

## **The Pelvic Crossed Syndromes: A Reflection of Imbalanced Function in the Myofascial Envelope; a Further Exploration of Janda's Work.**

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**HYPOTHESIS:** Structurally, the sacrum-coccyx provides the dual roles of serving as the base of the spinal column while also forming part of the pelvic ring. Physiological movement control of the pelvis and the spine are functionally interdependent. In particular, intrapelvic control, its spatial organization as a whole and its control on the femora directly influence spinal alignment and control mechanisms. This involves coordinated activity in the related neuro-myo-fascial systems in providing mechanisms of both intrinsic and extrinsic support and control.

Professor Vladimir Janda proposed the concept of the Pelvic Crossed Syndrome as an underlying factor in the genesis and perpetuation of many low back pain syndromes. Here, imbalanced muscle activity - tightness and overactivity of the hip flexors and low back extensors and a coexistent underactivity in the abdominals and glutei create a 'crossed pattern' of disturbed sagittal lumbopelvic posturo-movement alignment and control. While certainly evident in back pain populations, it is not a universal finding.

Clinical pattern recognition also delineates another group with relative hyperactivity in the upper abdominal wall and piriformis/hamstrings with underactivity in the lower abdominals, deep hip flexors and low back extensors. This also creates an altered 'crossed pattern' affecting sagittal lumbopelvic alignment and control.

Clinically, most patients with low back and pelvic pain syndromes can be observed to show features of either of these two primary pictures of altered function. In Janda's Pelvic Crossed Syndrome the pelvis is more posterior and this is associated with imbalanced coactivation of the trunk muscles with more dominant activity observed in the extensors – termed the Posterior Pelvic Crossed Syndrome. Conversely, in the other group, the pelvis is postured more anteriorly and this is associated with a predominant tendency to more axial flexor activity – termed the Anterior Pelvic Crossed Syndrome.

However, underlying both pictures of pelvic posturo-movement dysfunction, there is usually a clinically apparent, related fundamental deficit in the integrated and balanced control provided from the deep myo-fascial sleeve. Collectively termed the 'Lower Pelvic Unit' (LPU) this includes the obvious contractile elements – the pelvic floor muscles, the obturators, iliacus, psoas, transversus abdominus and the diaphragm and all the related fascial sheaths and permutations which serve as a 'universal connecting principle' providing tensile inner support. This myofascial 'inner stocking' serves many functional roles: – providing deep anterior support to the lower half of the spinal column; with the spinal intrinsics it contributes to lumbopelvic control; the modulation of discrete yet fundamentally important intrapelvic movements; while also contributing to the generation of IAP, continence and respiration. The pelvis moves on the femoral heads via multiplanar rotations at the acetabulum which are controlled via movement force couples. Coactivation from the LPU is important in producing these force couples and in providing internal stability to the pelvis as it swings and swivels on the femoral heads necessary in weight shift, load transfer, and in controlling equilibrium.