

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The effects of combined probiotic and vitamin D supplementation on hormonal profiles, inflammatory factors and oxidative stress biomarkers in women with polycystic ovary syndrome

#### Protocol summary

##### Study aim

Objective: The aim of this study is to determine the effects of combined probiotic and vitamin D supplementation on metabolic profiles in patients with polycystic ovary syndrome

##### Design

Study design: Randomized double-blind placebo-controlled trial. Randomization will be done by the use of computer-generated random numbers. Patients will be assigned into two groups to receive combined vitamin D and probiotic supplement (n=30) or placebo (n=30).

##### Settings and conduct

Among patients with polycystic ovarian syndrome referred to Naghavi outpatient Clinic, 60 patients will be selected according to inclusion and exclusion criteria. Participants, investigators or the assessors of the outcomes are unaware of the study groups. Supplements and placebos are similar in shape and size. Fasting blood samples will be taken at baseline and 12 weeks after the intervention. At the beginning and the end of the intervention: 12 weeks.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Patients with polycystic ovary syndrome aged 18 to 40 years. Exclusion criteria: Pregnancy, lactation, adrenal hyperplasia, androgen-secreting tumors, hyperprolactinemia, thyroid dysfunction, diabetes, psychological disorders.

##### Intervention groups

Intervention group: Combined probiotic, including 2×10<sup>9</sup> Lactobacillus acidophilus, 2×10<sup>9</sup> Bifidobacterium bifidum, 2×10<sup>9</sup> Lactobacillus reuteri, 2×10<sup>9</sup> Lactobacillus fermentum daily, and vitamin D supplements (Zahravi, Tabriz, Iran), 50,000 IU vitamin D every 2 weeks, for 12 weeks orally. Control group: Probiotic and vitamin D placebo capsules (Barij essence, Kashan, Iran), probiotic placebo daily and vitamin D placebo every 2 weeks, for 12 weeks orally.

##### Main outcome variables

Outcomes: Total testosterone (primary outcome) and biomarkers of inflammation, oxidative stress and mental health parameters (secondary outcomes) will be quantified at study baseline and end-of-trial.

#### General information

##### Reason for update

correction

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20170513033941N37**

Registration date: **2018-08-18, 1397/05/27**

Registration timing: **retrospective**

Last update: **2019-10-11, 1398/07/19**

Update count: **2**

##### Registration date

2018-08-18, 1397/05/27

##### Registrant information

###### Name

Mohammadreza Sharif

###### Name of organization / entity

###### Country

Iran (Islamic Republic of)

###### Phone

+98 31 5546 3378

###### Email address

ostadmohammadi-vr@kaums.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2018-07-02, 1397/04/11

##### Expected recruitment end date

2018-07-23, 1397/05/01

**Actual recruitment start date**

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

The effects of combined probiotic and vitamin D supplementation on hormonal profiles, inflammatory factors and oxidative stress biomarkers in women with polycystic ovary syndrome

**Public title**

Effect of combined probiotic and vitamin D supplementation in the treatment of polycystic ovary syndrome

**Purpose**

Treatment

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

Inclusion criteria: Patients with polycystic ovary syndrome Individuals aged 18 to 40 years.

**Exclusion criteria:**

Pregnant women Lactation Adrenal hyperplasia Androgen-secreting tumors Hyperprolactinemia Thyroid dysfunction Diabetes Psychological or psychiatric disorders such as anxiety or depressive symptoms at the enrollment

**Age**

From **18 years** old to **40 years** old

**Gender**

Female

**Phase**

3

**Groups that have been masked**

- Participant
- Investigator
- Outcome assessor

**Sample size**

Target sample size: **60**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

To decrease potential confounding effects, all participants will have balanced randomisation. Then, participants will be allocated into two treatment groups to take either supplements or placebo. Randomization will be done by the use of computer software.

**Blinding (investigator's opinion)**

Double blinded

**Blinding description**

Randomization and allocation will be concealed from the researchers and participants until the final analyses are completed. Another person at the Naghavi outpatient clinic, who is not involved in the trial and not aware of random sequences, will be assigned the participants to the numbered bottles of capsules

**Placebo**

Used

**Assignment**

Parallel

**Other design features**

**Secondary Ids**

empty

**Ethics committees**

**1**

**Ethics committee**

**Name of ethics committee**

Ethics committee of National Institute for Medical Research Development of Iran (NIMAD)

**Street address**

National Institute for Medical Research Development of Iran, Fatemi Avenue, Tehran

**City**

Tehran

**Province**

Isfahan

**Postal code**

1419693111

**Approval date**

2018-07-01, 1397/04/10

**Ethics committee reference number**

IR.NIMAD.REC.1397.205

**Health conditions studied**

**1**

**Description of health condition studied**

Polycystic ovary syndrome

**ICD-10 code**

E28.2

**ICD-10 code description**

Polycystic ovarian syndrome

**Primary outcomes**

**1**

**Description**

Total testosterone

**Timepoint**

At the beginning of the study and after 12 weeks of intervention

**Method of measurement**

Elisa kit

**Secondary outcomes**

**1**

**Description**

SHBG

**Timepoint**

At the beginning of the study and after 12 weeks of

intervention  
**Method of measurement**  
Elisa kit

## 2

**Description**  
Hs-CRP  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Elisa kit

## 3

**Description**  
Nitric oxide  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Spectrophotometry

## 4

**Description**  
Malondialdehyde  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Spectrophotometry

## 5

**Description**  
Glutathione  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Spectrophotometry

## 6

**Description**  
Total antioxidant capacity  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Spectrophotometry

## 7

**Description**  
Beck Depression Inventory  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Questionnaire

## 8

**Description**  
General Health Questionnaire  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Questionnaire

## 9

**Description**  
DASS  
**Timepoint**  
At the beginning of the study and after 12 weeks of intervention  
**Method of measurement**  
Questionnaire

## **Intervention groups**

### 1

**Description**  
Intervention group: Combined probiotic, including 2×10<sup>9</sup> Lactobacillus acidophilus, 2×10<sup>9</sup> Bifidobacterium bifidum, 2×10<sup>9</sup> Lactobacillus reuteri, 2×10<sup>9</sup> Lactobacillus fermentum daily, and vitamin D supplements (Zahravi, Tabriz, Iran), 50,000 IU vitamin D every 2 weeks, for 12 weeks orally.  
**Category**  
Treatment - Drugs

### 2

**Description**  
Control group: Probiotic and vitamin D placebo capsules (Barij essence, Kashan, Iran), probiotic placebo daily and vitamin D placebo every 2 weeks, for 12 weeks orally.  
**Category**  
Treatment - Drugs

## **Recruitment centers**

### 1

**Recruitment center**  
**Name of recruitment center**  
Naghavi Clinic  
**Full name of responsible person**  
Mansoreh Samimi  
**Street address**  
Shahid Beheshti Avenue, Kashan  
**City**  
Kashan  
**Province**  
Isfahan  
**Postal code**  
8115187159  
**Phone**  
+98 31 4446 0180  
**Email**

## Sponsors / Funding sources

### 1

#### Sponsor

**Name of organization / entity**

National Institute for Medical Research Development of Iran (NIMAD)

**Full name of responsible person**

Dr. Reza Malekzadeh

**Street address**

National Institute for Medical Research Development of Iran, Fatemi Avenue, Tehran

**City**

Tehran

**Province**

Tehran

**Postal code**

1419693111

**Phone**

+98 21 6693 8037

**Email**

malek@tums.ac.ir

**Grant name****Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

National Institute for Medical Research Development of Iran (NIMAD)

**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**

Kashan University of Medical Sciences

**Full name of responsible person**

Zatollah Asemi

**Position**

PhD of Nutrition

**Latest degree**

Ph.D.

**Other areas of specialty/work****Street address**

Ghotbe Ravandi Boulevard, Kashan

**City**

Kashan

**Province**

Isfahan

**Postal code**

8115187159

**Phone**

+98 31 5546 3378

**Fax****Email**

asemi\_z@kaums.ac.ir

**Web page address**

## Person responsible for scientific inquiries

**Contact****Name of organization / entity**

Kashan University of Medical Sciences

**Full name of responsible person**

Zatollah Asemi

**Position**

PhD of Nutrition

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Nutrition

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Ghotbe Ravandi Boulevard, Kashan

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**Fax****Email**

asemi\_z@kaums.ac.ir

**Web page address**

## Person responsible for updating data

**Contact****Name of organization / entity**

Kashan University of Medical Sciences

**Full name of responsible person**

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+98 31 5546 3378

**Fax**

**Email**

asemi\_z@kaums.ac.ir

**Web page address**

## **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