Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Investigation of the Effect of Concurrent Administration of Synbiotic Supplement and Vitamin D Supplement on Liver Disease Severity, Minimal Hepatic Encephalopathy, Quality of Life, Sleep, Mental Health, and Appetite in Patients with Liver Cirrhosis: A Double-Blind Randomized Clinical Trial

Protocol summary

Study aim

The aim of this study is to investigate the effect of concurrent administration of synbiotic and vitamin D supplements on liver disease severity, minimal hepatic encephalopathy, quality of life, sleep quality, mental health, and appetite in patients with liver cirrhosis.

Design

A randomized controlled clinical trial with parallel groups, double-blind, phase 3, and the random sequence was generated using the website www.sealedenvelope.com. the final sample size was determined as 66 participants.

Settings and conduct

Patients with cirrhosis who meet the eligibility criteria and are referred to Motahari Clinic in Shiraz will enter a randomized double-blind clinical trial after obtaining informed consent, and they will be randomly allocated into two groups—intervention (vitamin D and synbiotic) and control (placebo)—for 8 weeks. The appearance and packaging of the supplement and placebo will be identical and coded, so that both the patient and the researcher are unaware of the type of intervention.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Patients with liver cirrhosis with a definite diagnosis of cirrhosis and vitamin D deficiency (less than 30 ng/ml). Exclusion criteria: Receiving synbiotic, vitamin D, or antibiotics during the past 2 to 3 months.

Intervention groups

Intervention group (A): Patients will receive a synbiotic and vitamin D for 8 weeks. Synbiotic: FamiLact 2 Plus (Zist Takhmir), 1 capsule daily after lunch. Vitamin D 50,000 IU (Zahravi): 1 capsule weekly. Control group (B): Patients will receive synbiotic placebo and vitamin D placebo for 8 weeks. FamiLact 2 Plus synbiotic placebo (starch) produced by Shiraz Faculty of Pharmacy: 1 capsule daily after lunch. Vitamin D placebo (paraffin) produced by Zahravi Pharmaceutical Company: 1 capsule weekly.

Main outcome variables

score of minimal hepatic encephalopathy؛ the severity of liver disease

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20100206003290N2**
Registration date: **2026-01-07, 1404/10/17**
Registration timing: **prospective**

Last update: **2026-01-07, 1404/10/17**
Update count: **0**

Registration date

2026-01-07, 1404/10/17

Registrant information

Name

Seyed Jalil Masoumi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 71 1233 2313

Email address

sjm@sums.ac.ir

Recruitment status

recruiting

Funding source

Expected recruitment start date
2026-01-09, 1404/10/19
Expected recruitment end date
2027-03-19, 1405/12/28
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Investigation of the Effect of Concurrent Administration of Synbiotic Supplement and Vitamin D Supplement on Liver Disease Severity, Minimal Hepatic Encephalopathy, Quality of Life, Sleep, Mental Health, and Appetite in Patients with Liver Cirrhosis: A Double-Blind Randomized Clinical Trial

Public title
Investigation of the Effect of Concurrent Administration of Synbiotic Supplement and Vitamin D Supplement in Liver Cirrhosis
Purpose
Education/Guidance
Inclusion/Exclusion criteria
Inclusion criteria:
Patients with liver cirrhosis, with a definite diagnosis of cirrhosis made by a gastroenterologist based on at least one of the following methods: Fibroscan (F4), liver biopsy, imaging (ultrasound, CT, MRI), or confirmation by a gastroenterology subspecialist. Patients with vitamin D deficiency (less than 30 nanograms per milliliter) Having at least a high-school diploma Willingness to participate in the study
Exclusion criteria:
History of alcohol consumption in the past 6 months Patients with severe complications or medical conditions that may affect the course of the study. Patients with a history of psychiatric disorders or the use of specific medications that may interfere with therapeutic effects. Receiving synbiotic as a supplement during the past 2–3 months Receiving vitamin D supplement orally during the past 2–3 months Receiving antibiotics in the past 2 weeks Pregnancy, breastfeeding
Age
From **18 years** old
Gender
Both

Phase
3
Groups that have been masked

- Participant
- Investigator

Sample size
Target sample size: **66**
Randomization (investigator's opinion)
Randomized
Randomization description
Randomization was performed using block randomization with permuted blocks and variable block sizes of 4 and 6 and an allocation ratio of 1:1. The randomization sequence was generated using the website www.sealedenvelope.com . Considering approximately 10% dropout, the final sample size was determined as 66 participants, and they were allocated to the intervention and control groups based on this sequence.
Blinding (investigator's opinion)
Double blinded
Blinding description
Allocation Concealment Mechanism: To ensure blinding of all researchers and participants, a third individual who is not involved in conducting the study will prepare the random allocation list for assigning participants to the groups. This person will label all intervention containers—identical in appearance and color—based on coded numbering. Therefore, participants will remain unaware of the type of intervention they receive, and the random sequence will be unpredictable. Double-Blind Design: The study will be conducted in a double-blind manner: both the participants and the researcher will be unaware of the type of intervention administered. All supplements and placebos will be identical in shape, color, size, and packaging
Placebo
Used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Schools of Public Health, Nutrition & Food Sciences of Shiraz Medical University
Street address
School of Nutrition and Food Sciences, opposite Bargh Sports Club, Razi Blvd, Shiraz
City
Shiraz
Province
Fars
Postal code
7153675500
Approval date
2025-10-12, 1404/07/20
Ethics committee reference number
IR.SUMS.SCHEANUT.REC.1404.104

Health conditions studied

1

Description of health condition studied
liver cirrhosis

ICD-10 code
K74.6
ICD-10 code description
Other and unspecified cirrhosis of liver

Primary outcomes

1

Description
Minimal hepatic encephalopathy
Timepoint
Measurement of minimal hepatic encephalopathy at baseline before the intervention and again two months after the intervention.
Method of measurement
Psychometric Hepatic Encephalopathy Score

2

Description
severity liver disease
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Using the calculation of the MELD index, which is a model for end-stage liver disease, it is calculated by means of three indicators, bilirubin, creatinine, and the international normalized ratio, using the formula: 0.957 × natural logarithm of creatinine + 0.378 × natural logarithm of bilirubin + 1.120 × natural logarithm of INR + 6.43

Secondary outcomes

1

Description
Mental health score
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Beck Depression Inventory-II

2

Description
score of Appetite
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Simplified Nutritional Appetite Questionnaire

3

Description
Sleep quality score
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Pittsburgh Sleep Quality Index

4

Description
Quality of life score
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Short-form-12-health-survey-questionnaire

5

Description
Physical Activity score
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Short Form International Physical Activity Questionnaire (SF-IPAQ)

6

Description
Food intake
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Three-day dietary recall

7

Description
weight
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Digital scale

8

Description
Waist Circumference
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
It is measured around the abdomen using a flexible

measuring tape.

9

Description
Height
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Participants' height is measured using a calibrated wall-mounted stadiometer, barefoot and in a standing position; the head is positioned with a direct forward gaze and the chin in a natural position (not up and not down). Height is recorded to the nearest 0.1 cm. The measurement is performed twice and the mean is used.

10

Description
Body mass index (BMI)
Timepoint
All outcomes will be measured at baseline before the intervention and again two months after the intervention.
Method of measurement
Body mass index (BMI) is calculated as weight (kg) divided by height (m) squared.

Intervention groups

1

Description
Intervention Group (A):Patients receive synbiotic and vitamin D for 8 weeks.Synbiotic: FamiLact 2 Plus (Zist Takhmir), 1 capsule daily after lunch. Vitamin D 50,000 IU (Zahravi), 1 capsule weekly.
Category
Treatment - Drugs

2

Description
Control group (B): Patients will receive synbiotic placebo and vitamin D placebo for 8 weeks. FamiLact 2 Plus synbiotic placebo (starch) produced by Shiraz Faculty of Pharmacy: 1 capsule daily after lunch. Vitamin D placebo (paraffin) produced by Zahravi Pharmaceutical Company: 1 capsule weekly.
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
Shahid Motahari Clinic
Full name of responsible person
Dr. Seyed Jalil Masoumi
Street address
Shahid Motahari Clinic, next to Namazi Hospital, Namazi Square, Shiraz
City
Shiraz
Province
Fars
Postal code
۱۴۷۳۴-۷۱۳۴۸
Phone
+98 71 3628 1442
Fax
+98 71 6328 1442
Email
gehrc@sums.ac.ir
Web page address
https://emamreza.sums.ac.ir/

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Shiraz University of Medical Sciences
Full name of responsible person
Dr. Hamid Mohammadi
Street address
Central Building of Shiraz University of Medical Sciences, opposite Palestine Street, Zand Street, Shiraz
City
Shiraz
Province
Fars
Postal code
71348-14336
Phone
+98 71 3230 5410
Fax
+98 71 3235 6996
Email
info@sums.ac.ir
Web page address
https://sums.ac.ir/
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Shiraz 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
Shiraz University of Medical Sciences
Full name of responsible person
Dr. Seyed Jalil Masoumi
Position
professor
Latest degree
Ph.D.
Other areas of specialty/work
Nutrition
Street address
School of Nutrition and Food Sciences, opposite Bargh Sports Club, Razi Boulevard, Shiraz
City
Shiraz
Province
Fars
Postal code
7153675500
Phone
+98 71 3725 1001
Fax
+98 71 3725 7288
Email
sjm@sums.ac.ir
Web page address
https://scnutrition.sums.ac.ir/

Person responsible for scientific inquiries

Contact
Name of organization / entity
Shiraz University of Medical Sciences
Full name of responsible person
Dr. Seyed Jalil Masoumi
Position
professor
Latest degree
Ph.D.
Other areas of specialty/work
Nutrition
Street address
School of Nutrition and Food Sciences, opposite Bargh Sports Club, Razi Boulevard, Shiraz
City
Shiraz
Province
Fars
Postal code
7153675541
Phone
+98 71 3725 1001
Fax
+98 71 3725 7288
Email
sjm@sums.ac.ir
Web page address
https://scnutrition.sums.ac.ir/

Person responsible for updating data

Contact
Name of organization / entity
Shiraz University of Medical Sciences
Full name of responsible person
Niloofar Ghasemi
Position
Master’s student
Latest degree
Bachelor
Other areas of specialty/work
Nutrition
Street address
School of Nutrition and Food Sciences, opposite Bargh Sports Club, Razi Boulevard, Shiraz
City
Shiraz
Province
Fars
Postal code
7153675541
Phone
+98 71 3725 1001
Fax
+98 71 3725 7288
Email
Niloofar.ghasemi80@yahoo.com
Web page address
https://scnutrition.sums.ac.ir/

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
Due to the confidential and sensitive nature of participants’ information, and in order to comply with research ethics and protect patient privacy, there is no plan to share individual participant data (IPD). All data will be used solely within the study protocol and under the supervision of the Ethics Committee.
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