

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

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

|                             |                       |
|-----------------------------|-----------------------|
| <b>Ethische beoordeling</b> | Positief advies       |
| <b>Status</b>               | Werving gestopt       |
| <b>Type aandoening</b>      | -                     |
| <b>Onderzoekstype</b>       | Interventie onderzoek |

## Samenvatting

### ID

NL-OMON29483

### Bron

NTR

### Verkorte titel

CollaJump

### Aandoening

N/A

### Ondersteuning

**Primaire sponsor:** HAN University of Applied Sciences

**Overige ondersteuning:** KIEM

### Onderzoeksproduct en/of interventie

### Uitkomstmaten

#### Primaire uitkomstmaten

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

## Toelichting onderzoek

### Achtergrond van het onderzoek

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.

### Doel van het onderzoek

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

### Onderzoeksopzet

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

### Onderzoeksproduct en/of interventie

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

## Contactpersonen

### Publiek

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## Wetenschappelijk

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## Deelname eisen

### Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- Male
- Age  $\geq 18$  and  $\leq 35$  years.
- BMI  $\geq 18.5$  and  $\leq 27.5$  kg/m<sup>2</sup>
- Willing to give blood samples

### Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- 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).

## Onderzoeksopzet

## Opzet

|                  |                       |
|------------------|-----------------------|
| Type:            | Interventie onderzoek |
| Onderzoeksmodel: | Cross-over            |
| Toewijzing:      | Gerandomiseerd        |
| Blindering:      | Dubbelblind           |
| Controle:        | Placebo               |

## Deelname

|                         |                       |
|-------------------------|-----------------------|
| Nederland               |                       |
| Status:                 | Werving gestopt       |
| (Verwachte) startdatum: | 20-04-2021            |
| Aantal proefpersonen:   | 16                    |
| Type:                   | Werkelijke startdatum |

## Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

**Wordt de data na het onderzoek gedeeld:** Nee

## Ethische beoordeling

|                 |                  |
|-----------------|------------------|
| Positief advies |                  |
| Datum:          | 20-04-2021       |
| Soort:          | Eerste indiening |

## Registraties

### Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

### Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

## In overige registers

### Register

NTR-new

Ander register

### ID

NL9425

METC Zuyderland : METCZ20210005

## Resultaten