The effect of an ovalbumin protein hydrolysate on muscle strength recovery in athletes

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To determine the dose-dependent effect of daily ovalbumin protein hydrolysate administration between two experimental groups compared to placebo over a 4 week period on strength recovery post high intensity resistance exercise in (semi-)...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON43531

Source
ToetsingOnline

Brief title
The effect of a protein hydrolysate on strength recovery

Condition

- Other condition

Synonym
Overtraining, strength recovery

Health condition

kracht/spierherstel in sporters na krachtspecifieke training

Research involving
Human

Sponsors and support

Primary sponsor: BioActor B.V.
Source(s) of monetary or material Support: voedingsindustrie

Intervention

Keyword: Nutrition, Protein, Sport, Strength

Outcome measures

Primary outcome

The primary efficacy parameter of the study is to determine the dose-dependent effect of ovalbumin hydrolysate supplementation between two experimental groups compared to placebo for a period of 4 weeks on muscle peak force recovery after high intensity resistance exercise.

Secondary outcome

Secondary endpoints entail the evaluation of dose-dependent effects of daily administration ovalbumin hydrolysate on blood lactate (finger prick), body composition (skin fold measurements), exercise volume, anaerobic capacity, peak force output and delayed onset muscle soreness scores between two experimental groups compared to placebo after a period of 4 weeks.

Study description

Background summary

Overtraining is a real problem for (semi-)professional athletes. Overtraining is often caused by the bodies* lack of ability to recover between training. In addition, during high intensity training reactive oxygen species are formed up to 20 fold compared to resting values. This causes increased muscle tissue damage after intense exercise, which slows down recovery. Improving recovery may increase an athlete*s ability to reach higher training volumes resulting in establishing a higher performance plateau.

Ovalbumin is a hydrolyzed protein derived from egg-white. Ovalbumin hydrolysate has known anti-oxidant capabilities. It is known that hydrolyzed proteins have a positive effect on muscle protein synthesis due to its faster absorption rate. Therefore, we hypothesize that ovalbumin hydrolysate may have positive effects on strength recovery due to its smaller bioactive peptides and anti-oxidative capabilities.

Study objective

To determine the dose-dependent effect of daily ovalbumin protein hydrolysate administration between two experimental groups compared to placebo over a 4 week period on strength recovery post high intensity resistance exercise in (semi-) professional athletes.

Study design

Randomized, double-blind, placebo-controlled study with parallel design.

Intervention

Participants will be randomly assigned to one of the intervention groups. Two groups will receive a daily dose of ovalbumin hydrolysate of either 5 or 10 grams dsitributed over two servings. The final group will receive identical looking placebo for a period of 4 weeks. The study product will be supplied in plastic jars and has to be dissolved in a glass of 200mL orange juice.

Study burden and risks

Individually, participants will receive no benefits by participating in the study. The study consists of four squat tests spread out over two days. The total duration of one test day, including the exercise tests, will not last for more than 1.5 hours, consisting of two visits of 45 minutes each. Participants will be informed to not change their dietary intake. High intensity resistance training of the legs should be avoided for at least 24 hours prior to testing days.
The hydrolyzed egg white protein has safely been used in clinical trials before (own research), thus we expect no adverse reactions. By means of screening, only healthy subjects are included in the study, which further reduces the risk of adverse effects. Following the inclusion procedure, participants should comply with the protocol. Between test 1 and 2 participants are instructed to consume 10 gram of product, containing hydrolyzed egg white protein, placebo or a combination, per day for a period of 4 weeks. In addition to the squat exercises, participants should complete a delayed onset muscle soreness score assessment after each visit for 48 hours. During exercise a displacement sensor will be connected to the barbell to evaluate the peak force and anaerobic capacity, for which no further actions need to be taken by the participants.

Finally a finger prick is taken at 5 minutes after both the exhaustion and recovery challenge to assess blood lactate after exercise. Over the whole study, which contains only a minor invasive procedure, the total load may be rated *low* given that participants should only perform four exercise bouts on two different days. Altogether, these measurements and procedures will be within the manageable load for participants of this study.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Health individuals (men/women). Participants are amateur or (semi-)professional athletes (engage in >6 hours of intense physical activity per week). Age 18-35. Participants are experienced in resistance training.

Exclusion criteria

- Use of creatine supplements and/or anabolic steroids.
- Allergy to test product/protein
- Allergy to chicken protein
- BMI lower than 18 or higher than 30
- Lack of technique in correctly performing a barbell squat (judged by sports physiologist).
- Recent muscle injury in leg or back less than one month before the start of the study.
- Cardiovascular complications
- Use of medication that may interfere with the study outcomes
- Administration of investigational drugs or participation in any scientific intervention study which may interfere with this study (to be decided by the principle investigator), in the 180 days prior to the study.
- Abuse of products; alcohol (> 20 alcoholic units per week) and drugs.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	16-06-2016
Enrollment:	48
Type:	Actual

Ethics review

Approved WMO

Date:	09-05-2016
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)
Approved WMO Date:	17-10-2016
Application type:	Amendment
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

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
CCMO	NL55639.068.15
Other	volgt, registratie bij clinicaltrials.gov

Study results

Date completed:	09-02-2017
Actual enrolment:	48