*Dynamic Chiropractic* – November 3, 2003, Vol. 21, Issue 23

# Improving Sacroiliac Joint Function

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The role of the sacroiliac (SI) joint holds a sometimes confusing, perhaps even controversial place in the health care literature. A dysfunctional SI joint is often ignored or dismissed as an insignificant feature of musculoskeletal health.[1,2] However, SI subluxation is a legitimate syndrome, separate from the type of low back pain associated with disc conditions, lumbago, or sciatica.[1-6] In fact, SI joint dysfunction has been implicated as a common cause of back pain in more than 30 percent of children.[3] Additionally, as the link between the spine and the lower extremities, the SI joint "sustains even higher loads during athletic activity, predisposing athletes to a greater probability of joint dysfunction and pain."[7]

The SI joint also can give rise to buttock and leg pain, which is often difficult to differentiate from other causes of low back pain.[8,9] Furthermore, dysfunction of the SI joint may be a contributing factor in failed back surgery syndrome.[10]

**Small Joints, Great Weight**

The role of the SI joins is to participate functionally in converting the pelvis into a "resilient, dynamic, accommodating base that dissipates weight, absorbs shock, and provides a singular proficiency unique to bipedal locomotion."[11] In four-legged animals, body weight is distributed horizontally over the spine. From an engineering point of view, this weight distribution method is superior to the upright human musculoskeletal system, which has a single, cantilevered support at the hips. The human spinal column is configured such that the total weight of the upper body rests on the two small SI joints at the juncture of the sacrum and ilia. The stress placed on this area in the upright position makes the lower back susceptible to injury.

**Acute and Chronic Dysfunctions**

Primary SI dysfunction arises from acute trauma, such as a blows, a fall on the buttock, or an attempt to save oneself from falling. Knocking the SI joints out of place can affect the structural integrity of the entire spine. The SI joints themselves are held in place by small ligaments that can be stretched out of position if there is a traumatic dislocation. The whole pelvic girdle can be tilted to one side in the aftermath of a traumatic injury. Tissues in the area become inflamed and muscles spasm, pulling on the hip bones and rotating them out of place. A positive Vleeming test with improved compression is common.

A secondary dysfunction comes on slowly, producing a chronic misalignment. Muscle atrophy on one side and overdevelopment on the other may be associated with a scoliosis with pelvic tilt, or an actual shortening of one leg.[5] Over time, the entire spine can be affected, and one shoulder blade or side of the rib cage may appear more pronounced than the other. Eventually, uneven pressure on the spine may grind away at the protective discs between the vertebrae.

**Restoration and Support**

The goal of caring for an SI subluxation is to restore a normal relationship between the sacrum and ilium, and to maintain it with suitable support.[2] Many authors concur in principle, but differ in exact methods of restoration and supportive care.[1,5,10,12] After the SI joint is examined and evaluated, the direction of displacement is determined. Joint correction is accomplished by inducing a "rotary movement of the ilium in the direction exactly contrary to the one in which the displacement has occurred."[5]

Achieving suitable support to maintain joint integrity requires consideration of predisposing factors. Special attention should be paid to the kinetic chain. Beginning at the foundation of the chain, the feet may exhibit excessive pronation or supination that can contribute to SI syndrome.[13] Effects may manifest as muscular imbalance and skeletal distortion that transmit directly to the pelvic ring. Functional leg-length inequality also can result from foot disorders or structural anomalies. Custom-made orthotics should be pursued in treating the corresponding symptoms.[1,12,14]

The effects of heel-strike shock on the pelvic structure also should be noted. Shock forces of 5-7 g’s (5-7 times body weight) are transmitted and dissipated through the body, and reduced to 0.5 g at the jaw.[15] Hip and back pain are natural consequences when such force is present, particularly in cases where SI dysfunction exists. A shock-absorbing material built into a custom-made orthotic can have a significant effect in reducing initial heel impact.

Corrective exercises to be performed at home can be recommended as an adjunct to clinical treatment.[1,15,16] Activity should focus on developing strength in the transverse abdominals, multifidus and supporting pelvic muscles.[17] This can also enhance the shock-absorbing properties of the tissues.

Patients exhibiting marked SI instability may require use of a corset, belt, or strapping.[1,2,12] Additional lumbar support can also be provided by a postural backrest, when seated, or by a pillow designed to provide adjustable support for either the lumbar or cervical areas. Proper cervical support during sleep is an often-overlooked area of consideration in SI cases. Because the body is essentially a kinetic chain, elongation of supporting soft tissues in the cervical spine may ultimately lead to spinal misalignments that can aggravate the SI syndrome. Cervical support pillows help promote patient comfort and also help adjustments to hold.

**Joint Rehab Do's and Dont's**

Here is some additional advice for your patients with SI dysfunction/pain:

**Do** walk briskly 2-3 miles a day to strengthen stretched-out sacroiliac ligaments and reduce them to their proper size and position.

**Do** ice the area. Ice reduces inflammation and relaxes muscles.

**Don't** rely on bed rest - ligaments will further slacken from disuse.

**Don't** bring your knees to your chest, perform full sit-ups, or bend over from the waist with your knees straight. All of these motions will displace the SI joints.

**Don't** use heat treatment after a back injury. Heat expands the ligaments, contributing to further instability.

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