



PHYSIOYOGA

in Lower Crossed Syndromes

Dr. Nilima Patel, PT, Ph.D, FIAP

The author is a Physiotherapy professional into academics and clinical practice since last 30 years at College of Physiotherapy, S.S.G. Hospital, Vadodara. The views expressed are that of the author. She can be reached at drnspatel@rediffmail.com



Pain, pathology or adaptive changes in the Musculoskeletal system result in compensations or adaptations that lead to systemic and predictable patterns of muscle imbalance. This results in chronic pain and disability. **"Painful syndromes results from deviations of normal posture in a static spine and painful syndromes also results from deviations of normal functions in kinetic spine"**.

Vladimir Janda was one of the most influential physical medicine physicians in the world in the late 20th century. A pioneer in the field of "low tech" rehabilitation, he honed his skills in communist Czechoslovakia. While western physicians were producing "human wreckage" (Waddell, G. 1992), with surgical techniques for the lumbar spine, Janda consistently produced outstanding results in rehabilitating the same types of cases using wobble boards, sticks, exercise balls and most importantly, his hands. One of the more basic (but essential) Janda concepts is the Lower Cross Syndrome. In lower-Crossed syndrome, the pattern of muscle imbalances often leads to changes in movement patterns with hip extension, hip abduction and trunk flexion.

Lower-crossed syndrome is a postural distortion syndrome affecting the lower kinetic chain (lumbopelvic hip complex, knee, and ankle). The lower kinetic chain is one of two basic parts of the musculoskeletal system that are controlled and innervated through the CNS. When any component of the kinetic chain is not working properly, neuromuscular control is altered. This alteration may be observed with the patient sitting, standing, or walking.

Pathomechanics in sitting and standing can cause tightness and hyperactivity in the hip flexor group (iliopsoas etc.). Through a process known as reciprocal inhibition (defined as the contraction or activity of one muscle group inhibiting the contraction or activity of the antagonist muscle group), the hyperactive or tight hip flexor group can actually inhibit the hip extensor group, most importantly, the gluteus maximus. This imbalance then produces a secondary effect during walking. Since these people are unable to produce hip flexion with the gluteus maximus, they begin to substitute the low back extensors. They in turn become tight and hypertonic and through reciprocal inhibition, inhibit the abdominal muscles.

Many people inadvertently believe that Lower crossed pain syndrome is evoked only by physical factors such as an injury, incorrect sitting posture and other medical health condition. The fact is that some back problems can really be linked to feelings. There are a number of effects that negative emotions have on human beings and one of those effects is pain. Feelings affect us and that is a reality.

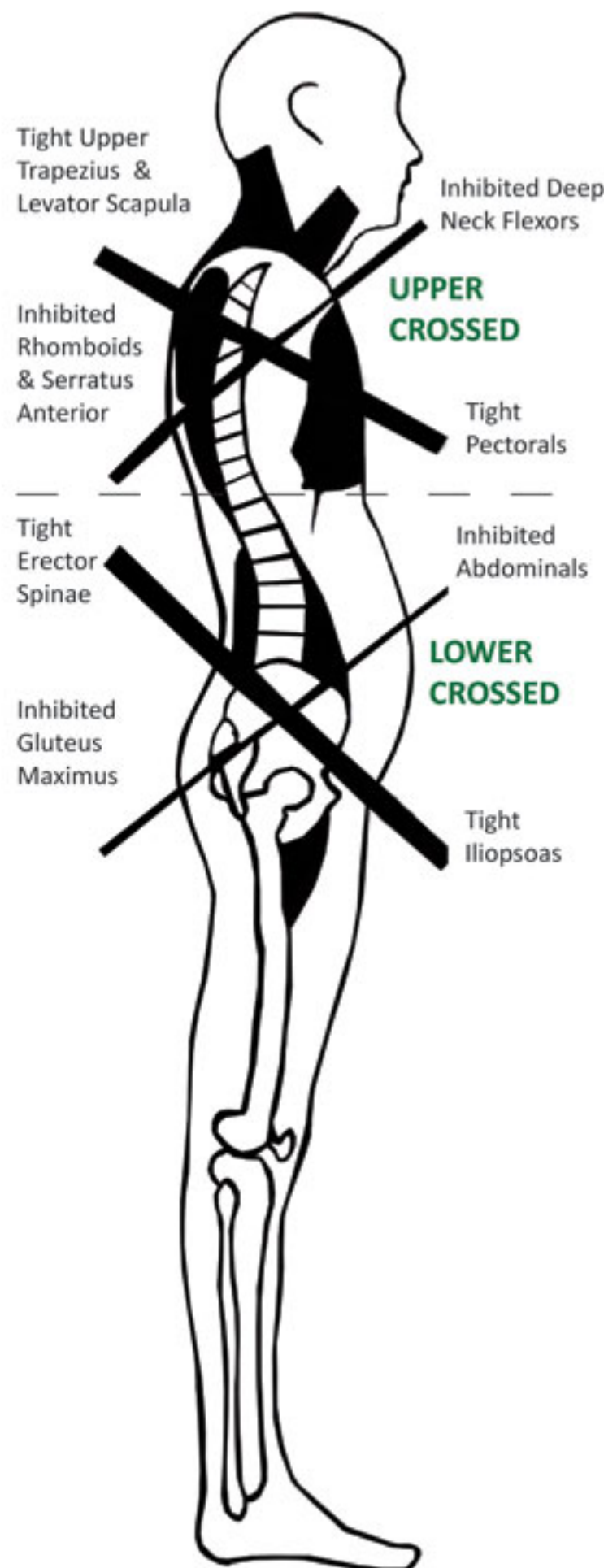
How is it that our feelings can induce back pain? It is very easy. As a rule, we may not realize this but on every occasion we are stressed out, worried, angry, depressed or frustrated, we are on an emotional edge. Because of that edge, all our muscles are tensed up, preparing for the next move.

Tension of the muscles can lead to damage on the muscles mainly if we tense our muscles for a length of time. Unsurprisingly, tense muscles create muscle imbalance, exaggerated pelvic tilt and back pain.

"Emotional "adhesions"(emotions that remain chronically from past events) can lead to soft tissue adhesions. A new study has found that psychological interventions are extremely effective at reducing or eliminating back pain, arthritis, depression, and many other health-related problems.

A fresh method to getting rid of back pain is to make the patient aware of the psychosocial factor involved in back pain causes and simply help him or her to perceive any of such psychosocial factors. Doing this assists the patient treat himself or herself whenever they are away from their doctor. This can be done by Psychophysical approach.

Yoga postures are psychophysical postures and its practices improve receptivity of the subconscious mind and thus make the person aware of each and every action –mental or physical)



Advances in neuroimaging have led researchers to the discovery that the brain processes pain in a network of brain areas such as the cingulate cortex, amygdala and thalamus, all of which are heavily involved in your emotional state. This pain network is known as the 'pain matrix'.

The 'pain matrix' consists of two parallel systems: the medical pain system, which processes the emotional aspects of pain, and the lateral system, which processes the physical sensations.

This study also suggests that these pain activated areas of the brain also control attention. This may be the result of patients concentrating on how to cope and deal with the pain.

In lower-crossed syndrome the patient usually presents with anterior pelvic tilt, exaggerated lumbar lordosis (swayback), and weak abdominals muscles. These patients usually experience chronic low back pain, piriformis syndrome and anterior knee pain.

The predictable pattern of muscle imbalances most often include the following:

Tight/Facilitated

Iliopsoas, Rectus Femoris, TFL Adductor Group, Erector Spinae Gastrocnemius, Soleus

Weak/Inhibited

Rectus Abdominis, Oblique, Gluteus maximus, Gluteus medius, Hamstrings

LOWER CROSSED SYNDROME & PHYSIOYOGA

It is important for the Physiotherapist to be aware that back pain is usually a symptom of deeper problems that, unless corrected, may lead to total functional impairment. Proper rehabilitation of the back must include protocol for reversing the lower crossed syndrome.

I have found the following program to be the most effective form of rehabilitation treatment.

FUNCTIONAL ASSESSMENT & MANAGEMENT

Squat Test & Modified Malasana is the most basic, full body functional analysis test that can be done. The recommendation for using the ST for assessing because it tests the total kinetic chain neuromuscular efficiency, integrated-functional strength, dynamic flexibility, and unlike most other clinical tests, involves a degree of muscular fatigue. The physiotherapist must be aware of patient form while performing this test.



Patient: The patient places his feet shoulder-width apart, and then slowly squats down to a position that is comfortable. Take the upper arms inside the knees and bend the elbows. Bring the palms together into anjali mudra (prayer position). Try to bring the hands to the heart center with the forearms parallel to the floor to open the knees slightly. Keep the spine straight and shoulders relaxed. Stay here for five breaths, then straighten the legs to come out.

Physiotherapists: Do not tell the patient specifically what you are looking for, as they will tend to try to "correct" the movement. It is very important for the patient to perform multiple repetitions in order to display the postural deviations that result from fatigue. Walk around the patient during the test, making sure to observe the anterior, lateral, and posterior views checking the feet, knees, lumbar curve, arm movement, chin elevation, and stomach protrusion. Standard deviations for LCS that

commonly occur are: feet flattened and toe flaring out, knees buckling inward, and low back arching. These deviations may occur bilaterally or unilaterally and may present in a combination of one or all of these deviations.

Guiding the patient practice this yoga posture daily for 3-5 minutes, simultaneously stretches and relaxes the hip flexors, activates and strengthens the hip extensors (particularly the gluteus maximus), and teaches lumbar spine control.

NORMAL FIRING PATTERN OF THE PELVIS & SARPASANA

With the patient lying prone the physiotherapist with his/her superior hand places the thumb and index finger on the erector spinae muscles bilaterally and with his/her inferior hand places the thumb on the gluteus maximus and little finger on the hamstring. Having the patient extend his/her leg, the normal firing pattern should be the contralateral erector spinae, followed by the ipsilateral gluteus maximus, and then the ipsilateral erector spinae and hamstrings. If the ipsilateral erector spinae fires before the gluteus maximus, this indicates an inhibited gluteus maximus.



Guiding the patient practice this yoga posture Sarpasana daily for 1-3 minutes simultaneously stretches and relaxes the hip flexors, activates and strengthens the hip extensors (particularly the gluteus maximus), and teaches lumbar spine control.

As the name suggests, this posture resembles a snake that is ready to strike, its upper body lifted to confront a life threatening situation. At the same time, it educates one to be flexible always in any situation.

Thomas Test & Modified Ardha Pawanmuktasana



The patient sits at the end of the table bringing one of their thighs to their chest and holding while lying back onto the table. With the knee approximated to the chest, the examiner observes the opposite limb. The thigh and knee should be resting flat on the table. Elevation of the thigh or knee with a space between the limb and table indicates a positive test. Normally, the lower limb should have enough hip flexor stretch to allow extension of the thigh so that it lies flat on the table. With hip flexor tightness or in flexion deformity of the hip, the extension is deficient. Here, we are specifically testing the iliopsoas muscle. It strengthens the lower back muscles and loosens the spinal vertebrae. It massages the abdomen and the digestive organs and is, therefore, very effective in removing wind and constipation.

FORWARD BENDING TEST - (PASCHIMMOTANASAN)



The patient is seated on the table with their legs extended and knees locked. The feet should be at right angles with no internal or external rotation. The examiner instructs the patient to reach as far as they can towards their toes and hold. The low back should have a natural curve, which should continue into the upper back.

The examiner should notice the angle between the table and the sacrum. It should be 70-90 degrees. An angle less than 70 indicates tight hamstrings and an angle greater than 90 indicates elongated hamstrings. The muscles we are testing here are the upper back, lower back, hamstrings, and calf muscles.

YOGASANA: THE PSYCHOPHYSICAL POSTURES:

When you over-tighten muscles with hunching and bad habits, they can remain too shortened to let you stand properly. On the other hand, they stay tightened in "knots" or spasm. This changes their muscle chemistry. When you slouch, you keep some muscles overly shortened and others overly stretched which weakens and strains them. **Stop bad movement habits and you will stop causes, and muscle knots and triggers and sore spots will quickly heal.**

The dynamic state of yogasana strengthens the musculo skeletal framework whereas the static component relaxes the neuromuscular framework, hence relieving the person from painful fatigue posture. **Any yoga posture is a close kinematic chain posture, the chain formed of body mind and soul and thus regular practice of yogasana achieves positive health, keeping body in good shape, psyche fit and relaxed to cope with various turbulences of life and not fall prey to psychosomatic painful disorders.**

Relaxation asana are meant for everyone and can be practiced by all age groups. Cultural asana when applied for therapeutic purpose are, as non conventional medicine methods and are meant for age group between 8 to 80 years, but under proper supervision and guidance.

I believe, for wholesome fitness, it is vital that we focus on all the five components (muscle strength, muscle endurance, flexibility, cardiovascular endurance and body composition). Yoga involves using the whole body.

Feeling great is not an accident when your focus your intention and attention in the right direction. Take a courageous leap of faith and stamp out your fear and end back pain forever!

Eliminating stress from our life is essential to good back health. Stress contributes tremendously to tight muscles, a constant adrenaline rush of "fight or flight" and feelings of helplessness. Look around and do what we can to cut the stressors in our life. Give up the feeling that we must be super-human and that we have to control everything!

Yoga is the ultimate core workout. Yoga is in a league of its own for increasing flexibility, particularly in the sagittal plane (bending forward) and transverse plane (twisting). One may be able to get away with poor flexibility in 20s and 30s, but as men reach their 40s and beyond it will cause of lower back pain syndromes and injury. Do you want to avoid walking sticks and medical bills? Take up yoga.

SAEHAN

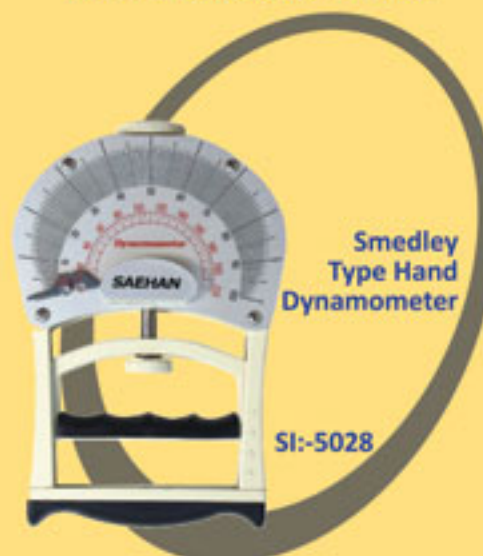
EVALUATION PRODUCTS



Hydraulic Hand Dynamometer

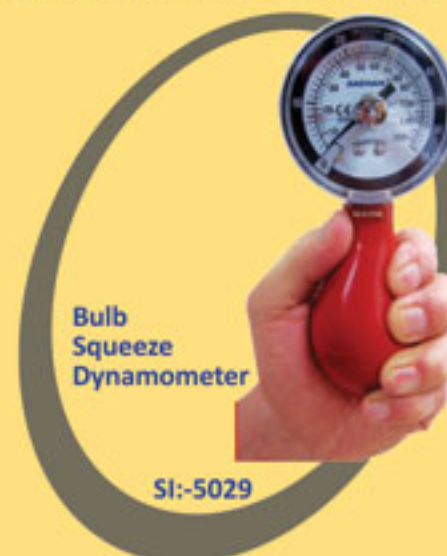


Digital Hydraulic Hand Dynamometer



Smedley Type Hand Dynamometer

SI-5028



Bulb Squeeze Dynamometer

SI-5029



SI-5031 Hand Evaluation Kit (3 Pcs)
Also available Digital model.

SI-5037

Hydraulic Pinch Gauge



SI-5035 Digital Hand Evaluation Kit (7 Pcs) with PC use
Also available Analogue model.

SI-5038

Digital Hydraulic Pinch Gauge (with PC Use)



SI-5774 Back-Leg-Chest Dynamometer



SI-6526 Skinfold Caliper

Get any brand's Evaluation Product CALIBRATED every year @ Rs. 750/- per pc. plus taxes.

SUNRISE INDUSTRIES

B-5, Aggarwal Plaza, Plot No. H-7, Netaji Subash Place, Pitam Pura, Delhi - 110034 INDIA Tel: +91-11-27351094, 47597173 Fax: + 91-11-27353343 M: 9810295880 Email: info@indiasunrise.com www.IndiaSunrise.com, www.GymnicLine.com, www.FitnessStick.com