Anabolic properties of BCKA and BCAA in vivo in older men

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON28909

Source
NTR

Health condition

Sarcopenia/Sarcopenie

Sponsors and support

Primary sponsor: Maastricht University
Source(s) of monetary or material Support: Evonik Industries

Intervention

Outcome measures

Primary outcome

Primary study parameters include post-prandial plasma amino acid availability and myofibrillar muscle protein synthesis rates.

Secondary outcome

Secondary study parameters include whole-body protein synthesis, breakdown, oxidation, net

balance, plasma ammonia, glucose and insulin.

Study description

Background summary

Protein and/or essential amino acids are important for stimulating muscle protein synthesis (MPS) rates and inhibiting muscle protein breakdown. The anabolic properties to protein feeding can be increased by the co-ingestion of free leucine, thereby increasing the amount of dietary protein derived amino acids that are used for de novo muscle protein synthesis. Consequently branched chain amino acid (BCAA) supplementation or fortification can be used to increase MPS. However, supplementing with high amounts of protein and/or BCAA, necessary to stimulate MPS, can be harmful for patients suffering from for example Chronic Kidney Disease (CKD). Supplementation with branched chain keto acids (BCKA) may be of particular relevance in these conditions as these keto analogues do not provide nitrogen (N) and may help to reduce metabolic workload of liver and kidneys. However, it remains to be established whether BCAA and BCKA can be useful in stimulating MPS in vivo in humans.

Study objective

- We hypothesize that ingestion of BCAA will increase post-prandial plasma amino acid availability, thereby increasing myofibrillar muscle protein synthesis rates above basal values.

- We hypothesize that ingestion of BCKA will increase post-prandial plasma amino acid availability, thereby increasing myofibrillar muscle protein synthesis rates above basal values.

- We hypothesize that BCAA and BCKA is equally or less effective in increasing post-prandial plasma amino acid availability and myofibrillar muscle protein synthesis rates when compared to milk protein.

Study design

Muscle biopsies will be taken at timepoints: 0h, 2h and 5h after ingestion of the beverage.

Intervention

A beverage (300 mL) containing 6 g of BCAA, 6 g of BCKA- or 30 g of milk protein will be consumed.

Contacts

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Eligibility criteria

Inclusion criteria

• Healthy males

• Age between 65 and 80 y

• BMI between 18.5 and 30 kg/m2

Exclusion criteria

• Lactose intolerance

• Smoking

• Diabetes

• Diagnosed GI tract diseases

• Arthritic conditions

• A history of neuromuscular problems

• Any medications known to affect protein metabolism (i.e. corticosteroids, non-

steroidal anti-inflammatories, or prescription strength acne medications).

• Use of anticoagulants

• Participation in exercise program

• Hypertension, high blood pressure that is above 140/90 mmHg

• Females

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Active

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-11-2016
Enrollment:	45
Type:	Actual

Ethics review

Positive opinion

Date:	20-09-2016
Application type:	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	NL5875
NTR-old	NTR6047
Other	: METC 163035

Study results

Summary results
n/a