RAPID RESEARCH

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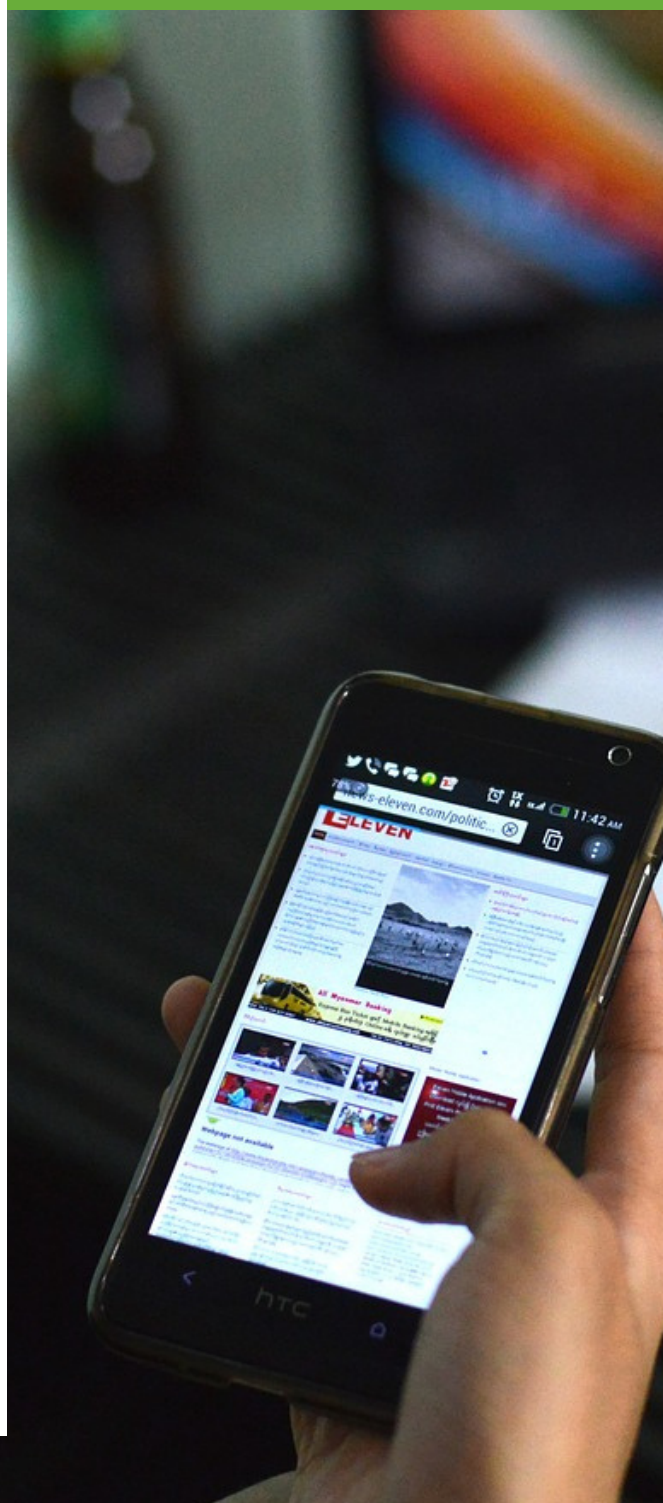
August 2021

Inside This Week: Foot & Ankle Focus

- Effect of Foot Orthotics on Glute and Lower Limb Muscle Activity
- Foot and Ankle Factors Associated with Falls in Older People
- Strengthen Intrinsic Foot Musculature for Plantar Fasciitis

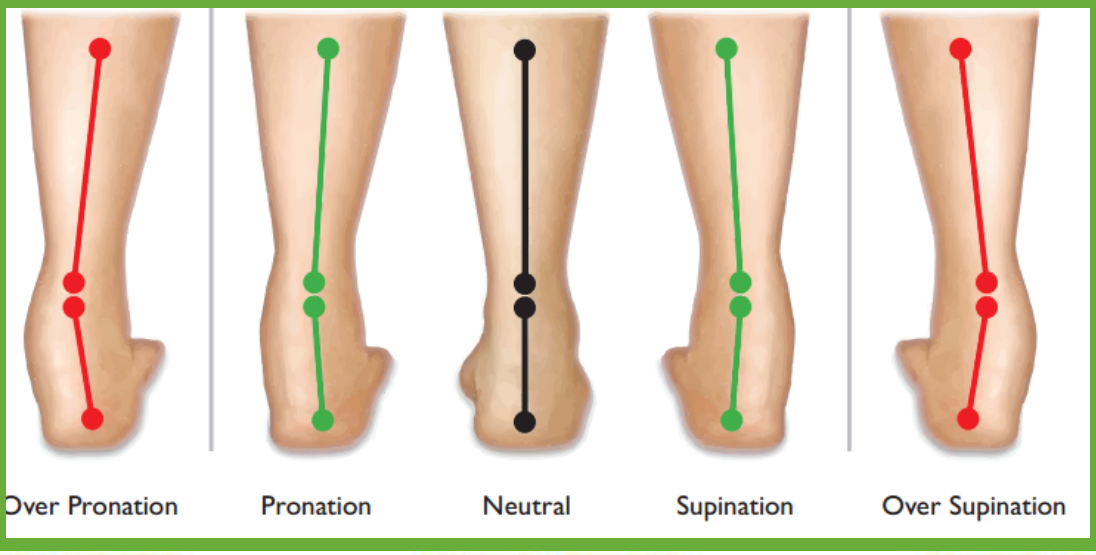


AUGUST 2021

EFFECT OF FOOT ORTHOTICS ON GLUTE & LOWER LIMB MUSCLE ACTIVITY

Click for Full Text (Semciw et al. 2021)

This research investigated the effects of foot orthoses on gluteal muscle activity (GMed, GMin, & GMax) during walking in healthy young adults.




Gluteus Maximus


Gluteus Medius


Gluteus Minimus

KEY FINDINGS

GMax EMG amplitude did not differ between the two walking conditions.

Anterior, middle and posterior GMed EMG were significantly reduced during early stance and late swing phases.

GMin EMG was significantly lower when wearing orthoses during stance but not swing phase.

Thigh muscle EMG during early stance and lateral hamstring EMG was significantly reduced when walking with foot orthoses.

There was **no difference in EMG of the medial hamstrings** or any of the **quadriceps muscles** between conditions.

EMG of both **medial and lateral gastrocnemius was reduced** during stance when wearing foot orthoses.

MAIN TAKEAWAYS

Walking with prefabricated foot orthoses **reduced GMed and GMin muscle activity by up to 43 %** for between 2–13 % of the gait cycle.

Smaller changes were observed for calf and thigh muscles.

There was **no effect on quadriceps, medial hamstring or GMax muscle activity.**

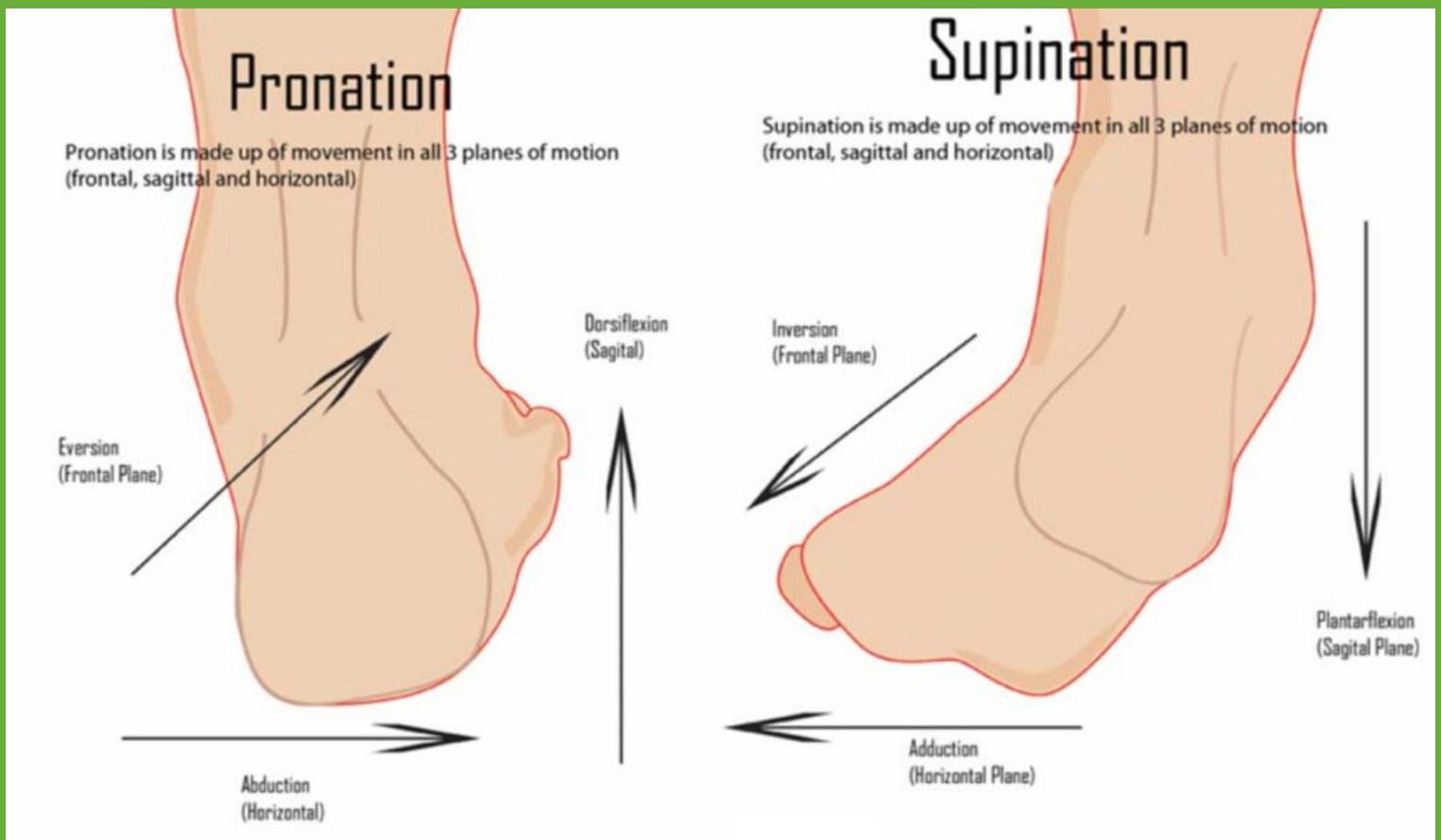
This study provides a foundation to explore effects of foot orthoses in individuals with symptomatic hip conditions.

AUGUST 2021

FOOT AND ANKLE FACTORS ASSOCIATED WITH FALLS IN OLDER PEOPLE

Click for Full Text (Pol et al. 2021)

The study examined the association of standardized and clinically applicable foot and ankle structural and functional characteristics with history of falling in older people. Falls affect ~1 in 3 older people, and foot problems are amongst the modifiable potential risk factors.



KEY FINDINGS

187 community-dwelling older adults included.
74 experienced a fall (~40%), within a year.

Logistic regression analysis showed the following were significantly and independently associated with falls:
Less first metatarsophalangeal joint extension.

Less plantarflexor muscle strength.

Greater pressure-time integral in the medial forefoot.

Greater center of pressure velocity in the forefoot.

Greater foot pain.

MAIN TAKEAWAYS

Several structural and functional foot and ankle characteristics are associated with falling in older people.

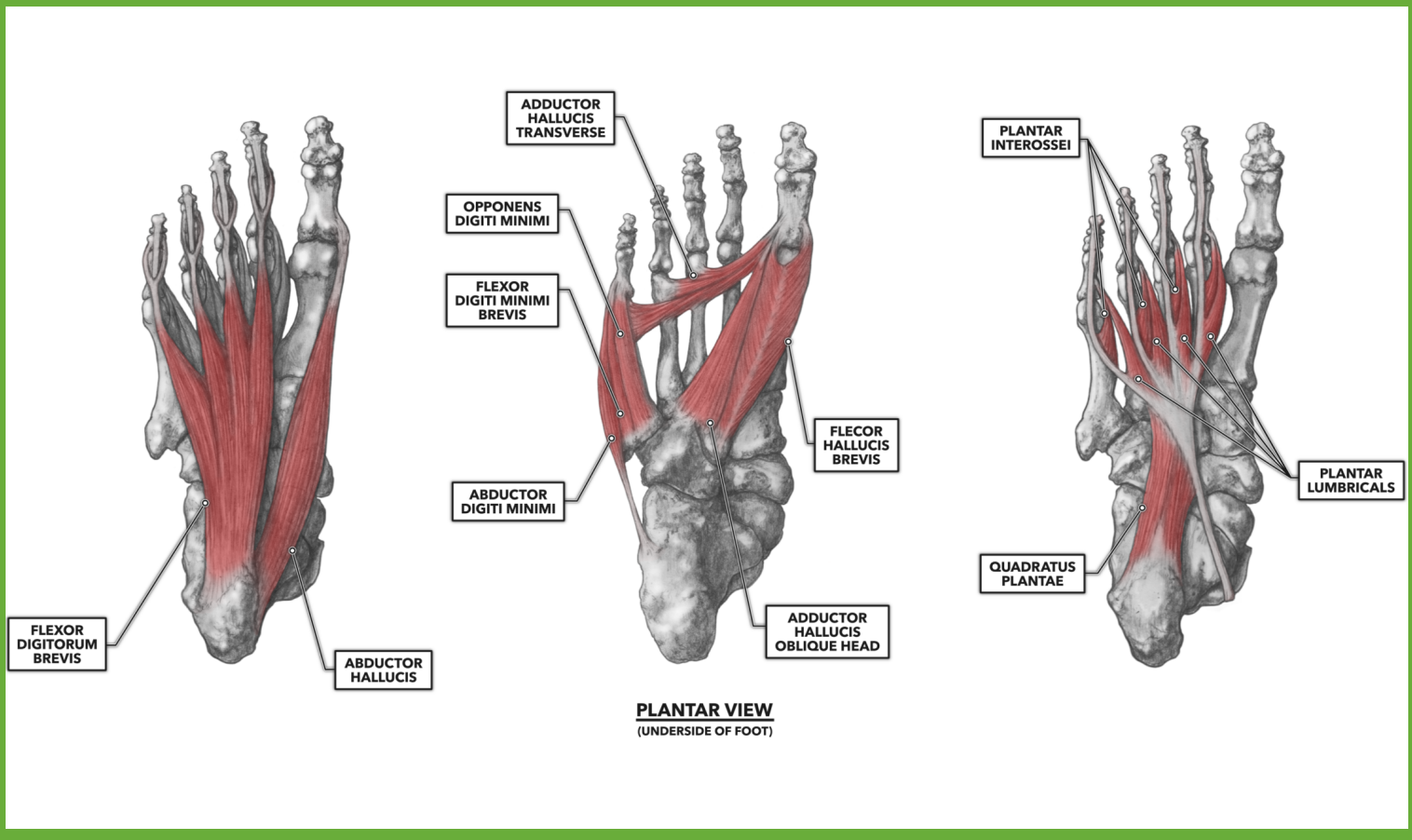
Assessment of the foot and ankle to identify modifiable fall risk factors could be beneficial when considering falls prevention strategies.

AUGUST 2021

STRENGTHEN INTRINSIC FOOT MUSCULATURE FOR PLANTAR FASCIITIS

Click for Full Text (Huffer et al. 2017)

This review critically evaluated the strength training interventions in the treatment of plantar fasciitis and improving intrinsic foot musculature strength.



KEY FINDINGS

7 articles included for systematic review.

Significant differences in strength training approaches to treating plantar fasciitis and improving intrinsic strength were found.

5/7 studies found evidence of IFM strengthening gains in response to the strengthening interventions.

For plantar fasciitis/heel pain, **strengthening showed better results vs. stretching.**

No change in plantar fascia thickness was found after strengthening protocols.

MAIN TAKEAWAYS

The extent to which strengthening intrinsic foot muscles benefited **plantar fasciitis/heel pain was unclear.**

Short foot & toe flexion exercises may contribute to improved intrinsic foot musculature functional performance.

Minimal running shoes have also shown hypertrophic changes for foot musculature.

There are indications **high-load Plantar Fascia training** may aid in a quicker reduction of pain and improvements in function.

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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