OMT for Low Back Pain

Boyd R. Buser, D.O.
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Overview

- Epidemiology
- History
- Lumbar vs. Pelvic somatic dysfunction
- Model for OMT sequence
Low Back Pain Epidemiology

- Debilitating LBP experienced by 80% of population at some time during adult life
- Responsible for more than 20 million ambulatory medical care visits annually
- $100 billion in costs annually
History

• Typically located at or below belt line in S-I area
• Radiates to lower extremity; usually not below knee
• Aggravated by positional change, often more comfortable in standing or seated position.
• Etiology – frequently occurs while bent over and twisted after exertion (in absence of acute injury)
• Contributing factors
  – obesity
  – postural decompensation (sagittal, coronal)
  – deconditioning
  – smoking
Examination

• Differentiation between intrinsic somatic dysfunction of the pelvis vs. effect of lumbar somatic dysfunction on position and motion of the pelvis as a whole
  – Lumber spine – iliac crest heights and pelvic roll
  – Pelvis – ASIS, pubic symphysis, PSIS, sacral landmarks (sulci, ILA)
Lumbar Spine Somatic Dysfunction Diagnosis

• Type I
  – Iliac Crest Heights (sidebending)
  – Pelvic Roll (rotation)

• Type II
  – 3 position diagnosis (N, F, E)
Muscles acting on lumbar spine

• Predominately Long Restrictors
  – Quadratus Lumborum
  – Erector Spinae
  – Multifidus
  – Iliopsoas
  – Rectus Abdominus
  – Internal and External Obliques
• **Check iliac crest heights with patient supine**
  
  – This is a static test aiding in the assessment of lumbar side-bending
Pelvic Roll
HVLA Treatment

• Treatment of Type I somatic dysfunction focuses on spinal transitional areas
  – Lumbosacral junction
  – Thoracolumbar junction
Lumbosacral Junction Technique
HVLA- Lumbosacral Junction Technique for Type 1

In this example, the sacrum and pelvis are tilted to the right in the coronal plane, creating a compensatory lumbar curve of left sidebending and right rotation. This technique is designed to reverse the sidebending of the sacrum and pelvis, also reversing the rotation of the lower portion of the lumbar curve.

2. While monitoring motion at L5 with the fingertips, the operator grasps the patient's bottom arm and induces trunk rotation (by pulling on the arm) until motion is palpated at L5. The spine should be kept straight (without kyphotic or lordotic curves). The patient's head is turned toward the ceiling.

3. The patient's upper leg (right leg in this example) is placed in one of the following positions, according to operator's preference and/or patient's comfort:
   a. allowed to fall from the table
   b. knee flexed with foot in the opposite popliteal fossa
   c. straddled by the physician

4. The operator's pronated forearm (left arm in this example) is placed midway between the crest of the ilium and the ischial tuberosity. The operator's other arm stabilizes the patient's upper thorax.

5. While maintaining the same rotational relationship, the patient is rolled toward the operator until the operator has gained a mechanical advantage.

6. The patient is asked to take a deep breath and exhale. During exhalation, a high velocity-low amplitude (HVLA) thrust is made in an anterosuperior direction by the operator against the arm that is in contact with the patient's pelvis (left arm in this example).

NOTE: The operator's body should deliver the thrust against the arm. The operator's arms are used to position and stabilize, not to thrust.
Thoracolumbar Junction Technique
HVLA-Thoracolumbar Junction Technique for Type 1

In Type 1 somatic dysfunction, the lumbar curve tends to crossover at the thoracolumbar junction. This technique is designed to reverse the sidebending of the lumbar curve at L₁, also reversing the rotation of the upper portion of the lumbar curve.

1. The patient is placed on the side opposite the direction of rotation of L₁ (right side in this example). The operator stands at the side of the table facing the patient.

2. While monitoring motion at L₁ with the fingertips, the operator grasps the patient's bottom arm and induces trunk rotation (by pulling on the arm) until motion is palpated at L₁. Additionally, the thorax should be pulled anteriorly until flexion motion is also palpated at L₁. The patient's head is turned toward the ceiling.

3. The patient's upper leg (left leg in this example) is positioned: a) with the foot in the opposite popliteal fossa, or b) allowed to fall from the table.

4. The operator's pronated forearm (right arm in this example) is placed just below the iliac crest with the fingertips still palpating L₁. The other arm stabilizes the patient's upper thorax.

5. While maintaining the same rotational relationship, the patient is rolled toward the operator until the operator has gained a mechanical advantage.

6. The patient is asked to take a deep breath and exhale. During exhalation, a high velocity-low amplitude (HVLA) thrust is made in an anteroinferior direction by the operator against the arm that is in contact with the patient's pelvis (right arm in this example).

**NOTE:** The operator's body should deliver the thrust against the arm. The operator's arms are used to position and stabilize, **not** to thrust.
Sequence for treatment of pelvic somatic dysfunction

1. Long Restrictor muscles
   – Piriformis
   – Psoas
   – Hamstrings

Muscle energy and/or counterstrain approaches would be typical to address somatic dysfunction in these muscle groups.
Sequence for treatment of pelvic somatic dysfunction

1. Long Restrictor muscles
   - Piriformis
   - Psoas
   - Hamstrings

2. Pubic Symphysis
Isolytic Treatment for Pubic Symphysis

1. The patient is supine with legs flexed and feet together and flat on the table.
2. With the physician's hand on the lateral aspects of the knees, the patient is asked to separate the knees while the physician resists.
3. After the patient relaxes, the physician places his hands on the medial aspects of the knees and separates them approximately 10-12 inches.
4. The physician asks the patient to bring the knees together and overcomes this motion with a short, lateral isolytic thrust, if necessary.
Sequence for treatment of pelvic somatic dysfunction

1. Long Restrictor muscles
   - Piriformis
   - Psoas
   - Hamstrings

2. Pubic Symphysis

3. Sacro-iliac joints
Sacroiliac Articulatory Technique

1. Patient is in the left lateral Sims' position.
2. Stand behind the patient and place one hand on the sacrum at S2.
3. With the patient's lower leg slightly flexed, grasp the upper leg just below the knee and flex the knee and hip.
4. Flex the hip up to the level of S2 while palpating for motion at S2. Abduct the thigh until you reach the passive barrier in abduction.
5. Ask the patient to take in a deep breath and hold it. While maintaining abduction, extend the hip.
6. This technique may produce an audible or palpable articulation.
7. The same procedure is repeated with the patient lying on the other side to treat the opposite sacroiliac articulation.
Sequence for treatment of pelvic somatic dysfunction

1. Long Restrictor muscles
   - Piriformis
   - Psoas
   - Hamstrings
2. Pubic Symphysis
3. Sacro-iliac joints
4. Sacral somatic dysfunction (torsion, etc.)
Sequence for treatment of pelvic somatic dysfunction

1. Long Restrictor muscles
2. Pubic Symphysis
3. Sacro-iliac joints
4. Sacral somatic dysfunction (torsion, etc.)
5. Innominate somatic dysfunction
   A.) Slipping or shearing (superior-inferior)
   B.) Flaring (lateral-medial)
   C.) Rotation (anterior-posterior)
Posterior Innominate Rotation (traction tug technique)

1. With the patient supine, grasp the leg above the ankle on the dysfunctional side.
2. With the leg resting on the table, move the leg laterally to approx. 10° of abduction.
3. Apply traction to the leg until you have taken up all the slack.
4. Give the leg a high velocity, low amplitude tug to rotate the innominate anteriorly.
Anterior Innominate Rotation
(traction tug technique)

1. With the patient supine, grasp the leg above the ankle on the dysfunctional side.
2. Lift the leg about 30° off the table.
3. Move the leg laterally to approx. 10° of abduction.
4. Apply traction to the leg until you have taken up all the slack.
5. Give the leg a high velocity, low amplitude tug to rotate the innominate posteriorly.