Hatha Yoga as Physical Therapy
Low Back Pain
Lumbar Facet and S/I Joint Compression

A major cause of low back pain is lumbar facet and sacro-ilial joint compression. The causative movements are vertebral and sacral nutation as well as ilial posterior torsion and outflare. When posture / movement creates excessive compressive mechanical stress to these joints, inflammation and degradation of joint lining and nerve roots result. ?Also, osteophytes form on the facets close to the foramen, that can further impinge the nerve root, as they narrow the foramen.

We are more prone to injurious joint compression as our disk height lessens. Normal aging decreases disk height because the nucleus pulposus water content lowers as we age. As well a disk herniation will reduce disk height simply because there is less disk material inside the disk when some bulges out.

There is a healthy compressive stress to our joints when we are upright in gravity for a functional stable spine. But when we stand unskillfully, age, and / or herniate disks, we begin to sensitize our joints to compression. It takes decades of this repeated joint stress to create a movement vulnerability to compression.

When one stands unskillfully, I mean that one stands with a dull, heavy, collapsed spine. The misalignment typically can be described as increased lordosis, tilted pelvis and forward collapse [banana]. There can be collapsed, pronated ankles, hyperextended knees, increased kyphosis, protracted scapulae, hyperextended mid-cervical spine, and forward head posture. Lumbar facets and S/I joints are not the only joints damaged. Cervical joints, TMJ, knee, and ankle/foot joints can be compromised as well. If one is asymmetrical, collapsing on one leg, the mechanical stress is usually injurious to that side's joint structures. Spondylolisthesis is an exaggerated lordosis with anterior translations of these vertebrae. If severe enough, nerve roots are impinged and joint surfaces compressed.

A precise neutral skeletal alignment is not enough, necessary, but not sufficient. There needs to be the motor skills of grounding, centering, lifting to function as a biped in our gravitational field. If there is no grounding or centering, there is no lifting, no lightness, no fluid spine, no

standing tall, but rather excessive lumbar facet and S/I joint compression and other assorted maladies.

People report low back pain upon prolonged standing. Our bodies eventually can't handle the constant, prolonged collapsed posture and eventually react to the joint compression with structural degeneration, soft tissue inflammation of nerve roots, muscle, ligament, tendons, fascia. Muscle will increase its tone, its contractiveness all the way into spasm.

Even slow walking can bring on pain, but brisk walking can be therapeutic. In brisker walks, we have more spinal lengthening, enough to stay out of compression. We push our feet/legs through the ground with more force, more power to walk faster. Skillfully grounding is the interrelationship of outer to inner spirals as they direct the force through the floor. Centering is integral as the spine needs to be directed and stabilized. The whole body needs to be grounding, centering, lengthening to support head and arm postures and movements.

When, sitting especially upright, one may even report S/I pain from the weight bearing of one sit bone. Ground forces jam the ilium upwards into a sacrum. Any kind of spinal extension or backbend can nutate lumbar vertebrae or sacrum into joint compression. Lying supine or prone with legs extended can compress injuriously in a similar way. Standing up, picking up groceries can be problematic.

A vulnerable S/I can injuriously be compressed with same side sidelying. Even picking up one's leg from supine, sidelying, or prone can pull an ilium into anterior torsion or outflare. One must stabilize one's ilium when actively flexing and abducting one's leg in supine or hyperextending their leg in prone.

Physical Therapists will look for limitations in sacral and ilial movements. Some are very skillful in releasing joint stuckness or stickiness, relieving pain manually.

I tend to look at one's posture / movement behavior, it's mechanical stresses, evaluating the efficiency of ones motor skills of grounding, centering, and lifting. I look for the motor behavior cause of the joint compression and how one perpetuates that vulnerability.

Mechanistically speaking, facet joints will compress on a neighboring facet and the sacrum will compress on the ilium with too much nutation. An ilium will compress on a sacrum with

femur in extension, as the ilium anteriorly rotates. With the femur in external rotation, the ilium outflares to compress against the sacrum. The sacrum can compress into the ilium as the spine rotates the sacrum into the ilium. While sitting if the thoracic spine sits too heavily on the lumbar spine, injurious compression may result. Since the thoracic spine tends to be hypomobile, then spinal movement has to come from too few joints of the lumbar and sacro-ilial area. The cervical spine also may excessively compress above the stiffer thoracic spine in the common forward head posture.

Skillful standing in yoga is Tadasana. One needs to learn the motor skills of grounding, centering, and lifting with keen attention to breath, body sensation, and imagery. The inhalation allows one to open up the field of awareness to the space below our feet to grow roots into, and to the space behind us to help us from thrusting or collapsing ourselves forward with muscles, and into the space above us to rise into. The exhale facilatates us to more effectively ground and center. Only then can we lift out of compression.

We need to be vigilant to detect any sensation of muscular holding from unskillful standing or breath-holding. Awareness of specific sensations brings our attention to that area and to a specific direction of energy [downward in rooting, upward in lifting].

The skill of lengthening the spine is a whole body/mind activity. All of the body/mind needs to participate to accomplish the whole of skillful standing. No individual muscle work is enough to create a light spine in stance. The skills of standing poses are exactly what one needs to learn. One will start with the symmetrical poses, before moving to the wide legged, asymmetrical poses. The poses challenge us to keep grounding, centering, and lifting in many different alignments in gravity.

Forward bending is relieving and extending is provocative. One issue is that standing and sitting upright is extension can inflame joint compression. One cannot, of course, avoid upright postures in one’s daily activities, unless in the most extreme of restrictions of movements, bed rest. One needs to learn the motor skills of standing and sitting upright without injurious joint compression.

The relieving poses are forward bends. Spinal flexion, sacral counter-nutation, and ilial posterior torsion and inflares open the joint spaces. This decompression takes the mechanical compressive stress off the joint surfaces and allows more room for the nerve roots through the foramen. Slump sitting, squats, standing child’s pose, standing back against wall, supine

with legs up on a support are restful positions for the back vulnerable to extension compression.

My favorite relieving pose is legs up the wall. Our hamstrings tug on our sit bones to posteriorly rotate our ilia. This movement brings the sacrum and lumbar vertebrae into counter-nutation, creating space in lumbar facets and S/I joints. Not only that, the pressure and weight bearing is sandwiching the sore low back muscles between the body and floor. The low back muscles can get inflamed, tense, sore to contract sore to lay on. Sometimes when someone with a sore grabby back first lies down, the muscles overreact into spasm. If one can slow the rate of applying the pressure on the back, the overreaction might not occur. Once the back will accept the weight, the muscles start to decrease the high tone. The support allows the back to let go.

Upright posture and movement are provocative. Standing can be injurious or therapeutic depending on how skillful it is.

Standing poses are very effective in teaching some of the intricate motor skills and how they must work as one. How can we organize the different motor skills in relationship for some overall intent? One needs to develop the mindfulness sometimes very focused view, a more narrow perspective and sometimes a more panoramic view, a broader perspective, The more precise our imagery, the clearer our intent, the nervous system better directs our posture and movement.

Skills necessary not to excessively compress in extension are the actions of standing poses and backbends. The upper inner thighs move back against the perineum forward. The outer spiral predominates over the inner spiral as both direct energy into the earth. The ball of belly movement of navel back/ perineum forward tucks the pelvis to neutral playing against the inner / top thighs back. The “ball” in the belly rotates the navel back to the spine with the sacrum/ tail downward, into the back heels rooting downward , tailing forward with the perineum . The lift of the spine can too easily overarch the lumbar spine with too much back extensor muscular activity. The relative tuck of the pelvis from this navel back (uddyanda bandha) of the belly keeps the lumbar spine out of increased lordosis.

But the lift of the spine is very important to keep the facets from compressing too heavily. As the energy goes into the earth from belly through the legs, the root [in between the sit bones] rises through our centers through the crown of the head. We use a vision of these exact inner actions of ground, center, and lift. The vision is of the movement through our centers into the

spaces below and above us. This coordinates the nervous, muscular, and bony systems to stand with the skill of lightness and length. This movement of energy keeps us from too dull a stance or too tense a stance.

We can provoke ourselves to even more skill with a deeper backbend in the spine, and still not injure ourselves with compression. As with our everyday upright postures and movement, it is a question of ground, center, and lift.

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