

## ***DIAGNOSTIC TESTS IN POSTERIOR PELVIC PAIN SINCE PREGNANCY; A REVIEW.***

---

Jan M.A. Mens MD, PhD<sup>1,2</sup>

<sup>1</sup>The Spine & Joint Centre the Netherlands and Department of <sup>2</sup>Rehabilitation Medicine, Faculty of Medicine and Health Sciences, Erasmus University Rotterdam, the Netherlands

All correspondence and requests for reprints to:

Dr. J.M.A. Mens, Spine & Joint Centre, Westerlaan 10, 3016 CK Rotterdam, The Netherlands

E-mail: [sjceco@wxs.nl](mailto:sjceco@wxs.nl)

### ***INTRODUCTION***

The use of diagnostic instruments in lumbopelvic pain is mainly to categorise patients in groups with different prognoses and to measure disease severity.

Pregnancy is frequently complicated by the occurrence of lumbopelvic pain; the reported cumulative nine-month incidence ranges from 49-58%. Posterior pelvic pain since pregnancy (PPPP) is often described as a distinct category. It remains questionable whether PPPP is a specific syndrome, or just non-specific lumbopelvic pain with an onset during pregnancy or delivery. Regardless of the answer, detailed study on the characteristics of PPPP could provide better understanding of lumbopelvic pain in general. A need exists for simple tests with high validity, sensitivity and specificity. It was decided to review the various tests to discriminate PPPP and healthy controls.

### ***METHODS***

A literature search was performed in MEDLINE (1966-2000) by means of the words pain + test + pregnancy + (back or symphysis or sacroi\*). Moreover the references of the found literature were checked. Unpublished data of new investigations were added.

**RESULTS**

Table 1. Diagnostic tests to discriminate between patients with peripartum pelvic pain and healthy controls. Tests based on impaired functions and special phenomenons.

Test (with references)	Sensitivity	Population in which sensitivity was measured	Specificity (measured in population without complaints)
Symphysis mobility > 0 mm <sup>1</sup>	0.95	puerperium, PPPP	0.6
Symphysis mobility > 5 mm <sup>1</sup>	0.43	puerperium, PPPP	0.93
Symphysis mobility > 10 mm <sup>1</sup>	0.05	puerperium, PPPP	1.00
Asymmetry on DIV <sup>3</sup>	0.68	not pregnant, PPPP	0.90
Catching of the leg <sup>8</sup>	0.27	pregnant, PPPP	
Trendelenburg test <sup>2</sup>	0.31	pregnant, PPPP	0.98
ASLR <sup>6</sup>	0.91	pregnant, PPPP	
ASLR <sup>5</sup>	0.87	not pregnant, PPPP	0.94
Improvement of ASLR with pelvic belt <sup>6</sup>	0.81	pregnant, PPPP, ASLR-test positive	
Improvement of ASLR with pelvic belt <sup>6</sup>	0.74	not pregnant, PPPP, ASLR-test positive	
Weakness of hip adduction strength <sup>6</sup>	0.60	pregnant, PPPP	
Weakness of hip adduction strength <sup>6</sup>	0.61	not pregnant, PPPP	0.95

ASLR = Active Straight Leg Raise test

Asymmetry on DIV = Three or more units difference on Doppler Imaging Vibrations

Weakness hip adduction strength = strength below fifth percentile of the strength of healthy controls.

Table 2. Diagnostic tests to discriminate between patients with peripartum pelvic pain and healthy controls. Tests based on provocation of pain.

Test (with references)	Sensitivity	Population in which sensitivity was measured	Specificity (measured in population without complaints)
P4 test <sup>2,4,6,7,8</sup>	0.47-0.89	pregnant, PPPP	0.80-0.98
P4 test <sup>5</sup>	0.69	not pregnant, PPPP	
Flexion hip <sup>5</sup>	0.85	not pregnant, PPPP	
Pain at isometric bilateral hip adduction <sup>6</sup>	0.78	pregnant, PPPP	
Pain at isometric bilateral hip adduction <sup>6</sup>	0.77	not pregnant, PPPP	
Tenderness long dorsal sacroiliac ligament <sup>2,4</sup>	0.23-0.35	pregnant, PPPP	0.98-1.00
Tenderness long dorsal sacroiliac ligament <sup>9</sup>	0.76	not pregnant, PPPP	
Tenderness at palpation symphysis <sup>10</sup>	0.75	pregnant, PPPP	0.85
Pain at isometric bilateral hip abduction <sup>6</sup>	0.81	pregnant, PPPP	
Pain at isometric bilateral hip abduction <sup>6</sup>	0.74	not pregnant, PPPP	
Tenderness sacrospinous ligament <sup>4</sup>	0.64	pregnant, PPPP	0.89
Tenderness iliopsoas muscle <sup>10</sup>	0.45-0.55	pregnant, PPPP	0.90-95
Fabre test <sup>2,10</sup>	0.25-0.50	pregnant, PPPP	0.99-1.00
Gapping test <sup>2,4</sup>	0.15-0.44	pregnant, PPPP	0.98-1.00
Tenderness sacrotuberous ligament <sup>10</sup>	0.35-0.40	pregnant, PPPP	1.00
Pain symphysis in flamingo position <sup>10</sup>	0.35	pregnant, PPPP	1.00

Pelvic compression <sup>2,4</sup>	0.07-0.29	pregnant, PPPP	0.99-1.00
Pelvic compression <sup>6</sup>	0.24	not pregnant, PPPP	
Tenderness at palpation symphysis <sup>2,4</sup>	0.60-0.87	pregnant, symphysial pain	0.85-0.99

P4 = Posterior Pelvic Pain provocation

Pelvic compression = Compression of the pelvis from left to right

### CONCLUSIONS

Many diagnostic tools are available to discriminate between patients with PPPP and healthy subjects. Specificity, measured in healthy subjects, is high in almost all tests. The range of the sensitivity between various investigators is, in some tests, considerable. One of the explanations might be an intertester variance of the performance and interpretation of a test. In some investigations a tests is interpreted as positive if the test is positive at least at one side; other investigators score the sensitivity at the left and right side separately. Moreover, the examined population might have been influenced the sensitivity. It is acceptable to presume that sensitivity is higher as disease severity increases. Generally sensitivity in pregnant patients and not pregnant patients is similar. The only exception is the sensitivity of the tenderness of the long dorsal sacroiliac ligament. This could be caused by difference in intertester performance and interpretation.<sup>9</sup>

For further research it is recommended to homogenise the performance and interpretation of tests and to give an indication of the severity of the examined population.

Next step in further research is to evaluate the discriminatory power of tests between PPPP and other well defined syndromes with pain in the lumbopelvic region (e.g. lumbosacral radicular syndrome, coxartrosis, ankylosing spondylitis, etc).

**REFERENCES**

1. Berezin D. Pelvic insufficiency during pregnancy and after parturition. *Acta Obstet Gynecol Scand* 1954;23(3):1-130.
2. Albert H, Godskesen M, Westergaard J. Evaluation of clinical tests used in classification procedures in pregnancy-related pelvic joint pain. *Eur Spine J* 2000;9:161-6.
3. Buyruk HM, Stam HJ, Snijder CJ, Lameris JS, Holland WPJ, Stijnen TH. Measurement of sacroiliac joint stiffness in peripartum pelvic pain patients with Doppler imaging vibrations (DIV). *Eur J Obst Reprod Biol* 1999;83:159-63.
4. Kristiansson P, Svärdsudd K. Discriminatory power of tests applied in back pain during pregnancy. *Spine* 1996;21:2337-44.
5. Mens JMA, Vleeming A, Snijders CJ, Stam HJ, Koes BW. Validity and reliability of the active straight leg raise test as diagnostic instrument in posterior pelvic pain since pregnancy. *Spine*, in press.
6. Mens JMA, unpublished data.
7. Östgaard HC, Zetherström GBJ, Roos-Hansson E. The posterior pelvic pain provocation test in pregnant women. *Eur Spine J* 1994;3:258-60.
8. Stureson B, Uden G, Uden A. Pain pattern in pregnancy and >catching= of the leg in pregnant women with posterior pelvic pain. *Spine* 1997;22:1880-3.
9. Vleeming A, Vries H de, Mens JMA. Pain on the long dorsal ligament in PPPP. In preparation.
10. Wormslev M, Juul AM, Marques B, Minck H, Bentzen L, Hansen TM. Clinical examination of pelvic insufficiency during pregnancy. An evaluation of the interobserver variation, the relation between clinical signs and pain and the relation between clinical signs and physical disability, *Scand J Rheumatol* 1994;23:96-102.