

# Visceral Manipulation

## & DIGESTIVE DYSFUNCTION



By Lorilynn Dowiak, PT

Stress levels seem to have skyrocketed over the past five years. Massage therapists observe the tangible evidence of their client's response to stress, as demonstrated in changes in their neuro-vascular and musculoskeletal tissues. Stress also contributes to increased dysfunction with digestion and elimination. Can you expand your manual therapy skills and offer functional support for your client's digestive tract? The answer is YES!

### Welcome to an introduction of the VAGUS NERVE!

VAGUS is the Latin word for "wandering," an appropriate description for a nerve that extends throughout most of the visceral system. It is the 10th cranial nerve and the longest parasympathetic nerve of the autonomic nervous system. The vagus nerve begins in the medulla oblongata of the brain stem and then extends through the cervical, thoracic, and abdominal regions of the body. It innervates most organs from the neck to the transverse colon, with the exception of the adrenal glands.<sup>1</sup>

The Vagus nerve has both motor and sensory functions, with sensory neurons comprising a 70-80% majority of the CN10 nerve fibers. Some of its sensory functions include: A) general sensory: innervation of the skin behind the heart, ear, part of the external ear canal, dura of the posterior cranial fossa; B) visceral sensory: information from larynx, esophagus, lungs, trachea, heart and most of the DIGESTIVE TRACT; C) special sensory: a small role in the sense of taste near the root of the tongue. The Vagus nerve also regulates visceral motor function through parasympathetic fibers innervating smooth muscles including: a) muscles of the pharynx (swallowing), larynx (speech), and soft palate (an area near the root of the tongue which stimulates the gag reflex); b) muscles of the heart-helping to lower resting heart rate; c) stimulating involuntary contraction within digestive tract including: esophagus, stomach and most of the intestines-allowing food to move through the tract.<sup>2</sup>

### VAGUS NERVE AND THE ENTERIC NERVOUS SYSTEM

Understanding the function of digestion requires knowledge of another nervous system, the enteric nervous system (ENS). This nervous system consists of two nerve plexuses embedded in the wall of the entire gastrointestinal tract (esophagus to anus). The submucosal plexus regulates gastrointestinal blood flow and controls epithelial cells lining the lumen and its microbiota (trillions of microorganisms within the gastrointestinal tract). Second, the myenteric plexus regulates relaxation and contraction of the intestinal wall muscles.<sup>3</sup> The ENS nerve endings within the lumen of the digestive tract report the homeostasis of the digestive system via cholinergic neurochemical transmitters, which activate the sensory nerve endings of the vagus nerve within the muscle layers and mucosa. Signals travel fast, with many possible connections along the way. Connections are made among the ENS (enteric), ANS

(sympathetic/parasympathetic vagus nerve), other organs (adrenals), spinal cord-CNS, brain stem and higher brain centers (hypothalamus, pituitary). It is the interrelationship of the ANS fibers (white/gray communicants) of certain spinal nerves of the CNS which correlate muscle spasms symptoms with specific internal organs.

Environmental stress influences the gut's microbiota (the trillion microorganisms within the gastrointestinal tract). Appearance of pathogenic organisms activate innate immune cells within the mucosal lining of the gut to produce neurochemicals (cytokines) that mediate local and systemic inflammation. The vagus nerve responds to these increased neurochemicals, along with the mechanical distension of the muscle wall of the organ. Once the brain receives this information via vagal afferents, responses sent along vagal efferent fibers synapse onto the enteric nerve receptors providing immediate modulation (reduction of cytokines/increase of macrophages), effecting the inflammation.

Visceral manipulation is a manual therapy consisting of gentle, specifically placed manual forces that encourage normal mobility, tone, and inherent tissue motion of the visceral and their connective tissues. The purpose of VM is to recreate, harmonize and increase proprioceptive communication in the body; to enhance the body's internal mechanism for better health. (J.P. Barral D.O.). These techniques complement the variety of manual skills possessed by massage therapists! You can encourage the digestive health of your client by applying these gentle techniques and enhancing proprioceptive communication via their CN 10 - their vagus nerve!

### REFERENCES

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