Differential Diagnosis for Apparent Short Leg*

I. Anatomic Short Leg, or Femoral Head Unleveling (ΔFHU)
   A. Unilateral
      1. Dropped longitudinal foot arch
      2. Severe Knee or
      3. Hip arthritis
         a. Congenital hip dysplasia
         b. Slipped capital epiphysis
      4. Short leg bone, tibia or femur
      5. Short Seated hemipelvis (ΔSeHP)

II. Sacral Shear, or Sacral Base Unleveling (ΔSBU)**

III. Functional asymmetries
   A. Unilateral tight hip flexors
      6. Unilateral tight psoas
      7. Unilateral tight rectus femoris or functional equivalent
   B. Descending influences
      8. Unilateral tight quadratus lumborum or functional equivalent
      9. cranial influence? Ross Pope, D.O., is working on this.
   C. Anterior rotated innominate ***

* Apparent short leg is a clinical finding on physical exam. The supine patient flexes hips and knees, lifts butt off the table and drops it down. Physician places thumbs just below medial maleoli to assess apparent short leg.

** While theoretically a Lt. sacral torsion should lower the sacral base on the Rt. Side, no one yet has shown before and after x-rays that show a leveling of the sacral base as the result of treatment.

*** Juhl, et. al., confirmed that an anteriorly rotated innominate is usually a compensation for an anatomic short leg (ΔFHU or ΔSBU)

   If we evaluate and effectively remove the functional asymmetries, and we still find an apparent short leg, the differential diagnosis is simplified to
   I. Anatomical short leg (ΔFHU).
   II. Short Seated Hemipelvis (Δ SeHP).
   III. Ideopathic Sacral Base Unleveling (Δ SBU).

   This can be confirmed with a standing lumbo-sacral x-ray in the manner of Denslow/Juhl. If the measurements ΔFHU, ΔSBU, and ΔSeHP are <4 mm, the patient doesn’t have a compensatory scoliosis to the short leg side and only requires episodic osteopathic treatment, the patient probably should not be burdened with a butt or heal lift.

   If the ΔSBU is ≥10 mm or there is a compensatory scoliosis convex to the short leg side, a heel lift should be considered.

   If the ΔSeHp is ≥4 mm and the patient has a compensatory scoliosis or recurrent back pain and tires easily in the seated position, the concept of a butt lift should be introduced.

   A general rule (c.f. Zink) is that if a patient’s patterns are out of the common compensatory patterns, they are likely to be more clinically significant.

   John H. Juhl, D.O.,  9-19-09