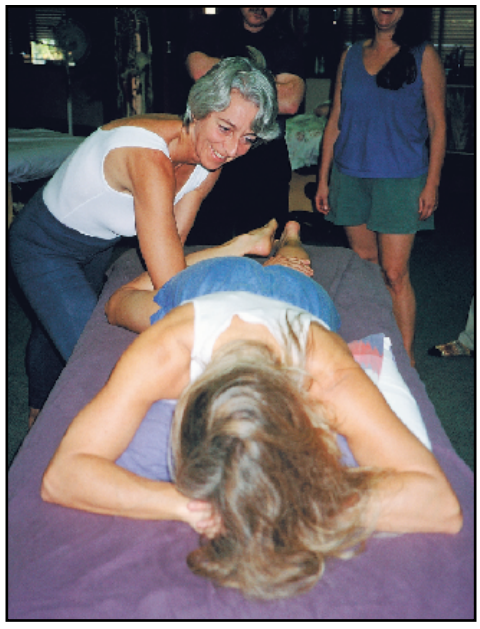
Massage & Bodywork MAGAZINE

REHABILITATION

NEUROMUSCULAR REPROGRAMMING

THE MISSING LINK



The human body is an intelligent living organism constantly re-creating itself in response to stimuli. Some of these stimuli are physical trauma and injury, some are emotional, and others are new and desirable learnings acquired through training or education. In this realm of new and desirable learnings, NeuroMuscular Reprogramming® (NMR) can contribute a great deal. It utilizes a form of positive kinesthetic conversation with the body to imprint new learnings on the motor control center of the brain, replacing damaged imprints created through trauma, injury, operations or repetitive strain from ergonomically inefficient use patterns.

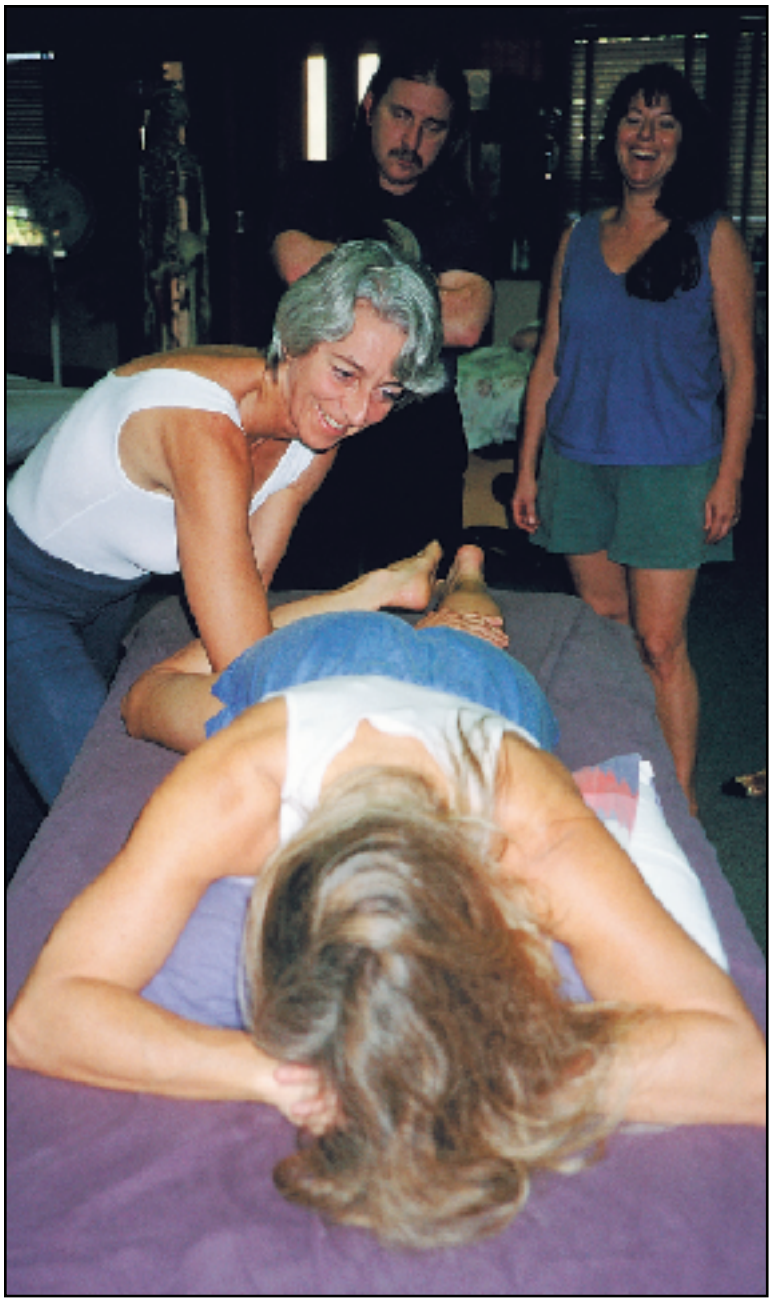
Neurologic Patterns are Easily Disrupted

When a limb is broken or a joint whiplashed or strained, the damage is not just to the tissues. There is also damage to the neuromuscular programs governing alignment, movement and postural support. After the bone has knit or the tissue tears have healed, painful symptoms often persist. These are a result of another kind of injury – dysfunctional movement patterns impressed on the motor coordination center at the time of injury which do not change simply because the tissue has repaired itself. There are also many occasions in life in which the body sustains sub-clinical injuries, namely, no tissue damage, but a definite disruption of function accompanied by very real pain. Those neurologic patterns can be easily re-educated. Bodies require periodic tune-ups of their motor coordination programs. This is easily done with NMR.

Traditional Rehabilitation Falls Short

Here's an example of NMR's capabilities. After an operation to repin the tendons of a repeatedly dislocated shoulder, an orthopedic surgeon compliments his patient on the 65% of normal range of motion that he has regained post-rehab. After one session of NMR, this same client leaves with 95% of his original range.

By Jocelyn Olivier



Here, Jocelyn Olivier is shown releasing the adductor brevis to facilitate hamstring strength.

Dysfunction of the motor coordination programs governing movement, postural support and alignment are the biggest source of non-pathological body pain.

During rehab, the patient performs exercises designed to re-build strength in his shoulder muscles, but he is exercising muscles still inhibited from the shock of repeated dislocation. In injuries such as these, the medical profession is concerned with the repair of disrupted tissue – broken bones, torn ligaments, sprains, etc. – and stabilizing the situation until the body can heal itself. Physical therapy and occupational therapy then provide some brilliant support in the form of rehabilitative exercise. What is not recognized is that the muscles performing the exercises still use dysfunctional coordination patterns formed at the time of the injury. The client's tonus improves, he feels better, but his recovery is not complete.

Physical therapists want the patient to do the job of re-building function through self-initiated activity, from the inside out. Hence rehab focuses strongly on exercise programs to strengthen unused neuromuscular pathways. Unfortunately, the most disused pathways have developed sensory motor amnesia; they cannot feel themselves or respond to messages from the motor control center. When exercise is performed, those pathways are not accessible. Traditional rehab tends to reinforce the compensatory pathways established during the process of injury. In the cases where painful symptoms persist two months post-rehab, the body is telling us there are still structural elements that remain dysfunctional.[1]

I have observed that we can regain much more of our original neuromuscular clarity than is currently believed to be possible. In the short time the medical profession has been exploring the field of rehabilitative therapies, few practitioners have understood fully what the human body is capable of achieving. If we knew more results were available to us, we would be more likely to pursue them. The missing piece in rehab therapy – preparing the muscles for new learnings, re-creating the coordination patterns that can best benefit from repetitive

See Neuromuscular, p63

Neuromuscular, from p61

exercise – comes before the exercise. NeuroMuscular Reprogramming provides that missing link.

Dysfunction of the motor coordination programs governing movement, postural support and alignment are the biggest source of non-pathological body pain. These miscoordinations are easily reprogrammed in fundamentally healthy bodies and the relief from pain is usually immediate.

Rehabilitating Disrupted Patterns is the Focus of NMR

NMR engages in a kinesthetic conversation with the motor control center of the brain to facilitate new learnings. It bypasses the usual reflex spinal root circuits to address neuromuscular problems at their source, the motor control center.

The difference between NMR and other neuromuscular therapies lies in its very specific use of muscle testing to bring to consciousness neuromuscular dysfunction and cue the brain for new learnings. We have repeatedly explored and experimented, comparing the value of simply releasing over-toned muscles through other modalities. NeuroMuscular Reprogramming adds something more to the effectiveness of all these techniques. The results achieved with the addition of muscle testing are longer lasting and truly re-educational for the client. Involving the intelligence of the conscious body/mind in the kinesthetic conversation of hands-on work far exceeds other release therapies in achieving lasting results. The practitioner tests and then facilitates the establishment of new or more efficient coordination patterns using their choice of release and facilitation techniques.

How NMR Works

A former football player has a rotator cuff injury of unknown origin; he cannot remember when the symptoms started. The shoulder resists passive movement toward the ear and any external rotation causes a jab of pain. Taking the shoulder to the limit of its comfort in external rotation, we test the infraspinatus. It tests weak. The subscapularis, on the other hand, tests strong. We release the subscapularis and then retest the infraspinatus which is now able to resist easily. The client is amazed to realize that he can externally rotate his shoulder as far back as it would normally be expected to go without any pain whatsoever. This re-programming of the reciprocal inhibitors of the internal and external rotators of the shoulder took five minutes to change a pattern the client had been living with for many years.

Next we test the anterior deltoid. This is also weak. We release the overly-contracted scalenes and the anterior deltoid can now respond to motor messages with the appropriate resistance. This five-minute kinesthetic conversation resolves the inhibition pattern created by a fixation along a line of force.

Sometimes muscles which normally work in sequence with each other will exhibit "reactive" tendencies. One of the muscles of the "reactive" pair will work fine when tested alone, but test weak when used in sequence with another. This can happen, as illustrated above, along a "line of force" or in case of reciprocal inhibition or even within two parts of the same muscle system such as the hamstrings or the ilio-psoas. The NMR protocol, which reveals all possible reactives, performs three tests on two muscles in sequence, testing first A, then B, then A again.

The patterns of relationship that are revealed and resolved through NMR include reciprocal inhibition across a joint, lines of force in a sequencing of coordinated effort, parallel structures performing secondary support for the disabled muscle, spiraling patterns of movement, and the resulting weakness in the extremities resulting from overstabilization at the core. More complex situations can also express themselves as deep tensions resulting from superficial inhibitions, necessitating that the postural and movement support be carried solely by the intrinsic muscles. You may be working with these patterns already in your practice. NMR will give you tools to speed up the work.

NMR involves the participation of the client. The muscle testing protocols serve as a biofeedback device to bring the body into sharp focus, increasing our conscious connection with it, revealing how the interrelated parts move and feel coordinated with each other. Not only is the therapist able to be very detailed and thorough in the assessment process, but the client is thus made conscious of "what's on" and "what's off" at the same time. Clients who are more sensitive to their bodies can feel immediately the improvement in neuromuscular connectivity as they participate in corrections and connections being made.

"Corrections" describes the process an NMR practitioner uses to create changes in the movement coordination center of the cerebrum where new motor skill learnings take place. Testing a muscle in sequence with others that are involved in a compensatory pattern cues the brain for reprogramming. It initiates a kinesthetic conversation with the motor control center in the forebrain, bringing up a stored pattern from the cerebellum for conscious re-learning in the cerebrum. The therapist can choose any of their own bodywork techniques to release the inhibitions. Retesting them anchors the new use pattern and causes a rewriting of the programs which are then stored in the motor coordination center in the cerebellum. These new programs become your body's automatic response.

This kinesthetic conversation as an aspect of therapy is fast and thorough and usually painless as it does not require force. It engages with

See Neuromuscular, p64

Neuromuscular, from p63

the body's intelligence to restore the optimal patterns for movement lost through disuse, misuse or trauma.

What is Muscle Testing?

Asking a muscle to resist the application of a 5-15 pound pressure reveals the clarity of the neuromuscular connections facilitating that muscle. When a muscle has become disabled, the body cannot find the neurological connection to respond to the task of resistance against pressure. One of the beauties of NMR lies in its ability to be so specific. Muscle testing can give you a detailed assessment of the action and functional range of a joint. Since joints work in complex variations of alignment with neighboring structures, careful positioning while muscle testing can duplicate any neuromuscular task and reveal in total detail which functions are working and which are not.

Results When All Else has Failed

NMR can provide the missing link in learning for conditions which have not previously responded to therapy. We often see clients who have been to many other kinds of health professionals without gaining relief from symptoms. Even injuries years old can be alleviated with this essential piece of rehabilitation.

A new NMR graduate is seeing a client who sustained two whiplashes 20 years ago. Since then, the client has been unable to raise her head from the bed without using her hands to lift her head. She has constant pain between her shoulder blades, and the area of her right diaphragm is also painful and "hard as a rock." She has great difficulty working at her desk, as her arms become exhausted after a short time from holding them up to her keyboard. She has seen orthopedists, chiropractors, Rolfers and osteopaths over the years without success.

Muscle testing reveals no connectivity at all in her sternocleidomastoid muscles (they are completely unable to respond), and weakness in her quadratus lumborum and gluteus maximus. After three sessions of two hours each, including NMR as one of the strategies, the client is now ecstatic to be moving her head freely for the first time in 20 years, and is able to lift it unaided from a supine position. After the muscles have been re-educated through NMR, the client's own daily activities continue to strengthen her previously emaciated sternocleidomastoid muscles. Sometimes the integration of new information introduced in a session continues to happen over a period of the next few days. The corrections will continue to evolve and the client will have regained even more functionality by the next visit.

NMR – The Sherlock Holmes of Neuro-Muscular Problems

In a NeuroMuscular Reprogramming class you learn solutions to typical alignment problems and are taught the principles which enable you to figure out solutions for the idiosyncratic patterns you find. NMR does not replace other bodywork modalities; it simply adds a missing tool to your tool kit.

A client came to see me who had been receiving bodywork for years for a gradually decreasing mobility in the range of movement of her right hip joint and constant pain traveling through her right buttock. Walking produced a painful "catch" in the area of the hip joint. Previous years of bodywork sessions had helped, but not resolved, the problem.

There was a lack of elasticity throughout the hip joint. External rotation and extension were severely limited and muscle testing revealed her psoas and piriformis were weak. This weakness in the psoas was being compensated for by overdeveloped iliacus muscles. All walking aggravated a hip joint that was in a state of contraction throughout, not supported by the psoas or the external rotators and over-stabilized by the internal rotators. Releasing the iliacus and pectinius improved piriformis strength, but thorough work testing and re-balancing all the muscular elements in the hip, low back and pelvis did nothing to improve the strength and elasticity of the psoas. The source of the problem involved another principle of neuromuscular coordination, inhibitions along a line of force – muscles running in the same direction that sequence to perform complex actions such as lifting your food to your mouth.

Work in the area of the scalenes revealed rigid muscle. This rigidity caused a locked right rotation of C3, C4 and C5 with so little movement it appeared to have splinted into one bony mass. Bone spurs were developing along the anterior border of the transverse processes and the whole area of the scalenes was emaciated. She also experienced limited and painful range of motion in her right shoulder.

This unremitting tension in the scalenes caused a shutdown of the "line of force" through the whole right side of her body, inhibiting her psoas and ankle dorsiflexors. Testing the psoas in sequence with the scalenes and then releasing the scalenes finally facilitated the strengthening of the psoas. This example illustrates how, when any of the elements along the line of muscles that work in sequence to perform a function – such as lateral bending or forward flexion – become fixated, they cause inhibitory messages further down (or up) the line of force.

After one session, the client reported enormous reduction of pain through the right hip area and increased range of motion in the shoulder. After two sessions, her neck no longer had a preferred right rotation and had regained flexibility. Finally, after five sessions, the right hip pain was completely gone, she

had resumed walking for pleasure and exercise, and she reported that her energy had returned to levels she hadn't experienced in years.

Rehabilitating Wrist and Hand Conditions

When the scalenes or the anterior deltoid and superior fibers of the serratus attaching to the anterior border of the scapula become chronically contracted, they inhibit full function of bracchio-radialis and the lateral wrist extensors, and are the source of many discouraging symptoms for massage practitioners, causing elbow or wrist strain. How do you go about using NMR to correct these imbalances? First, test the bracchio-radialis. Then test the scalenes or anterior deltoid. Now test the bracchio-radialis again. If the bracchio-radialis tests weak either initially or after using it in sequence with the scalenes, release the scalenes. Then retest the bracchio-radialis again. This anchors the correction. Now the body becomes aware that it is easy to get messages through to a muscle that was kinesthetically "blind" only a few moments earlier.

A Complementary Therapy

NMR complements the work of other health professionals. This work belongs in chiropractor's offices, physical therapy departments and sports training centers. For example, an NMR practitioner worked conjointly with a physical therapist on a client who, as a result of a "tummy tuck," lost the range of motion in her hips and couldn't stand up straight or lie on her stomach. The physical therapist worked to stretch the fascia of the lower abdomen, which helped a little, and gave strengthening exercises for the client's back which didn't help at all. The NMR practitioner tested all functions of extension and flexion through the lower back and abdomen and found the insertion of the psoas "reactive" to the origin. The psoas was strong at one end and weak at the other. It tested strong in one position and weak in another. The tension in the origin of the psoas was also inhibiting the hip extensors. When the origin of the psoas and the internal obliques were released after testing the extensors of the hip and back, the client could immediately stand straighter.

The Benefits

The unexpected benefits of reducing the energy demand from the support and movement system by improving neuromuscular efficiency are more energy, clearer vision, increase in muscle definition through normal activity levels, a normalization of tissue metabolism, and more energy available for the higher brain functions of creative thought and problem-solving. Psychologically, it means a general sense of greater

See Neuromuscular, p66

Neuromuscular, from p65

well-being, feeling balanced and whole. As clients report a return to energy levels remembered from a much younger age, we realize that the more we can reduce stress on the system created by dysfunctional neuromuscular connections, the easier our life becomes. The focus of NMR is to create better integrated and coordinated bodies; consciously illuminating the kinesthetic blind spots of sensory motor amnesia is a huge step in our conscious evolution toward highly integrated functioning.

In the last 40 or 50 years, the study of somatics – the body experienced from within – has greatly expanded our possibilities for overcoming physical, emotional and developmental limitations imposed by life and circumstance. We, as a race, have truly arrived at the possibility of conscious evolution through somatic education.

The Missing Link

This form of NMR is the missing link in our rehabilitation programs – an approach that our innately intelligent system can utilize in its constant growth and reorganization to meet new stimuli and adapt to new conditions. The examples cited in this article have been simplified to illustrate some of the initial principles and applications of this way of working. This is a sophisticated body of work and takes commitment to learn in its complexity. Practitioners who have been through the training program have been amazed at how deeply effective their work has become through the addition of NMR. This work is also easy on the practitioner's body.

NeuroMuscular Reprogramming enables you to tailor your work to your clients in very specific ways. It is very satisfying to help clients consciously understand their own bodies and how to help themselves through follow-up with specific exercises designed for their particular situation. It is also inspirational to see what the human body is capable of achieving when given access to new information in the form of NeuroMuscular Reprogramming. M&B

Conscious Bodywork: NeuroMuscular Reprogramming℠ training is available exclusively through Alive & Well! Institute of Conscious Bodywork in San Anselmo, Calif. Call 888/259-5961, or e-mail alive@alivewell.com.

***Jocelyn Olivier** is founder and director of Alive & Well! Institute of Conscious Bodywork Inc. and the originator of the body of work service-marked as Conscious Bodywork: NeuroMuscular Reprogramming. She is also a past president of the Association for Humanistic Psychology, and recently produced and directed Body Wisdom, the 1999 International Somatic Congress.*

Footnotes

1 Muscles that overwork and carry the load often ache and/or go numb. Those that remain disconnected are sore after exercise and can suffer from sharp pain and edema; tissue quality is emaciated.