illness, and use of any medicine or dietary supplements such as antioxidant supplement (vitamin C, E,.) and anti-inflammatory drugs (aspirin subgroups) within three months prior to the study.

Intervention groups

Intervention group 1: 100 mg capsules of date pollen were consumed for 10 days and one capsule daily.
Intervention group 2: 200 mg capsules of date pollen were consumed for 10 days and one capsule daily.
Control group: 200 mg capsules of starch as placebo, consumed for 10 days and one capsule daily.

Main outcome variables

Lactate dehydrogenase, creatine kinase, alanine aminotransferase, aspartate aminotransferase, lymphocytes, neutrophils, thigh circumference, angle of leg extension and Sargent jumping

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20190103042219N2**
Registration date: **2020-05-02, 1399/02/13**
Registration timing: **retrospective**

Last update: **2020-05-02, 1399/02/13**

Update count: **0**

Registration date

2020-05-02, 1399/02/13

Registrant information

Name

Mohammad Ali Azarbayjani

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-04-13, 1399/01/25

Expected recruitment end date

2020-04-18, 1399/01/30

Actual recruitment start date

2020-04-14, 1399/01/26

Actual recruitment end date

2020-04-19, 1399/01/31

Trial completion date

2020-05-05, 1399/02/16

Scientific title

The effect of Phoenix Dactylifera pollen supplementation on eccentric resistance exercise-induced delayed-onset muscle soreness in female athletes

Public title

Phoneix Dactylifera pollen and delayed-onset muscle soreness indices

Purpose

Prevention

Inclusion/Exclusion criteria**Inclusion criteria:**

Gender: Women Athlete Present in the Department of Physical Education, Central Tehran Branch, Islamic Azad Univirsity Age limitation (22-26 years old)

Exclusion criteria:

Having chronic or acute disease Use of tobacco products Alcohol consumption Recent surgery or illness Use of any medicine or dietary supplements

Age

From **22 years** old to **26 years** old

Gender

Female

Phase

N/A

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size

Target sample size: **36**

Actual sample size reached: **36**

Randomization (investigator's opinion)

Randomized

Randomization description

Computerization was performed using a computer and a simple randomization method. The method used by the computer was that the computer selects random numbers between 0 and 1. Values less than 0.33 in the control group and values between 0.33 and 0.66 in the first intervention group (100 mg dose supplement) and values greater than 0.66 were in the second intervention group (200 mg dose supplement). Thus, 36 subjects were randomly divided into three groups.

Blinding (investigator's opinion)

Double blinded

Blinding description

The participants were identified using the codes instead of their actual names. A third party was asked to classify the participants randomly, using the (labelled) codes. Study groups had codes instead of names. The

laboratory was uninformed from name of groups and only used the codes. Groups codes were used for statistical analysis. The supplement and placebo participants were unaware of their own group label.

Placebo

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethic committee of Islamic Azad University, Gachsaran Branch

Street address

Gachsaran Branch. Islamic Azad University, Modarress Street, Gachsaran, Kohgiluyeh and Boyer-Ahmad Province, Iran.

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Postal code

7581863876

Approval date

2020-04-12, 1399/01/24

Ethics committee reference number

IR.IAU.IAUG.REC.1399.009

Health conditions studied**1****Description of health condition studied**

Delayed-onset muscle soreness

ICD-10 code

G71

ICD-10 code description

Primary disorders of muscles

Primary outcomes**1****Description**

Lactate dehydrogenase

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

ELISA Kit

2**Description**

Creatine kinase

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

ELISA Kit

3

Description

Alanine aminotransferase

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

ELISA Kit

4

Description

Aspartate aminotransferase

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

ELISA Kit

5

Description

Lymphocytes

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

ELISA Kit

6

Description

Neutrophils

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

ELISA Kit

Secondary outcomes

1

Description

Angle of leg extension

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

Goniometer

2

Description

Thigh circumference

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

Meter

3

Description

Sargent jumping

Timepoint

Before exercise, 1,2,3 and 4 days after exercise

Method of measurement

Sargent test

Intervention groups

1

Description

Intervention group 1: Phoneix Dactylifera pollen (100mg). Participants consumed the 100 mg Phoneix Dactylifera pollen supplement for 10 days (one capsule a day). Phoenix dactylifera pollen powder purchased from the agriculture ministry and extracted.

Category

Treatment - Other

2

Description

Intervention group 2: Phoneix Dactylifera pollen (200mg). Participants consumed the 200 mg Phoneix Dactylifera pollen supplement for 10 days (one capsule a day). Phoenix dactylifera pollen powder purchased from the agriculture ministry and extracted.

Category

Treatment - Other

3

Description

Control group: Starch (200mg). Participants in this group received 200 mg of starch for 10 days as placebo (1 capsule per day).

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center

Islamic Azad University, Central Tehran Branch,
Department of Exercise physiology

Full name of responsible person

Dr. Maghsoud Peeri

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
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Full name of responsible person
Dr. Ali Niazi
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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

Central Tehran Branch, 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
Central Tehran Branch, Islamic Azad University
Full name of responsible person
Dr. Mohammad Ali Azarbayjani
Position
Full professor
Latest degree

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Other areas of specialty/work

Physiology

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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

There is no further information

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available