Addressing Back Pain with Undulation

BY ANITA BOSER

Back pain is one of the most debilitating conditions because every movement is compromised unless the spine functions in its optimal range. The intricate and occasionally mysterious ailments of the spine's myofascia can perplex even the most experienced professional. Undulation is a technique that bodywork practitioners can use to improve the effectiveness and ease of our work.

Undulation is simply a fluid movement through multiple joints that includes waves, bends, and curves.

We've all experienced a variation of the following situations:

1. Reading body patterns in standing and walking is constructive, but sometimes it's not enough to see what's going on inside the client's body.

2. A client has dense myofascia and likes deep work. By the end of a session, you're exhausted. You need a way for your client to make the tissue more accessible to your hands and forearms.

3. A client with chronic back pain feels better after each session, but the changes don't last. You've addressed the whole body patterns (legs, pelvis, shoulders, etc.), but have been unable to create an awareness with him of the movement pattern that causes the pain to recur.

Undulation, a fluid movement through multiple joints that includes waves, bends, and curves, can be used as a tool in all these situations. First, it can be used in assessment to determine where manipulation along the spine will be most effective. Also, when contacting resistant tissue, client undulations facilitate release and give them more control over the process. In addition, when the practitioner incorporates undulations into her body, stiffness is relieved and mechanics are improved naturally.

By teaching this movement to our clients, we also empower them to improve the health of joints and muscles in a gentle, powerful way. I've been inspired by how my clients' eyes light up when they discover this tool and realize it's potential to expand movement and relieve soreness.

PRACTITIONER ERGONOMICS

Deep work can take its toll on the practitioner's body. The tendency is to stiffen in response to resistant tissue. However, as conscious breath from the practitioner invites more breath in the client, fluid movement in the practitioner's body encourages echoed fluidity in the client's tissue.

If any place in my body feels sore or stiff when I'm working, I introduce an undulation into that part. Rigidity in my fingers usually represents a fixed idea of how I think the client's tissues should respond. Fluid movement in my fingers not only brings fresh nutrients to the joints and muscles, it unlocks the attachments I have to how change should happen. The client's tissues then breathe better and can transform using their own wisdom. Likewise, when I'm working on broad, stiff tissue like the IT Band, I introduce undulations into my spine so I can better follow my client's internal waves.

FLUID MOTION

Undulation is a fundamental movement that has been constricted in most adult bodies by periods of stillness, repetitive motion, and lack of expression. Hellerwork structural integration practitioners teach undulation to clients when working on the spine. The *Hellerwork Client Handbook* describes it as resembling "the wave motion that moves along the length of a cracking whip. Undulation of the spine is a natural movement pattern that most of our bodies have forgotten. It requires the effective functioning of all of the core muscles along the spine."[1]

Fortunately, it can be relearned and can promote healing.

Body tissues depend on fluid movement to provide nourishment.[2] This is particularly true for cartilage and the intervertebral discs, as they have limited blood supply.[3,4] Of course, we also know the effects of stillness on

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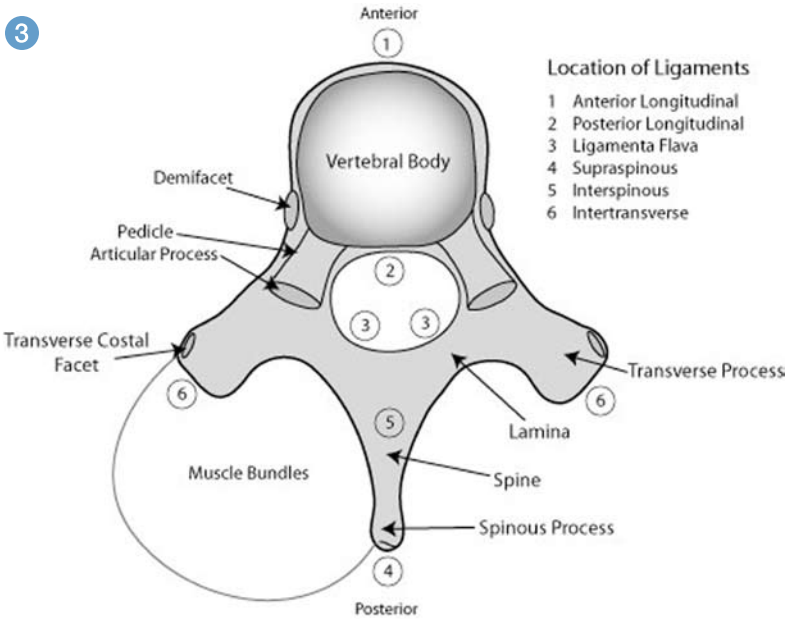

muscles: sluggish tissue and adhesions. And, the circulatory, lymph, and digestive systems all benefit from activity, too. Therefore, restoring our clients' lost fluid motion is one of the most important goals of bodywork.

I like to introduce undulation at the beginning of a session, even before the client has undressed. Sitting across from each other, I direct my client as I demonstrate: "Sit with your feet firmly on the ground and both sit bones on the seat. Sway gently from side to side. Where in your spine is the movement easy? Where is it stiff? Okay, stop for a moment. Now try to start movement from a stiff place and see what that's like. It's different, isn't it?" Pause to give the client time for observation as you ask these questions. (See image 1.)

I notice where movement is missing and encourage the client to try to engage those places. Then we repeat the exercise, using flexion and extension rather than lateral flexion. I direct my client: "Let your sternum drop down so that your back rounds to the back and then straighten your spine and arch the other way—only to a comfortable point. Again, notice what parts can move without effort and which ones feel stuck. Let different parts of your body—pelvis, low back, upper back, and neck—lead the way." (See image 2.)

This gives the client a new awareness of his body. Usually the place of discomfort is just superior and/or inferior to a place that's immobile.

ANATOMY

When undulation is introduced at the beginning of a session, the client can use it to direct your touch to the areas that need it most. Before I explain how to use fluid movement during bodywork, we should review spinal anatomy, so our work's intention can be more precise.

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The 26 bones of the adult spinal column include seven cervical, 12 thoracic, five lumbar vertebrae, the sacrum, and the coccyx—at least 26 places (before counting the ribs) for articulation.

These bones connect at multiple joints. The most obvious is where the vertebrae connect through the intervertebral discs. Then there are the gliding, synovial facet joints. The angle of the facets determines the range of motion between vertebrae. The angle in the lumbar spine limits rotation. In the thoracic spine, together with the limitations posed by the ribs, flexion and extension are the movements most readily available. The facet joint angle in the cervical spine allows for range of motion in all three planes.

The ribs can facilitate or inhibit the spine's range of motion. Most ribs attach to the thoracic vertebrae in three places. For example, the joints of rib five include the superior demifacet of T5, the inferior demifacet of T4 (the disc between the vertebrae), and the transverse costal facet of T5. Restrictions in the myofascia of one rib affect two vertebra and the disc between them, so freeing a rib can profoundly affect a large area.

Ligaments also play an important role in the spine's structure and mobility. The anterior longitudinal and posterior longitudinal ligaments support the vertebral bodies and discs. In addition, the ligamenta flava, supraspinous ligament, nuchal ligament, and interspinous ligaments create the spine's column and partially form many of the joint capsules. (See image 4.)

The muscles and connective tissue create movement in this elaborate structure. The erector spinae (iliocostalic, longissimis, spinalis) originate from a thick pad of fascia over the sacrum and adjacent iliac crest; tendrils reach up from this base, creating more than 100 individual movement possibilities. The transversospinalis group (semi-spinalis, multifidi, rotatores) is deeper and shorter; it crosses only one to four vertebrae, but vastly expands the possibilities for movement. The interspinales, intertransversarii, and levator costalis provide even more fine control. In addition, the prevertebral muscles include longus colli and longus capitus in the cervical spine and the psoas in the lumbar. The lateral spinal muscles include the scalenes and quadratus lumborum. And, the suboccipitals create elaborate movement between the upper cervical spine and the occiput.

ASSESSMENT

Imagine a client, Tim, who has a strong kyphosis. (See image 3.) You observe that lateral flexion in the neck is limited to one or two vertebrae, at C5-C6; the movement hinges there rather than flowing through the entire cervical spine. He leads all movement, unless directed otherwise, with this part of his neck, which moves much more than the rest of his spine. You also notice that his mid-thoracic spine is still in both exercises. Tim's movement preference is to maneuver his arms and shoulders rather than engage the thoracic spine.

By observing a client's fluid, unstructured movement you can assess the client's movement bias, restrictions in range of motion, and joints that are overused.

Tim's movement bias is to overuse his neck and shoulders. Restrictions in his thoracic spine and rib cage feed into his pattern and reinforce the cycle of overuse and underuse. And since most of the movement in his neck happens at C5, these joints are taxed, so the surrounding ligaments and muscles have developed extra connective tissue fibers for protection or they are overstretched and susceptible to strain.[5]

THERAPEUTIC AID

During bodywork, ask the client to bring small, gentle movements under your fingers (or forearm). This will make the tissue more accessible and allow the client to direct your pressure to where it's most beneficial.

ERGONOMIC AID

When working, be sure that your spine and fingers are fluid so your joints are getting the nourishment they need.

MOVEMENT LESSON

Teach your clients to undulatel so they can continue the release and awareness that you create.

Used as an assessment tool, undulation pinpoints where manipulation will be most effective. In Tim's case, improving mobility of the cervical spine above and below C5 and through the thoracic spine and rib cage will take pressure off the overused parts. And, now that he has new awareness of his pattern, Tim can make an effort to initiate his movements from the mid spine, which will further improve his mobility.

THERAPEUTIC AID

Tim's assessment produced two goals: increase the mobility of the thoracic spine and improve the coordination and participation of the vertebrae in his cervical spine.

When working the erector bundles between his scapulae, I'd simply ask him to "bring a little undulation here" or "move in a way that helps this place feel better." This changes the dynamic from practitioner pushing through tissue to the client's body creating space where it's needed. Deep muscles like multifidi can't be directly accessed by pressure, but client movement accentuates the three-dimensional qualities of myofascia so strands have more contact with interstitial fluid and can be affected by manipulation. The resulting rehydration of connective tissue improves the fluidity and glide. This technique creates awareness in the client's body.

To improve mobility in specific segments, as in Tim's cervical spine, the practitioner can isolate one vertebra with light touch and ask for small, unstructured movements. As the myofascia creates and responds to the movement, the practitioner can feel and encourage the layers that don't glide. Working this way will increase mobility where it's needed and add to the client's somatic intelligence.

MOVEMENT

Bodywork starts the process of change; the client's movement continues the transformation into healthier tissue. Near the end of the session, I ask my client to try the undulations again so he can experience the improved movement and notice how this corresponds to feeling better. We then reassess the areas that are less fluid. Where is movement missing or sticky? What type of movement is missing?

SUPPORTING MTS AND CLIENTS

Increasing mobility is a key goal of the bodywork practice. Restoring lost range of motion in the spine supports every activity in life, facilitates body awareness, takes pressure off the practitioner, and empowers the client to massage his body in everyday life. Undulation is a simple tool that supports the client and practitioner in pursuit of these goals.

Anita Boser, LMP, CHP, graduated from the Institute of structural medicine and practices Hellerwork Structural Integration in Issaquah, Washington. Her personal care routine includes yoga and belly dance, which together with her daily undulations, have inspired many fun exercises. Boser is the author of Relieve Stiffness and Feel Young Again with Undulation. *She can be contacted at anita@anitahellerworker.com or www.undulationexercise.com.*

NOTES

1. Hellerwork Client Handbook *(Hellerwork International, 2005).*
2. *Ida Rolf,* Rolfing: Reestablishing the Natural Alignment and Structural Integration of the Human Body for Vitality and Well-Being *(Rochester, VT: Healing Arts Press, 1989).*
3. *Walter Herzog and Benno M. Nigg, eds.,* Biomechanics of the Muscolo-Skeletal System, *2nd edition, (West Sussex, England: John Wiley & Son, Ltd., 1999, reprint 2005).*
4. Gray's Anatomy, *38th Edition (London, England: Churchill Livingstone, 1995, reprint 1999).*
5. *Shirley Sahrmann,* Diagnosis and Treatment of Movement Impairment Syndromes *(St. Louis, MI: Mosby, 2002).*