

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

27 Jul 2026

### The effect of vitamin D3 supplementation (cholecalciferol) on nutritional status, VDR gene expression, endocrine, metabolic, and adipokine parameters in patients with benign breast tumors:Randomized controlled clinical trial

#### Protocol summary

##### Study aim

Determination of the effect of vitamin D3 (cholecalciferol) supplementation on nutritional status, gene expression, VDR, endocrine parameters, metabolic parameters, and adipokines in patients with benign breast tumors

##### Design

The patients will be classified into two intervention groups (receivers of vitamin D and placebo receivers of oral liquid paraffin) based on age, BMI, and benign type (fibrocystic masses and fibroadenomas), provided that they have no malignant characteristics confirmed by ultrasound examination.

##### Settings and conduct

The current study is a randomized controlled clinical trial. Random sampling will be conducted using a random number table, and the selected samples will be allocated to each block and group. The study will be conducted in a triple-blind manner.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria:histopathological evidence of BBT,age between 19 and 50 years,serum vitamin D deficiency,at least two years since diagnosis, willingness to cooperate and complete the informed consent form. Exclusion criteria:Malabsorption disorders,biliary tract obstruction, acute or chronic conditions, hyperthyroidism, hormonal disorders,type 1 diabetes, hypoglycemia,grade 3 obesity,a daily calorie intake of less than 500 or more than 3500 kcal/d,cystectomy,asthma, any benign lesions in other organs, pregnancy and lactation,chemotherapy,radiotherapy, or hormone therapy, use of glucocorticoid, anti-seizure, contraceptive, and HRT medications,fish liver oil more than 2000 mg per day,caffeinated pain reliever

##### Intervention groups

In the intervention group, patients will receive one pearl

of vitamin D3 50,000 IU per week for 8 weeks. In the control group, patients will receive one pearl of oral liquid paraffin per week for 8 weeks.

##### Main outcome variables

nutritional status, VDR gene expression, endocrine, metabolic, and adipokine parameters

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20100209003320N24**

Registration date: **2024-07-18, 1403/04/28**

Registration timing: **registered\_while\_recruiting**

Last update: **2024-07-18, 1403/04/28**

Update count: **0**

##### Registration date

2024-07-18, 1403/04/28

##### Registrant information

##### Name

Mehrangiz Ebrahimi mamagani

##### Name of organization / entity

Health & Nutrition faculty of Tabriz university of medical sciences

##### Country

Iran (Islamic Republic of)

##### Phone

+98 41 1335 1113

##### Email address

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##### Recruitment status

**Recruitment complete**

##### Funding source

**Expected recruitment start date**

2024-07-05, 1403/04/15

**Expected recruitment end date**

2024-11-05, 1403/08/15

**Actual recruitment start date**

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

The effect of vitamin D3 supplementation (cholecalciferol) on nutritional status, VDR gene expression, endocrine, metabolic, and adipokine parameters in patients with benign breast tumors:Randomized controlled clinical trial

**Public title**

The effect of vitamin D3 on benign breast tumor

**Purpose**

Treatment

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

Histopathological evidence of BBT (fibrocystic, fibroadenoma, etc.) Age between 19 and 50 years At least two years since diagnosis willingness to cooperate and complete the informed consent form Serum vitamin D deficiency (less than 20 ng/ml)

**Exclusion criteria:**

Malabsorption disorders (such as Crohn's disease, celiac disease), biliary tract obstruction Acute or chronic conditions (including various types of cancer, liver, kidney, and acute heart failure), hyperthyroidism, hormonal disorders prior to diagnosis (e.g., polycystic ovary syndrome (PCOS)), type 1 diabetes, hypoglycemia, adrenal gland disorders Grade 3 obesity A daily calorie intake of less than 800 or more than 3500 kcal/d Asthma Any benign lesions in other organs Pregnancy Lactation Chemotherapy Radiotherapy Hormone therapy Cystectomy surgery Use of glucocorticoid, anti-seizure, contraceptive, and HRT medications Consuming more than 2000 mg of cod liver oil Taking painkillers containing caffeine

**Age**

From **19 years** old to **50 years** old

**Gender**

Female

**Phase**

3

**Groups that have been masked**

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

**Sample size**

Target sample size: **48**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

The patients will be classified into two intervention groups (receivers of vitamin D and placebo receivers of oral liquid paraffin) based on age, BMI, and benign type (fibrocystic masses and fibroadenomas), provided that they have no malignant characteristics confirmed by ultrasound examination. Random sampling will be conducted using a random number table, and the selected samples will be allocated to each block and group.

**Blinding (investigator's opinion)**

Triple blinded

**Blinding description**

The study is designed as a triple-blind trial. Initially, random selection of the samples is conducted by the study designer, and a list is prepared. Then, the clinic staff, who are unaware of the allocation at the time of enrollment, execute this list. Participants are randomly assigned to two groups: those receiving the vitamin D supplement and those receiving the placebo (oral liquid paraffin). Blinding procedure: Participants: Are unaware of the type of supplement they receive (vitamin D or paraffin). Clinic staff: Responsible for delivering the supplements and placebos, and the packages are delivered in a uniform manner without any distinguishing labels. Laboratory personnel: Who analyze the test results, are unaware of the participants' group allocations. The supplement and placebo packages are prepared and distributed uniformly without any indication of their contents. Allocation codes are kept with the principal investigator until the end of the study, and none of the individuals involved in the study's execution are aware of these codes to minimize bias.

**Placebo**

Used

**Assignment**

Parallel

**Other design features**

**Secondary Ids**

empty

**Ethics committees**

**1**

**Ethics committee**

**Name of ethics committee**

Research Ethics Committees of Tabriz University of Medical Sciences

**Street address**

Central Building of Tabriz University of Medical Sciences, Golgasht Street, Tabriz, Iran

**City**

Tabriz

**Province**

East Azarbaijan

**Postal code**

5166/15731

**Approval date**

2024-06-12, 1403/03/23

**Ethics committee reference number**

IR.TBZMED.REC.1403.183

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

Benign breast disease

**ICD-10 code**

D24

**ICD-10 code description**

Benign neoplasm of breast

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

VDR gene expression

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

Real time RT-PCR

**2****Description**

Endocrine parameters

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

ELIZA

**3****Description**

Metabolic parameters

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

Enzymatic kits

**4****Description**

Adipokines

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

ELIZA

**Secondary outcomes****1****Description**

Nutritional status

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

A 24-hour dietary recall in three days (one holiday and two working days) and valid food frequency questionnaire

**2****Description**

Physical activity

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

Physical activity questionnaire

**3****Description**

Anthropometric status

**Timepoint**

Before the start of the intervention, 8 weeks after the start of the intervention (end of the intervention)

**Method of measurement**

Centimeter, Scale

**Intervention groups****1****Description**

Intervention group: Consume one pearl of vitamin D3 50,000 IU per week for 8 weeks. Participants will be advised to maintain their usual lifestyle, including their habitual diet. All participants will begin a two-week run-in period before starting the intervention. During this period, participants are asked not to be exposed to direct sunlight for more than 15 minutes a day. Also, they are asked not to consume eggs more than twice a week. Patients are also advised to avoid sources of omega-3 oils, nuts (such as almonds and walnuts), fatty fish, and cod liver. Avoid foods containing methylxanthine, vitamin E supplement, evening primrose oil during this period and until the end of the study. All participants will receive calcium carbonate (500 mg) together with cholecalciferol (200 IU) (Ca/VitD) from the beginning to the end of the study

**Category**

Treatment - Other

**2****Description**

Control group: One pearl of oral liquid paraffin per week for 8 weeks. In the control group, patients will receive one pearl of oral liquid paraffin per week for 8 weeks. The appearance of the placebo capsules will be identical to the vitamin D capsules in terms of color, shape, size, and packaging. Both vitamin D and placebo capsules will be obtained from Zahravi Pharmaceutical Company. Participants will be advised to maintain their

usual lifestyle, including their habitual diet. All participants will begin a two-week run-in period before starting the intervention. During this period, participants are asked not to be exposed to direct sunlight for more than 15 minutes a day. Also, they are asked not to consume eggs more than twice a week. Patients are also advised to avoid sources of omega-3 oils, nuts (such as almonds and walnuts), fatty fish, and cod liver. Avoid foods containing methylxanthine, vitamin E supplement, evening primrose oil during this period and until the end of the study. All participants will receive calcium carbonate (500 mg) together with cholecalciferol (200 IU) (Ca/VitD) from the beginning to the end of the study.

#### Category

Placebo

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Tabriz University of Medical Sciences

##### Full name of responsible person

Dr. Mehrangiz Ebrahimi-Mamagani

##### Street address

Central Building of Tabriz University of Medical Sciences, Golgasht Street, Tabriz, Iran

##### City

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ebrahimimamagani@tbzmed.ac.ir

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Tabriz University of Medical Sciences

##### Full name of responsible person

Dr. Mahdieh Abbasalizad Farhangi

##### Street address

Tabriz University of Medical Sciences, Attar Neishaburi St, Golgasht St.

##### City

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##### Province

East Azarbaijan

##### Postal code

51666-14711

##### Phone

+98 41 3335 7582

##### Email

abbasalizadm@tbzmed.ac.ir

##### Grant name

Tabriz University of Medical Sciences

##### Grant code / Reference number

##### Is the source of funding the same sponsor organization/entity?

Yes

##### Title of funding source

Tabriz University of Medical Sciences

##### 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

Tabriz University of Medical Sciences

##### Full name of responsible person

Dr. Mehrangiz Ebrahimi- Mameghani

##### Position

Professor

##### Latest degree

Ph.D.

##### Other areas of specialty/work

Nutrition

##### Street address

Faculty of Nutrition and Food Sciences, Tabriz University of Medical Sciences, Attar Neishaburi St, Golgasht St.

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## Person responsible for scientific inquiries

#### Contact

##### Name of organization / entity

Tabriz University of Medical Sciences

##### Full name of responsible person

Dr. Mehrangiz Ebrahimi- Mameghani

##### Position

professor

##### Latest degree

Ph.D.

##### Other areas of specialty/work

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**Person responsible for updating data**

**Contact**

**Name of organization / entity**

Tabriz University of Medical Sciences

**Full name of responsible person**

Sanaz Asemani

**Position**

PhD Candidate in Nutrition

**Latest degree**

Master

**Other areas of specialty/work**

Nutrition

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asemanisanaz65@gmail.com

**Sharing plan**

**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this 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**

Yes - There is a plan to make this available

**Title and more details about the data/document**

Data collected for the primary outcomes will be shared.

**When the data will become available and for how long**

The access period starts 12 months after the results are published

**To whom data/document is available**

The data will be available only to people working in scientific institutions

**Under which criteria data/document could be used**

The data of this study will be available to other researchers only for meta-analysis studies

**From where data/document is obtainable**

Sanaz Asemani, email

adress:asemanisanaz65@gmail.com Phon number:

09038553148

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

The applicant should provide a brief description of the aims and methods of Meta-analysis. His/her request will be assessed and, if agreed, the data will be emailed to the applicant. All these procedures will take no longer than 15 days.

**Comments**