



Dynamic Chiropractic – May 17, 1999, Vol. 17, Issue 11

Sacrum Subluxation

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A frequently neglected subluxation component in the pediatric population is the sacral subluxation. Micro/macrotrauma or repetitive stress placed in the sacral region is a major contributing factor to sacral subluxation. Improperly lifting or carrying newborns and infants may place undue stress on the sacral region. Often for convenience or entertainment purposes, parents and day care providers house these nonweightbearing infants in car seats, baby bouncers/jumpers and walkers for hours. Sacral trauma can also be expected as toddlers learn to master the skill of walking and repetitively land flat on the buttocks.

The posterior sacral segment is a commonly overlooked subluxation component with children under the age of five. The unfused sacral segments are susceptible to micro/macrotraumas. Specifically, sacral segments S2 or S3 should be suspected and warrant a closer chiropractic evaluation. Sacral rotation (P-L or PR) does not usually occur with younger children unless the child has fallen and struck the sacroiliac articulation. The sacrum of the older child may subluxate at the lumbosacral junction as a base posterior.

When the sacrum is specifically corrected by a short lever adjustment versus a long lever approach, the neurophysiological dysfunction seen from this subluxation component may have a variety of positive outcomes for several childhood disorders (e.g., bed wetting, leg cramps). I would refer the reader to the *Pediatric Chiropractic* textbook for a more detailed explanation.

Depending on the child's age, the sacrum may be evaluated by radiographs, inspection, static and motion palpation.

Radiographic Analysis

For a rotated sacrum, the analyzed AP film will reveal that the width of the lateral border of the sacrum is increased on the side of posterior rotation. The lower spine will usually rotate in the same direction as the rotated sacrum. The intersegmental sacral subluxation will demonstrate on the lateral radiograph varying

degrees of retrolisthesis and/or widening of the posterior aspect of the rudimentary joint space.

Inspection

The child with a base posterior sacrum may lead to compensation in the lower limbs with a bilateral toe-in appearance.

Static Palpation

With the infant in the prone position and the child in the seated position, the doctor will palpate for edema and tenderness. To palpate for segmental posteriority, place the distal end of the digit over the sacral tubercle and apply pressure. For the posterior rotated sacrum, the static evaluation may reveal prominence of the lateral border of the sacrum on the side of rotation.

Motion Palpation

With the infant in a prone position, the doctor should contact the involved sacral tubercle of S1, S2 or S3 with the distal end of the fifth digit. Bilaterally raising and lowering the infant's legs will create an extension movement; the doctor will push posterior to anterior. The toddler can be placed in the prone or seated position, and the doctor may use the second digit to contact the sacral tubercle. For the seated procedure, the toddler's arms are crossed in front of the chest. With one hand, the doctor should stabilize the arms while the opposite second digit contacts the sacral tubercle and introduces posterior to anterior movement. If sacral posteriority exists, restriction of motion will be present.

Sacral rotation in the infant is rare and difficult to detect. Possible causes that should warrant suspicion of this listing include in utero constraint, or the infant who has suffered a fall onto the pelvis. The doctor will contact the lateral aspect of the sacral ala. While bilaterally raising the legs, introduce slight posterior to anterior and slight medial to lateral movement. If sacral rotation exists, restriction of motion will be present.

The toddler should be placed in the prone or seated position. The doctor will contact (with their second digit) the sacral ala. The doctor would introduce the slight posterior to anterior and slight medial to lateral. A rotate sacral tubercle will present with both restriction and edema.

Patient Setup

The infant is placed in the prone position. The doctor should contact the specific sacral tubercle with the distal end of their digit. Depending on the size of the doctor's hand and the depth necessary to accomplish the adjustment, the segment may be contacted with the fifth digit; fifth on fifth; second on fifth; thumb on fifth; second on second; and thumb on second.

For the side posture position, the infant is maintained in a neutral position. The doctor will stabilize the infant's crossed arms in front of the chest. The parent may also assist by stabilizing the lower limbs. Depending on the hand size of the doctor and the size of the sacral tubercle, the following contacts may be used: fifth; second; thumb; or finger push. The thrust for a posterior sacral segment is posterior to anterior.

The child may be placed in the prone position. The doctor will contact the sacral tubercle for a posterior listing. The posterior and rotated sacrum will be contacted on the ala on the side of rotation. Depending on the doctor's hand size and the size of the contact site, the following contacts may be selected: fifth on fifth; second on fifth; thumb on fifth; thumb on thumb; and pisiform on thumb.

The finger push, thumb, and/or pisiform contacts may be used when adjusting the child's side posture. The doctor will stabilize the crossed arms in front of the child's chest. The doctor will straddle the superior bent leg. The doctor should be careful not to introduce torque into the spine of the patient during the thrust phase. The thrust for all sacral posterior listings is posterior to anterior. Sacral rotation is corrected with a posterior to anterior and medial to lateral thrust.

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