The evidence behind the topic of sacroiliac joint testing

The importance of the sacroiliac joint as a pain generator for low back pain can’t be overlooked. Sacroiliac strain was first described as a source of low back pain as far back as 1905 by Goldthwaite and Osgood. (Slipman et al. 2001) The prevalence of sacroiliac joint (SIJ) as established by clinical examination is somewhere between 15%-30% of patients with low back pain. (Szadek et al. 2009) The pain associated with SIJ pathology has no specific distribution or features which differentiates it from other lumbar structures, which make the task of correctly identifying the source of the pain a difficult task. (Laslett, 2000, Laslett et al. 2005)

In 1994, the International Association for the Study of Pain (IASP) proposed a set of criteria for the assessment of pain arising from mechanical causes. Szadek et al. cites that SIJ pain refers to patients who show pain in the area of the SIJs which

- should be reproducible with specific provocation tests
- or that a injection into the affected joint with a local anesthetic should completely relieve the typical pain felt.

Many studies (Van der Wurff et al. 2000, Dreyfuss et al. 2004, Robinson et al. 2007, Laslett, 2000, Laslett et al. 2005) have tried to find the best orthopedic test that can be performed on a patient, but as of yet, none have shown to be as reliable or valid when compared to the gold standard, that is injection into the joint with an analgesic compound. Some authors state that a mixture of orthopedic tests could have a high enough reliability to be clinically relevant and the goal has been set to find the correct combination of these (Kokmeyer 2002.) Various studies have been set up to experiment with different tests, different numbers of tests in combination and different orders of the tests following each other. The more reliable studies have used large numbers of patients, control groups, strict cut-off criteria and comparison against the gold standard, which is anesthetic injection.

Kokmeyer et al. (2002) argued that multi-test regimens of 5 positive pain provocative tests were needed to reliably demonstrate the presence of SIJ dysfunction. Laslett (2005) again used a combination of tests and he was able to demonstrate a sensitivity and specificity of
91% and 78% respectively. He argues that the thigh thrust test gave the best sensitivity and the distraction test gave the best specificity. He also states that 5 tests gave the best result but that when these 2 tests are positive, there is little need to continue with the other tests, otherwise you complete of the series of the 5 tests. The five tests described by Laslett include the following: Thigh thrust test, Gaenslens, Sacral compression test, Compression and Distraction test. This tends to go against the trend of completing the whole set of tests which is used by other authors. (Van der Wurff (2000), Cattley et al. (2002) and Robinson et al. (2007))

An important author on the subject on sacroiliac joint testing has been Peter Van der Wurff whose paper on the validity and reliability of these tests was published in 2000. In this study, he devised another protocol which deviated slightly from that of Laslett. Instead of the 5 tests set out by Laslett (2000 and 2005,) he chose the Patrick-Fabers test instead of the sacral (apex) thrust test. Although the overall reliability is slightly less that the Laslett protocol, it has been by and large the system which is taught in the European School of physiotherapy.

A further extensive study that was performed by Karolina Szadek and her colleagues, (namely Peter van der Wurff) at the VU Medical Center in Amsterdam in 2009. Again they conducted an extensive systematic review of all the literature regarding the diagnostic validity of sacroiliac tests. They found that the thigh thrust test, compression test and 3 other pain provocation tests in combination were necessary to safeguard best reliability, similar to the conclusion to the work done by Laslett in 2005.
A comparison (shown below in Table 1) between Laslett (2005) and Van der Wurff (2006) studies of the validity of multiples of positive pain provocation SIJ tests was carried out by Laslett (2008.) As we can see, there seems little to chose between which ever method that you use, as both show very good specificity and sensitivity.

Table 1

<table>
<thead>
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<th>Diagnostic accuracy statistic</th>
<th>1 or more</th>
<th>2 or more</th>
<th>3 or more</th>
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<td>PVW</td>
<td>ML</td>
<td>PVW</td>
<td>ML</td>
<td>PVW</td>
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<tr>
<td>Sensitivity %</td>
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<td>100</td>
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<td>0.10</td>
<td>0.13</td>
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</tr>
</tbody>
</table>

Notes:

1. LR = likelihood ratio, ML = Laslett M et al 2005, PVW = van der Wurff et al 2006
2. The shaded cells represent the optimal number of positive SIJ provocation tests producing the highest positive likelihood ratio, i.e., 3 or more.
3. The tests included in this study are distraction, compression, thigh thrust, Gaenslen's test, sacral thrust, and Patrick's FABER test.

One fact that Laslett (2005) mentions is that overall reliability can be further improved by the addition of procedure to rule out lumbar disc involvement. He states that the presence of centralization of pain by the Mckenzie protocol will help to differentiate a disc herniation/bulge and should be performed before the sacroiliac tests would be commenced. The presence of centralization of pain should not occur in sacroiliac joint dysfunction and so pointing to a discal cause of the pain.
Peter Van der Wurff (2006) also mentions that the use of pain intensity mapping to be a useful tool which can be carried out in addition to the 5 orthopaedic tests. (This is different from the use of pain referral maps which have shown low reliability, but rather pinpoints to where the great pain intensity is located.) The mapping of pain intensity was first compiled by Fortin (1994) and has led to the naming of an area at the superior sacroiliac joint as Fortin’s area. Pain at this point is a good indicator of sacroiliac joint dysfunction but not if there is pain at both the Fortin and tuber areas.

After performing a review of the literature, is that the students should be aware of the importance of using the most up to date evidence in choosing how to correctly evaluate the sacroiliac joint and what an important role this joint in low back pain.

If they decide to choose the Laslett protocol, they should start with the thigh thrust test and distraction tests as they have the highest predicted values. This should be followed by the sacral thrust test and compression. The final test that should be completed should be the Gaenslens’s test as this has the lowest predicted value out of all the 5 tests. You can say that sacroiliac joint involvement occurs if you have reached 3 positive tests, as to avoid undo pain to the patient.

If you perform the Van der Wurff protocol, then all 5 tests should be performed and sacroiliac joint involvement is indicated if you have 3 positive tests out of the 5 are positive for pain.

Further improvement on the predictive values could be achieved if you also completed a McKenzie assessment to rule out lumbar disc involvement as set out by Laslett (2005.) The use of pain intensity maps may also be of some use, as simultaneous pain at the Fortin and Tuber areas may indicate that the sacroiliac joint might not be involved (Van der Wurff et al. 2006.)
References


Laslett M. Evidence based diagnosis and treatment of the painful sacroiliac joint. Journal of Manipulative and Physiological Theraputics. 2008;31 (3): 142-152

Laslett M. Evidence-based diagnosis and treatment of the painful sacroiliac joint. The journal of Manual & Manipulative Therapy. 2000;16 (3): 142-152


