



Reflexogenic Relationship between Muscles and Joints

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Reflexogenic = producing or increasing reflex actions between muscles and joints.

One distinguishing feature of the Myoskeletal Alignment Techniques® method is the inclusion of soft-tissue assessment and treatment maneuvers for motion-restricted joints. Manual therapists seeking a soft-tissue means of identifying and treating areas of joint dysfunction were given a golden key to the intimate reflexogenic relationship between muscles and joints in the early 90s. In a presentation to the American Back Association, Dr. Philip Greenman observed that *"In the presence of vertebral dysfunction, palpable fourth-layer [spinal] muscle hypertonicity will always be found."* Working with the understanding contained in this simple statement, manual therapists are better able to help clients/patients suffering from stubborn reflexogenic pain/spasm/pain syndromes.

Fourth-layer spinal muscles

Working through the bulky erector spinae muscles, bodyworkers' sensitive fingers frequently encounter small, hard and sometimes tender knots in the underlying fourth-layer transversospinalis muscles (multifidus, rotatores, levator costalis and intertransversarii). These phylogenetically old muscles are all located in the medial groove adjacent to the spinous processes, and contribute to rotation and sidebending in particular spinal segments. Neuroscience validates that palpable fourth-layer muscle hypertonicity should not be present in normally functioning vertebral segments, so the reappearance of spasm session after session indicates a deeper challenge for the therapists' skills.

The power generated by these little fourth-layer spinal rotators/sidebenders is easily underestimated. They readily pack enough punch to lock spinal joints open or closed with their strong torsional forces. Sometimes motion can be restored to fixated joints by simply working chronic spasm from these highly innervated little muscles. Too often, however, prolonged asymmetrical torsioning from tension, trauma and poor posture creates facet jamming (over-approximation of joint surfaces). This excessive compressive loading hyperexcites sensory receptors located in joint capsules, spinal ligaments, intervertebral discs, fourth-layer muscles, and surrounding fasciae.

When agitated mechanoreceptors continually bombard the spinal cord with increased noxious afferent stimuli, neurological thresholds are violated. Warning bells of the possibility of tissue damage to neural, vascular and articular structures are relayed to the brain and the brain responds by layering paravertebral tissues with protective muscle spasm. Unfortunately, the spasm often develops on the side of the dysfunction creating even more joint compression and a reflexogenic "Catch 22" pain/spasm/pain cycle ensues.

Identifying joint dysfunction

Clients complaining of neck “cricks” frequently suffer from unilateral hypertonicity and shortness in the intertransversarii muscles, which run from transverse process to transverse process. When fibrotic, these devious rascals ruthlessly sidebend the neck, locking facets closed on the ipsilateral side or open contralaterally. Because such fourth-layer spinal muscles are among our most primitive intrinsic muscles, they must be assessed and treated in all neck routines to ensure proper cervical alignment.

The myoskeletal assessment system has adopted Dr. Greenman’s quick and efficient method of palpating the spinal groove for fibrotic knots as a means of identifying areas of joint dysfunction. But locating motion-restricted joints is just the initial piece of the puzzle—knowing how to tackle the fixation is the critical step in solving the pain/spasm/pain conundrum. Techniques to help therapists break pain-generating cycles by restoring flexibility and joint-play to paravertebral tissues are very effective. These fundamental approaches to pain management can be integrated into most touch therapy protocols.

Joint locks: open or closed?

Hypertonic knots found in deep transversospinalis muscles typically indicate joint dysfunction, yet this first piece of information reveals nothing about the actual type of joint fixation. It doesn’t reveal whether the joint is locked open or closed, only that dysfunction exists at that level. To determine the type of fixation, the therapist places fingers or thumbs on the fibrotic knot and asks the client to flex and extend the involved area. If the knot pushes back as flexion is introduced, the joint is not opening on that side of the spine. If the knot pushes back during extension, the superior facet is not closing on its inferior neighbor on the opposite side.

An odd situation arises when the joint’s axis of rotation is forced to revolve around the side that is stuck and unable to close. The therapist’s palpating fingers will feel the facet joints on the good side (right) pushing posterior as they slide together during extension efforts.

Note: An important point concerning vertebral motion should be mentioned. Biomechanical studies indicate that facet tips remain in contact even during extreme spinal flexion. So, in order to correctly visualize how the superior vertebra glides on its inferior neighbor, it is helpful to imagine the paired facet joints opening and closing in an accordion-like motion—not separating completely. In the absence of soft tissue trauma, contiguous articular surfaces will always remain in tact.

Using enhancers

In *Myoskeletal Alignment Techniques: Volume I* therapists learned how to correct muscle/joint dysfunction by systematically releasing fibrotic fourth-layer muscles, ligaments and motion-restricted joints with the client in flexed and extended body positions. *Advanced Myoskeletal Techniques: Volume II* adds enhancers to the therapeutic intervention. Enhancers increase desirable clinical outcomes in terms of function and posture. Simply put, an enhancer is any client-activated force directed through the neuromyoskeletal system that encourages release of motion-restricted tissues. Therapists may choose from a wide variety of enhancers to more effectively

deal with problematic reflexogenic muscle/joint dysfunctions; some of these are discussed below.

Respiratory enhancers

Respiratory enhancers are commonly adopted in situations when subtle movements are needed to release vertebral restrictions. Inhalation straightens spinal curvatures...exhalation increases curve. So, if *extension* is needed to close facets in the thoracic spine or *open* restrictions in clients with excessive cervical or lumbar lordosis, the client inhales deeply while the therapist applies the appropriate digital pressure to the restricted segment. To help *open* facets in the thoracic spine and *close* motion-restricted cervical and lumbar joints, the therapist simply asks the client to exhale deeply during the procedure.

Eye movement

Eye movements are another type of enhancer. The optic nerve possesses a crucial neurological connection with certain head extensor muscles, including the suboccipitals. Eye movement enhancers are therefore highly effective when dealing with atlas/axis rotational restrictions.

Chin-tucking

Another powerful enhancer, chin-tucking, is perfectly suited to aid in releasing head and neck or neck on thorax restrictions. For example, if the therapist palpates bony knots on one side of the lamina groove that move posteriorly as chin flexion is introduced, the joint on the ipsilateral side is probably not opening. Sustained gentle pressure to the superior transverse process combined with chin-tucking enhancers often helps release the fibrotic tissues restraining joint motion. The therapist will feel the hypertonic rotatores and multifidi muscles soften as the motion-restricted joint capsule releases.

Groove work

Ida P. Rolf always included lamina groove work at the end of each Rolfing session, primarily for its remarkable impact on overall body structure. With clients seated and slowly flexing forward, she would shout, "go for a smooth groove" as students elbowed their way down the lamina groove. She was formidably in synch with the enormous therapeutic value inherent in maintaining proper alignment in this vital body structure.

Expanding on Rolf's tenet, the *Advanced Myoskeletal Technique* program introduces post-isometric relaxation techniques, enhancers, and receptor recoil maneuvers to restore proper alignment and range of motion to all lamina groove structures. Basic motion tests alert the therapist to the type of fixation (i.e., whether the joint is stuck open or closed). As the manual therapist determines the exact type of dysfunction present, joint play and capsular flexibility can normally be restored using the myoskeletal method.

Proper techniques are required for assessing and treating motion-restricted spinal muscles, ligaments and joint capsules in the lamina groove. It is important to remember that as ligaments and joints capsules thicken with age, asymmetrical

strain patterns are commonly reflected as irregular lumps in the lamina groove. The myoskeletal mantra simply put is *smooth the groove*.

Scope of practice

As with all protocols, exceptions can occur where there are issues beyond tight muscles restricting joint movement. For example, some cases involve joints that have undergone adherent cartilage degradation and facet "nipping" from prolonged microtrauma. This type of facet degeneration causes true adhesive joint-fixation problems, pointing to a more serious condition. Manual therapists do well to work in close cooperation with chiropractors and manipulative osteopaths and should make prompt referrals concerning specific areas where spinal lesions are discovered.

Although myoskeletal therapy delves deep into body structures, the intent is still low-force soft-tissue work. The client's experience should be one of an invigorating therapeutic deep-tissue session. Bones are assessed and treated as soft tissue structures in the myoskeletal system, with pressure often applied directly to transverse processes. It is of uttermost importance to stress that *bones are only used as levers to release hard-to-access fourth-layer muscles, ligaments and fibrotic joint capsules*. Therapists must always be mindful that joints should *never be taken* into a nonphysiologic range of motion—this is outside the scope of practice of most massage and bodywork practitioners.

Conclusion

Combining muscle and joint modalities increases therapeutic efficiency for all pain-management therapists. By integrating practical hands-on reflexogenic routines, today's touch therapist can more competently eliminate long-held pain/spasm/pain cycles. Therapeutic outcomes are enhanced by including assessment and treatment routines for *all* soft tissues forming from the mesoderm, such as muscles, fasciae, joint capsules, spinal ligaments, nerve dura, and intervertebral discs.

About Freedom From Pain Institute:

Erik Dalton, Ph.D., brings a broad therapeutic background in Rolfing® and manipulative osteopathy to his entertaining and informative pain-management workshops, books and videos. Dalton is the director of the Freedom From Pain Institute®, and developer of the Myoskeletal Alignment Techniques®. Visit www.ErikDalton.com for additional information.