RAPID RESEARCH

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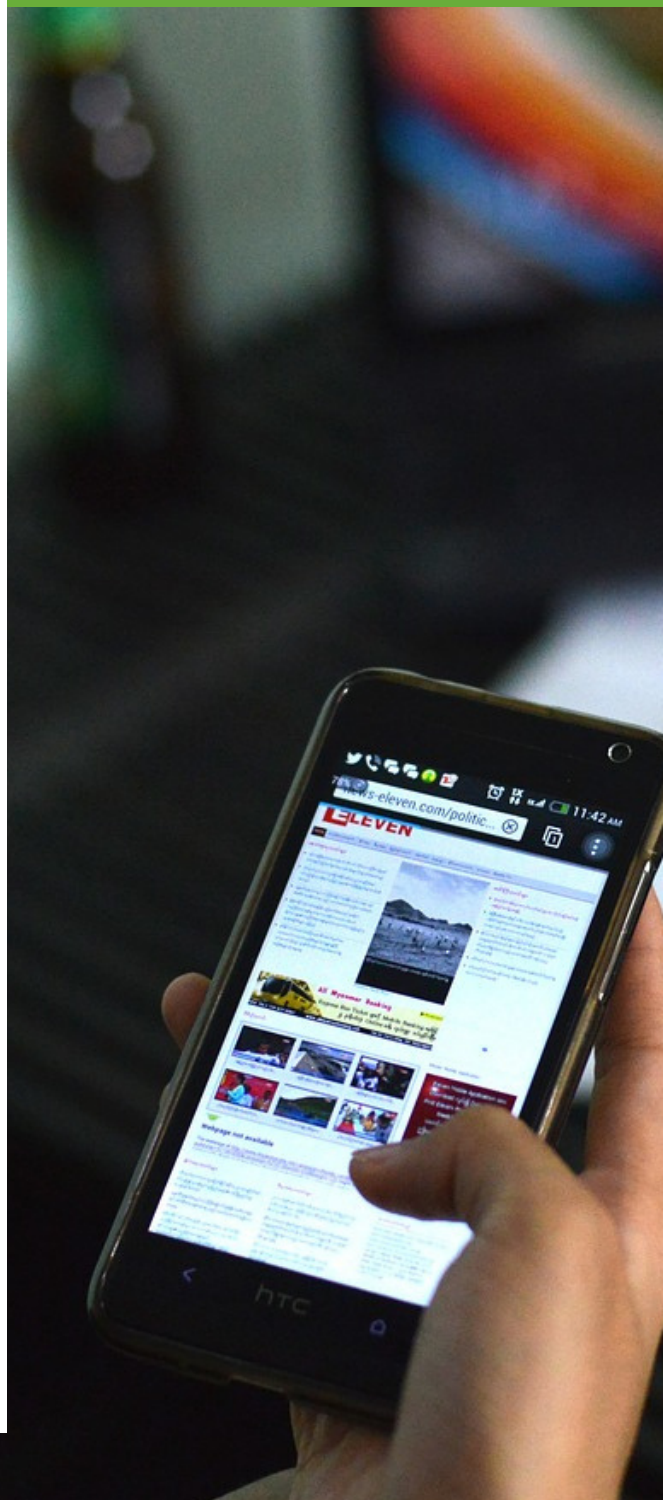
July 2021

Inside This Week:

Bracing for Pain & Injury Prevention

- Can a Knee Brace Prevent ACL Reinjury?
- Effect of Bracing in Preventing Ankle Sprains
- Biomechanical effects of valgus bracing for knee OA



AUGUST 2021

CAN A KNEE BRACE PREVENT ACL RE-INJURY

Full Text

Marois et al. 2021

(Click to Open)

This systematic review presented current findings on the effect of wearing a knee brace on preventing ACL reinjury after return to sport (RTS) in ACLR patients.

KEY FINDINGS

A total of **1196 patients in 3 studies were included.**

Perrone et al. found that **14 patients (10%)** in their brace cohort had a graft failure as opposed to **29 graft failures (21%)** in the control cohort.

2 (14%) occurred within 1 year and 5 (36%) within 2 years following the surgery.

A **higher rate of re-injury was found for the younger patients** (i.e., 17 years and younger).

2 out of 3 studies showed that **Quality of Life Scores (KOOS) improved by 50%** and were higher overall at 2 years when prescribed a knee brace.

The effectiveness of knee bracing when **RTS remains ambiguous.**

MAIN TAKEAWAYS

Clinical uncertainty remains regarding prescribing functional knee braces when returning to sport.

No trends indicating a protective effect of knee braces against re-tear after ACLR were reported in this review.

Choosing to use a knee brace for RTS depends on patient or physician preference.

AUGUST 2021

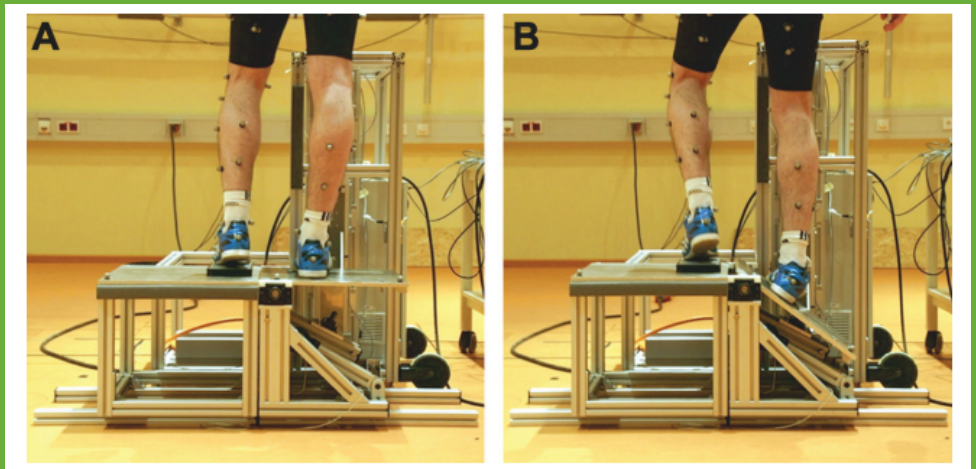
EFFECT OF BRACING IN PREVENTING ANKLE SPRAINS

Full Text

Agres et al. 2019

(Click to Open)

The study assessed the protective effect of an ankle brace that restricts inversion velocity during possible re-injury, taking into account the possible placebo effect of brace application.



KEY FINDINGS

Only **active bracing reduced inversion angles** during a sudden ankle inversion vs. unbraced condition.

This reduction was apparent **between 65 and 140 milliseconds** after the initial fall.

No significant differences in inversion angle were found between the passive placebo brace and unbraced conditions during sudden ankle inversion.

Furthermore, **no significant differences were found among all tested conditions** in the sagittal plane kinematics at the knee and ankle.

MAIN TAKEAWAYS

Only the actively protecting ankle brace limited inversion angles.

Sagittal plane knee kinematics appear to remain unaffected by bracing during single-legged landing.

Athletes prone to reinjury after lateral ankle sprain may benefit from brace designs that allow for full sagittal range of motion but restrict only frontal plane motion.

AUGUST 2021

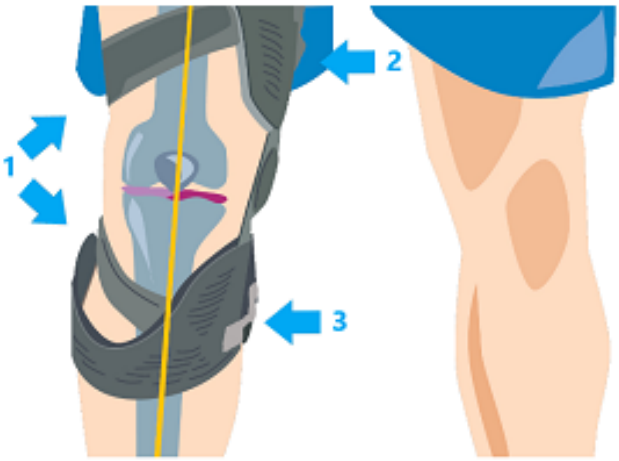
BIOMECHANICAL EFFECTS OF VALGUS BRACING FOR KNEE OSTEOARTHRITIS

Full Text

Moyer et al. 2014 (Click to Open)

This review synthesized the biomechanical effects of valgus knee bracing for patients with medial knee OA.

Knee OA without bracing (bone-on-bone contact)



The 3-Point Leverage System

Knee OA with bracing (space created between bones)

Levitation 2

Spring Loaded Technology

Unloader One

Ossur

OA Unloader

Orthomen

Solus One

Breg

OA Defiance

Donjoy

KEY FINDINGS

30 studies were included with 478 subjects.

Various biomechanical methods suggested valgus braces can decrease:
Medial knee **compressive force.**
Medio-lateral distribution of load across the knee.
Quadriceps/hamstring and quadriceps/Gastrocnemius co-contraction ratios.
&
Increase **medial joint space during gait.**

A decrease in **knee adduction moment** during walking was found with a moderate-to-high effect size.

MAIN TAKEAWAYS

Valgus braces can alter knee joint biomechanics through a combination of mechanisms.

However clinical significance is still in question, especially as brace compliance rates are low.

Further research should aim to define:
Optimal dosage while balancing patient comfort.
Patient characteristics of those likely to respond best.
Effects on disease progression and economic evaluations.

GIVE US YOUR FEEDBACK!

MEMBERS

We are on a mission to make research more accessible, easier to interpret, and quicker to implement.

Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

Leave Review