RAPID RESEARCH

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Inside This Week:

Ankle Dorsiflexion is Important

- Ankle DF Associated with Knee Control & Injuries
- Ankle Dorsiflexion & Squat Movement Kinematics
- Single Leg Squat Test, Validity and Inter-Rater Reliability

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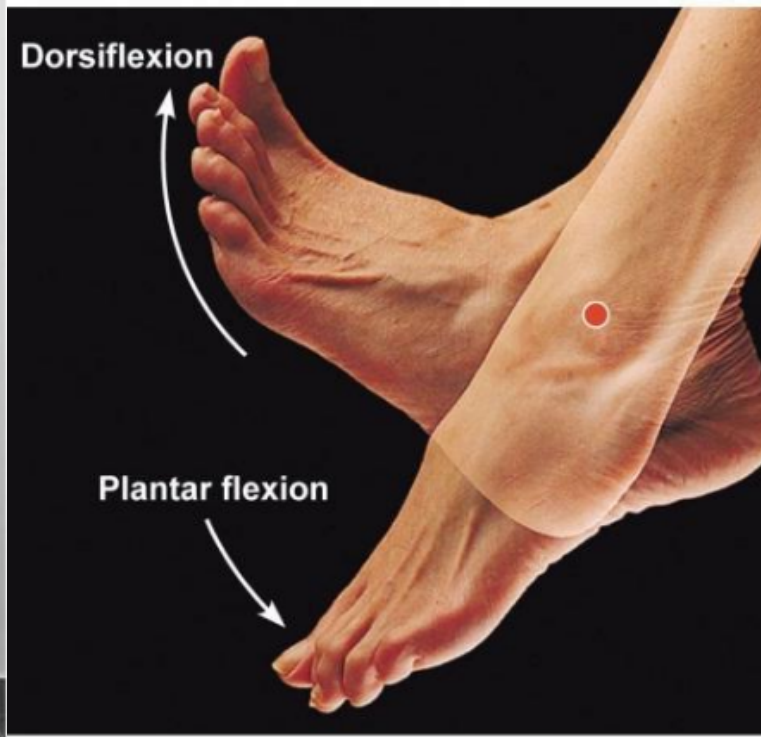
ANKLE DF ASSOCIATED WITH KNEE CONTROL & INJURIES

Click for Full Text (Rabin et al 2016)

This study investigated the association of ankle Dorsiflexion (DF) Range Of Motion (ROM) with hip and knee kinematics during a step-down task.



KEY FINDINGS

30 participants performed **Lateral Step-down Test**
3-D analysis of hip and knee kinematics taken.

Ankle DF ROM measured:
Weight bearing (WB) & Non–weight bearing (NWB).

2 Groups created & tested:
Low-Dorsiflexion
High-Dorsiflexion

Participants with Low-DF vs. High-DF Levels:

- Exhibited greater peak hip adduction
- Had greater peak knee external rotation
- Exhibited decreased peak knee flexion

MAIN TAKEAWAYS

More limited ankle DF ROM is associated with:

- **Decreased knee flexion**
- **Increased hip adduction**
- **Increased knee external rotation**

These kinematics are associated with:

- **Anterior cruciate ligament rupture**
- **Patellofemoral pain**
- **IT-band syndrome**

Limited ankle DF ROM may need to be addressed in individuals demonstrating faulty movement patterns

ANKLE DORSIFLEXION & SQUAT MOVEMENT KINEMATICS

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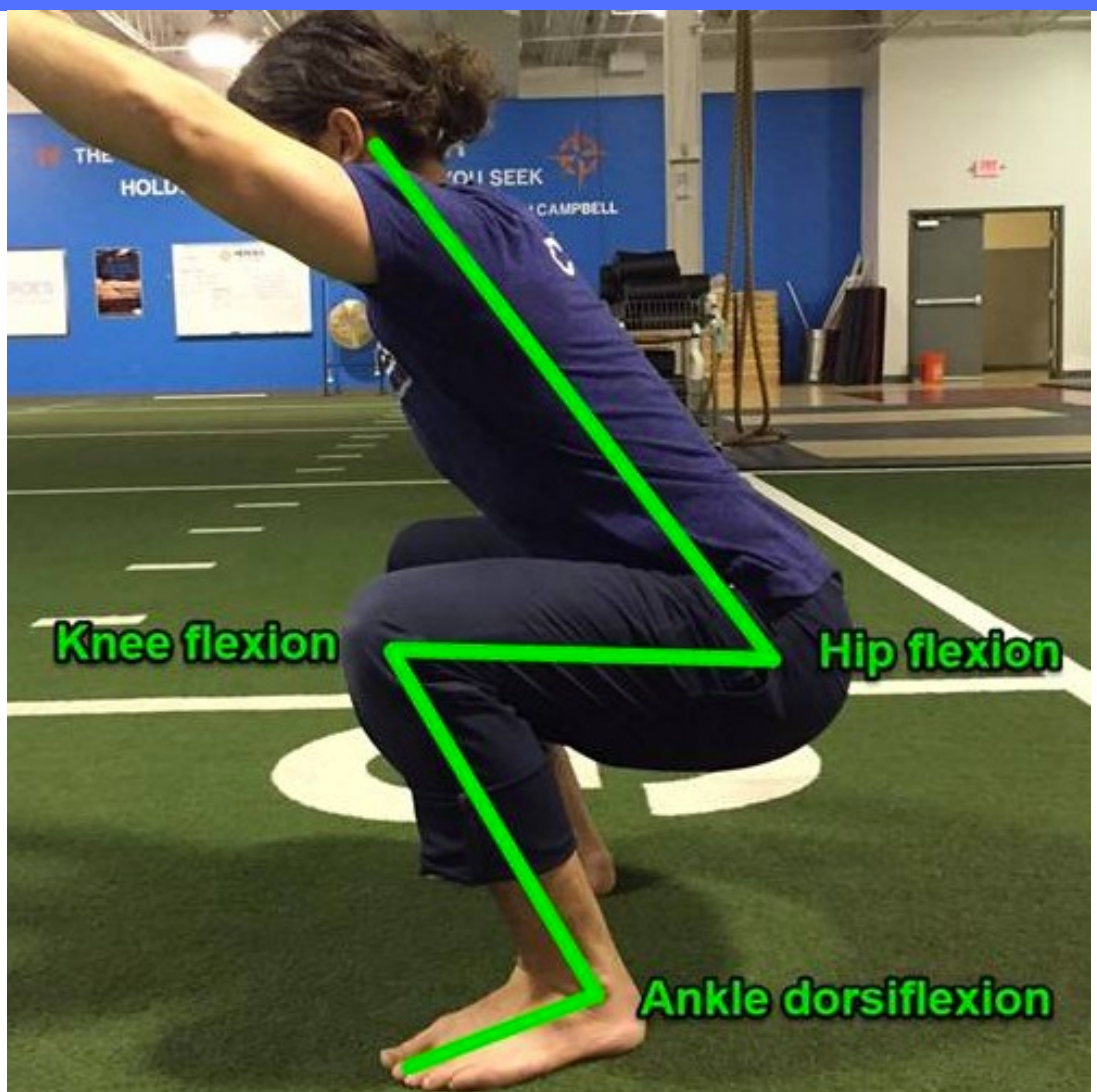
Click for Full Text (Dill et al. 2014

This cross-sectional study determined whether knee- and ankle-joint kinematics during squatd differ between participants with limited and normal ankle DF-ROM.



KEY FINDINGS

40 Participants:
20 with **limited ankle DF** & 20 with **normal ankle DF**
Assessed using 2 techniques:
Non weight-bearing ankle DF-ROM with the knee straight
Weight-bearing lunge (WBL).

No differences between the normal and limited groups in non weight-bearing passive-ankle DF-ROM.

Those with greater ankle DF-ROM during the WBL had:

- Greater knee-flexion
- Greater ankle-DF displacement
- Greater peak knee flexion
- Greater Knee Varus Displacement

during the overhead-squat and single-legged squat tasks.

MAIN TAKEAWAYS

Ankle DF-ROM during the WBL may be a more sensitive measure for identifying those at risk for high-risk movement patterns compared with NWB passive-ankle DF-ROM measures.

Including the WBL in the assessment of ankle DF-ROM is important and may better identify those at risk for dysfunctional movement patterns during functional tasks.

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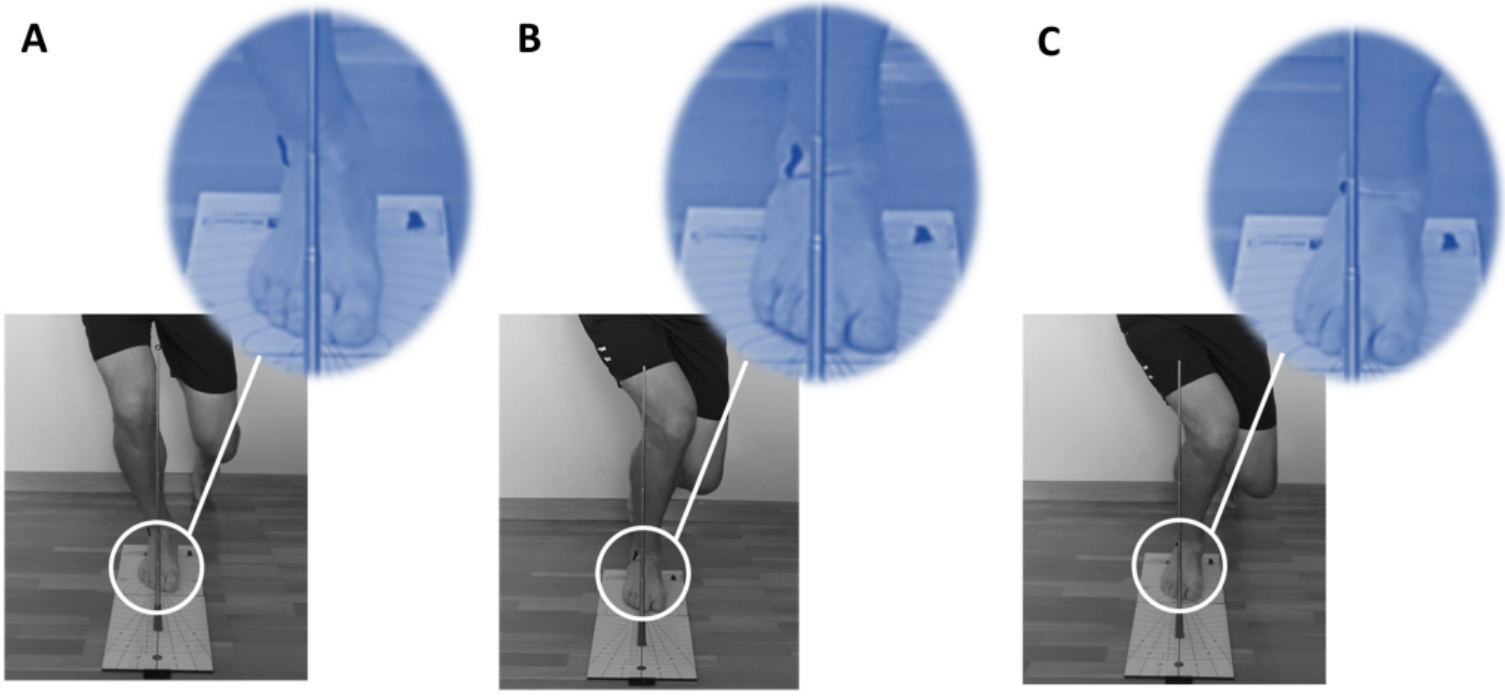
SINGLE LEG SQUAT TEST, VALIDITY & INTER-RATER RELIABILITY

Click for Full Text (Guillén-Rogel et al. 2022)

This study evaluated the reliability and relation between the assessment of ankle control during SLS ankle and the navicular test.



KEY FINDINGS

55 Participants
Subtalar pronation was assessed through the Navicular Drop test.
Ankle displacement in the frontal plane during the Single Leg Squat.

Tests scored & determined the **intra-rater and inter-rater reliabilities.**

Good intra-rater and inter-rater agreement during SLS for ankle (75%)

The relationship between the SLS-ankle and ND was statistically .significant

MAIN TAKEAWAYS

Ankle displacement is a reliable tool to assess a single leg squat.

A poor rating on the SLS test is associated with higher pronation in the ND test.

The SLS-ankle score has demonstrated good inter-rater and intra-rater reliability.

Ankle assessment can be considered during dynamic movement assessments.

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