RAPID RESEARCH

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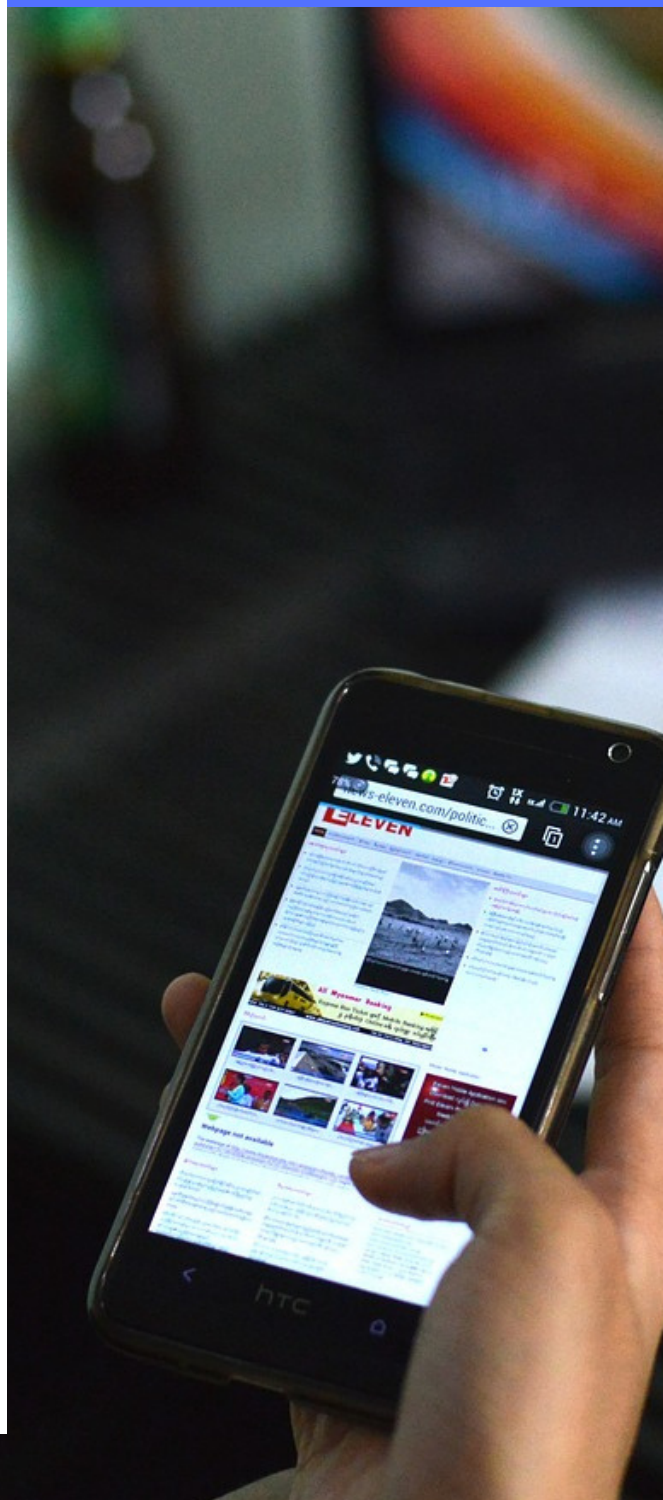
June 2022

Inside This Week:

Running Injury Predictors

- Characteristics of Male Runners with Recurrent Calf Strains
- Pathological Gait Associated with Running Injuries
- Injury Risk Score Testing and Posterior Chain Injuries



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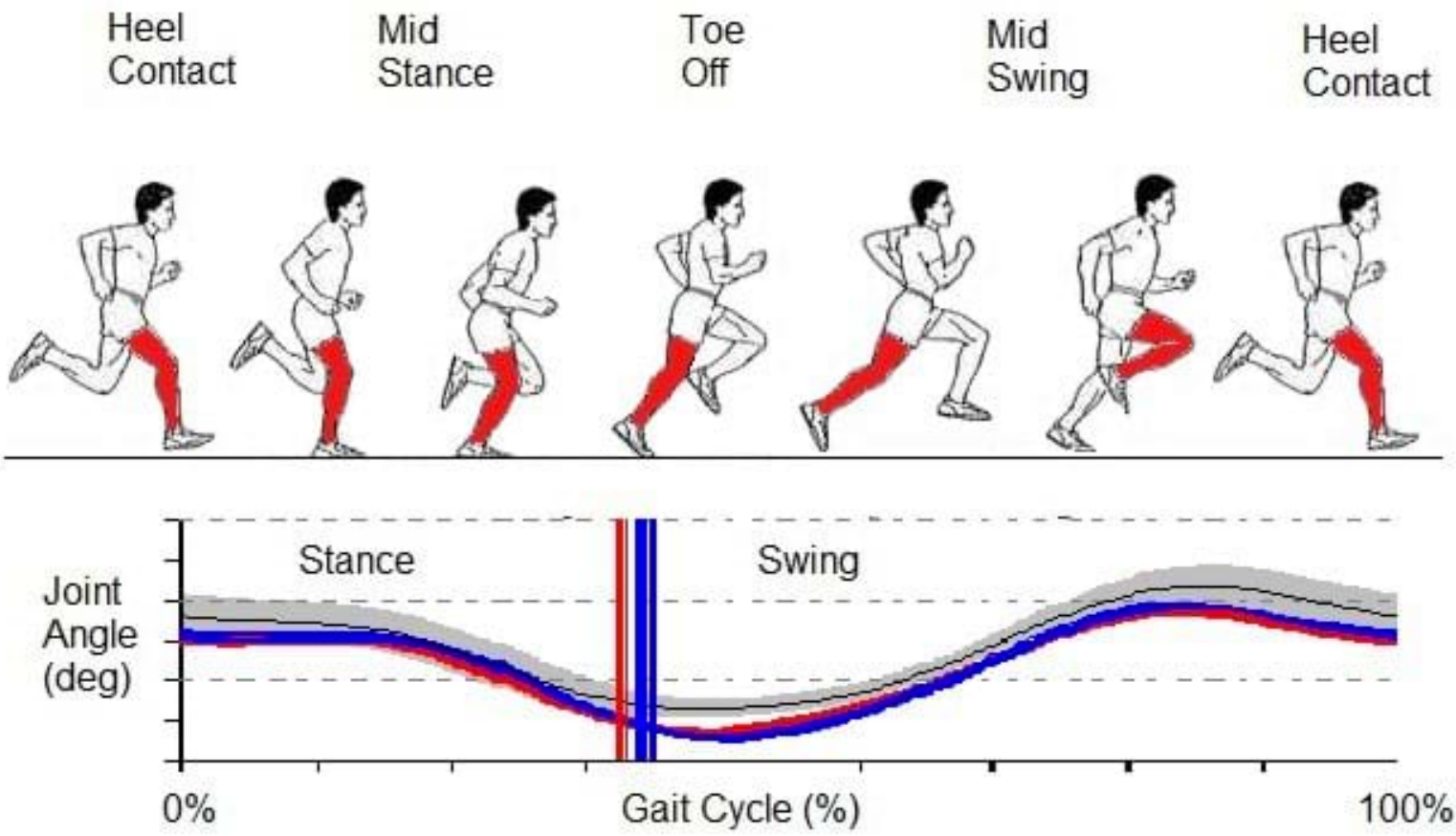
CHARACTERISTICS OF MALE RUNNERS WITH RECURRENT CALF STRAINS

Click for Full Text (Bramah et al. 2021)

This research investigated whether male runners with a history of repeat calf muscle strain injury demonstrate differences in stance phase running kinematics when compared to healthy controls.



KEY FINDINGS

Stance phase kinematics compared on treadmill at 3.2m/s:
15 with history of calf strain v. 15 control.

History of calf strain group:
2.1⁰ increase in contralateral pelvic drop
3.1⁰ anterior pelvic tilt during mid stance.
Longer stance times
More anterior tilted pelvis & flexed hips
Greater distance between heel & centre of mass at initial contact.

No significant differences were observed for ankle and knee joint kinematics between the groups.

MAIN TAKEAWAYS

Male runners with a history of recurrent calf muscle strain injury demonstrated altered stance phase running kinematics.

A strong link wzs found between pelvic-hip kinematics and the presence of calf strain injury.

Underlying neuromuscular deficits are consistent with the recurrent nature of this injury.

Gait retraining interventions may prove useful as a short-term intervention,

PATHOLOGICAL GAIT ASSOCIATED WITH RUNNING INJURIES

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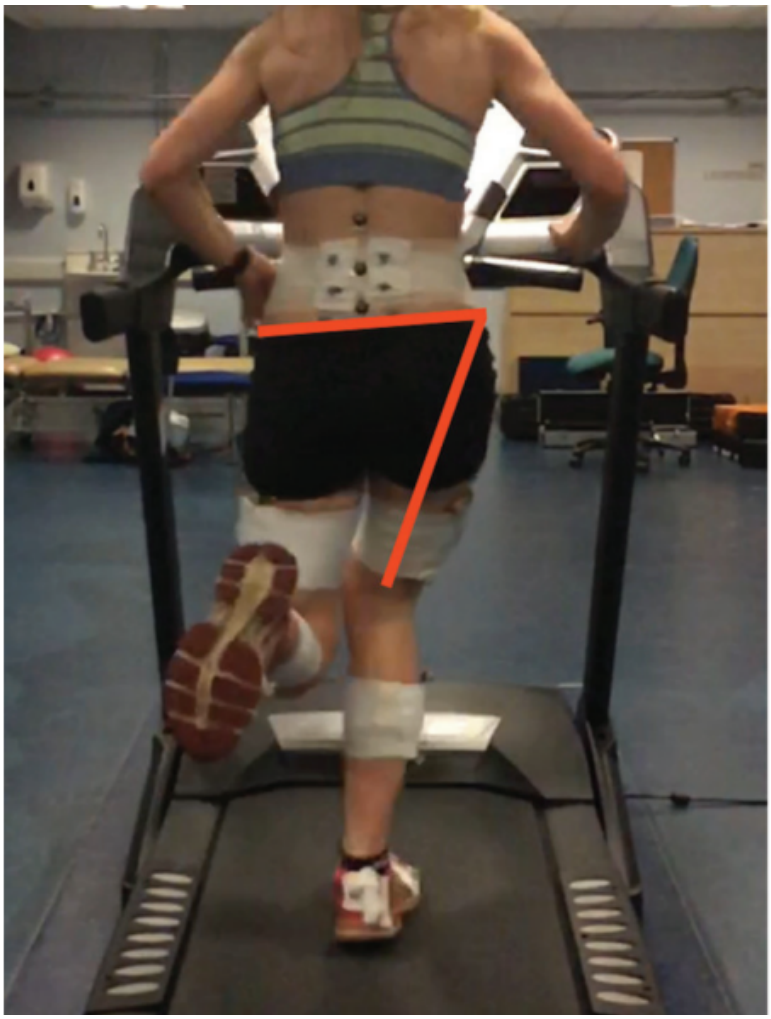
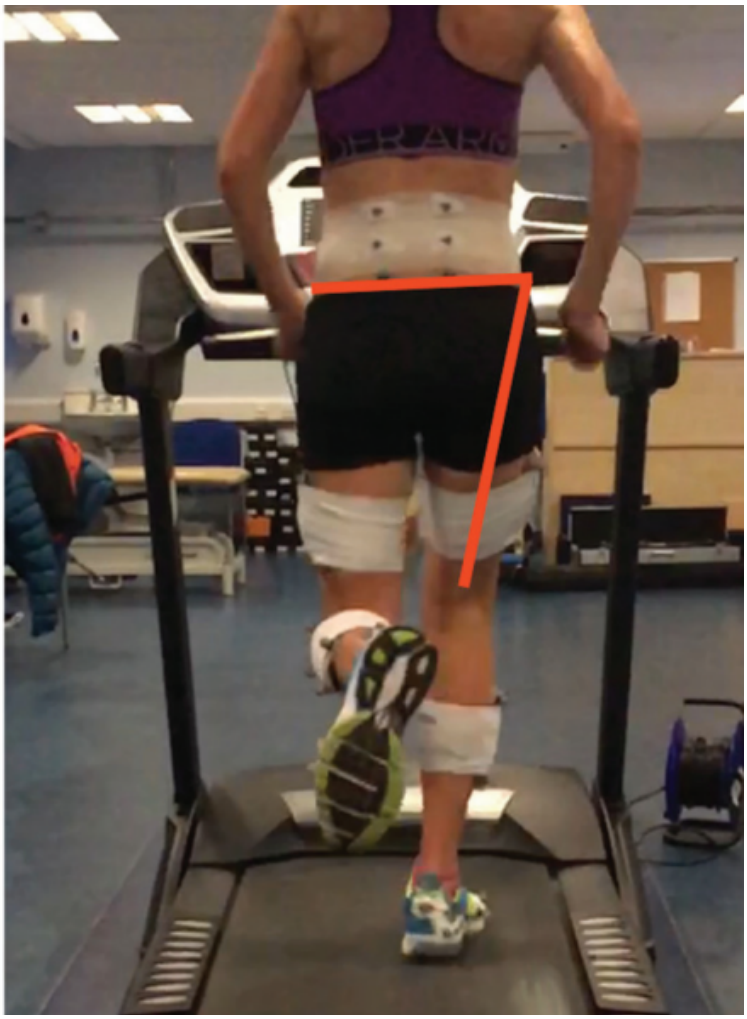
Click for Full Text (Bramah et al. 2018)

This research aimed to identify whether there are differences in running kinematics between a large group of runners with common running injuries (ITBS, PFP, MTSS, and AT) compared with a healthy control group.





KEY FINDINGS

72 injured runners compared with 36 healthy controls.
4 Injury subgroups:
Patellofemoral pain, Iliotibial band syndrome, Medial tibial stress syndrome, or Achilles tendinopathy

All 4 subgroups of injured runners demonstrated:

- Greater contralateral pelvic drop (CPD) and forward trunk lean at mid-stance.
- More extended knee and dorsiflexed ankle at initial contact.

CPD most predicted runners as healthy or injured.

For every 1º increase in pelvic drop, there was an 80% increase in the odds of being classified as injured.

MAIN TAKEAWAYS

This study identified a number of global kinematic contributors to common running injuries.

Injured runners ran with greater peak CPD and trunk forward lean as well as an extended knee and dorsiflexed ankle at initial contact.

CPD appears to be the variable most strongly associated with common running-related injuries.

These patterns can be easily assessed and modified in clinical practice.

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INJURY RISK SCORE TESTING AND POSTERIOR CHAIN INJURIES

Click for Full Text (Hughes et al. 2021)

This study investigated whether there is an association between the biomechanical injury risk score assessment tool and posterior chain injuries.

KEY FINDINGS

50 male elite-level rugby union athletes tested at 2019 preseason start.

2D video analysis assessed against a 10-point injury risk score (IRS) system in the performance of the combined movement:
Prone hip extension & knee flexion

Participants' IRS compared against the number of posterior chain injuries sustained.

Significant association between IRS and PCI was found.

An increase of 1 point in IRS was associated with a 35% increase in PCI incidence.

MAIN TAKEAWAYS

The biomechanical injury risk score can be used to quantify an individual's risk of lower limb posterior chain injury.

The assessment also provides practitioners target areas for biomechanical intervention in the management and prevention of posterior chain injuries.

The injury risk score forms part of a test cluster alongside an individual's demographics, training load monitoring, strength and range of motion assessment, to ensure a comprehensive analysis in the management of posterior chain injury risk.

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