

Freeing the Heart

By Dale G. Alexander, LMT, MA, PhD

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The central question is, what can we do as massage therapists to stem the tide of cardiovascular disease? Heart disease is a progression that expresses itself in many forms, lowering the quality of life for millions and is the cause of death for a citizen in this country every 60 seconds.¹

My premise and clinical experience suggests that we can literally create more space for the heart within the thorax. This is achieved by increasing the suppleness and length of the soft tissues both within the chest and those of the outer wall, enhancing the mobility of the thoracic joints, and by reducing the pressure within the cavity itself.

The heart expands and contracts to send blood out over approximately 60,000 miles of vessels.² By creating more room for the heart to expand, potentiates its capacity for gathering together and pushing more blood. The quantity of blood and the strength of the push during the contraction phase are both assisted by reducing the resistance to the heart's expansion phase. Something this simple can make a significant contribution. Our touch, when guided by intention, perception and knowledge can truly make a difference.

In the book, *The China Study*, the author cites a study of autopsies done during the Korean War that identified that all of the 22-year-old young men in the study showed the beginning signs of moderate to severe heart disease.³ A rather chilling reference for us to consider that the progression of heart disease actually can begin this young. Yet, it offers us an anchor point in our awareness that most of our clients would benefit from our attention to "freeing the heart."

Let's begin with a method for quickly assessing the tension and pressure of the chest.

With your next 10 clients:

1. Softly depress their chest on either side of their upper sternum, toward the table.

2. Then compress the sides of their ribs toward the midline, first one side, then the other.
3. Next, slide your hands and fingers under their back and lift the rib angles.
4. With their knees bent, contact the medial costal arch and softly glide it laterally (do both sides).

With each palpation, memorize the quality of the resistance to your palpations. The reason for assessing 10 people is to develop a continuum for your kinesthetic memory. It's a random sampling. You might want to do this same thing with an infant, a child, a teen, various adults and, people in your life that are over 60 years old to further develop your kinesthetic awareness to establish a continuum of what healthy distensibility of the thorax feels like.

It's been my repeated experience that resistance to compression, pliability, and distensibility, just beneath the breast area between ribs 5 and 6, is the most significant tip-off that the heart is unable to expand to its fullest capacity. This becomes even more significant if either side of the diaphragm muscle resists lateral excursion.

As our profession has so many different technique orientations, my intention in this series will be to outline the most critical perceptual, kinesthetic and anatomical reference points that my clinical experience has demonstrated to be effective in "freeing the heart."

One of my galvanizing experiences that prompts me to write this series is the feedback from a client in his 80's that his cardiologist had "never seen a left ventricle" that had been enlarged for 30 years shrink back to its normal size. The client has been seeing me on a regular basis since his mid-70's. None of us can promise or even assert with confidence that such functional changes will happen, but my clinical experience suggests it is possible.

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Freeing the Heart, Part 2: Equalizing the Pressure

By Dale G. Alexander, LMT, MA, PhD

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Cardiovascular disease does not happen overnight. It is a progression that evolves over decades and genetic pre-disposition can accelerate this progression dramatically. That is why we read of so many people in the obituary column dying between the ages of 45 and 65 which is the prime demographic age range of so many of our clients.

What is rarely considered is how these progressions toward cardiovascular disease figure into chronic somatic profiles that clients present to us every day and can dramatically affect their quality of life.

Two core principles of the Inside-Out Paradigm assert that the body's two imperatives are to allocate resources (oxygen and nutrition) as equitably as possible to all body tissues and to distribute the strains of physical and emotional stresses across as broad an area as possible. The allocation function is carried out by the blood vessels while the body's intricate reflex arc system governs the distribution of strain thesis. It is my premise that all forms of therapeutic massage and bodywork can positively influence these dynamic relationships.

The names that are given to cardiovascular problems are many and varied. The basic categories concern the heart itself and blood vessels. These terms include: heart attack, stroke, angina pectoris, atherosclerosis, arteriosclerosis and high blood pressure; all pathological progressions are labeled as diseases. I will explore other heart progressions that relate to disruptions in its electric rhythmic activity, infections and congenital pre-dispositions in a separate article.¹

In order to de-mystify some of these terms, let's review the contrasting definitions of arteriosclerosis and atherosclerosis since even pronouncing them tangles my tongue. According to the [Mayo Clinic](#), healthy arteries are flexible, strong and elastic. Over time, however, too much pressure in your arteries can make the walls thick and stiff and sometimes restricting blood

flow to your organs and tissues. This process is called arteriosclerosis, or hardening of the arteries. Atherosclerosis is a specific type of arteriosclerosis. Atherosclerosis refers to the buildup of fats in and on your artery walls (plaques), which can restrict blood flow. These plaques can also burst, causing a blood clot which can either affect your heart causing a heart attack or, if it reaches the brain, may provoke a stroke.¹

Functionally then, the term that I propose which makes the most sense to our orientation as massage therapists is "endothelial health."² This relates to understanding what happens along the internal walls of arteries as a result of increased pressure and the accumulation of calcium and fatty deposits along their inner vascular tubes. Constant high blood pressure hardens and stiffens the arterial walls and makes them more likely to sluff off plaques. Again, it's a progression of deterioration. Pressure is like the Goldilocks fable... too hard, then, too soft, and finally, ah, just right! Instead of seeing pressure as the enemy, let's resolve to learn how we might assist the body to equalize its internal pressure(s) "between" the body's three great cavities and "within its 60,000 miles of blood vessels."³

In 1987, Dr. Jean Pierre Barral DO, inspired my understanding that the pressure within the thoracic cage needs to be "less" than the pressure of the cranial cavity and within the abdominal-pelvic cavity in order for circulation to maintain a normal homeostatic flow of fluids back to the heart.⁴ With this perspective, our goal as massage therapists is to increase the pliability of the chest wall, especially around the space of the heart, and to also ease the tensions throughout the thoracic cavity. Let's add two steps to the proposed screening protocol from my last article. First, lift the client's head, memorize its weight. Next, palpate the tension of the abdominal wall.

At the end of any bodywork session, not only do we want the chest to become more distensible, we would also like the head to weigh less and the tension of the abdominal wall to ease. All three markers are reliable indicators in my clinical experience that the pressure between the cavities has equalized to some degree.

Let's review one "inside-out" technique that can jump-start the easing of thoracic pressure. Its effectiveness relies on the loosely organized areolar connective tissue along the posterior margin of the diaphragm muscle. Standing on the right side of your supine client, posteriorly contact the opposite side of the spinous processes, beginning at C7, with your upper hand and placing the palm of your lower hand just below the anterior costal arch. Softly anchor C7 with finger tips in contact with the opposite side of

the vertebra then stretch the abdominal tissue inferior and medial toward the belly button. Feel for the connectedness between your hands. Your intention is to stretch the internal tissues within the chest so that at the interface of the diaphragm, the downward and medial stretch gaps the loose connective tissues allowing the thoracic pressure to flow from an area of greater concentration to one with a lower concentration. A diffusion gradient is being manually produced. This same procedure can be repeated along each vertebra from C7 - T12. Yes, do both sides.

This approach is not the whole enchilada, but it consistently primes the pump between the thorax and the abdominal-pelvic cavities. And, this technique allows for a two for one potential effect. This same long lever stretching while anchoring each vertebra creates a potential rocker effect to the vertebral/rib complex which is theorized to hydrate and contribute to mobilizing the posterior thoracic spine. Therefore, is my premise that the progression toward all forms of cardiovascular disease is a backstory lurking behind many chronic somatic problems. It is also my assertion that as massage therapists we can make a real difference in the quality of life for our clients as we aspire to comprehend how the human body really works.

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Freeing the Heart Part III: Elongating the Esophagus

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The premise asserted in the first 2 articles of this series is that physically freeing the space around the heart can make a significant contribution to the quality of life for your clients and may reduce the chronic component of their ongoing somatic difficulties.

The last article described a technique for equalizing the pressure between the thoracic and abdominal-pelvic cavities. This same technique has also shown itself to assist mobilizing the posterior vertebral/rib articulations of the region.

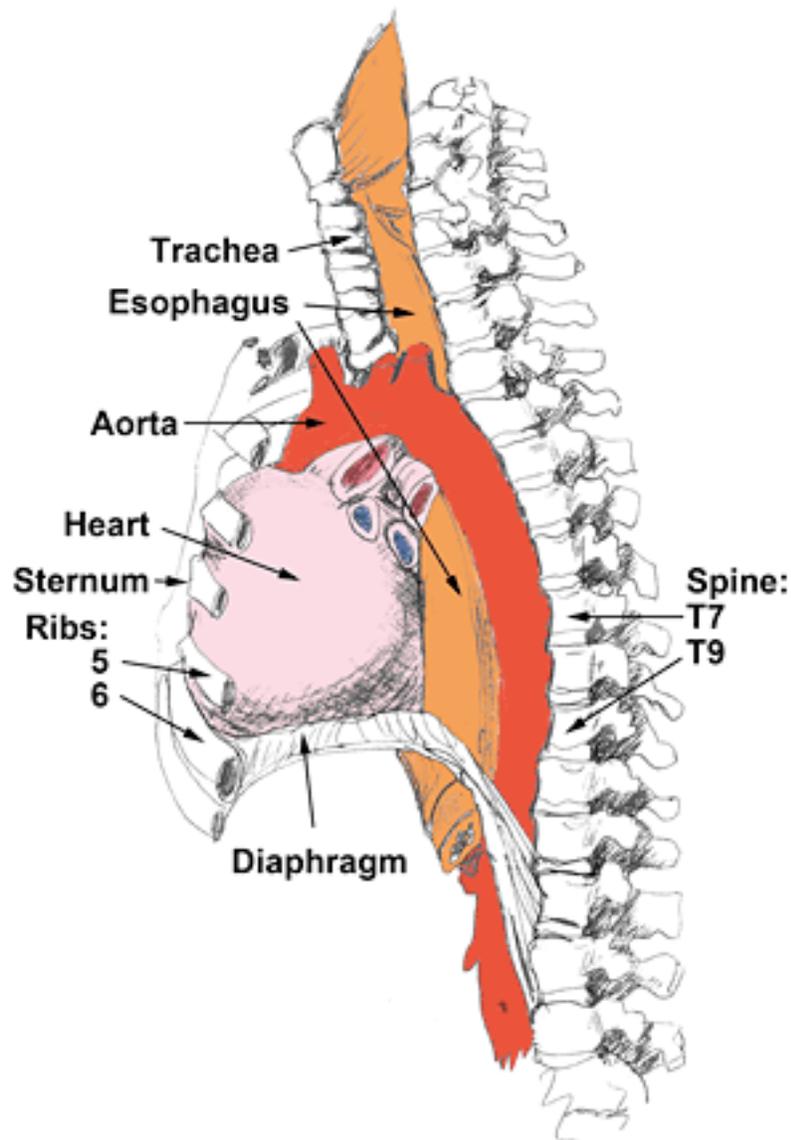
It is proposed that reducing the pressure within the thorax both decreases the internal resistance to the heart's expansion resulting in greater cardiac output and, enhances the efficiency of venous & lymphatic return back to the heart. Two additional steps were added to the initial screening assessment protocol. (A review of the assessment protocol and the suggested techniques can be accessed online).

This article proposes that elongating the esophageal tube can contribute to Freeing the Heart. The heart actually enfolds the muscular tube of the esophagus. Even less appreciated is that the upper 2/3's of esophageal fibers are striated fibers while the lower 1/3... the part that is juxtaposed to the heart as it pierces the diaphragm and becomes the stomach, is comprised of smooth muscle fibers.(1)

There are many implications of this dual innervation and its potential participation in heart related problems. Selecting the most obvious, consider how any type of cervical whiplash could re-set the resting length of the striated fibers of the esophagus toward varying degrees of chronic contraction or spasm. And, that this shortening of the esophagus may lie dormant for years going undetected yet, adding a posterior resistance to the heart's expansion as well as influencing the onset of hiatal hernia symptoms and the reflux of stomach acid leading to chronic "heartburn." A shortened esophagus adds friction between itself and the sac of the heart, the pericardium. Friction begets irritation and irritation eventually incites inflammation. Chronic inflammation is increasingly considered the bridge between stress related ailments and the onset of many pathological progressions during the aging process, including cardiovascular disease.(2)

Common sense suggests that the sac around the heart cringes in its attempt to prevent the acid from penetrating its protective sheathing. And, should the acid

reach the fibers of the heart muscle that it creates an irritable reaction within them. Might this relate to a host of the different heart ailments that increasingly are described both in abnormalities of electrical transmission within the heart and the increasing frequency of atrial fibrillation ?



Many years ago I had the unique opportunity to work with an exceptionally gifted physical therapist who was known for her success with helping infants and children. An infant was brought to her office with a diagnosis of non-epileptic brain seizures. As she was a graduate of Ohio State University, she called there and was referred to Pediatric GI specialist. On the conference call, we both had a galvanizing learning moment as the specialist described that the infant may have been born with a congenitally short esophagus and that the seizures may stem from

its central nervous system's attempts to elongate the tube.(3) What a concept. He further noted that it was a fairly rare condition but that he had seen it enough times that his model for dealing with such unexplained seizure activity now included this as a possibility.

The epiphany for me was that along a continuum of genetic possibilities, not only could the esophagus be congenitally short, but that in many individuals it is predisposed to contracting strongly and may re-set its resting length in response to intense emotional reactions and prolonged stress in addition to the physical provocations described earlier. The most pertinent physical implication of the esophageal fibers bunching is its potential to limit the heart's expansion phase posteriorly. Thousands of clinical experiences with clients now validate this notion for me. The neurological implications of a shortened esophagus will be explored in the next article.

It has long been known that mid-sternal pain more likely relates to esophageal contraction or spasm whereas pain associated with the left breast area is more likely to relate to some aspect of possible heart dysfunction or impending crisis.(4) I carefully inquire with new clients to make sure that they have had a cardiology work-up if they present with either of these and insist that they see their physician if they haven't. It is prudent for us all to encourage clients to rule out any possible pathological or congenital predisposing scenarios.

The addition to the screening protocol I have found to be consistent with esophageal involvement is to palpate along the occipital ridge for the space and ease of distraction of the occiput from the atlas bone. The more close packed and resistant to distraction, the more the esophagus is a variable has become my clinical interpretation.

Another primary myofascial structure that co-participates in the compaction of the head upon the neck are the SCM's (sternocleidomastoid muscles). It is my clinical experience that the SCM's function as the guard dogs of preserving the cranium's safety in the event of a sudden shift in position of the head as may happen in a fall, the body flung forward or backward (bicycle or motorcycle accident) or, impact trauma of all kinds.

So, the answer to the question of what can you do to help your clients is... to use whatever techniques you have learned to reduce the tension of the SCM muscles.

A unilaterally contracted SCM or bilaterally so, compresses the jugular foramen through which both the vagus nerves and the accessory nerves exit from the brain. Old time anatomists suggested that the Accessory Nerve functions as an overflow valve for vagal tensions. (1) And, let's remember that the accessory nerve innervates the Trapezius muscles as well. Thus, tight Traps are also a tip off that compression of the jugular foramen is a variable and that a contracted esophagus may be a crucial variable flying under the radar as a soft tissue structure that we need to treat.

Assisting the esophagus to elongate is accomplished by anchoring the occipital ridge and softly compressing the the left side of the sternum along its length toward the left hip with an emphasis around ribs 5 - 6 and then into the soft tissue of the abdomen just beneath the left costal arch.(5)

In the next installment to this series we will further explore the role of the esophagus along with those of the pericardial sac and explore the possibility that sometimes the heart may shift from its normal position in the thorax. It is my clinical experience that all of these variables can be positively influenced through bodywork, massage, movement and energetic therapies.(6)

To date, this series has endeavored to offer an assessment sequence and a couple of fairly specific techniques that have clinically shown themselves to assist an easing of thoracic rigidity. The clinical inference is that by doing so we are reducing the workload of the heart to deliver newly oxygenated & nutritious blood systemically.

Assessment Sequence for Freeing the Heart

The central theme is to assess the degree of pliability and distensibility of the thoracic cage. My experience suggests that when the left sternal border and the intercostal space associated with ribs five and six are rigid that the heart is definitely having to work harder to push out newly oxygenated and nutritious blood. Restriction to the lateral excursion of either or both hemi-diaphragms only adds to the workload of the heart.

1. Softly depress their chest on either side of their upper sternum toward the table.
2. Compress the sides of their ribs toward the midline, first one side, then the other.
3. Slide your hands and fingers under their back and lift the rib angles.
4. With their knees bent/feet standing, contact the medial costal arch of each hemi-diaphragm and softly glide it laterally (do both sides).

5. Lift the client's head, memorize its weight.
6. Palpate the tension of the abdominal wall. At the end of any bodywork session, not only do we want the chest to become more distensible, we would also like the head to weigh less and the tension of the abdominal wall to ease. All three markers are reliable indicators in my clinical experience that the pressure between the cavities has equalized to some degree.
7. The addition to the screening protocol I have found to be consistent with a shortened esophagus is to palpate along the occipital ridge for the space and ease of distraction of the occiput from the atlas bone. The more close packed and resistant to distraction, the more the esophagus is a variable has become my clinical interpretation. Remember that releasing the tension of the SCM's is an essential first step to accessing the fibers of the esophagus.

Technique Review for Freeing the Heart

Let's review one "inside-out" technique that can jump-start the easing of thoracic pressure. Its effectiveness relies on the loosely organized areolar connective tissue along the posterior margin of the diaphragm muscle.

1. Standing on the right side of your supine client, posteriorly contact the opposite side of the spinous processes, beginning at C7, with your upper hand and placing the palm of your lower hand just below the anterior costal arch. Softly anchor C7 with finger tips in contact with the opposite side of the vertebra, then stretch the abdominal tissue inferior and medial toward the belly button. Feel for the connectedness between your hands. Your intention is to stretch the internal tissues within the chest so that at the interface of the diaphragm, the downward and medial stretch gaps the loose connective tissues allowing the thoracic pressure to flow from an area of greater concentration to one with a lower concentration. A diffusion gradient is being manually produced. This same procedure can be repeated along each vertebra from C7 - T12. Yes, do both sides. And, this technique allows for a two for one potential effect. This same long lever stretching while anchoring each vertebra creates a potential rocker effect to the vertebral/rib complex, which is theorized to hydrate and contribute to mobilizing the posterior thoracic spine.
2. Use whatever techniques you have learned to reduce the tension of the SCM muscles.
3. Assisting the esophagus to elongate is accomplished by anchoring the occipital ridge and softly compressing the left side of the sternum

along its length toward the left hip with an emphasis around ribs five and six and then into the soft tissue of the abdomen, just beneath the left costal arch.⁵

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Freeing the Heart Part IV: Reducing Resistance to the Heart's Expansion

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Studying anatomy and reflecting upon what helps my clients to feel and function better are the foundation for what I am writing in this series. With that said, let's delve into the anatomy of the esophagus a bit further to set the stage for understanding the implications of its postulated tendency to re-set its resting length in response to physical injury or intense emotional experience.

The superior esophageal fascial mooring is anchored directly to the sphenobasilar junction to my perception through the buccopharyngeal fascia/pharyngeal raphe.¹ This anatomical interpretation suggests that the entire length of the gastrointestinal tract (GI) is suspended downward and forward of the cranium. Consider this notion and its implications. My speculation is that a shortened esophagus with a superior strain being pulled on from below by any manner of GI disturbance will eventually contribute to the incompetence of the hiatal sphincter. It also makes sense to me that hiatal hernias might be the natural evolution in the progression of dysfunction to such opposing tensions over many decades. The maximal strain point of the esophagus is proposed to include the portion of the tube enfolded by the heart just before it pierces the diaphragm muscle.

The association of heart troubles and GI disturbance are considered a possibility by some² yet, most often in the literature heart troubles and esophageal dysfunctions are described as if they are completely unrelated. This defies common sense to me. The intimacy of the anatomical enfolding of the heart around the esophageal tube is a related variable; structurally, if the esophageal fibers are contracted or go into spasm and, as a chemical irritant, when chronic gastric reflux is considered.³ Since no one pays attention to such variables, this might be one way that we may contribute to our clients' quality of life, as well as to possibly slowing the advance of cardiovascular disease.

Another implication of such strain along the length of the esophagus is that its tension can literally pull the head down upon the neck and is an influence

contributing to the head being pulled forward which will inevitably activate the extensor reflexes of the spine.⁴ Might this be related to your clients chronic neck and upper back pain? Let's remember that the superior sympathetic ganglia and the vagus nerve have their most intimate communication between the occiput and the 1st cervical vertebra, the atlas.⁵ Compression of this autonomic interface can have far reaching influences on sympathetic and parasympathetic coordination of physiology, including that of the heart function to my sensibilities. Enhancing the ease within the space between the occiput and the atlas is one of my most reliable markers that a therapeutic effect has been achieved during a bodywork session.

With the head being pulled forward and the extensors of the upper back reflexively tightening, guess which segments of the spinal cord provide sympathetic supply to the heart, T1, T4 or 5? Could both of these compressions add to an over stimulation of the heart neurologically, a kind of structural squeeze play that begins with a functionally shortened esophagus. How many of your clients present to you with pain and muscle spasm between their shoulder blades? Loosening the tension of the pericardial sac is another contribution to "freeing the heart." My proposed definition of stress has been that in response to the intensity, repetition or duration of what is experienced by an individual as a stressor will result in the body sacs cringing and that the tubes within organs and between organs will shorten and narrow.⁶ This might happen either in response to a sudden occurrence or insidiously, over a long period of time which might include multiple events.

Many technique orientations might assist the pericardial sac to loosen. Those which I most commonly employ are unwinding and recoil techniques. The basics of unwinding were learned from Dr. John Upledger, developer of CranioSacral Therapy and the recoil techniques from Dr. Jean Pierre Barral the developer of Visceral Manipulation.^{7,8} Dr. Barral would want me to acknowledge that he learned recoil technique from, Dr. Paul Chauffour, the developer of the Mechanical Link approach to osteopathic manual therapy.⁹

A rather curious phenomena has occurred five times over the past 10 years where I actually felt the heart shift its position between my anterior-posterior placed palms when using a combination of unwinding and recoils techniques in a rhythmic fashion. The reason I mention it is the exceptionally positive response of the clients for whom this happened. All reported fewer somatic ailments and increased energy in their daily lives. Whether this was a shifting of position between the esophagus and the heart or a rotation, side shift or caudal or cranial slide of the heart as a whole, is unclear. Yet, it

did happen and the clients felt much better. In this series, I am recounting what may be possible, not what can be predicted.

Another technique I have found to be helpful to lessening resistance within the thorax is the fascial stretching of the pleural sacs of the lungs. This is accomplished by softly anchoring the pleural dome of the lungs and caudally stretching the tissues adjacent to the sternum and just above and below the breast area. The intention here is to assist the sliding of the pleural sacs and to assist the ease of movement between the pericardial and pleural sacs.⁸ Reducing the resistance within the thoracic cage is the therapeutic goal. If the heart has less resistance to its expansion, it is my conjecture that its coronary arteries are more likely to expand as well which may reduce the speed or quantity in the build-up of plaques within these crucial arteries. A river with a steady current has less sediment accumulation. Are our arteries really that different from other natural containers of moving fluid? To reprise, my clinical experience suggests that applying our palpation efforts to the structures "inside" the thoracic cavity is the most efficient way toward easing the tensions that the heart must overcome during its expansion phase. Such efforts positively contribute to "freeing the heart."

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Freeing the Heart: Enhancing Central Circulation

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Enhancing central circulation is a notion that has emerged over many years from my work with clients who typically present with exceptionally difficult chronic somatic difficulties. It's combined therapeutic intentions have been to:

- * Enhance the heart's ability to pump more blood by reducing the resistances to its expansion.
- Enhance the inferior cylindrical movement of the diaphragm and the ease of dorsiflexion/plantar-flexion of the ankle/foot complex.
- Restore the mechanisms that naturally assist venous and lymphatic return.
- Lessen the tone of the sympathetic division and enhancing the outflow of the parasympathetic division of the autonomic nervous system.
- Reduce or remove common obstacles to the return of raw blood products.

Here, we seek to identify the what and where of these therapeutic intentions. Many possible "how to's" are possible when one's treatment goals are clear.

It is postulated that this orientation of enhancing central circulation can serve to reduce the workload required of the heart and may slow the build-up of plaques within the coronary arteries. Further, it is postulated that a dedication to assisting cardiac output, neurological balancing and venous and lymphatic return in each bodywork session will assist the autonomic nervous system to more equitably deliver fresh blood to ischemic tissues associated with stubbornly chronic problems.

From our common training base in Swedish massage, we were taught stroking patterns and a general sequential protocol that was intended to assist systemic venous and lymphatic return. Little attention, however, was given to restoring the underlying mechanism(s) by which the body can reset its efficiency of facilitating the flow of these fluids within itself nor, to balancing the functioning of the two divisions of the autonomic nervous

system or to enhancing diaphragmatic and ankle/foot range of motion. Absolutely no attention was given to reducing the resistances to the heart's expansion. That is what makes this construct of enhancing central circulation both useful and unique.

To my sensibilities, there are three great pumps which are designed to move the fluids of the body (arterial, venous, lymphatic and interstitial). These include:

- The expansion and contraction of the heart (100,000 x's/day).
- The up and down cylindrical descent of the diaphragm (25 -27,000 x's/day).
- The dorsiflexion/plantar flexion movements of the ankle/foot complex during walking (5200 - 7100 steps/day).¹

Now, add the notion of equalizing the pressure between the body's three great cavities which is proposed to allow for the natural flow of fluids back to the heart based on restoring normal pressure gradients.^{2,3} Full credit is given to Dr. Jean-Pierre Barral, DO, for introducing me to this golden anatomical nugget in 1987.

Consider the importance of enhancing the movements of these mechanisms which are the prime pumps of fluids and the importance of restoring the appropriate pressure differentials which assist these fluids to more efficiently move back toward the heart. Consider how therapeutic attention to these factors may together "reduce the need" for the heart to work harder or for the arterial system to narrow. Consider how these intentions might be a contribution our profession could make toward the prevention of high blood pressure.

The notion of reducing sympathetic tone and enhancing parasympathetic outflow is a core construct of craniosacral therapy as was taught by Dr. John Upledger, DO. I was first introduced to this foundational premise in 1986 and my years of clinical practice since vivify the effectiveness of this treatment goal. This relates to all aspects of activating the body's self-corrective capacities and especially to the regulation of a normal heart rhythm as it is the sole duty of the vagus nerve to slow the heart.^{4,5}

Let us now consider the equally important therapeutic intention of reducing or removing obstacles to the flow of fluids back to the heart from below the diaphragm. Obstacles may be many and varied in their presentation but in distillation, they slow the return of raw blood products either by making the fluids take alternate routings, by adding resistance to the speed of normal

drainage or by building congestion as the fluids are held back from moving. Similar to being stopped by a traffic snarl, we either seek another route around the tie-up, crawl our way along hoping the problem will clear itself, or when traffic is completely stopped, we wait in frustration for the road to open ahead of us.

My clinical experience suggests that congestion around or inflammation within the liver, gall bladder and pancreas complex is one of the most common obstacles to blood return. Let us appreciate that the liver is suspended from the inferior surface of the diaphragm muscle and its portal vein is the main tributary for venous blood returning to the heart through the inferior vena cava. Together with the gall bladder, its common bile duct and the sphincter of Oddi which is shared with the pancreas, any inflammation in these organs or their tubes can impair venous and lymphatic return. This is why learning to mobilize and gently stretch these organs and tubes, along with others, is such an important skill for touch practitioners to add to their therapeutic tool boxes.^{3,6,7}

Above the diaphragm, another common area where blood seems to become congested is at the cranio-cervical junction. This is a crucial area to evaluate and treat with whatever therapeutic tools you possess. My experience supports another notion that Dr. John Upledger postulated some 26 years ago: that the brain sometimes holds onto blood. And that the bilateral jugular foramen openings in the cranium serve to drain 85% of the fluids leaving the cranium.⁴ It is through these same openings that the vagus nerves, who have the task of helping to regulate the heart, exit the cranium.⁸ A simple way to evaluate this notion of vascular congestion is to lift your client's head and feel for its weight in your initial evaluation. Later, if your bodywork has successfully normalized the flow of fluids leaving the cranium, their head will kinesthetically weigh less.

The Inside-Out Paradigm continues to explore the inner workings of how we may assist our clients to both maintain or to regain their functional capacity and quality of life. Enhancing central circulation is proposed to not only to assist the heart itself but may be a key component toward facilitating the autonomic nervous system to increase its delivery of fresh blood to stubbornly chronic somatic tissues as well.

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Freeing the Heart: The Role of the Autonomic Nervous System

By Dale G. Alexander, LMT, MA, PhD

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This series of "Freeing the Heart" has evolved to offer our profession and other touch and movement therapies a conceptual framework for how we may collectively contribute to slowing the progression of cardiovascular disease.

These ideas are extrapolations of my clinical experience that have assisted clients with cardiovascular problems and those that present with persistent chronic somatic problems. A descriptive summary of the concepts "Enhancing Central Circulation" is detailed at the end of this article.

From my point of view, the basic problem the human body faces in the aging process is that many variables combine to slow the "return of raw blood products to the heart" in the process of freshly oxygenated blood being reconstituted and delivered to all tissues and cells. Both the "quantity and the timely delivery" on both ends of the vascular system are key functional components of the heart's capacity to contract 100,000x's a day and to send blood efficiently over the estimated 60,000 miles of vessels.¹ Obviously, the build up of fats inside the walls of these vessels is a primary component of the resistance to the efficient flow of blood, which I propose happens for most of us, not just some.²

Here is an anatomical interpretation of the progression of cardiovascular disease and I propose that the autonomic nervous system (ANS) has evolved three cards to play in its efforts to offset the inefficient flow of blood back to the heart.

I also propose that most progressions toward pathology will be accompanied by a decrease in the volume of freshly oxygenated blood. Whether it be a chronic somatic dysfunction, chronic illness, cancer or cardiovascular decline, such progressions reflect a compromised capacity for the body to manufacture in a timely manner and to deliver the nutrients, hormones and oxygen so desperately needed to maintain our health, contribute to our vitality and support our capacity to move, dance and sing.

In this theory, the autonomic nervous system has basically three cards to play at its reflexive disposal to keep up with the demands of producing and delivering freshly oxygenated blood. I am further proposing that these typically occur in sequence over the course of one's life. First, The heart

works harder, and in some people, the left ventricular muscular wall may become thicker and stiffer and is most often identified as left ventricular hypertrophy. Second, the blood vessels narrow to push the blood through faster which, in many people, is identified as hypertension or high blood pressure. And third, the delivery of freshly oxygenated blood to "all body tissues" is decreased. My premise is that this latter progression is related to many chronic somatic conditions associated with the aging process, including most joint degradations, and might play a role in setting the stage for other illnesses including cancer.

Let's examine the concept of the heart working harder first. This happens when we exercise. It's normal, up to a point. However, if the resistance to the heart's expansion increases and, especially when this happens over a period of years, then the muscular wall of the heart's left ventricle thickens in its attempt to pump more blood. Many factors may contribute to the creation of this condition: internal tensions within the thoracic cage, atheromatous plaques made up of fat and cholesterol, scar tissue, extrinsic myofascial tension, reflexive righting reflexes and emotionally related identity and stress factors combine in my experience to provoke the dual innervation of the heart to strain in its efforts to provide enough push to send the blood throughout the vascular system and back to itself. Again, the time required to complete the loop and in sufficient quantity are the crucial variables that maintain circulatory efficiency.

At a certain point in the thickening of left ventricular wall, the additional effort of the heart actually decreases the amount of the blood being ejected. This is why left ventricular hypertrophy (LVH) is considered a very real risk factor in the progression of cardiovascular disease.³ In my view, increasing the force of the heart's contraction is the first card that the ANS plays as it spans both normal function and the possible progressive stages of dysfunction into pathology.

Considering hypertension and high blood pressure, what I sense has been overlooked is that the 60,000 miles of our human vasculature is principally innervated by the sympathetic division of the ANS as contrasted to the heart's innervation by both the vagus nerves from the brain and the sympathetic nerves from the spinal cord.⁴ This suggests to me that the narrowing of the vasculature system is the second card that the ANS plays in its reflexive efforts to push and rush blood back to the heart/lung complex in order to keep up with the process of producing freshly oxygenated blood. There appears to be no question that high blood pressure is a significant risk factor in potentially provoking plaque to break free and thereby triggering a heart attack or stroke.⁵

The third card that the ANS has to play is to prioritize moving the blood back to the heart as it's end goal and, by necessity, sacrificing the delivery of freshly oxygenated blood to some tissues along the way. Might this be reflected in the frequency of chronic somatic dysfunction that increases as we age? Further, this might contribute to the predominance of joint problems including the need for spinal surgeries, hip, knee and shoulder replacements as we age. I speculate that this is an under-recognized variable in the progression of many persistent chronic somatic dysfunctions. The consistent delivery of fresh blood containing its full constituents (oxygen, nutrients and hormones) is necessary to maintain vital human function and the health of all our various tissues.

Defining the problem more clearly often leads to targeting possible solutions. The following is an updated distillation from the previous article, "[Enhancing Central Circulation](#)" from the August 2012 issue of *Massage Today*.

- Enhance the heart's ability to pump more blood by reducing the resistances to its expansion.
- Restore the normal pressure differentials between the body's three great cavities.
- Restore the mechanisms that naturally assist venous and lymphatic return by enhancing the inferior cylindrical movement of the diaphragm and the ease of dorsiflexion/plantar-flexion of the ankle/foot complex.
- Lessen the tone of the sympathetic division and enhance the outflow of the parasympathetic division of the autonomic nervous system.
- Reduce or remove common obstacles to the return of raw blood products.

The take away here is for us to turn our attention toward enhancing the central circulation of the human body. In the many and varied ways that touch and movement therapies have evolved and continue to improve their effectiveness, each may contribute their measure. Let us all commit to this direction and seek to assist as many clients as we can.

Author's Note: Many thanks to Annie Dundon, Glenn Gaffney, Katie Truax-Alexander and Dr. Ed Charlton for their editorial support and guidance.

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Freeing the Heart: Protection of the Hip and Shoulder Joints

By Dale G. Alexander, LMT, MA, PhD

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As we continue with this current series of articles on Freeing The Heart, if we consider the basic physiology of the human circulatory system, it seems evident that when the heart and lungs reach full expansion with a minimum of resistance, the heart will eject more blood and at a greater velocity.

When more blood exits the heart with greater speed, these variables increase the probability that freshly oxygenated and nutritious blood will reach all body tissues. Thus, as massage therapists, focusing our attention on reducing resistances to the expansion of the heart and lungs is one clear way that we may assist our clients with chronic somatic dysfunction; including those with either identified or unidentified cardiovascular disease.

In previous articles of this series, the major "intrinsic resistances" to the heart's expansion have been described. However, there are three additional "extrinsic" variables that reflexively contribute to the chronic tension of the thoracic cage. The first two are hip and shoulder subluxations, while the third is known as a Lateral Trauma Reflex.^{1,2}

Typically, massage therapists do not use the word subluxation, yet this is what I consistently find in the hips and shoulders of most clients with chronic somatic dysfunction. To my perception, the generic definition of a subluxation in this regard is when the head of the femur or the humerus has moved far enough to the edge of its joint capsule so that the potentially unstable position stimulates the reflexive protection of the surrounding myofascial elements whose job it is to prevent dislocation. These subluxations may be mild, moderate or severe in my experience. Since first identifying and tracking these dysfunctions as significant variables to therapeutic progress some 25 years ago, more than 70% of my clients have presented with one or the other or both of these dysfunctions.

I have a theory about the reason why these subluxations occur as often as they do. My speculation is that our primate ancestors developed a more flexible anterior shoulder capsule and a more flexible posterior hip capsule as a functional adaptation to their day to day reality. Should they fall from a height, say from a tree, these joint capsule adaptations would assist their

ability to tuck and roll suddenly (anterior shoulder going forward while the opposing posterior hip moves backward), creating a spin of their bodies such that upon impact their chances of survival would be enhanced and therefore their genes passed on.

When either femoral head slides posterior, then the job of weight bearing shifts to the sacroiliac joints and the lower three lumbar vertebrae with attendant splinting of the deep lateral rotator and gluteal myofascial structures of the pelvic girdle. Weight bearing also continues to shift up the kinetic chain to the deeper paraspinal structures which are designed to guide normal vertebral motions. This shift in weight bearing distribution has implications for the high incidences of low back dysfunction, sciatic syndromes, hip or knee degeneration and may also influence the internal function of the bowel, bladder or reproductive organs. These implications will be addressed in future articles.

My premise is that when a hip subluxation occurs, a subcortical reflex is set off that subtly stimulates the person to pull their arms against the sides of their chest. This, of course, becomes yet another resistance to the heart and lungs to reach their respective full expansions.

I owe a debt of gratitude to Thomas Hanna, PhD, for introducing me to the power of our subcortical human righting reflexes.^{1,2} And, what I have briefly described acknowledges the wisdom of Ida Rolf's famous statement that, "when the body is not supported from below, it will attempt to hang from above."³ Andrew Still, the father of osteopathic medicine, placed great value on the integrity of the hip joints inferring that all physiological processes worked better when their function was efficient and proper.⁴

In the shoulder joint, if the head of the humerus slips forward enough to stimulate the protective reflexes of either or both of these joints, then the result is the same. The body will pull the arm against the lateral chest and usually the same sided scapula will lose its ability to slide freely. The loss of ability of the scapulae to move freely has many implications for respiratory efficiency, as well as thoracic inlet inflexibility, cervical dysfunction and other upper extremity difficulties. Any or all of these symptoms contribute to an extrinsic resistance to heart/lung expansion.

The 3rd subcortical reflexive protection that I have clinically observed and treated repeatedly since 1988, is what Dr. Hanna called the Lateral Trauma Reflex. It is hypothesized that this reflex is most often stimulated by sudden movements like a severe fall or the act of being thrown through the air such

as snow skiing, or being ejected from a car in an accident, being thrown off a motorcycle, bicycle, water skiing or jet-skiing.^{1,2} Certainly, other events may trigger this reflex as well.

One can easily assess whether this reflex is lingering in your clients by requesting that they out-stretch their arms over their head while grasping their wrists and gently pulling superiorly. If this reflex is present, then one side will resist normal elongation not only at the shoulder, but down along the full side of their body.

Dr. Hanna's explanation was when stimulated by sudden movements such as the ones described above, the subcortical elements within the brain stem reflexively contract tissues such as the latissimus and the abdominal oblique myofascial structures to create a generalized state of contraction.^{1,2} My clinical experience suggests that this reflex participates in the perpetuation of recurring hip and shoulder subluxations.

As it relates to the full expansion of the heart and lungs, the internal result is the same. The reflexive protection of the shoulder(s) or of an entire side of the body increases the resistance that these organs must overcome to reach toward full expansion and ultimately requires the heart to work harder.

I would speculate that as "successful adaptation" is the hallmark of our species, both the good news and the bad news is that the heart alone can only work harder for so long before the autonomic nervous system activates its back-up plan which is to systemically narrow the blood vessels (known as hypertension and high blood pressure) and finally resorts to racing the blood back to the heart. This final adaptation progressively is proposed to decrease the delivery of freshly oxygenated blood to various tissue sites usually the larger joints and various organ structures in a fashion that perhaps only genetic predisposition, psycho-emotional possibilities and a client's trauma or illness history might help us to understand.

The irony here is that the innate righting reflexes which evolution provided in order to survive long enough to reproduce may also "reduce our quality of life" as we age far beyond our childbearing years. The intention of this series has been to unravel the "mystic of cardiovascular disease progression" and empower us in our profession to realize and understand how we may positively contribute to our clients' quality of life.

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Freeing the Heart: The Importance of the Vagus Nerves/Cranial Nerve X

By Dale G. Alexander, LMT, MA, PhD

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In my clinical work involving clients who typically present with chronic somatic problems, it is truly a joy when markers emerge that reflect, "the means by which" their healing experiences occurred.

Since beginning to write this series of articles on "Freeing the Heart," more and more of my clients are regaining their quality of life more quickly.

Additionally, for those clients who have progressions of degenerating physiological function, their bodies are expressing their symptoms in more classic medical ways allowing for clearer and more appropriate diagnosis and treatment. And, for those whose bodies have held sub-clinical infections, many for multiple decades, they are responding so fast that I am in true amazement.

My latest premise about human aging is that the vagus nerves, for many possible reasons, cedes the functioning of the digestive system to the enteric nervous system which is probably overseen by the celiac plexus. The ceding of this responsibility is proposed to be the result of the need for the organism as a whole to concentrate its efforts toward running of the heart/lung complex and its contributions to our ability to speak.

The progression of cardiovascular disease is an exceedingly subtle one until, it isn't. Let's be clear, our bodies are not that different from how we organize our lives. We prioritize and distribute our energies as the obvious needs present themselves, disregarding what we can and delegating to others what we must.

Consider this analogy: Life gets hectic in the family, more money is needed to make ends meet and one or both parents take on a second job to financially keep up with the expanding needs, wants and desires of their children. As a result, one or more of the children is assigned the cooking responsibilities or even does the shopping, planning, clean-up and taking out the trash to accommodate this loss of parental skill and supervision. Most everything gets done but without the finesse, organization or thoroughness of an adult. It's a crude analogy but, in the ballpark for our purposes.

So it is when our autonomic nervous system is evolutionarily focused on the higher priority of getting the next breath and pumping freshly oxygenated blood, digestion becomes a secondary priority. Thus, without the brain's monitoring the Gastrointestinal tract, digestion, assimilation of nutrients and waste removal all happens, but with less coordination and efficiency. Two years ago, a former student of mine had sent me an article that referenced that the Vagus Nerves were composed of 90% afferent fibers and 10% motor nerves.¹ This information was novel, but it floated by in my consciousness without me acting upon it. Then, more recently, I happened upon a book that validated much of what I have asserted over many years regarding the importance of the length and tone of the esophagus and also restated this 90%/10% ratio between sensory and motor supply inherent within the vagus nerves.²

It suddenly dawned on me that the style of stretching I had developed to vent pressure from the thorax might also be stretching the filaments of the vagal nerves. This technique was described in the "Equalizing the Pressure" article of this series ([*Massage Today, February 2012*](#)). Could it be that these gentle stretches might be stimulating the vagal afferent fibers such that the brain was again coordinating the body as a more unified organism? And, could it also be that the immune system was also being stimulated to wake up and began to recognize deteriorating physiological progressions and aggregations of bacteria and viruses that it previously had been too overloaded to notice? Admittedly, it is a curious idea yet, it has very significant positive implications.

Might this be "the means by which" such improvements for clients were being realized? It is a very possible therapeutic response to my constant mantra of the past few years, "if one can restore nerve and blood supply, then almost any healing can occur." Full credit is given to Dr. Richard MacDonald, DO, for presenting this maxim from his long Osteopathic teaching career when I assisted him in his Functional Anatomy courses in 1989 & 1990.³

Let's return to the notion of 90% afferent vagal fibers and 10% vagal motor fibers. Stimulating the afferent filaments is being proposed as a method to assist the central nervous system in re-engaging its full attention to coordinating physiological function inclusive of a more alert and responsive immune system.

The next proposal is that reducing the compressive forces upon the vagus nerves motor fibers is also a part of this re-engagement of normal vagal function. Based on my clinical experience with clients, the most frequent

places in anatomy where this compressive force is most plausibly obstructed is where the vagus nerve exits the cranium through the jugular foramen and in the superior sympathetic ganglion immediately lateral to C1, C2 and C3 where there exists an intimate relationship between the sympathetic fibers and the parasympathetic vagal fibers.

The successful long history of upper cervical adjustments by osteopathic and chiropractic physicians in addressing a plethora of somatic and visceral dysfunctions bear testimony to the importance of these anatomical relationships. Then, when one adds myofascial stretching to the fibers of the esophagus and to the stretching of the pleural, pericardial and peritoneal sacs, this is how the proposed stimulation of vagal fibers as they descend into the abdomen is effected. I share these observations and ideas, not because of my certainty that they are absolute facts, but because I desire to stimulate other practitioners in our field to join with me and explore whether these ideas can be reflected in our choices of skill sets and techniques which collectively comprise our profession. Thus, producing more effective results for our respective clients. In doing so, anatomy is our common language. It has long been my instinct that our profession can make a number of significant contributions to how healing may be realized. It is my prayer that this concept of "Freeing The Heart" may simply be one of many more to come.

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Author's Note: Additional credit to John Upldeger, DO, developer of CranioSacral Therapy, for his healing paradigm of lowering sympathetic tone and assisting parasympathetic outflow; to Dr. Jean Pierre Barral, DO, for his

premise about the importance of re-establishing normal pressure differentials between the body's three great cavities in its role toward enhancing normal circulatory efficiency; to Lansing Barrett Gresham, founder of Integrated Awareness® for his postulation that since the visceral organs are functioning well before the skeletal muscles are capable of moving the body in a coordinated fashion, that the tensional patterns of the visceral suspensory ligaments play a major role in the eventual range of motion for most of the body's joint structures; and finally to Frank Lowen, LMT, for his contributions as I have an indelible memory of his fascial stretching between the thorax and the abdomen in 1991 in West Palm Beach that I know was part of the inspiration to develop these techniques.

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The Body's Core Line and Central Linkage

By Dale G. Alexander, LMT, MA, PhD

Consider the last ten clients on your treatment table. What were their somatic complaints? Now, imagine that you could loosen and lengthen the central linkage of the human body from occiput to sacrum.

And, that the effect of this loosening and lengthening would assist and improve the therapeutic effect of almost any style of massage treatment.

Consider how this might simplify and potentiate the desired outcomes for these same ten clients? This is a premise I have been exploring and empirically testing for the past year and it seems to work exceptionally well for clients.

The Starting Point

Here are the anatomical ports of call I have been addressing: decompress the occiput upon the atlas, lengthen the esophagus, stretch each hemidiaphragm and decompress the tissues around the heart/lung complex, stretch the ligament of treitz, mobilize the mesenteric root of the small intestine and finally, enhance the range of motion within the ankle/foot complex. These changes may be achieved using any manual therapy modality you have learned to effectively utilize.



There are numerous additional steps that could assist this proposed protocol to be even more effective yet, as described, it succinctly addresses the body's core line. It traces the linkage from the occiput to the sacral base to the ankles. It reduces the resistance to the heart's expansion. It eases the diaphragm's vertical and downward excursion and it revives and enhances the capacity of blood and lymph returning to the heart from all areas of the body below the diaphragm.

This protocol addresses the body's three major innate pumps for moving its fluids: the heart, the diaphragm and the ankle/foot complex. Mobilizing the heart/lung complex reduces compressive resistance to expansion of the heart muscle itself and stimulates the function of the root of the lung allowing more surface area for the production of new blood. Mobilizing the mesenteric root of the small intestine also increases its surface area, allowing for more absorption of nutrition. Increasing the mobility of dorsiflexion/plantarflexion of the ankle/foot facilitates the movement of blood and lymph back to the heart/lung complex. Osteopathy considers the ankle/foot complex as the body's 2nd heart.¹ Together, these manipulations are proposed to reduce compression throughout the axial spine.

As a profession, I invite all bodywork educators to pool their collective intelligence and creativity toward developing other therapeutic protocols that

facilitate the range and efficiency of these movements and functions. Also, consider how this proposal allows those in our profession to define what they do. Simply stated, "therapeutic massage stimulates your body's inherent capacity to move its fluids along their 60,000 mile journey from the heart and back again." Not a bad one-liner when speaking to a prospective client.

Therapeutic Intent

The philosophical shift here is to transform our therapeutic intent from manually enhancing the flow of venous and lymphatic fluids to specifically assisting the body to "re-calibrate its ongoing capacity" for self-perpetuating healthier function. The process becomes more analogous to tuning-up one's engine. The results continue with the client and contribute to their quality of life over a longer period of time. With the present emphasis on national health care, our ability to describe the benefits of what we do is what will make the difference in how we are regarded as effective health care practitioners. We know everyone benefits from bodywork and massage yet, we need simple ways of describing "how."

If any of these anatomical structures initially described are unfamiliar, please Google them, seek out your most recent continuing education teacher or ask around among your professional peers. Most of what has propelled me in this therapeutic direction was learned at the Upledger Institute from Drs. John Upledger, Richard MacDonald and Jean Pierre Barral. The Institute supports many excellent teachers.

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The "Sacs and Tubes Theory of Stress"

By Dale G. Alexander, LMT, MA, PhD

In 1996, while considering the treatment principles I had accumulated from many advanced trainings throughout my clinical career and the results they had produced for my clients, a deeply intuitive experience of anatomical understanding inspired me to conceive of the human body as composed of mostly sacs and tubes:

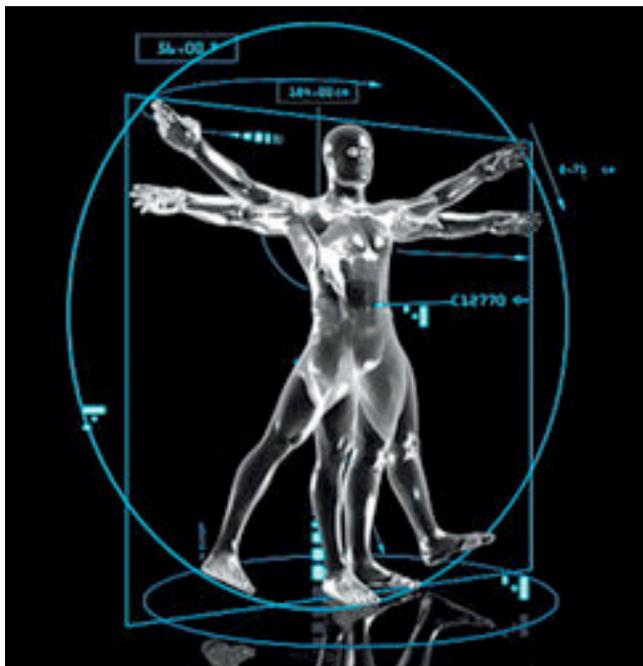


- The meningeal sac around the brain and spinal cord.
- The pericardial sac around the heart.
- The pleural sacs around the lungs.
- The peritoneal sac that contains many of the gastrointestinal and urogenital organs.
- The many tubes within organs and "between" the visceral organs, especially the esophagus and the respective lengths of the small and large intestines.

Integrating this personal epiphany with an understanding of Han Selye's General Adaptive Syndrome, my clinical thesis became clear: in response to "stress," the sacs around organs "cringe," while the tubes within them and between them "shorten and narrow and often twist." The intensity, duration

and repetition of the stressor(s) are all relevant variables which may be reflected in the "degree" of these internal responses.^{1,2}

As most body tubes are comprised of longitudinal and circular fibers, this notion of shortening and narrowing was not such a big theoretical leap.³ The notion of the "cringing of the sacs" was initially a "felt sense" of my own body's responses to positive as well as negative anticipation. Yet, supporting anecdotal evidence emerged recently when a client who had been a biology teacher for 35 years reminded me that during dissections of live frogs, the frog's heart would swell to twice its size when the pericardial sac was retracted.⁴



What are some of the possible effects of this proposed cringing, narrowing and shortening? To my perception, this clinical insight provides a credible explanation for the downward and forward pull of the head upon the neck, so often referred to in our profession's literature as forward head position. Let's take a look inside the body to appreciate just how many structures, especially viscera, are suspended from the anterior portion of the axial skeleton and have specific, palpable soft tissue linkages back to the cervical spine.

The Anatomy

My understanding of the following anatomical references are based on seven years of study with Dr. Jean Pierre Barral DO, developer of the Visceral Manipulation approach to bodywork. I do wish to again gratefully

acknowledge his dedication to articulating precise anatomical landmarks from his work with cadaver dissections and his ongoing exceptional teaching to the breadth of all professions that comprise the manual therapy field.⁵ His therapeutic ideas and anatomical assertions have been core to what has assisted me to help so many.

During embryological development, the heart and diaphragm muscle descend from C2 and remnant fibers to this origin remain throughout our lives. Less appreciated is that the heart and the diaphragm muscle are like siamese twins, conjoined at the inferior pericardium and central tendon of the diaphragm, meaning that one would have to cut them apart to separate them. The heart and lungs are suspended down and forward from the anterior surfaces of C4 - C6 by an overlapping system of suspensory visceral ligaments.

The liver is suspended down from the caudal surface of the diaphragm muscle via the coronary ligament which as noted above is related to C-2. In women, the uterus receives suspensory support from the contiguous relationship between the falciform ligament of the liver and the round ligament, which is composed of the obliterated umbilical arteries and veins.⁵ From C2 and from C4, 5 and 6 and all the way to the pelvic floor in women, any one of these relationships is symptomatically and therapeutically significant and when one considers that these viscera may become increasingly immobile and congested due to trauma or disease, they can become essentially "dead weight" pulling downward and forward on the cervical spine.

And, if this wasn't significant enough, my clinical work with clients suggested there was another anatomical linkage that can literally pull the "head down upon the neck" and that is the length and tension of the esophagus which is moored from the basilar portion of the occipital bone and then descends down and forward through the mediastinum and esophageal hiatus of the diaphragm becoming the stomach.^{6,7}

The esophagus is a muscular tube composed of circular and longitudinal fibers. Imagine its fibers shortening and narrowing. Given its superior mooring from the cranium might esophageal tensions relate to clients presenting with recurrent headache patterns, neck pain and upper back symptoms?

Just stop for a moment and remember the last time you were highly nervous or anxious. For many of us, this provokes tension within our stomachs. What

hasn't been considered is that a contracted esophagus may communicate this tension all the way up to the base of our craniums.

More Questions

How might these combined vectors of compression affect the delicate nerve fibers exiting the brain, especially the vagus nerves and the superior origins of the sympathetic chain ganglia? How might the jaw respond to such a downward and forward pull? How might such compression rippling down the length of the human spine contribute to how easily our bodies congest fluids?

I perceive all of these anatomical actors flow from one to the other influencing our bodies' strain patterns that are reflected in our clients' presenting chronic symptomatic profiles. Now, also please consider that the right crus of the diaphragm literally wraps around the esophagus. Netter's anatomy plate #253 clearly shows this. What is not so commonly appreciated is that this aspect of the right sided diaphragmatic crus is contiguous with the ligament of Treitz which superiorly adds support to the 20 -25 feet of the small intestine by hooking around the duodenal-jejunal flexure.^{8,5}

Might cringing of the peritoneal sac, the shortening and narrowing of the small intestine and the tension of the longitudinal fibers within the esophagus itself in combination be related to the incomplete closure of the cardiac sphincter more commonly known gastroesophageal reflux disease or GERD?⁷

Next, consider the mesenteric root of the small intestine which is moored down, forward and diagonally from the left anterior face of L2 all the way to the right sacroiliac joint.⁹ Given the diagonal element of this anatomical relationship, might the compressive force of chronic stress be a co-conspirator in chronic low back dysfunction and pain and be related to torsional elements so often found when one assesses the osseous landmarks of the pelvis?

The connections of the mesenteric root includes the same duodenal-jejunal flexure noted earlier so we actually have a proposed anatomical routing of manipulable soft tissue from the sacrum to the cranium in both genders. Little wonder the head is pulled down and forward for so many of us in response to how our "innards" react to stress.

We need to additionally appreciate the role of the flexor-extensor reflex systems in chronic somatic dysfunction. The downward and forward pull of the above described anatomical relationships will eventually and inevitably activate their respective reflex systems constantly. These reflex systems are governed by subcortical elements of our nervous system and, as such, we do not register their activation consciously or proprioceptively until something within the kinetic chain of the axial skeleton becomes dysfunctional. Once this occurs, whatever the reason, it is the job of the soft tissues to protect the joint or joints in distress usually by contracting along a continuum until they spasm, which really gets the person's attention.¹⁰

Anatomical Relationships

It is my assertion that the described anatomical relationships and the constantly activated flexor-extensor reflex system when viewed as a dynamic whole are prime contributors to the progression of osteoarthritis and joint degeneration in both the axial and appendicular skeleton.

These relationships allow us a novel view of our internal architecture. They also allow us in particular to re-consider the means by which progressions of dysfunction toward pathology may proceed. Principle among these stealth physiological progressions that underlie many chronic somatic problems are cardiovascular disease, cervical stenosis and gall bladder dysfunction/disease.

Compression, congestion and coordination or, more precisely, dis-coordination are a simple way to conceive of the downward spiral in the quality of our lives as we age and, how such progressions are related to "chronic stress."

Stress provokes cringing, shortening, narrowing and twisting functionally, "inside of our bodies." The soft tissues of the body support whatever comes to be the new normal. We can get used to damn near anything as human beings. That's the good news and is testimony to our species' adaptive capacities. The bad news is that once we do adapt, our bodies reflexively resist a return toward normal function.

As massage therapists who have a desire to assist clients to resolve their chronic somatic dysfunctions, it is our task to learn how to relieve these intrinsic forces of compression and to facilitate the movement of bodily fluids to redistribute areas of stagnant congestion. We can learn to assist the nervous system to re-coordinate its nerve and blood supply to include all the

body tissues again and assist it to re-coordinate the movement of our body parts. When these skill sets expand, wondrous possibilities for healing emerge. I have seen this thousands of times. It is an amazingly satisfying experience.

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