Allen Chiropractic

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Clinical Secrets

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The nociceptive or flexor withdrawal reflex (FWR) is a cord-mediated reflex intended to protect the body from damaging stimuli.

The classic example is touching something hot and withdrawing that body part from the hot object. The heat stimulates temperature and pain (noxious) receptors in the skin, triggering a primary afferents that travels to the central nervous system. The sensory neuron synapses with interneurons of the cord and ultimately the anterior horn cells. Some of these send motor impulses to the flexors to allow withdrawal; some motor neurons send inhibitory impulses to the extensors so flexion is not inhibited—this is referred to as "reciprocal innervation" or the crossed cord reflex. While all of this occurs, other interneurons relay the sensory information up to the cerebellum, midbrain, and cortex to integrate the proprioceptive response and the consequential protective movement.

Receptor Based Solutions™ for the Flexor Withdrawal Reflex

Physiological Significance of the Protective Response

The Idea: Human physiological reflexes have a predictable display. Either they work according to their original design or they are pathological. There are no other choices. If a reflex displays itself in ways other than according to its preprogrammed format, it must be considered to be pathological, and it increases the risk of injury. Reflex error requires treatment.

THE FLEXOR WITHDRAWAL

STEP ON A TACK → SENSORY INPUT TO THE SPINE

↓ VIA INTERNEURONS

- INHIBITS EXTENSORS ON THE SAME SIDE
- HIP FLEXORS FACILITATE ON THE SAME SIDE; I.E., THE LEG LIFTS
- EXTENSORS CONTRACT ON THE OPPOSITE SIDE
- INHIBITS FLEXORS ON THE OPPOSITE SIDE TO MAINTAIN BALANCE AND SUPPORT WEIGHT

This short article tackles the flexor withdrawal reflex (FWR) and one way to fix its erroneous display.

The FWR is a protective response. It helps move away from danger while maintaining posture and balance. It is impossible for a patient to tell when their FWR is not working right, but its dysfunction can lead to the realization of pain in various ways.

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Case Study: Michael (54yo) came in complaining of twitching in his left hip for the past 3-4 days. He had no idea how the twitching started, but said he had been under a lot of personal and professional stress the past two weeks.

How it Works: Stimulation of the FWR mimics a painful (i.e., nociceptive; unconscious pain) stimulus. In response, the limb protects itself by pulling away. In this case, we will only focus on lower extremity's response to pain. We would expect withdrawal on the side of stimulation and support on the opposite side. That is, we would expect thigh flexion on the stimulated side and hip extension contralaterally.

What We Found: While his eyes were open, stroking the sole of either foot with a sharp object functionally facilitated the quadriceps contralaterally, which is not what we would expect. Conversely, with his eyes closed, stroking the sole of either foot with a sharp object functionally inhibited his contralateral quadriceps, which is exactly what should happen.

The Fix: With his eyes open, Michael hummed a new tune. Now, stroking the sole of his foot with a sharp object caused the proper physiological response—the functional inhibition of the quadriceps contralaterally. That is the normal human response.

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The Result: According to his original diagnosis, we used a pair of Eyelights® to stimulate his right parietal lobe, and immediately rechecked the FWR. Now, stroking the sole of his foot with a sharp object while his eyes were open caused the quadriceps to turn off on the opposite side.

Summary: This erroneous FWR display is significant. It suggests that a painful (nociceptive) stimulus to one of Michael's feet might cause him to posturally collapse onto the stimulus. The Eyelights®, while a temporary fix caused the FWR to display as anticipated. Michael had other therapies and left the office feeling better.

Dr Michael D. Allen is a healthcare leader as both a Doctor of Naturopathic Medicine (NMD) and Doctor of Chiropractic (DC), with certified specialties in functional neurology and applied kinesiology.

Internationally recognized and with 37 years of clinical experience, Dr. Allen has frequently lectured on four different continents. He has authored several books and professional papers dealing with uniquely human movement patterns and their autonomic concomitants, pain management, and learning issues.

Dr. Allen has served the International College of Applied Kinesiology (ICAK) as the Vice-President and Secretary of the American Chapter, as President, Vice-President and Member-at-Large of the International Council, and as the Neurology Consultant to the International Board of Examiners, overseeing 18 chapters worldwide.

He is the President of the brain-based healthcare facility known as Allen Chiropractic, PC, and Founder of its educational division called, HealthBuilderS®, both being in Orange County, California.

For more information about Dr. Allen's two books—*What Your Brain Might Say if It Could Speak* and *Receptor Based Solutions™; Functional Neurology Every Doctor Should Know*—go to www.receptorbasedsolutions.com.

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