

Effects of Sicilian red oranges on endothelial function and plasma antioxidant activity in adult subjects with increased cardiovascular risk

Submission date 07/02/2010	Recruitment status No longer recruiting	☒ Prospectively registered ☐ Protocol
Registration date 18/02/2010	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 19/06/2012	Condition category Circulatory System	☐ Individual participant data

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
1/2010

Study information

Scientific Title

Effects of Sicilian red oranges on endothelial function and plasma antioxidant activity in adult subjects with increased cardiovascular risk: a randomised placebo-controlled trial

Study objectives

Red oranges contain antioxidants that may improve endothelial function and plasma antioxidant capacity.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Local Ethical Committee of the University Hospital of Palermo (I) approved on the 3rd February 2010 (ref: 02/2010)

Primary study design

Interventional

Study design

Randomised 2 x 2 crossed placebo-controlled single blinded trial

Study type(s)

Quality of life

Health condition(s) or problem(s) studied

Cardiovascular and metabolic diseases

Interventions

Participants with increased cardiovascular risk will receive on two periods of 7 +/- 1 days (period 1 and 2) each with 3 days intervals, with a random order respectively 500 ml/day (250 ml twice daily [bid]) of red orange juice and 500 ml of placebo made up of orange aroma and colorant, water, 11 g of saccharose, 1 g of citric acid.

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

Endothelial function, measured as "flow mediated dilation", blood total oxidant and anti-oxidant capacity before period 1 and at the end of period 1 and 2.

Key secondary outcome(s)

1. Glycaemic profiles and variability, before period 1 and at the end of period 1 and 2
2. Different measures of leukocytes activation and of nitric oxide production, before period 1 and at the end of period 1 and 2

Completion date

31/05/2010

Eligibility

Key inclusion criteria

1. Male and female subjects
2. Range of age 18 - 70 years
3. Body mass index (BMI) greater than 28 kg/m²
4. Presence of at least two of the diagnostic criteria of the Metabolic Syndrome:
 - 4.1. Waist circumference greater than 80 cm for women and 94 cm for men
 - 4.2. Triglycerides greater than 150 mg/dl or use of lowering blood lipid drugs
 - 4.3. High density lipoproteins (HDL)-cholesterol less than 50 mg/dl for women or 40 mg/dl for men
 - 4.4. Blood pressure greater than 130 mmHg for systolic or greater than 85 mmHg for diastolic blood pressure
 - 4.5. Fasting plasma glucose greater than 100 mg/dl

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Sex

All

Key exclusion criteria

1. Type 1 or 2 diabetes
2. Gastro-intestinal, connective diseases
3. Chronic pancreatitis, liver cirrhosis, kidney stones, renal failure
4. Use of acetyl-salicylic acid (ASA), other antiplatelet drugs, statins, oral hypoglycemic drugs, nitrates, non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, drugs interfering with coagulation, supplements with vitamins and anti-oxidants
5. Pregnancy or lactation in the last six months
6. Regular sport activity
7. Denial of informed consent

Date of first enrolment

01/03/2010

Date of final enrolment

31/05/2010

Locations

Countries of recruitment

Italy

Study participating centre

Dipartimento di Medicina Interna, Malattie Cardiovascolari e Nefrourologiche

Palermo

Italy

90127

Sponsor information

Organisation

University of Palermo (Italy)

ROR

<https://ror.org/044k9ta02>

Funder(s)

Funder type

Government

Funder Name

Ministry of Education and Research (Ministero dell'Università e della Ricerca - MURST) (Italy)

Alternative Name(s)

Ministry of Education and Research, Министерство образования и науки, HM

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Estonia

Funder Name

Agrumaria Corleone s.p.a. Palermo (Italy) - provided red orange juice and placebo

Funder Name

Added 23/02/2010:

Funder Name

Onlus: Nutrition and Health (Associazione Onlus: Nutrizione e Salute) (Italy)

Results and Publications

Individual participant data (IPD) sharing plan**IPD sharing plan summary**

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/05/2012		Yes	No