When Reflexes Rule

A New Paradigm in Understanding Why Some Patients Don't Get Well

By John Iams, MA, PT

Ever notice how patients leave your practice improved, only to return days later with their signs and symptoms returned?

Could there be a missing piece to the puzzle of pain currently not being examined or treated by even the most competent practitioners? The answer is a resounding "yes."

As PTs and PTAs, we've learned to examine and treat muscles, fascia, joints, tendons, ligaments, neural tension and even the dura. But why not reflexes? While all these other structures are important, what's more powerful and primal than reflexes? Nothing. Unfortunately, the amount of information we've learned about them could fill maybe a page or two at best.

Some Background

Our knowledge of reflexes is largely owed to Sir Charles Sherrington who has become known as the "Father of the Nervous System." His book, The Integrative Action of the Nervous System, circa 1901, became the impetus for study of primal reflexes.(1)

While we all talk about protective joint and postural reflexes, how much do we really know and appreciate their action in health and injury/illness? We're all taught that once an injury occurs, the muscles "splint" to protect the region. This "splinting" often remains long after the injury is apparently resolved. Quick movements are difficult to impossible due to this same mechanism. The patient is "guarded" in efforts to use this region. In the case of a lower extremity injury, the result of inappropriate protective reflexes persisting is the loss of spontaneity of movement.

Running, jumping and quick changes of direction may be impossible or only able to be performed with conscious effort. The normalization of protective reflexes can and does make the difference between full versus partial recovery. For athletes, this is tantamount to either returning to their prior level of performance, or being frustrated by their injury for the remainder of their career. Once an injury occurs, healing either progresses to full resolution or not. If not, primal reflexes are one of the main reasons, and we have the tools to reset them.

Our nervous system is a marvelous, elegant, array of neural chemical circuitry. Reflexes are an integral part of this hard-wired, paleocircuit-before-birth system. Two primal reflexes that seem to have the greatest potential for problems relating to pain and motion limitation are the startle and withdrawal. A third, the protective joint reflex, is constantly influencing our attempts to relax muscles and increase ROM.

How often have you said, "If only I could get this muscle (group) to no longer be 'splinting' the area you're trying to mobilize or manipulate, I could solve the patient's problem?" Now, there's a simple, quick and easy way to achieve this—and it's done by using the patient's own reflexes.

In an infant, the startle reflex is known as the Moro reflex. After infancy, it can be triggered by a number of sensory stimuli, including auditory, visual, olfactory and touch. The relationship of the startle reflex to

PTSD is beginning to find its way into the literature relating to past traumas.(2) Could the startle reflex be present in many of the patients seen in our practices? Again, the answer is yes.

The withdrawal reflex has been referred to as the classical flexor and the pain withdrawal reflex. It is now apparent that the term "flexor reflex" is not entirely descriptive of the limb movement, as it may incorporate other patterns—for example, abduction—in an effort to move away from the noxious stimuli.(3) The current pain literature now refers to this reflex as the nocioceptive reflex. This spinally mediated, hard-wired reflex has been shown to be present as early as seven weeks of embryo development. Stimulation around the mouth elicits a withdrawal reflex.(4)

Reflexes and Pain

Although these and other reflexes have been gifted to us for survival, they may represent a previously unrecognized source of musculoskeletal pain. Could these reflexes be a reason all our best efforts fail with prior systems of therapy? Over the decades we've examined and treated most components of the musculoskeletal system. Practitioners have developed and fine-tuned fascial, joint, neural and muscle release techniques. So, why not techniques to examine and release up-regulated spinal cord and brain stem-mediated reflexes? Could this explain why even your best efforts fall short of getting many patients well and keeping them there?

After nearly 40 years of clinical practice and research, I've discovered how the previously mentioned reflexes can be found in virtually all patients with musculoskeletal pain. There does not appear to be any prior mention of these phenomena in the medical literature. I've termed this finding the Nocioceptive Startle Reflex™ (NSR™).

I have described my findings as TriggeRegions™, to differentiate an area from a point. I define these TriggeRegions™ as an area of hyperesthesia, found when sliding one's fingers over predictable areas. Little if any inward pressure is applied. These areas have been found to have certain patterns. The closest similar protocol seems to be that of trigger points as described by Drs. Travell and Simons.(5)

A few of the more than a dozen regions I examine include: the sphenoid, ligamentum nuchae, rectus capitus posterior minor, splenius capitis, upper thoracic region, lower ribs, coccyx and SI joint. Right-sided findings of the Nocioceptive Startle Reflex™ predominate from the cranium to the upper T spine. Left-sided findings are most frequently found in the lower ribs to the coccyx.

While not the entire list, this allows the open-minded practitioner to examine these regions in relationship to one another, not as isolated areas. One must go back and forth palpating the right then the left side of each of these areas.

A One Minute NocioceptivExam™ is performed by scanning for the presence of up-regulated reflexes. This is done by alternately palpating the right then the left side for the various TriggeRegions™. While this back and forth, right-then-left assessment is unconventional, it yields tremendous feedback to both patient and therapist. With practice, this process will become second nature. By sliding one's fingers over the TriggeRegions™, yet not pushing inward, the Nocioceptive Startle Reflexes™ are elicited. Eliciting the NSR™ response will be a surprise to patients and initially to the practitioner too, as these regions are frequently very distant from their perceived area of pain.

The typical response is a series of three Gs: gasp, groan or grimace. The gasp is created when the patient inhales quickly with the tongue in contact with the hard palate. The groan is a sound often heard when a tender area is found. The grimace is the most frequent observed response, often seen accompanied by the gasp.

Not all of the three Gs will be present on all patients and in every area. The more "irritable" the patient's pain pattern, the more prominent the three Gs will be manifested. In the absence of any or all of the three Gs one can simply note a tight, tender and/or thickened feeling during palpation. These three Ts are classical findings to assess both before and after treatment.

It seems almost incredulous to a patient that the pressure is the same on both sides of the body being examined. This phenomenon seems likely due to the patient's lack of prior awareness of these areas. Equally amazing is the change following treatment. What makes this NSR™ finding so valuable is the frequently rapid change in tenderness as measured by the obliteration of the two primal reflexes, startle and withdrawal.

Treatment Options

Treatment involves the Primal Reflex Release Technique™ (PRRT™) designed to down-regulate the three reflexes. PRRT™ is performed using about 12 seconds of light stimulation to reflexively and reciprocally inhibit facilitated areas like the ones mentioned earlier. These techniques are quite unique. This causes no discomfort to the patient. Several techniques are usually performed before re-exam. Rescanning with one's fingers usually finds minimal tight, tender or thickened (three Ts) regions. What was previously a painful attempt to withdraw from the palpatory stimulus now only elicits a verbal description (three Ts vs. the three Gs previously).

This clearly demonstrates a reduction in reflex-based excitatory nocioception. A surprised, if not shocked, look on the patient's face is commonplace. Improvement translates into greater spontaneity of ROM, speed and range of motion. It's as if the patient has traded nocioception for proprioception in a matter of just seconds and the results are usually lasting.

An improvement of up to 50 percent on the first visit is not unusual. Most patients don't need more than several sessions to resolve their pain problems. Patients with chronic pain may take longer but not always.

Most practitioners trained in PRRT™ perform the 1 Minute NocioceptivExam™ first and then treat for a few minutes. Following this, they may add other modalities or procedures as their prior experience dictates.

Does PRRT™ resolve everyone's pain? No, in fact, it seems to be a patient's answer only if it works on the first or second session when it's tried. No other technique I'm aware of is able to call itself a success or failure within one to two sessions.

While research is still ongoing with PRRT™, it appears that the presence of these TriggerAreas™ may be a maladaption to stress. It's estimated that as many as 80-90 percent of all illness and disease begins with stress as the beginning mechanism. Could living in an up-regulated, catabolic, sympathetically mediated, 24/7 state create dural tension? An injury may be nothing more than sustained stress or repetitive strain leading to tissue or organ dysfunction over time.

Most of the TriggeRegions™ are where the dura mater has direct or indirect attachments. Other techniques, such as craniosacral therapy, also focus on the influence of the dura. Could the dura mater and its reciprocal tension mechanism account for the nearly instantaneous relief PRRT™ frequently enjoys?

As our profession moves further into the 21st century, we'll need to achieve results faster than ever before. Patients are more demanding and their referral sources are no different. PRRT™ is designed to achieve rapid results while blending seamlessly with prior techniques. Like it or not, we must begin to analyze what influence primal reflexes have on motor and sensory behavior.

As we learn more about this new field of study, we're likely to accelerate the speed of recovery for most of our patients. The other techniques we've learned and grown to love will become much more effective once reflexes are functioning at their normal state.

References

1. Sherrington, C. (1901). The Integrative Action of the Nervous System. Yale University Press.

2. Morgan, C. (1997). Startle response in individuals with PTSD. NCP Clinical Quarterly, 7(4).

3. Kandel, E. (2000). Principles of neural science, 4th ed. New York: McGraw-Hill.

4. Goddard, S. (2002). Reflexes, Learning & Behavior. Eugene, OR: Fern Ridge Press.

5. Travell & Simons. (1983). Myofascial Pain and Dysfunction: Vol 1. Baltimore: Williams & Wilkins.