



**QUESTION 1|** IMAGING OF THE SIJ: WHAT INFORMATION DOES SPECT-CT GIVE THAT X-RAY, CT or MRI DO NOT?

**ANSWER 1:|** The technetium (Tc99) signal picks up microtrauma, which produces calcium deposition (similar to a stress fracture). The CT then -combined with the bone scan allows a precise definition of the stressed structures. On the other hand, as this is a chronic condition there is little oedema, and therefore little proton signal, which is the basis of MRI signal.

In a series of 440 patients, 75% of patients have had an MRI before they present. Invariably there is no suggestion of SIJ mechanical disruption. There are plenty of patients with FAI or acetabular tears of the hip, which in many cases may well be secondary to the compensation reactions to “stabilise” the pelvis. In fact, a hip arthroscopy and debridement of anterior hip structures in these cases is contraindicated, and the problem will persist, if it is not made worse.

In a handful of patients who had a repeat SPECT-CT sometime after they have returned to clinical normality, the SPECT-CT pattern of increased uptake has also reverted to normal. This indicates that the sacrum no longer counter-nutates when the joint is loaded. This confirms both the accuracy of the test and the biomechanical model.

Ref : Cusi M, Van der Wall H, Saunders J, Fogelman I, (2012). Metabolic disturbances identified by SPECT-CT in patients with a clinical diagnosis of sacro-iliac joint incompetence. *European Spine Journal* (2013)22:1674–1682. DOI 10.1007/s00586-013-2725-5

**QUESTION 2: |** WHAT IS THE RELEVANCE OF OTHER TESTS, SUCH AS THE COMPRESSION AND DISTRACTION TEST, THE HIP FLEXION PHASE OF THE STORK TEST, ETC.

**ANSWER 2: |** There are many tests to assess the SIJ. Most of them are non-specific, and there is no single clinical test that guarantees pathology of the SIJ. The evidence in the literature (Van der wuff, Laslett) indicate that when several tests are positive, clusters of tests give a better chance of getting the diagnosis of SIJ dysfunction. The four basic tests suggested in the talk are all validated for their relevance to the SIJ. I personally find that the distraction and compression tests are very non-specific, and therefore I have chosen not to do them in favour of others mentioned in the presentation. On the other hand, whilst I do assess the hip flexion phase of the stork test I find that it does not give me information on load transfer.

Of the four validated tests I use routinely two of them are pain provocation tests (as the stress the posterior structures of the joint) and two functional tests which assess load transfer. Three of them must be positive to clinch the diagnosis of SIJ incompetence save on rare occasions.

There is of course no specific test that automatically screens a discal injury from and SIJ problem. Both pathologies co-exist in many cases, and it is then a matter of clinical judgement to give priority of management to one or the other. The SIJ is part of the “lumbo-

pelvic-hip complex”, one of the reasons why it is a difficult area to examine, diagnose and treat.

### **QUESTION 3: | HOW DO YOU MANAGE SIJ INCOMPETENCE**

**ANSWER 3: |** Incompetence (also called ‘dysfunction’ which I think is a non-specific diagnosis) is ultimately a failure to transmit load in an optimal fashion.

In the normal SIJ, the sacrum nutates when the joint is loaded. This is the result of both form closure (bone surfaces, ligament tension and strength) and force closure (combined activity of core muscles (initially TA, multifidus, pelvic floor and diaphragm). Inappropriate load transfer (incompetence) can be due to a deficit of either force or form closure (or both). For practical purposes my default position is that the problem is force closure failure, and patients are referred for a specific exercise programme. If an adequate exercise programme does not produce the expected results, the posterior ligaments are considered to be the problem, and then the interosseous ligament is injected with prolotherapy (sometimes PRP) under imaging guidance. The present protocol is three injections, one every six weeks.

Only in extreme cases of severe disruption of the joint prolotherapy is not sufficient. Then is the time to consider a SIJ arthrodesis (fusion). To date I have had only two patients undergo this surgery, in a total of close to 1000 patients.

Exercise programmes are difficult to design and monitor. When they do not work, the usual causes are:

- a) Poor compliance on the part of the patient
- b) Beginning at too high a level of demand for the fitness/ability of the patient. The programme cannot begin until the therapist is satisfied that the patient can confidently and effectively activate the basic muscles (TA, multifidus and pelvic floor initially). Once the basics are understood and the patient becomes proficient, he/she is advanced into combining other muscles to the original basic level, and then the “endurance phase” begins once again.
- c) Upgrading the exercise before the patient is ready. Usually patients learn to do the exercises in the rooms, but have little endurance or cannot manage outside a very controlled environment. They must complete every stage before moving on to the following stage
- d) The exercises are not specific enough, and any of the three stages, which I call , unconventionally, **ACTIVATE, COMBIMATE, FUNCTIONATE,**

Dr Mel Cusi