

MFR Techniques

Myofascial/Osseous Integration

By John F. Barnes, PT
(Special to the Forum)

A re-evaluation of the anatomy and function of the spinal musculature, fascia and osseous structures to which they attach and influence was presented by Nikolai Bogduk, MD, at the American Back Society Symposium.¹ The following excerpt is from the Summer 1991 issue of the *American Back Society Newsletter*.

"Dissection studies of the lumbar back muscles have permitted a transformation of perceptions of their structure. Models depicting individual muscles as single force-equivalents are invalid. Each back muscle consists of multiple, individual, and small fascicles each with discrete, constant and segmental attachments.

"In the lumbar spine, each lumbar vertebrae is subtended symmetrically by one to three fascicles of multifidus stemming from the spinous process, one fascicle of longissimus from the accessory process, and one fascicle of the iliocostalis from the transverse process.

"These are supplemented by the thoracic fibres of lumbar erector spinae that act on lumbar vertebra through the erector spinae aponeurosis.

"Experimental evidence indicates that excessive strain of muscles results in failure near the myotendinous junction. Sprains of the back muscles should, therefore, exhibit tenderness near the insertions of the affected muscles. However, because of the segmental, fascicular anatomy of each muscle, a given offending movement may effect only particular fascicles. Thus, rather than involving the muscle as a whole, sprains may occur as selected, specific sites resulting in focal tenderness. Such sites may be misinterpreted or misrepresented as trigger points."¹

Nikolai Bogduk, MD

This study confirms what is felt and experienced during the process of Myofascial Release. One can then visualize how fascial restrictions in random strain patterns can shorten, creating abnormal tensions upon individual or groups of

fascicles and the neural, vascular and osseous structures to which they attach and powerfully influence.

These abnormal compressive forces can exert pressure upon the neural structures creating entrapment syndromes. Fascial compression of the vascular structures can produce ischemic conditions and the shortening of the muscular component of the fascicle can limit its functional optimal length, reducing its strength and contractile potential, and deceleration capacities.

These fascial restrictions can also create abnormal strain patterns that can pull the osseous structures out of proper alignment or too close together, resulting in compression of the facet joints or disc, producing pain and/or dysfunction.

This scenario explains why modalities, exercise and flexibility programs, manipulation, muscle energy techniques (neuro-muscular techniques) and mobilization procedures do not always produce lasting results. I have utilized manipulative procedures for thirty years and have found all of the above mentioned techniques to be very helpful. The frustration we have all encountered with poor or temporary results can now be understood by realizing that these procedures affect only the osseous structures or the muscular or elastic components of the myofascial complex.

Only Myofascial Release affects the total myofascial complex—the muscular component and the elastic component of the fascia, the crosslinks that form in the collagenous part and the viscosity of the fascia's ground substance.

The most effective and comprehensive approach for the reduction of pain and the restoration of the quantity and quality of motion for optimum function is the combination of myofascial release procedures with mobilization, muscle energy techniques, soft tissue mobilization and manipulation procedures. Then the addition of appropriate modalities and exercise, flexibility and neuro-muscular facilitation techniques maximize and maintain results.

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Over the years, as I developed this approach to Myofascial Release, I have found that release of the fascial system also tends to balance and provide more space between the joint structures of the skeletal system. Trial and error led me to see that some manipulative techniques were too high in velocity or too short in duration, eliciting the body's protective responses or not affecting the environment of the osseous structures, the myofascial system. So the fascial strain patterns that were not released, simply pulled the osseous structures back into positions of dysfunction.

This awareness through my experience led me to develop an expanded method of Myofascial Release called *Myofascial/Osseous Integration*.

To help clarify, Myofascial Release is one end of the spectrum where the therapist uses the fascial system as a handle or lever to relieve the pressure on pain sensitive structures and/or mobilize the osseous structures.

At the other end of the spectrum, *Myofascial/Osseous Integration* techniques focus on utilizing the osseous structures as handles or levers to free the skeletal structures and its environment, the surrounding myofascial system.

The very important difference from other mobilization, muscle energy, and manipulation procedures is that *Myofascial/Osseous Integration* techniques are performed very slowly following the fascial releases three-dimensionally. The fascial system does not release quickly or all at once. This time factor is essential for lasting results and the feel over time is like a rope unraveling releasing a strand at a time. This creates a changing of tension that is followed by the sensitive trained hands of the therapist in a three-dimensional manner like taffy untwisting and stretching.

Myofascial Release and/or Myofascial/Osseous Integration techniques are safe, easily learned and highly effective in reducing pain and restoring motion and optimal function on a permanent basis by treating the entire Myofascial/Osseous complex.

The following is an example of a Myofascial/Osseous Integration technique to the lumbo-sacral, sacroiliac regions.

Compression/decompression of the lumbo/sacral/ilic regions

This Myofascial/Osseous Integration technique is very gentle and is invaluable for the treatment of lumbosacral, and sacroiliac dysfunction. It should be included in the treatment regimen for any lower quadrant dysfunction, chronic headaches, and TMJ problems due to the caudad drag on the dural tube that can occur with restrictions of the myofascial system in the lumbo/pelvic regions.

Myofascial/Osseous Integration techniques usually begin with compression of the osseous structures followed by decompression. Light pressure is used with the compression phase. The approximation of the joint surfaces seems to elicit the production of synovial fluid; then the therapist sustains pressure and follows any motion that occurs three-dimensionally as the surrounding myofascial structures release in that direction. This appears to release the restricted myofascial environment of the osseous structures and eliminates or reduces the bracing or holding patterns of the subconscious tissue memory.

To initiate the compression/decompression of the lumbo/sacral/ilic regions, have the patient lie supine. With lower extremities extended, the therapist's stabilizing hand is in a fist under the patient's lumbar spine. The spinous processes are held between the heel of the hand and the clenched fingers. The operating hand is placed midline on the sacrum (coming from between the patient's lower extremities). Rest your elbow on the table and exert very gentle pressure on the sacrum and lumbar areas together (Figure 1). Wait, and begin to follow the subtle three-dimensional motion (myofascial unwinding) wherever the Myofascial/Osseous structures go the easiest (the path of least resistance) until a release occurs. The release will feel like a softening of the tissue surrounding the osseous structures.

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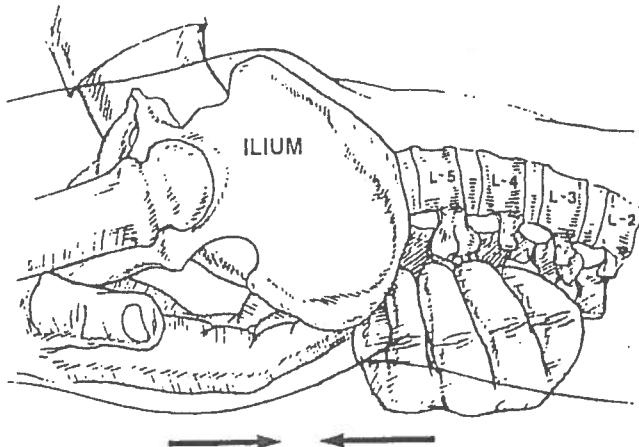


Figure 1. Compression; one hand stabilizes the lumbar spine while the sacrum is slowly pushed cephalad.

For the decompression phase, apply very gentle traction to the sacrum in a caudal direction with the operating hand. Engage the barrier and wait 90 to 120 seconds for the release to begin. Be patient and do not try to force through the barrier. There will be several barriers, so this phase of the technique usually takes up to five minutes to complete. The patient may assist in this technique by applying very light medial pressure on the ilia. As the patient does this, you will discern a disengagement of the sacrum from the ilia (Figure 2). Pressure should be light. Too much pressure will elicit a protective muscle spasm. The lighter the pressure, the more movement you will perceive and the more effective the treatment will be.

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Figure 2. For the decompression phase, pull the sacrum caudad. Once the sacrum has reached the barrier, the therapist rests his full weight on his elbow. The therapist's position enables the traction to be constant while he maintains a comfortable posture. Sustained pressure is applied, barrier upon barrier for a minimum of three to five minutes or until the release occurs.

References

1. *American Back Society Newsletter*, Volume 7, Number 3, Summer 1991.
2. Barnes, J., *Myofascial Release; the Search for Excellence*, MFR Seminars, Paoli, PA 1990.

Contraindications

Contraindications for myofascial release, such as malignancy, aneurysm, and acute rheumatoid arthritis may be considered absolute, while others, such as hematoma, open wounds, healing fractures, etc., may be regional.

malignancy
systemic or localized infection
aneurysm
acute rheumatoid arthritis
healing fracture
osteoporosis or advanced degenerative changes

cellulitis
acute circulatory condition
obstructive edema
open wounds
anticoagulant therapy
hypersensitivity of skin

febrile state
osteomyelitis
hematoma
sutures
advanced diabetes

Myofascial release techniques are effective in relieving pain and restoring motion and are designed to be combined with appropriate modalities, massage, mobilization and neuromuscular facilitation technique, exercise and flexibility programs, NDT, sensory integration and movement therapies.