

## Active Straight Leg Raising Test (ASLRT) in Examination of Posterior Pelvic Pain in Pregnancy (PPPP): An Overview of Evidence

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### Abstract

The objective of this short communication was to provide an overview of evidence for Active Straight Leg Raising Test (ASLRT) in Examination of Posterior Pelvic Pain in Pregnancy (PPPP) through a search of PubMed database. There were three studies on measurement properties of ASLRT and they showed acceptable reliability, sensitivity and specificity for clinical use in women with PPPP. One study comparing ASLRT between patients and healthy controls showed altered muscle activation patterns, and another study found correlation between ASLRT scores and serum relaxin levels in women with PPPP. Although the identified studies did not find association between ASLRT and age, parity, duration of the postpartum period, height, or weight, number of previous deliveries, BMI, cause (pregnancy-related or not), the existence of urinary incontinence and/or level of fatigue, future studies exploring the mechanisms and inter-relationships are necessary.

**Keywords:** Orthopedic gynecology; Gynecological examination; Obstetric pelvic pain; Gestational back pain.

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### ASLRT

Mens *et al*[1] compared the scores on the ASLRT with posterior pelvic pain provocation test (PPPPT) between 200 women with PPPP and 50 healthy controls for examining sensitivity and specificity, and studied 50 women with lumbopelvic pain for examining reliability. ICC for reliability was 0.83. When the ASLRT scores 1-10 were designated as positive and zero as negative, the sensitivity of the test was 0.87 and specificity was 0.94. The sensitivity of the ASLR test was also higher than the sensitivity of the PPPP test.

Mens *et al*[2] validated the ASLRT as a disease severity scale for 200 patients with posterior pelvic pain after pregnancy by comparing the test score with the medical history, scores on self-reported Québec Back Pain disability scale, pain and tiredness, and pain provocation tests. The 0-10 scoring on ASLRT correlated well with other measures and disability at .70, and there was no association found between the ASLRT score and age, parity, duration of the postpartum period, height, or weight.

Mens *et al*[3] computed sensitivity and specificity, assessed the advantages and disadvantages of various cutoff points, analyzed the relation between the ASLR test and the Posterior Pelvic Pain Provocation (PPPPT) test, and investigated the relationship with confounders. The authors studied 110 women with LPP and 72 without LPP, and the best cutoff for the ASLR test in pregnancy

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Measurement Properties of

was between score 0 and 1. Specificity was 88% and sensitivity was 54% when used alone, and was 68% when used together with PPPPT. The ASLRT was unable to diagnose isolated symphyseal pain, isolated low back pain and isolated coccyx pain, and it was not influenced by age, number of previous deliveries, BMI, cause of LPP (pregnancy-related or not), the existence of urinary incontinence and/or level of fatigue.

#### *Comparison between Patients and Healthy Controls*

de Groot *et al*[4] studied muscle activation patterns of trunk and leg muscles during the active straight leg raising test (ASLR) and static hip flexion, and determined maximal hip flexion force at 0 and 20 cm leg raise height to compare between 24 pregnant women with and without Pregnancy-related low back and pelvic pain (PLBP). The study found differences between the patients and healthy controls: (a) patients scored subjectively more effort during ASLR, (b) at both 0 and 20 cm leg raise height patients had less hip flexion force, and (c) patients developed more muscle activity during ASLR. Their findings suggested that ASLR demonstrates a disturbed load transfer across the SI-joints in this population.

#### *Relationship with Other Clinical Variables*

Vøllestad *et al*[5] examined the serum relaxin levels in pregnancy and investigated whether relaxin levels relate to symptoms and clinical tests for pelvic girdle pain (PGP) in 212 pregnant women. Serum concentration of relaxin was found to have a significant association to positive score on the ASLR test, but no significant associations were found with responses to pain provocation tests, pain intensity or disability rating index (DRI).

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properties of ASLRT and they showed acceptable reliability, sensitivity and specificity for clinical use in women with PPPP. One study comparing ASLRT between patients and healthy controls showed altered muscle activation patterns, and another study found correlation between ASLRT scores and serum relaxin levels in women with PPPP. Although the identified studies did not find association between ASLRT and age, parity, duration of the postpartum period, height, or weight, number of previous deliveries, BMI, cause (pregnancy-related or not), the existence of urinary incontinence and/or level of fatigue, future studies exploring the mechanisms and inter-relationships are necessary.

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