Sacroiliac Joint Dysfunction in the Athlete: Diagnosis and Management

We write to point out a large number of misconceptions and omissions in this review (1) of mechanical dysfunction of the sacroiliac joint (SIJ). Most importantly, the article fails to consider the mechanical function of the sacroiliac joint, which is to fundamentally absorb torsion and transfer load. These concepts have been exhaustively covered in the work of Bogduk (2) and Vleeming (3–5). The anatomy and function of the sacroiliac joint also have been extensively covered in the review by Alderink (6) which is considered a classic citation. The integration of form and function has been modelled by Lee and Vleeming (7,8) who introduced the concept of form and force closure of the sacroiliac joint which has been used to successfully treat mechanical dysfunction of the sacroiliac joint by specialized physiotherapy in approximately 80% of cases (9). There is a vast body of literature that has addressed mechanical dysfunction of the sacroiliac joint as a peripartum syndrome in the pelvic girdle pain syndrome. The same concepts have been integrated into the setting of either discrete or repetitive trauma under the umbrella term of sacroiliac joint incompetence (10). This vast body of literature has been completely overlooked in the current review, although the pathophysiology is identical as has been shown in a number of recent publications (10,11).

There is significant evidence that points to the dorsal interosseous ligament of the sacroiliac joint as the culprit lesion in mechanical dysfunction of the sacroiliac joint. Murakami et al. (12) undertook an elegant study in 50 patients with established sacroiliac joint dysfunction including appropriate pain provocation manoeuvres. The first 25 patients underwent intra-articular injection of 2% lidocaine into the SIJ, while the second group of 25 underwent posterior peri-articular injection. The peri-articular injection successfully reduced pain and improved function in 96%, while the intra-articular injections did so in 62%. When crossed over to peri-articular injection, the remainder had effective pain relief and improvement in function. Treatment with prolotherapy by injection into the dorsal interosseous ligament under image guidance also has shown a high rate of response in patients with mechanical dysfunction of the SIJ (9). These evidence-based studies should put paid to the concept that intra-articular injection is a reference standard for the condition, as is assumed in the current publication.

There seems to be significant confusion that the pelvic girdle pain syndrome is an entirely different disease to trauma-induced mechanical dysfunction of the sacroiliac joint. We have shown that the clinical and imaging findings are identical in the two conditions (10) and that, fundamentally, the pelvic girdle pain syndrome should be considered under the umbrella term of sacroiliac joint incompetence. Importantly, the clinical findings were identical when the evidence-based European guidelines for the diagnosis of the pelvic girdle pain syndrome were considered (13). The evidence-based tests included the active straight leg raise, long dorsal sacroiliac ligament tenderness, and the Stork test. These important evidence-based clinical findings were omitted from the current review. These observations were presented at the ACSM Annual Meeting in 2016, where athletic trauma accounted for a majority (88%) of 1200 patients with mechanical dysfunction of the SIJ over the peripartum variant (8%) (14).

We have established that single-photon emission computed tomography (SPECT) of the bone scan with fused x-ray computed tomography (CT) provides a highly sensitive and specific imaging technique (>95%) for the diagnosis of mechanical dysfunction of the sacroiliac joint (10). Furthermore, it adds significant evidence to the form/force closure model of sacroiliac joint dysfunction (7) with injury to the dorsal interosseous ligament being the centrepiece of the abnormality. This publication also was overlooked in the current review.

In many ways, this review in question reflects the degree of confusion in the medical community regarding both the aetiology and clinical manifestations of sacroiliac joint dysfunction. While the origins of the disease were established in the peripartum population, trauma appears to be a far more common aetiology than was initially realized. Trauma may range from discrete falls on to the buttocks to twisting injury or repetitive microtrauma in sports where there is landing on one limb as in gymnastics, hurdling, and long-distance running.

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