

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Jul 2026

The effect of beet root juice consumption on blood pressure and endothelial function (FMD) of Hypertension patients.

Protocol summary

Summary

In this randomized cross-over study in hypertension volunteers, 30 healthy subjects aged 40-65 years will be selected. The purpose of this study is to investigate the effect cooked and raw beet root consumption for 15days on pro-inflammatory cytokines, lipid profile levels, flow-mediated dilatation (FMD) and Blood pressure (BP) in hypertension volunteers. Inclusion criteria: hypertensive patients whit :BMI more than 18 and less than 35kg/m² ; Systolic blood pressure (SBP) more than 100 and less than 160 mm Hg; Diastolic blood pressure (DBP) more than 50 and less than 100 mm Hg. Individuals with a history of diabetes; cardiovascular disease; liver and kidney disease as well as those with thyroid disease; pregnant and breastfeeding; individuals with dyslipidemia, metabolic and endocrine diseases and those with a vegetarian diet will be exclude. FMD measurement will done using high-frequency ultrasonography of the brachial artery, blood pressure gauge using a sphygmomanometer and the inflammatory markers (hs-CRP-ICAM-VCAM-IL-6-E-Selecti) and lipid profile levels will be measured using ELISA kits. Participants are randomly divided into two groups. And will consume 250mL cooked and raw beet rot; twice a day with breakfast and dinner for 15days,, at the beginning and end of a 15days period, above mentioned factors will be measured. And after a 2wk wash out (no consumption of beet rot) Groups will be changed and factors will be measured again.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201211109662N5**

Registration date: **2013-01-15, 1391/10/26**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2013-01-15, 1391/10/26

Registrant information

Name

Sedigheh Asgary

Name of organization / entity

Isfahan Cardiovascular Research Center ,Isfahan
Cardiovascular Research institute , Physiology Re

Country

Iran (Islamic Republic of)

Phone

+98 31 1335 9090

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Recruitment status

Recruitment complete

Funding source

Shahrekord University of Medical Sciences

Expected recruitment start date

2011-11-22, 1390/09/01

Expected recruitment end date

2012-01-21, 1390/11/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of beet root juice consumption on blood pressure and endothelial function (FMD) of Hypertension patients.

Public title

The effect of beet root juice consumption on blood pressure and endothelial function of Hypertension

patients.

Purpose
Other

Inclusion/Exclusion criteria
Inclusion criteria: hypertensive patients whit :BMI more than 18 and less than 35kg/m2 ; Systolic blood pressure (SBP) more than 100 and less than 160 mm Hg; Diastolic blood pressure (DBP) more than 50 and less than 100 mm Hg Exclusion criteria: Individuals with a history of diseases; diabetes; cardiovascular disease; liver and kidney as well as those with thyroid disease; pregnant and breastfeeding; metabolic and endocrine diseases

Age
From **40 years** old to **65 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **30**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Single blinded

Blinding description

Placebo
Not used

Assignment
Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Shahrekord University of Medical Sciences

Street address

Shahrekord Kashani Ave, Central Headquarters,
Postal Code: 8815713471

City

Shahrekord

Postal code

Approval date

2011-07-24, 1390/05/02

Ethics committee reference number

1141

Health conditions studied

1

Description of health condition studied

Blood pressure

ICD-10 code

I10-I15

ICD-10 code description

Hypertensive diseases

2

Description of health condition studied

flow-mediated dilatation (FMD)

ICD-10 code

I70-I79

ICD-10 code description

Diseases of arteries, arterioles and capillaries

Primary outcomes

1

Description

Positive changes in inflammatory markers

Timepoint

Baseline and after 15 days

Method of measurement

ELISA kit

2

Description

Positive changes in endothelial function

Timepoint

Baseline and after 15days

Method of measurement

Doppler ultrasonography

Secondary outcomes

1

Description

Decrease in blood pressure

Timepoint

Baseline and after 15 days

Method of measurement

Sphygmomanometer

2

Description

Positive changes in lipid profiles

Timepoint

Baseline and after 15days

Method of measurement

kit

3

Description

Cholesterol Level

Timepoint

Before and after15days

Method of measurement

kit

4

Description

HDL Level

Timepoint

Before and after 15 days

Method of measurement

kit

5

Description

LDL level

Timepoint

Before and after 15 days

Method of measurement

kit

6

Description

FBS level

Timepoint

Before and after 15 days

Method of measurement

kit

7

Description

nitrat level

Timepoint

Before and after 15 days

Method of measurement

kit

8

Description

nitrit Level

Timepoint

Before and after 15 days

Method of measurement

kit

9

Description

nitritoxidas level

Timepoint

Before and after 15 days

Method of measurement

kit

10

Description

Antioxidant capacity

Timepoint

Before and after 15 days

Method of measurement

kit

Intervention groups

1

Description

250 ml raw beet root juice for 15 days will be consumed

Category

Treatment - Drugs

2

Description

Group 2: 500 mg cooked beet root for 15 days will be consumed

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Sedigheh tahere Cardiovascular Research Center

Full name of responsible person

mahtab keshvari

Street address

Khorram Street, Jomhori Square

City

Isfahan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahrekord University of Medical Sciences, Medical Plants Research Center

Full name of responsible person

Mahmoud Rafeian

Street address

Shahrekord - Blvarayt Ayatollah Kashani - Staff University

City

Shahrekord

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Shahrekord University of Medical Sciences, Medical Plants Research Center

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin
Type of organization providing the funding
empty

Person responsible for general inquiries

Contact

Person responsible for scientific inquiries

Contact

Name of organization / entity
Isfahan Cardiovascular Research Center, Applied
Physiology Research Center, Isfahan University of Me
Full name of responsible person
Sedigheh Asgary
Position
Pharmacist and PhD Pharmacogenetics
Other areas of specialty/work
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Person responsible for updating data

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Mahtab keshvari
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty