

PRI – An Evidence Based Approach

Postural Restoration addresses positional influences on neuro-pathomechanic developmental patterns.

While the "evidence" is there, going to all the sources as they presently exist, hasn't been put together for the general public as of yet. As an Institute (PRI), we are in the process of doing this.

Articles on zone of apposition (ZOA) will help one understand the asymmetrical roles of the two hemi-diaphragms in their influence on respiration and thoracic function. Please refer to our website for these articles and information on diaphragm positions, differences in size, asymmetrical attachment sites, etc. Respiration, intercostal and mediastinal motion is also controlled and influenced by visceral position of the pericardium on the left and liver on the right (Reddy et al, J. Thorac Cardiovas Surg. 1994). Contraction of the diaphragm during postural adjustments (Paul Hodges, Journal of Physiology, 1997) and the diaphragms influence on postural/abdominal function (Paul Hodges, Manual Therapy, 1999) also support the need to address respiratory issues and influences on postural asymmetry.

Rib cage mechanics influence on the spine and asymmetry of the spine can be found in numerous articles with respect to the most common curvatures to the prevalence of right rib humps. Rib cage mechanics is influenced by asymmetrical compartmental pleural and abdominal pressure, configuration and trans-diaphragmatic strength. (Kenyon et al, J Appl Physiol, 1997). Why do 98% of adolescents with a single thoracic curve, have apex curvatures to the right with accompanying rib humps? (K. Song, Journal of Musculoskeletal Medicine, 1993)

Communication, swallowing, language, speech and 'handedness' reflects the left hemispheric 'command center' as well as proximal muscle involvement of the contralateral limbs (Bagesteiro et al, J Neurophysiology, 2002). "Dominant arm tasks were most almost exclusively associated with activities requiring precision in interjoint coordination and trajectory formation". Slow, deliberate, controlled, organized, cortical motor encoding is correlated with manual skills developed by the left hemisphere (Volkman, et al, J Neurophysiology, 1998 and Gabbard et al, JOSPT, 2002)

There are postural origin theories on asymmetrical development (Day and MacNeilage, J Comp Psychol, 1996), vestibular asymmetry theories (Previc, Psychol Rev., 1991). Developmentally tonic lumbar reflexes described in the literature by Tokizane (1951) and Brunnstrom (1970) are elicited when the "position" of the upper trunk is changed in relation to the pelvis. We pick up an object and proceed to throw it with our right hand because our upper trunk rotates to the right initially and the pelvis to the left, as weight is born on our extended "dominate" right leg with the left lower extremity flexed (Barnes, Crutchfield, 1978). Our diaphragm and adjoining psoas on the left allow this activity to occur more easily because of visceral orientation of the heart, stomach and liver (left

upper quadrant to right lower quadrant axis) and neural-motor development of this amphibian reaction at the age of six months (Fiorentino, 1972).

In addition to these evidence-based comments on respiratory influences on asymmetry, cortical-hemispheric influences on neuromotor developmental strategies of proximal vs. distal stability on the right vs. the left, rib cage dynamics reflecting diaphragm influence and size, neurophysiology of motor development on ATNR, Moro, and other reflexes in the frontal, sagittal and transverse planes, there are those mentors; Buchholz, Schamberger, Gracovetsky, Myers, Lee, Busquet, Mezieres, Vleeming and Chaitow who will all agree we operate through patterns of 'polyarticulated' muscle.

It is also my strong belief that the mandible, sphenoid and temporal bones influence forward head posture, asymmetrical tonic neck reflexes, body on head righting reactions and respiratory pathomechanics that lead to forward head posturing, COPD and asthmatic activity, fibromyalgic sleep habits, scoliosis, T.O.S., hyperinflation cervicalgia headaches all which can be referenced easily through the dental community and all of which I have treated successfully without surgical intervention through the use of PRI techniques and intervention. Through my experience and with clinical documentation at the Hruska Clinic, strong evidence-based clinical data that supports the Postural Restoration Institute™ approach towards intervention and treatment of pathomechanics to restore balanced integrated function and respiration exists. Please refer to our evidence-based summary of "Postural Respiration and Myokinematic Functional Relationships". Once a pattern of neuromuscular, respiratory, and circulatory system activity is identified, restoration of sphenoid, sternum and sacrum orientation and 'rest' position can begin.

We have a lot of work ahead of us. But those of us who understand these 'system relationships' will further develop this system evidence-based research to this date through an integrative approach by promoting sequential, specific approaches to a multi-system, bipedal, machine that functions with asymmetrical patterns of movement.

Best Regards,

Ron Hruska, MPA, PT

References can be found on our website, posturalrestoration.com by selecting the link titled "educational resources", then "references".

The majority of references listed within the context of this email are listed in the "neurology" section of the Postural Respiration course.