

Postural Restoration: A Revolutionary New Approach in the Treatment of Curvature of the Spine

A Case Study by Susan Henning, PT, PRC

Postural Restoration is the first approach to appreciate the significance of fundamental asymmetry of the human body as a positive factor which facilitates movement in 3 planes of motion via a right side dominant pattern

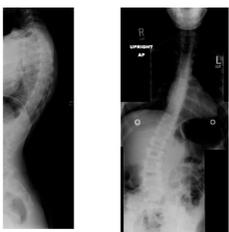
- ❖ Right side dominance is universal despite handedness due to organ placement and muscle attachments.
- ❖ Right dominant patterning is tri-planar and represents ½ of the gait cycle.
- ❖ The left non-dominant pattern is less used, poorly positioned and less strong causing imbalance in gait.
- ❖ Respiration is linked to gait due to coordinated activity of the respiratory and pelvic diaphragms.
- ❖ When gait becomes imbalanced so does respiration, and vice versa.
- ❖ Breathing discord effects changes in diaphragm form and function resulting in loss of respiratory effectiveness. The diaphragm assumes a more structural role thereby reinforcing lordosis.
- ❖ Shear forces on dorsal vertebral growth plates result in RASO as described by the Heuter-Volkman Law.
- ❖ In the presence of RASO compensatory strategies to achieve thoracic flexion, which follow a dominant right reach pattern, will demonstrate a thoracic dextro-scoliosis, with or without lumbar levo-scoliosis.

Postural Restoration concepts explain biomechanical patterns predisposing the development of scoliosis.

Case Study: Maeve

Initial Evaluation Findings, 10/10/2011

Generalized laxity, sway back, forward head posture, restlessness, extreme extension positioning
 Stands on left hyperextended leg, pelvis sways laterally to the left, right femoral internal rotation, right knee bent
 Unilateral stance: left leg: 20 seconds, right leg: 6 seconds; Bilateral stance: 10 seconds, then reverts to left stance
 Flexion in stance: ¼ range of motion, "my back will break"
 Seated hip range of motion: right: internal rotation: 59 degrees, external rotation: 45 degrees
 left: internal rotation: 45 degrees, external rotation: 45 degrees
 Spirometry (11/2/11): average 1173, (age normal 1550); weak exhale, minimal chest expansion on inhale
 Gait (10/18/11): extreme lordosis, bilateral hip hike



Images taken: 8/2011

Diagnosed with 13 degree curve
 Age 8, 2010
 Diagnosed with 27 degree curve
 Age 9, 2011
 Began PT 10/10/2011, 5 sessions
 Diagnosed with no curve 1/2012
 Continues PT at 3 month intervals
 through rapid growth period

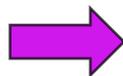


Image taken: 1/2012

Therapeutic Activities:

- 10/10/11
 Single right stance and bilateral stance → Habitual left stance reinforced her scoliosis. This activity was needed to increase tolerance of right stance.
- 10/18/11
 All 4's belly lift walk → This activity initiated work on sagittal plane neutrality by inhibition and lengthening of paraspinals while shortening and activating lateral abdominals.
- 10/18/11
 90/90 hip lift → In this supported position inhibition of paraspinals minimizes lordosis by activation of the hamstrings to extend the hip and to establish neutral pelvic alignment in the sagittal plane.
- 10/18/11
 90/90 hip lift with balloon → The balloon creates resistance to exhale thereby strengthening the action of transversus abdominis and internal obliques to internally rotate the anterior ribcage. This position and action reinforces pelvic and ribcage sagittal neutrality and minimizes lordosis. Adding right reach emphasizes shortening of the left lateral abdominals and left ribcage internal rotation to restore LZOA.
- 11/2/11
 and with reach →
- 11/16/11
 Wall short seated left reach with balloon → This more upright position also inhibits back extensor activity while shortening and strengthening left greater than right lateral abs. Exhalation is emphasized to decrease hyperinflation.
- 12/7/11
 Chair seated - blowing out through a straw twice as long as inhale → Paradoxical breathing was noticed due to straining to inflate the balloon when in the 90/90 position. The intention of this activity was to restore diaphragmatic breathing still emphasizing exhale.
- 12/7/11
 Right quadratus lumborum stretch → To enable AFIR in the frontal plane, this stretch was initiated to increase flexibility of the posterior hip capsules. As previously, back extensors are inhibited and inhalation is directed to the posterior mediastinum.
- 2/12
 Right side-lying left adductor pull back → Training of LAFIR is less challenging in this supported right side-lying position. Pelvic neutrality is maintained via hamstring and lateral abdominal co-activation while the left adductor is isolated, shortened and activated for improved left hip position and stability. Inhalation and exhalation phases support this activity.
- 2/12
 Left side-lying resisted right glute max → Once sagittal and frontal plane correct position is achieved, transverse plane activity can be introduced. Resistance to right gluteus maximus external rotation, using theraband, strengthens the left non-dominant muscle chain. The isometric position is maintained for up to 5 breaths for up to 5 sets.

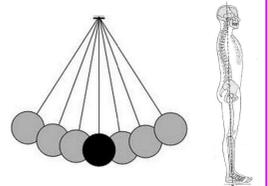
POSTURAL RESTORATION KEY CONCEPTS:

1. Tri-planar Asymmetry: Right Side Dominance



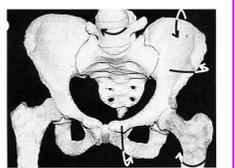
2. Establish Sagittal Plane Neutrality

The pelvis and ribcage must be aligned in a neutral position between flexion and extension. Muscles are then at their normal resting length. Lack of neutrality usually demonstrates a lordotic bias.



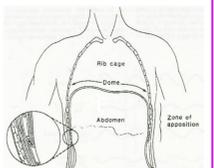
3. Balance the Frontal Plane via Left Acetabular Femoral Internal Rotation (LAFIR)

In stance phase of gait the femur is internally rotated relative to the pelvis to create stability. The right leg is better positioned to achieve stance phase. Left non-dominant muscles must be re-positioned and trained to achieve left stance. Muscles targeted include left hamstring, left adductors, right gluteus maximus, and left gluteus medius.



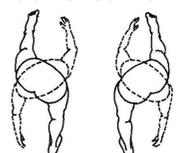
4. Restoring the Transverse Plane via the Left Zone of Apposition (LZOA)

Due to right dominant positioning, the right anterior ribcage is in a position of relative internal rotation which corresponds to a diaphragm position of exhalation. The left ribcage is in a position of relative external rotation corresponding to a diaphragm position of inhalation. The left is overextended and the right is restricted. Activities to restore the ability of the left diaphragm to achieve an exhalation position require a neutral pelvis, frontal plane balance via LAFIR, shortening and activation of left lateral abdominals. Balloons are used to maximize exhalation.



5. Re-train Alternating Reciprocal Activity

Once tri-planar relative symmetry has been achieved via facilitation of the left non-dominant muscle chain, the new pattern must be integrated into upright activities, activities of daily living and gait.



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Postural Restoration is a new approach developed in the US by Ron Hruska in the 1990s. Postural Restoration concepts align closely with the concepts and exercise techniques of the Schroth Method. They are powerfully complementary.

References: 1. Postural Restoration Advanced Integration Course Manual, 2014

2. Susan Henning: Treatment of Curvature of the Spine Utilizing Postural Restoration and Schroth Methodologies, 2014