The impact of jumping exercise and collagen supplementation on bone turnover markers in healthy males

No registrations found.

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

Summary

ID

NL-OMON29483

Source
NTR

Brief title
CollaJump

Health condition

N/A

Sponsors and support

Primary sponsor: HAN University of Applied Sciences
Source(s) of monetary or material Support: KIEM

Intervention

Outcome measures

Primary outcome

Blood parameters of bone turnover: Procollagen type I N propeptide (P1NP), carboxy-terminal crosslinking telopeptide of type I collagen (CTX-I)

Secondary outcome

Blood parameters of bone metabolism: parathyroid hormone, testosterone, serum calcium, glycine, proline, hydroxyproline, lysine, leucine.

Study description

Background summary

Bone health is a critical factor for athletes as bones provide the levers for muscles to move the joints, and strong bones decrease the risk of bone fractures. Particularly cyclist can benefit from exercise and nutrition interventions to stimulate bone health, as this population is characterized by an impaired bone mineral density. Jumping exercise has been identified as a feasible and effective exercise intervention to stimulate collagen synthesis and increase BMD. However, there is considerable debate on the optimal volume and frequency of jumping exercise to maximize bone collagen synthesis. Furthermore, preliminary evidence suggests that collagen supplementation may also stimulate bone collagen synthesis. It is currently unknown whether collagen supplementation can augment the increase in bone collagen synthesis after jumping exercise. Hence, the main objective of the current study is to assess the effect of jumping exercise combined with collagen supplementation on bone turnover.

Study objective

We hypothesis that collagen supplementation augments the benefits of jumping exercise for bone metabolism.

Study design

T = - 60, T = 0, T = 60, T = 120, T = 180, T = 240, T = 12h, T = 24h, T = 48h, T = 72h

Intervention

20 grams of collagen vs placebo and 5 minutes jumping exercise (once or twice daily)

Contacts

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Eligibility criteria

Inclusion criteria

• Male
• Age ≥18 and ≤35 years.
• BMI ≥18.5 and ≤27.5 kg/m2
• Willing to give blood samples

Exclusion criteria

• Blood donation during the study period
• Currently smoking
• Severe allergy to nuts or intolerance to gluten, as supplements are being produced in factory that may have used nuts or gluten previously
• Consumption of >21 alcoholic beverages per week
• Use of illicit drugs
• Use of antibiotics in the past month
• Medical condition that can interfere with the study outcome (i.e. cardiovascular disease, pulmonary disease, rheumatoid arthritis, orthopedic disorders, renal disease, liver disease, diabetes mellitus, inflammatory disease, cognitive impairment, and thyroid or parathyroid disease)
• Use of medications known to interfere with selected outcome measures (i.e. corticosteroids)
• (Chronic) injuries of the locomotor system that can interfere with the intervention.
• Current participation in another biomedical research study.
• Trained individuals (i.e. performing sport activities for more than 6 hours per week).

Study design

Design

Study type: Interventional

Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	20-04-2021
Enrollment:	16
Type:	Actual

IPD sharing statement

Plan to share IPD: No

Ethics review

Positive opinion

Date:	20-04-2021
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	NL9425

Register	ID
Other	METC Zuyderland : METCZ20210005

Study results