Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

A Randomized Clinical Trial Comparing the Efficacy of Liraglutide and Radiofrequency Cavitation in the Management of Abdominal Obesity.

Protocol summary

Study aim
To assess the effect of liraglutide versus RF cavitation on waist circumference and on body mass index (BMI)

Design
This study is a double-blind randomized clinical trial with a before-and-after design. sixth four obese participants with abdominal obesity will be randomly assigned into two groups of 32 each using simple randomization in Microsoft Excel. one group will receive Liraglutide injections(0.6-2.4 mg/day for six months) and the other will undergo radiofrequency cavitation therapy (weekly sessions for eight weeks). the researcher and data analyst will remain blinded to group allocation. Changes in body weight, BMI, and waist circumference will be evaluated before and after the interventions

Settings and conduct
Patients visiting the teaching clinics and affiliated health centers of the Islamic Azad university of medical sciences.

Participants/Inclusion and exclusion criteria
Inclusion: adults aged 35–70 years with obesity. Exclusion: smoking, pregnancy, substance abuse, endocrine disorders (e.g., Cushing’s syndrome), cancer, chronic renal failure, alcohol consumption

Intervention groups
Control group: participants will receive Liraglutide injections (0.6-2.4 mg/day for six months). Intervention group: participants will undergo radiofrequency cavitation therapy weekly for eight weeks.

Main outcome variables
Abdominal circumference and body mass index (BMI)

General information

Reason for update

Acronym
liraCav tial

IRCT registration information
IRCT registration number: **IRCT20150706023084N30**
Registration date: **2026-05-19, 1405/02/29**
Registration timing: **registered_while_recruiting**

Last update: **2026-05-19, 1405/02/29**
Update count: **0**

Registration date
2026-05-19, 1405/02/29

Registrant information
Name
MARYAM SHIEHMORTEZA
Name of organization / entity
AZAD UNIVERSITY PHARMACEUTICAL SCIENCES
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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-11-06, 1404/08/15

Expected recruitment end date
2026-05-22, 1405/03/01

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
A Randomized Clinical Trial Comparing the Efficacy of Liraglutide and Radiofrequency Cavitation in the Management of Abdominal Obesity.

Public title

Comparison of the effects of liraglutide and radio frequency cavitaion on abdominal obesityof the effects of liraglutide and radio frequency cavitaion on abdominal obesity

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

All individuals without specific medical conditions, aged betweem 35 and 70 years Obese and have a body mass index(BMI) higher than 27

Exclusion criteria:

Pregnancy Drug abuse Obesity due to specific endocrine disorders Alcohol use Specific diseases such as cancer

Age

From **35 years** old to **70 years** old

Gender

Both

Phase

3

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **64**

Randomization (investigator's opinion)

Randomized

Randomization description

Using Microsoft Excel software, random allocation of participants into study groups was performed. for this purpose, the random number generation function in Microsoft excel was used to assign a random decimal number between 0 and 1 to each participant. these random numbers were then sorted in ascending order, and based on their order, participants were allocated to the intervention and control groups.this randomization method was applied to minimize selection bias and to ensure homogeneity of baseline characteristics between the study groups

Blinding (investigator's opinion)

Single blinded

Blinding description

Due to the difference in the type of interventions (subcutaneous liraglutide injection versus radiofrequency cavitation therapy), complete blinding of participants and treating staff is not feasible. Therefore, the outcome assessor and data analyst will be blinded to the group allocation. The outcome evaluator (measuring weight, BMI, and waist circumference) and the statistical analyst will remain unaware of patient group assignments throughout the study. Accordingly, the trial is considered double-blind (evaluator- and analyst-blinded).

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Islamic Azad University of Medical Sciences

Street address

Tehran faculty of medical sciences, Headquarters building of Islamic Azad university, Gholhak junction Amin Pabarja Street. Dr shariati st.

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Province

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1949635881

Approval date

2025-10-22, 1404/07/30

Ethics committee reference number

IR.IAU.PS.REC.1404.452

Health conditions studied

1

Description of health condition studied

Obesity

ICD-10 code

E66.9

ICD-10 code description

Obesity, unspecified

Primary outcomes

1

Description

Abdominal measurement

Timepoint

Three months

Method of measurement

By measuring tape

Secondary outcomes

empty

Intervention groups

1

Description

The intervention group consisted of 32 participants who underwent radiofrequency cavitation therapy over a period of 3 months. The treatment was performed at the Obesity and Physiotherapy Clinic of the Islamic Azad

University of Medical Sciences and consisted of one 30-minute session per week applied to the abdominal region for the reduction of abdominal fat and central obesity.Radiofrequency cavitation is a noninvasive body contouring method that utilizes ultrasound waves and radiofrequency energy to reduce localized adipose tissue and improve skin tightness. At the end of the study, the investigated parameters measured at baseline and at the completion of the treatment period were compared

Category

Treatment - Devices

2

Description

Control group: liraglutide The control group consisted of 32 participants who received daily subcutaneous injections of liraglutide for a period of 3 months. The dosing regimen was administered as follows: 0.6 mg daily during the first week, 1.2 mg daily during the second week, 1.8 mg daily during the third week, 2.4 mg daily during the fourth week, and 3 mg daily from the fifth week until the end of the study, administered via subcutaneous injection.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

endocrinology clinic of farhikhtegan hospital

Full name of responsible person

Alireza Arefzade

Street address

“Tehran, end of Sattari Street North, University Square, opposite the Central Office of Islamic Azad University. farhikhtegan hospital

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Islamic Azad University

Full name of responsible person

Dr.Farshad Hashemian

Street address

Islamic Azad university of Medical Sciences, Khaghani St., Gholhak crossroad, Shariati St.

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Grant name

vice chancellor for research of Azad university of medical science

Grant code / Reference number

معاونت پژوهشی دانشگاه علوم پزشکی آزاد تهران واحد علوم دارویی

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

Yes

Title of funding source

Islamic Azad University

Proportion provided by this source

100

Public or private sector

Private

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

Islamic Azad University

Full name of responsible person

Alireza Arefzade

Position

Assistant Prof of Endocrinology & Metabolism

Latest degree

Subspecialist

Other areas of specialty/work

Internal Medicine

Street address

Farhikhtegan hospital, opposite the Central Office of Islamic Azad University, end of North Sattari Street

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Position
Assistant Prof of Endocrinology & Metabolism

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Person responsible for updating data

Contact

Name of organization / entity
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Full name of responsible person
Maryam Shiehmorteza

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Specialist

Other areas of specialty/work
Medical Pharmacy

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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 additional information is avaiable.

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
Not applicable

Data Dictionary
Not applicable