



@physicaltherapyresearch

RAPID RESEARCH

September 2022

Inside This Week: Hip Function Tests for Injury Risk

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- ✓ Tests to Predict Hip Osteoarthritis

 - ✓ Movement Patterns Associated with Sports Related Groin Pain

 - ✓ Hip Range of Movement; Risk Factor for Shin Splints



TESTS TO PREDICT HIP OSTEOARTHRITIS

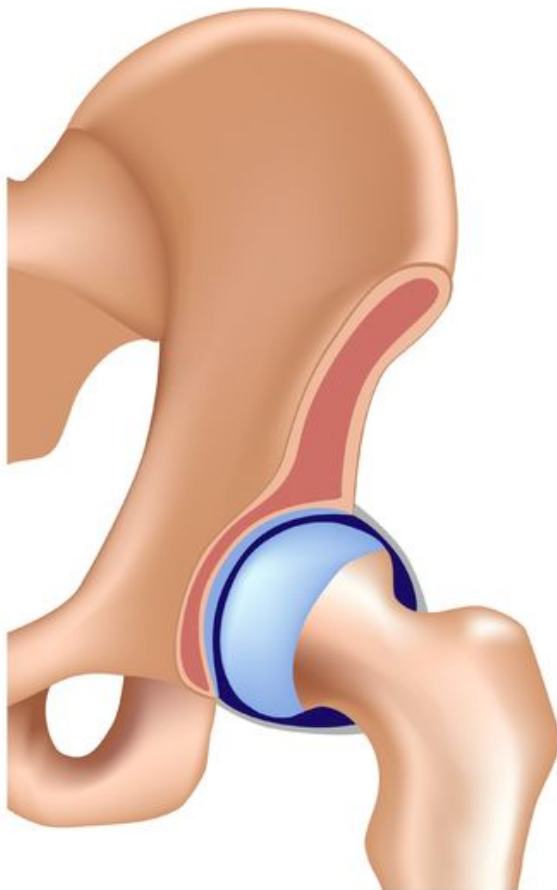
SEPTEMBER 2022

[Click for Full Text
\(Metcalfe et al. 2019\)](#)

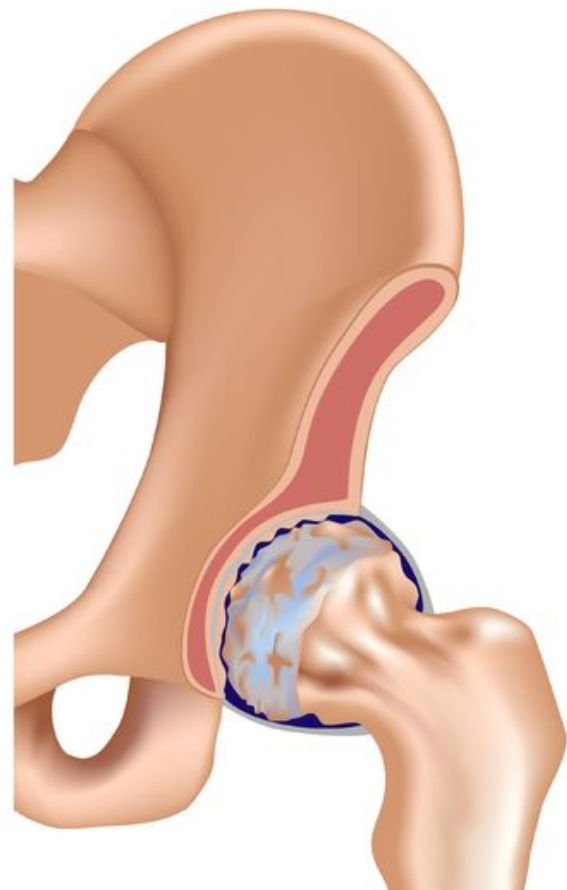
JB1 10/11 [90%]



This systematic review evaluated available research to identify the clinical findings that are most strongly associated with hip Osteoarthritis (OA).



Healthy hip joint



Osteoarthritis

KEY FINDINGS

6 studies included, 1,110 patients & 1,324 hips.

509 (38%) showed radiographic evidence of OA.

Most useful findings to predict OA were:

- Squat causing posterior pain (sensitivity:24%; specificity:96%; LR:6.1)
- Groin pain on passive abd- or adduction (sensitivity:33%; specificity:94%; LR:5.7)
- Abductor weakness (sensitivity:44%; specificity:90%; LR:4.5)

Decreased:

- Passive hip adduction (sensitivity:80%; specificity:81%; LR:4.2)
- Internal rotation (sensitivity:66%; specificity:79%; LR:3.2)

The presence of normal passive hip adduction was most useful for suggesting the absence of OA (negative LR:0.25)

MAIN TAKEAWAYS

Simple tests of hip motion can help identify patients who have radiographic evidence of hip OA.

The best overall physical examination findings are:

Squat causing posterior hip pain

Pain on abduction or adduction

Adductor weakness

Decreased adduction.

These are strongly associated with hip OA when present and of an alternative diagnosis when absent.

Patients at high likelihood of severe hip OA may be best identified initially using a combination of clinical signs.

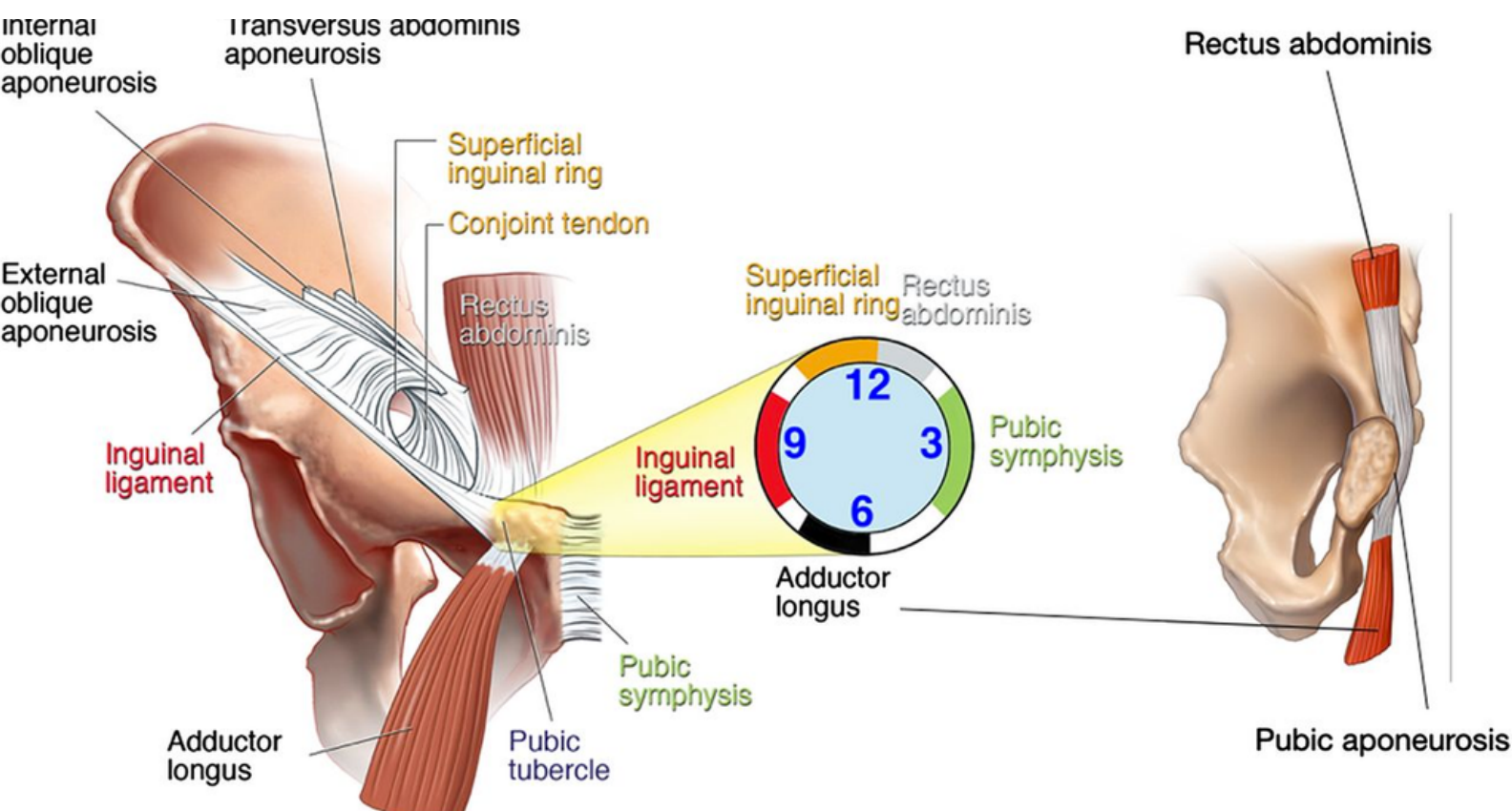
MOVEMENT PATTERNS ASSOCIATED WITH SPORTS RELATED GROIN PAIN

[Click for Full Text \(Kloskowska et al. 2016\)](#)

JBIR 10/11 [90%]



This systematic review and meta-analyses provided evidence related to movement and muscle function deficits in athletes with SRGP.



KEY FINDINGS

17 studies were included.

14 high quality, 3 low quality; 8 prospective and 9 retrospective

Strong Evidence risk factors for SRGP:

Decreased hip adductor muscle strength during a squeeze test at 45°. Decreased Total hip external rotation range of movement (sum of both legs).
No relationship to abductor muscle strength.

Moderate evidence risk factors for SRGP:

Decreased hip abduction flexibility as a risk factor for SRGP.

Limited or very limited evidence risk factors for SRGP:

Decreased hip adduction strength during isokinetic testing at ~119°/s.
Decreased hip abductor strength in angular velocity in ~30°/s.
Decreased isokinetic knee flexion strength at a speed ~60°/s.
No relationship with hip internal or external ROM
No relationship with isokinetic knee extension strength.

MAIN TAKEAWAYS

Hip adductors and knee flexor strength deficits should be mainly screened and addressed as they may be risk factors for SRGP.

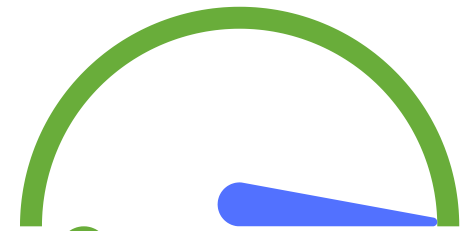
Adductor muscle weakness and increased abduction flexibility, hip total external rotation deficits, imbalances between adductor and abductor muscles, increased hip flexor strength and transversus abdominis muscle thickness should be addressed in rehabilitation programs.

HIP RANGE OF MOVEMENT; RISK FACTOR FOR SHIN SPLINTS

SEPTEMBER 2022

[Click for Full Text
\(Hamstra-Wright et al.
2016\)](#)

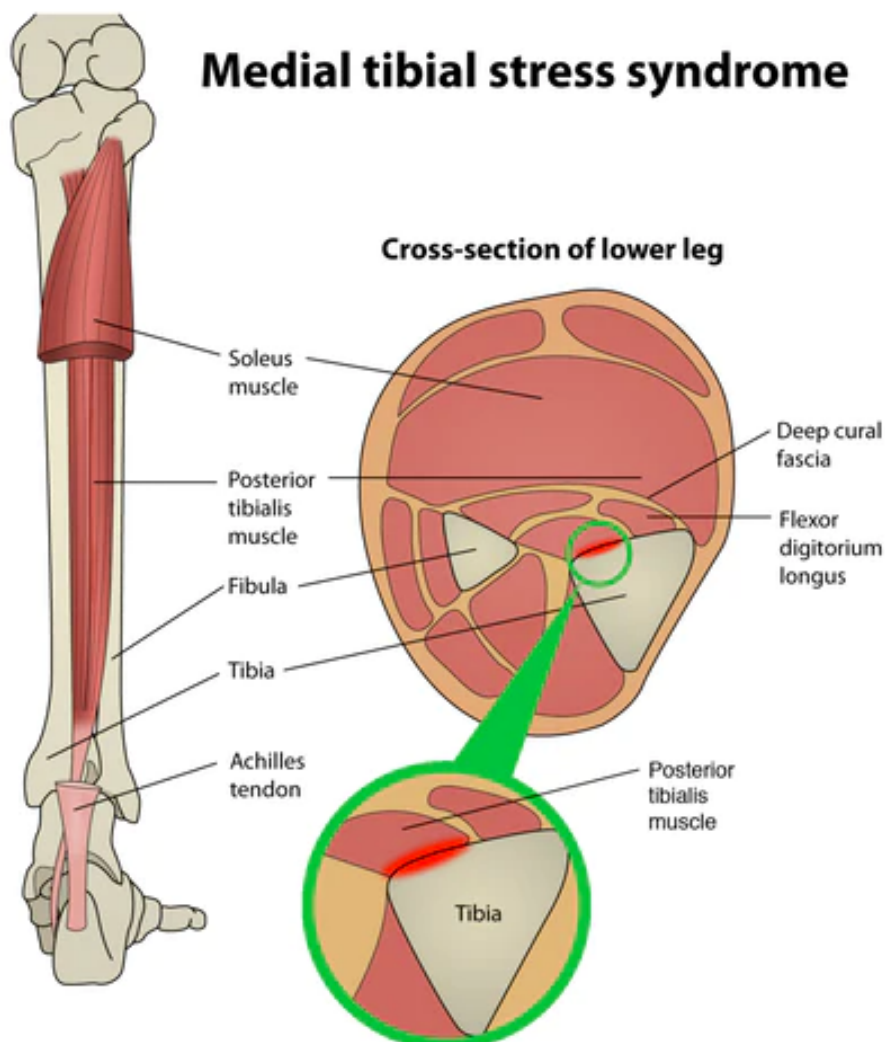
JBIR 10/11 [90%]



✓ **Quality Check**

*see appx

This systematic review assessed what factors put physically active individuals at risk to develop shin splints; medial tibial stress syndrome (MTSS).



21 studies included

9 risk factors qualified for inclusion in the meta-analysis.

Risk Factors for Medial Tibial Stress Syndrome:

Increased BMI

Navicular drop

Ankle plantarflexion range of motion

Hip external rotation ROM

Non Risk Factors for MTSS:

Ankle dorsiflexion

Quadriceps-angle

MAIN TAKEAWAYS

In a physically active population, the primary factors that appear to put individuals at risk for MTSS are:

Increased BMI

Navicular drop

Plantarflexion ROM

Hip external rotation ROM

Interventions focused on addressing these risk factors may prove valuable in preventing and treating MTSS.

Further meta-analyses and the exploration of how the presence of combined factors affects MTSS risk is needed.

GIVE US YOUR FEEDBACK!

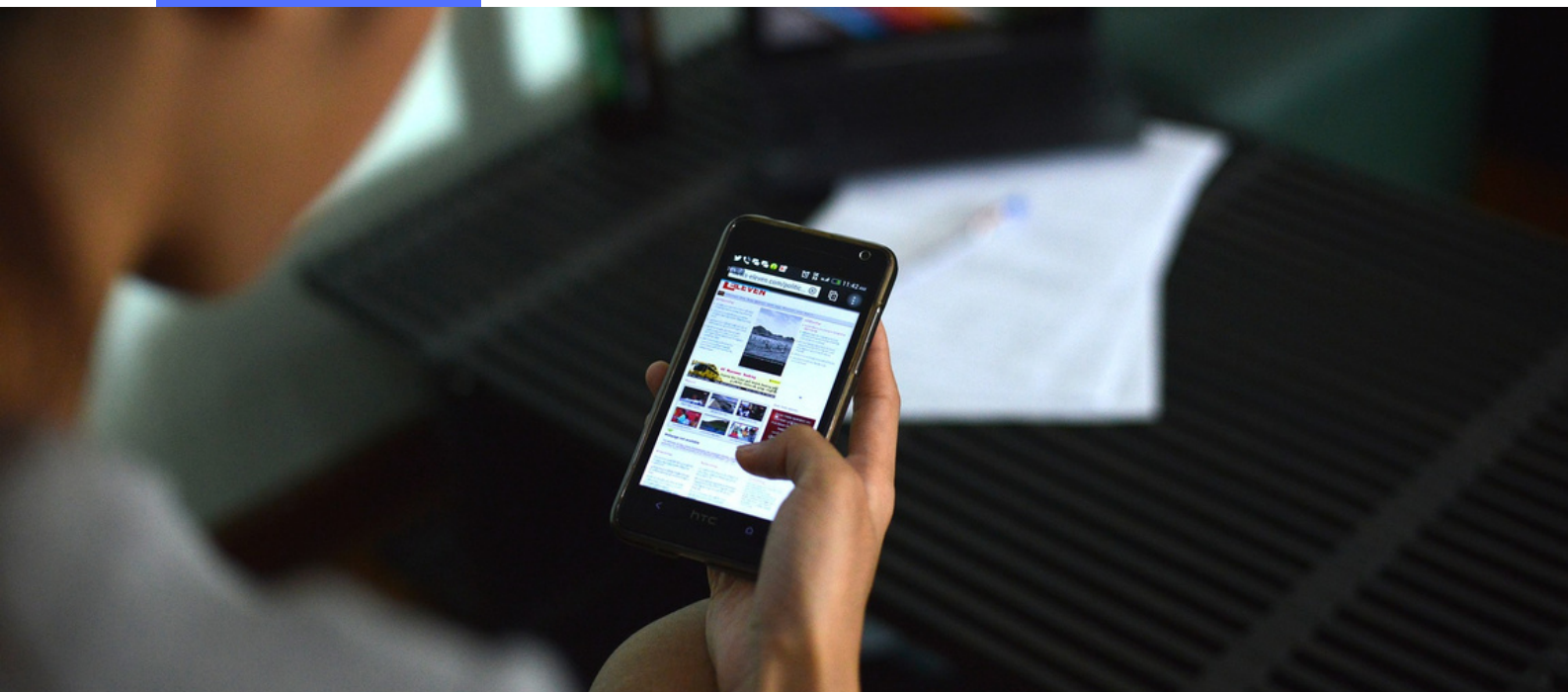
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We are on a mission to make research more accessible, easier to interpret, and quicker to implement.

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!

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JBI CRITICAL APPRAISAL CHECKLIST FOR SYSTEMATIC REVIEWS AND RESEARCH SYNTHESSES

Author: Metcalfe et al. Year: 2019

	Yes	No	Unclear	Not applicable
1. Is the review question clearly and explicitly stated?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were the inclusion criteria appropriate for the review question?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the search strategy appropriate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were the sources and resources used to search for studies adequate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Were the criteria for appraising studies appropriate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Was critical appraisal conducted by two or more reviewers independently?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were there methods to minimize errors in data extraction?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Were the methods used to combine studies appropriate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Was the likelihood of publication bias assessed?	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>
10. Were recommendations for policy and/or practice supported by the reported data?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Were the specific directives for new research appropriate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: 10/11 (90%)

Comments:

Overall, this was a good quality study looking at likelihood ratios, specificity and sensitivity of tests to determine if a patient may or may not have hip OA. Including example cases helps to solidify the information. The quality testing was done well and although not many studies were included, the ones that were were of high quality, 5 being Rational Clinical Examination level 1.

JBI CRITICAL APPRAISAL CHECKLIST FOR SYSTEMATIC REVIEWS AND RESEARCH SYNTHESSES

Author: Kloskowska et al. Year: 2016

	Yes	No	Unclear	Not applicable
1. Is the review question clearly and explicitly stated?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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11. Were the specific directives for new research appropriate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: 10/11 (90%)

Comments:

Overall, this was a good quality review, including a range of evidence with a range of quality. Overall, the methods were sound and the results were presented in a clear manner. Identifying risk factors for sports related groin pain is complex, and this article organized risk factors very well. Make sure to look at the tables to see all the info in one space. Clear takeaways and clinical implication for what to assess and look at in athletes as a potential risk factor for groin pains.

JBI CRITICAL APPRAISAL CHECKLIST FOR SYSTEMATIC REVIEWS AND RESEARCH SYNTHESSES

Author: Hamstra-Wright et al. Year: 2016

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11. Were the specific directives for new research appropriate?	+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: 10/11 (90%)

Comments:

Overall, this was an excellent study using good methods to screen articles, assess quality, and combine data to create risk profiles for movements and their relation to developing shin splints. Thai creates a good starting space for assessing and treating athletes for MTSS. Looking at the risk factors first, then moving on to potential other external causes, i.e. load, volume, intensity, etc.