Gastric digestion and amino acid absorption of pea protein

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON28566

Source Nationaal Trial Register

Brief title Protein Transition Study

Health condition

'Gastric emptying' 'amino acid absorption'

Sponsors and support

Primary sponsor: Wageningen University Source(s) of monetary or material Support: Wageningen University

Intervention

Outcome measures

Primary outcome

- 1. Post-prandial serum amino-acid concentration
- 2. Gastric emptying rate

Secondary outcome

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- 1. Postprandial glucose and insulin levels
- 2. Gastric layer formation and other product instabilities if visible
- 3. Fullness, bloating, nausea ratings obtained after each MRI measurement

Study description

Background summary

The aim of this study is to compare gastrointestinal digestion (gastric content volume changes and postprandial amino acids dynamics) between pea-protein based foods with different heat treatments and viscosity.

Study objective

We hypothesize that pea protein that has been heat treated will delay protein digestion and gastric emptying

Study design

Gastric MRI scans will be made at baseline and every 10 minutes up to 90 minutes postprandial. Post intervention blood samples will be taken per IV catheter at baseline (t = 0), 30, 60, 75, 90, 120, 150, 180, 210, 240, 270 and 300 minutes.

Intervention

Participants will ingest three 400-mL test foods containing 20g pea protein:

- Protein in suspension: 5% (5g/100g) protein suspension unheated
- Protein in suspension: 5% (5g/100g) protein suspension heated at 90°C

- Protein gel (representing the food matrix): 25% pea protein isolate gel, prepared via heating at 90°C + participants will drink water after eating the gel to consume a total of 400-mL Gastric content volume changes and appetite ratings will be measured at baseline and every ten minutes postprandial up until 90 minutes. Baseline and postprandial plasma amino-acid concentrations will be measured up to 5 hours postprandial.

Contacts

Public

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Eligibility criteria

Inclusion criteria

- Male
- Age 18 55 y
- Apparently healthy
- Normal-weight (BMI 18.5 25)

Exclusion criteria

- Pea protein allergy (self-reported)
- Gastric disorders or regular gastric complaints such as heart burn
- Use of medication which alters the normal functioning of the stomach, such as:
- o medical drug use that influences the GI tract's normal function, e.g. the motility, pH etc: among others use of proton pump inhibitors, antacids, anti-depressants etc. (judged by our study doctor)

o Medical drug use that influence the GI tract's microbiota: e.g. antibiotic use within 1 months prior to the pre-study screenings day (judged by our study doctor)

- Use of recreational drugs within 1 month prior to the pre-study screenings day
- Alcohol consumption of more than 14 glasses/week
- Use of protein supplements during the study
- Following a medical diet
- Participating in other biomedical research during the study period
- Smoking (>2 cigarettes a week)
- Having donated blood in the two months preceding the first visit Hb value below 8.4 mmol/L (as measured with finger-prick method)
- Having a contra-indication to MRI scanning (including, but not limited to):
- Intraorbital or intraocular metallic fragments
- Ferromagnetic implants
- Claustrofobia

• Not having a general practitioner or unwillingness to share chance findings of pathology with the general practitioner

• Being an employee or student of the Division of Human Nutrition and health

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL	
Recruitment status:	Pending
Start date (anticipated):	01-05-2021
Enrollment:	12
Туре:	Anticipated

IPD sharing statement

Plan to share IPD: Yes

Ethics review

Positive opinion	
Date:	
Application type:	

22-04-2021 First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL9413
Other	METC Arnhem-Nijmegen : 74440

Study results

Summary results N/A