

# Accuracy of Three Clinical Tests to Diagnose Hamstring Syndrome in Patients with Posterior Hip Pain.

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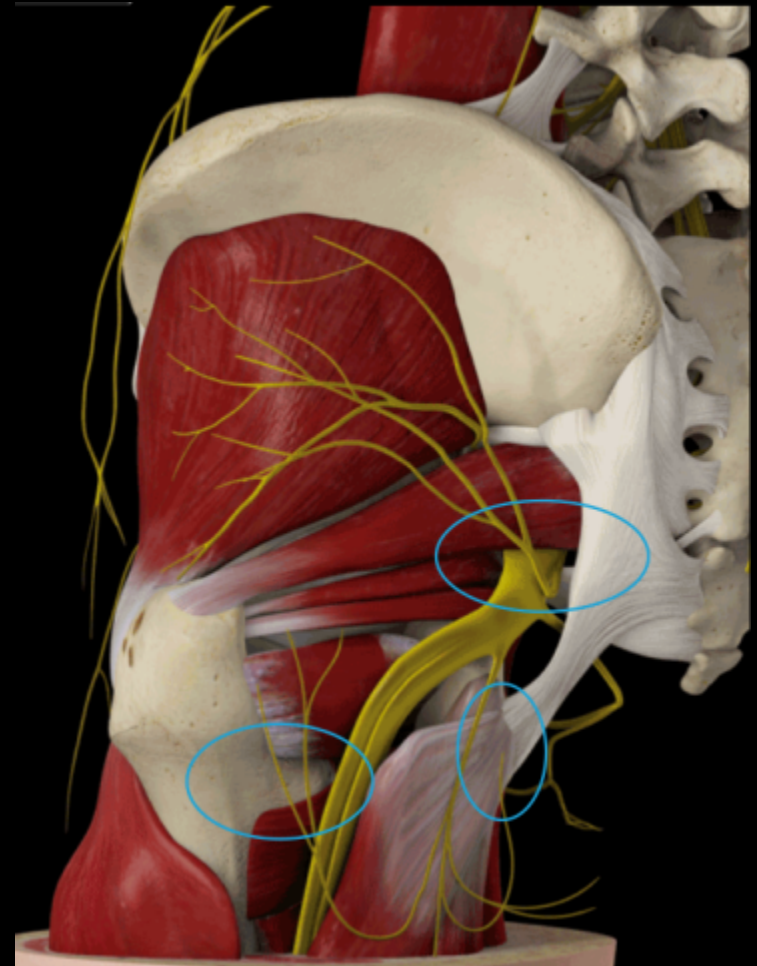


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# Background

- Different etiologies of posterior hip pain including ischiofemoral impingement, DGS and hamstring syndrome can have similar clinical presentation
- The presentation of hamstring syndrome includes pain located at the ischial tuberosity, inability to sit longer than thirty minutes, and the exacerbation of pain with dynamic activities.



# Background

- A validated hamstring test is necessary to determine the involvement of hamstring pathology in patients with posterior hip pain.
- The purpose of this study was to determine the diagnostic accuracy of the *Active 30° (A-30) knee flexion test*, *Active 90° (A-90) knee flexion test*, and *the Long-stride test* to diagnose proximal hamstring syndrome in a patient population with posterior hip pain.

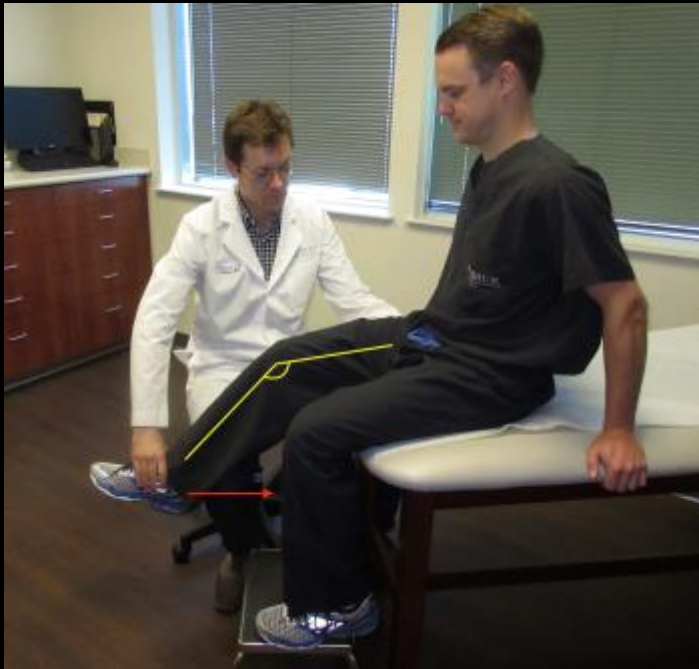
# Methods

- 42 subjects (female = 32, male = 10) with a mean age of 50.3 years (range, 15-77; SD, 14.5 years) underwent a routine clinical examination prior to Magnet Resonance Imaging (MRI) for posterior hip pain
- As a part of the standard physical examination the tests designed to determine the potential involvement of hamstring syndrome as a source of posterior hip pain were performed
- The sensitivity, specificity, positive likelihood ratio, negative likelihood ratio, and diagnostic odds ratio were calculated for each test.

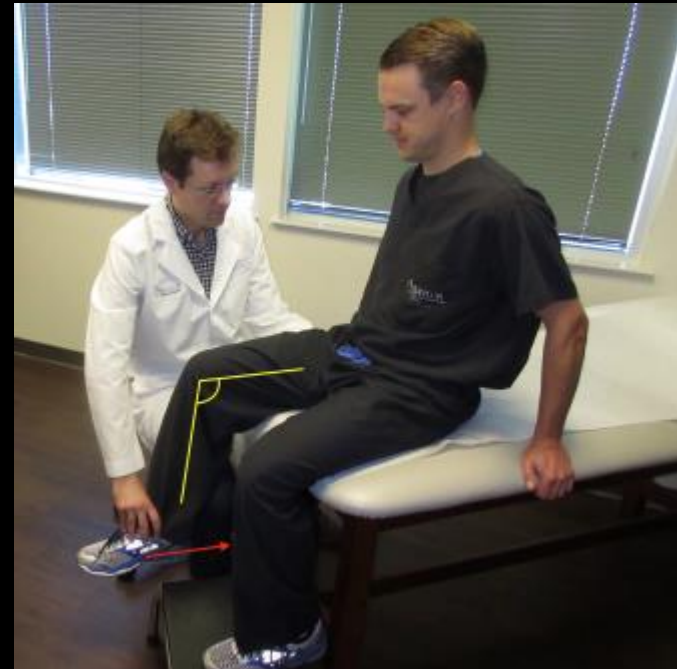
# Methods

- While seated, the patient was positioned with the knee at 30° and 90° flexion. The patient was asked to flex the knee against the examiner's resistance. A positive finding for proximal hamstring tendon injury is the reproduction of pain lateral to the ischium and/or weakness

*A-30°:*

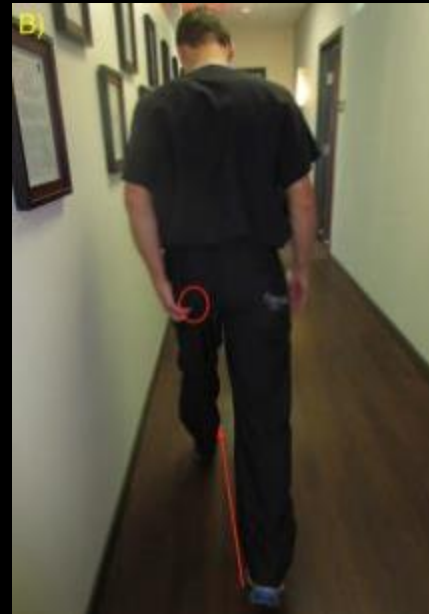
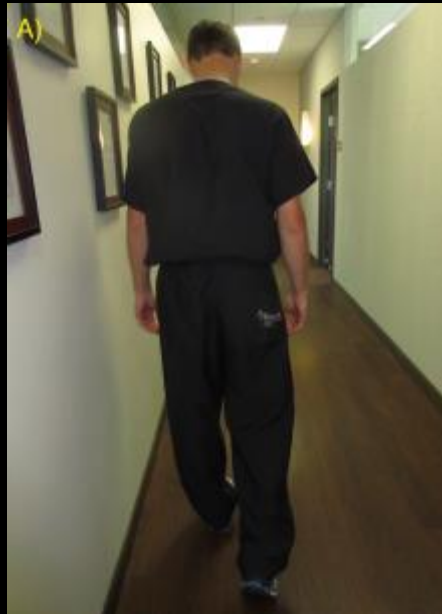


*A-90°:*



# Methods

- The long stride test is an active-dynamic test. The patient was instructed to walk with self-selected gait. The patient was then instructed to take a long step with the affected leg. A positive finding for hamstring tendon injury was the reproduction of pain lateral to the ischium at heel strike and hip flexion. A shorter stride length to avoid pain alleviates the symptom.



# Results

- MRI findings:
  - 64% (27/42) of subjects were diagnosed with hamstring pathology.
  - The mean duration of symptoms was 31.4 weeks (range of 3 – 120, SD  $\pm$  34.9).

MRI confirmation of proximal hamstring injuries

Structure	Tendinopathy	Partial Tear	Complete
<b>Total</b>	6 (22%)	9 (33,3%)	12 (44,4%)
<b>SM</b>	1 (4%)	2 (7%)	1 (4%)
<b>Conj. Tendon</b>	3 (11%)	7 (26%)	2 (7%)
<b>Entire Hs.</b>	2 (7%)	x	9 (33%)

SM - semimembranosis, Conj. Tendon – conjoint tendon; Hs – hamstring



# Results

Diagnostic properties of clinical examination test for Hamstrings Syndrome.

<i>CI (95%)</i>	<i>A-30°</i>	<i>A-90°</i>	<i>LST</i>	<i>A-30°+ A-90°+ LST</i>
<b>SN</b>	0.73 (0.54 – 0.86)	0.70 (0.50 – 0.84)	0.55 (0.37 – 0.72)	0.94 (0.79 – 0.98)
<b>SP</b>	0.96 (0.75 - 0.99)	0.96 (0.75 -0.99)	0.96 (0.75 - 0.99)	0.96 (0.75 - 0.99)
<b>+ LR</b>	23.43 (1.51- 361.87)	22.4 (1.44 - 346.97)	17.71 (1.13 - 276.64)	30.28 (1.97 - 464.1)
<b>- LR</b>	0.276 (0.15 - 0.51)	0.31 (0.17 - 0.56)	0.46 (0.30 - 0.70)	0.05 (0.01 - 0.26)
<b>DOR</b>	84.73 (4.49 – 1599.2)	72.33 (3.81 – 1372.64)	38.44 (2.08 – 707.79)	547.66 (20.99 – 14286.35)

A30 – Active 30 test; Active 90 test; LST – Long stride test; SN – Sensitivity; SP – Specificity; CI –

Confidence Interval LR - likelihood ratio; DOR - Diagnostic Odds Ratio.

# Conclusion

- The active hamstring tests at 30° and 90° knee flexion and long stride heel strike test have good diagnostic accuracy, particularly with specificity, when performed in isolation. The diagnostic accuracy was improved when the results of the 3 tests were combined. The use of active hamstring at 30° and 90° knee flexion and the long stride heel strike test are a valuable tool for the differential diagnosis of posterior hip pain.

# References

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