The effect of ankle bracing on proprioception of the ankle and dynamic postural control in chronic ankle instability

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON25444

Source
Nationaal Trial Register

Health condition

Chronic ankle instability is a combination of mechanical (excessive range of motion) and functional (subjective feelings of instability) instability of the ankle. People with a history of ankle sprain are at risk for chronic ankle instability.

Sponsors and support

Primary sponsor: Research Group Lectoraat Healthy Ageing, Allied Health Care and Nursing, Hanze University of Applied Sciences, Groningen
Source(s) of monetary or material Support: Ankle braces are provided by Nea International. There are no other fundings.

Intervention

Outcome measures

Primary outcome

The main study parameters of this study will be the difference of joint position sense (JPS) and dynamic postural control between the measurement with and without ankle brace. JPS will be measured using the Angle Reproduction Test. Dynamic postural control will be measured using the Y Balance Test (Functional Movement Systems, Danvile, USA).

Secondary outcome

Not applicable

Study description

Background summary

Rationale: Ankle braces are effective for the prevention of acute ankle injuries during sports. The working mechanism of ankle bracing remains unclear. Besides the immediate effect of ankle brace on decreasing range of motion of the ankle, literature suggests that ankle braces also affect ankle proprioception and postural control, by stimulating cutaneous mechanoreceptors through skin contact. It is important to gain knowledge on the contributing factors of ankle bracing in order to improve our current brace methods and improve compliance towards the use of braces in athletes who are at risk for LAS.

Objective: The objective of this study is to investigate the effect of ankle bracing on the proprioception of the ankle and dynamic postural control in healthy participants with chronic ankle instability (CAI).

Study design: Cross-sectional observational study.

Study population: Male and female participants with CAI of 18-35 years old.

Main study parameters: The main study parameters of this study will be the difference of joint position sense (JPS) and dynamic postural control between the measurement with and without ankle brace. JPS will be obtained using an Angle Reproduction Test conducted on an isokinetic dynamometer. Dynamic postural control will be obtained using the Y Balance TestTM.

Data collection: Participants will conduct proprioception and dynamic postural control measurements twice, specifically with and without ankle brace in randomised order.

Statistical analysis: A two-sided paired t-test will be conducted on the difference of JPS and dynamic postural control to compare test results with and without ankle brace. The null hypothesis is that the mean outcomes do not differ with and without ankle brace.

Study objective

Ankle bracing has shown to be effective for the prevention of ankle injuries in athletes. However, the working mechanism of this preventive effect remains unclear. A contributing preventive factor of ankle braces mentioned in literature is enhanced proprioception by stimulation of cutaneous mechanoreceptors by skin contact. It is important to gain knowledge on the contributing factors of ankle bracing in order to improve our current brace methods and improve compliance towards the use of braces in athletes who are at risk for ankle injury. Therefore the objective of this study is to investigate the effect of ankle bracing on the proprioception of the ankle and dynamic postural control in participants with chronic ankle instability.

Study design

The design is crosssectional. Measurements of joint position sense and dynamic postural control are done consecutively.

Intervention

Measurements will be conducted with and without ankle brace. The ankle brace used in this study will be the Push Med Ankle Brace (Nea International, Maastricht, the Netherlands). The order of measurement condition, i.e. brace or no brace, will be randomised.

Contacts

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Eligibility criteria

Inclusion criteria

In order to be eligible to participate in this study, a subject must meet all of the following criteria, which is a copy of the advised selection criteria for study participants with CAI, provided by the International Ankle Consortium:

1. A history of at least 1 significant ankle sprain

- Definition ankle sprain: “An acute traumatic injury to the lateral ligament complex of the ankle joint as a result of excessive inversion of the rear foot or a combined plantar flexion and adduction of the foot.30”

- The initial sprain must have occurred at least 12 months prior to study enrollment

- Was associated with inflammatory symptoms (pain, swelling etc.)

- Created at least 1 interrupted day of desired physical activity

- The most recent injury must have occurred more than 3 months prior to study enrollment

2. A history of the previously injured ankle joint “giving way” and/or recurrent sprain and/or “feelings of instability

A. Definition giving way: “The regular occurrence of uncontrolled and unpredictable episodes of excessive inversion of the rear foot (usually experienced during initial contact during walking or running), which do not result in an acute lateral ankle sprain.”

- Specifically, participants should report at least 2 episodes of giving way in the 6 months prior to the study enrollment.

B. Definition recurrent sprain: “two or more sprains to the same ankle”

C. Definition feeling of ankle joint instability: “The situation whereby during activities of daily living and sporting activities the participant feels that the ankle joint is unstable and is usually associated with the fear of sustaining an acute ligament sprain”

- Specifically, self-reported ankle instability should be confirmed with the Cumberland Ankle Instability Tool (CAIT) with a score under 24.

Exclusion criteria

A potential subject who meets any of the following criteria will be excluded from participation in this study (a copy of the advised selection criteria for study participants with CAI, provided by the International Ankle Consortium):

• A history of previous surgeries to the musculoskeletal structures (i.e., bones, joint structures, nerves) in either limb of the lower extremity

• A history of a fracture in either limb of the lower extremity requiring realignment

• Acute injury to musculoskeletal structures of other joints of the lower extremity in the previous 3 months, which impacted joint integrity and function (i.e., sprains, fractures) resulting in at least 1 interrupted day of desired physical activity.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	09-02-2018
Enrollment:	29
Type:	Anticipated

Ethics review

Positive opinion

Date:	09-02-2018

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	NL6847
NTR-old	NTR7025
Other	UMCG : 201700821

Study results