

**Endnotes**

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# Assessment and Thoracic Viscera in Structural Integration

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Connective tissue in the human body is a single three-dimensional web comprising approximately 20% of the weight of the body. Dr. Rolf taught that, collectively, this web is the organ of support, defining and maintaining spatial relationships among the other 80% of our body's constituents. In her work, Rolf worked with much less than this essential 20% of the body. This article humorously explores more of this splendid connective tissue.

Rolf's doctorate was in biological chemistry and most of her published scientific work is on transformations of the lecithin molecule. During her biochemical studies she gained no more than a passing acquaintance with human anatomy, nor is she known to have taken any coursework in anatomy. Her human anatomy, learned largely or entirely after she received her doctorate, was self-taught, and her knowledge of anatomy remained limited.<sup>1</sup>

When Rolf began working with human structure, she first worked as an artist with a visual perspective. She maintained throughout her Rolting® Structural Integration (SI) career that it was possible to know everything one needed to know to structurally integrate a person from visual inspection of contour alone. In her work she demonstrated the truth of this statement; however, Rolf was working with myofascia, superficial fascia and investing fascia, a fraction of the body's connective-tissue matrix. In recent years, Rolfers have begun to work with additional portions of the connective-tissue web – meninges, bone, joint capsules, organ support membranes, nerves, and blood vessels. When these other, and often deeper, portions of the connective-tissue matrix are included, visual inspection of contour remains an essential feature of SI assessment, but is no longer sufficient.

Sufficient in what sense? Rolf also taught that we should continuously ask the

question, "Where can I work on this person that will make the greatest positive change for the whole system?"<sup>2</sup> This article will illustrate how additional assessment methods become necessary to answer this question of where to work most fruitfully, when additional portions of the connective-tissue matrix are to be addressed. Aspects of organ support membranes, vasculature, and dura in the thorax will be reviewed as a platform for illustrating this viewpoint on assessment.

## Thoracic Organs: Pleura and Walls of the Mediastinum

The thoracic contents include the lungs, heart, and thoracic duct as well as portions of the aorta, esophagus, vagus nerves, and phrenic nerves. A partial description of these and some of their support membranes will be given.

On the inner surface of the chest wall lies the endothoracic fascia, which is well-adhered to the periosteum of the ribs and the myofascia of the intercostal muscles. It also continues above the first rib as part of the pleural cupola. Just deep to this lies the parietal pleura. The parietal pleura is adhered to the endothoracic fascia; however, in dissection it is substantially easier to separate the parietal pleura from the endothoracic fascia than it is to separate the endothoracic fascia from the ribs and intercostals.

To trace the principal membranes supporting the thoracic organs, imagine a small creature, which will crawl along the membranous surfaces. This creature, Geekus Anatomicus Rolfinensus, somewhat resembles a centipede but has interesting behavior – it has great curiosity, but is also monomaniacal; it likes to walk, but only knows how to walk in a cardinal plane, and will always keep its feet on the same surface, never picking up all of its feet to

**Errata**

"Becoming a Rolfer: An Instructor's Overview, a Student's Project, and Mentoring"

In the December 2010 issue of *Structural Integration: The Journal of the Rolf Institute®*, an error appeared on page 8 in Table 2 in the article "Becoming a Rolfer: An Instructor's Overview, a Student's Project, and Mentoring." The second column of data should have had the heading "% of Activated Students Experiencing Sign." We regret any confusion this may have caused.

switch to a different surface. While Geekus will only walk in a cardinal plane, it will occasionally change to a different cardinal plane, but only at its birth place – which, for the particular specimen in question, is on the interior of the lateral wall of the thorax.

Our Geekus begins its journey at its birthplace on the lateral aspect of the inner surface of the left chest wall. Its feet are on the lateral aspect of the left parietal pleura along which it begins to walk anteriorly. At the sternum the parietal pleura reflects posteriorly to form the left wall of the mediastinum. The left wall of the mediastinum is followed more or less posteriorly. Through the translucent membrane of the left wall of the mediastinum our small creature may see under its feet the mediastinal contents including the heart, esophagus, aorta, thoracic duct, and portions of the phrenic and vagus nerves. As the left wall of the mediastinum reaches the spine, it follows the anterolateral curve of the bodies of the vertebrae until it transitions again onto the parietal pleura. With variations in contour, this circumferential path may be followed in the transverse plane at any level in the thorax. On the right side the same essential continuity and contour exists modified only by the asymmetric positioning of the heart.

Beginning at the original position on the inner surface of the left chest wall, our creature, still with its feet on the parietal pleura, can walk inferiorly to the lower limit of the rib cage where the parietal pleura reflects superomedially on the superior surface of the respiratory diaphragm. Following this membrane superiorly and then medially along the superiorly curving surface of the respiratory diaphragm, our crawling creature arrives again at the left inferolateral margin of the left wall of the mediastinum. Turning superiorly to follow the lateral surface of the left wall of the mediastinum our creature will arrive at the hilum of the lung where the bronchial tree, the pulmonary vein and artery, the lymphatic vessels, and nerves enter and exit the lung.

Now, with its feet facing superiorly in the person, our small creature walks briefly laterally on the inferior surface of the hilum of the lung until it must turn inferiorly to walk along the visceral pleura of the lung with its feet facing the left side of the person.

Arriving at the inferomedial surface of the lung, Geekus now turns laterally to

follow the inferior surface of the lung, first laterally and then inferiorly, along the respiratory diaphragm to the person's back. At the inferolateral margin of the lung, our creature, feet still on the lung, begins to crawl superiorly until it reaches the oblique fissure. Entering the fissure it walks superomedially until it encounters a different surface of the hilum of the lung than before. Here it must make a quick turn so that it is now walking inferolaterally on the inferior surface of the upper lobe of the lung.

Arriving again at the lateral surface of the lung, the creature continues its superior journey, feet still on the lung. Rounding the apex of the lung the creature again walks inferiorly to the hilum of the lung, where it must make another quick turn to resume its superior walk, feet on the wall of the mediastinum. This transitions superolaterally into the inner surface of the pleural cupola where Geekus now finds itself with its feet toward the sky, assuming the person being traversed is standing. Continuing inferolaterally from here, our creature walks, feet on parietal pleura, back to the starting point of its journey on the left lateral chest wall where it takes a well-deserved rest.

In its travels Geekus has seen that *the parietal pleura, the walls of the mediastinum, and parietal pleura are all continuous, the various names describing geographic regions, not discontinuous structures – just as one can drive from Scotland to England without leaving the United Kingdom.* Pushing its way through these tight places, Geekus has also seen how *these various surfaces lie essentially adjacent to each other separated only by a thin film of serous fluid.* With its feet always on one portion of the surface, Geekus' back was always against another portion.

Since this terrain is a living person, Geekus has also observed how these membranes are in constant motion. During inhalation the parietal pleura moves superiorly along with the ribs while the lung elongates, stretched inferiorly from its functional fixation within the pleural cupola. As the person who Geekus inhabits looks over his shoulder to back up the car he is driving, the parietal pleura and visceral pleura glide over each other more or less in a transverse plane. Similarly, with any movement that changes the shape of the thorax, there is glide in the fissures between the lobes of the lung.

Also in his travels Geekus noted that portions of the parietal pleura were stiffer and more fibrosed than its neighbors. He also walked past areas where the parietal pleura and visceral pleura were adhered to one another. Fortunately, Geekus did not walk directly into one of the adhesions, as then, in order to stay in the same plane, he would have had to reverse direction much as he did at the hilum.

Geekus further noted the presence of the internal thoracic artery running vertically on the inner surface of the anterior thoracic wall, connecting to the subclavian artery at its superior end. This artery gives off branches laterally and medially in each intercostal space and diverges into the musculophrenic artery and superior hypogastric artery at the inferior margin of the thorax.

## **Thoracic Organs: Contents of the Mediastinum**

In a series of text messages, Geekus learns from his cousin, who inhabits the mediastinal space, that the pericardium, esophagus, and aorta all lie adjacent to each other within the mediastinal space. These bits of plumbing have some loose tethers between them that allow substantial glide. As in the lateral compartment of the chest, contractures in each of these structures are observed as adhesions between tubes.

The two phrenic nerves are also found in the mediastinal space. These appear to terminate in the musculature of the large central portion of the respiratory diaphragm, but from a half sibling residing in the abdomen Geekus also learns that the phrenic nerves penetrate the respiratory diaphragm to innervate most of the abdominal organs, including, among others, the liver. In the specimen in question the right phrenic nerve is observed to be quite tight and, intermittently along its course, adhered to the wall of the mediastinum, and thus unable to glide.

Also from his mediastinal cousin in the lung, Geekus learns that the two vagus nerves innervate the heart and lungs and then both nerves disappear into the walls of the esophagus. The mediastinal Geekus has gone so far as to carefully shine light into the wall of the esophagus revealing that the two vagus nerves spread out and interweave with each other to form a lace-like network within the wall of the esophagus. From his abdominal sibling Geekus learns that the two vagus nerves

emerge from the wall of the esophagus, not left and right as they were at the superior end, but anterior and posterior. From there the vagus nerves diverge to innervate a list of abdominal organs, heavily overlapping with, but not quite identical to, the phrenic nerve. Portions of the vagus network within the esophageal wall are observed to be fibrosed, thereby reducing the apparent elasticity of the esophagus.

The subspecies *Geekus Anatomicus Rolfanensus* has that name because it is telepathically connected to Rolfers with whom it communicates the anatomical information it collects, including pathologies and anomalies. This is a great advantage to the Rolfer. Imagine the plight of a Rolfer viewing a body from the outside. With visual inspection alone he would not be able to tell if a vertical contracture in the front wall of the chest is due to local stiffening of the parietal pleura, or to contracture of the right thoracic artery. He would be unable to know if there was also a parietal pleura-to-visceral pleura adhesion in this area, or an adhesion in any combination of these three tissues. Similarly, how would the Rolfer distinguish a contracture in the right wall of the mediastinum from a tight phrenic nerve to the liver, or a tight aorta with a tensional continuity into the hepatic artery?

All of the issues described previously will produce shortening in the front of the thorax. With this thoracic foundation the head will be displaced forward. If the issue were in superficial fascia or myofascia, classical Rolfering approaches, guided by visual assessment, would be marvelously successful in lengthening the front of the chest. If the central issues lie in the thoracic contents, tension in the muscles and myofascia on the front of the chest will be compensatory and defensive. For example, if the phrenic nerve has reduced stretch and glide, it will be vulnerable to tearing in any event that snaps the head back. A torn phrenic nerve is potentially lethal, so the body, in its wisdom, will tighten muscles and myofascia to protect this crucial nerve. The body will not easily give up this protection, and if this protection is softened through the persistent and vigorous efforts of a Rolfer (they are like that), the body will promptly put the protective shortening back in a well-considered effort to protect the person's life.

## Assessment and Treatment

If the Rolfer is aware of the thoracic contents and their powerful role in shaping bodily alignment, and if he has learned effective treatment methods for these, the question remains, "Which bits of the thoracic contents should be worked with?" It is possible to just treat them all. Another possibility is to mobility test each internal structure and treat the tight ones. Neither of these solutions turns out to be satisfactory.

Treating all the structures is a great waste of time, not following Rolf's directions to work with that bit of the body that will produce the most change in the whole structure. Treating everything in the neighborhood will also irritate tissues that should not have been treated, leading to unfortunate results. This is bad enough when myofasciae are involved, and if nerves, arteries, and organ support membranes are more reactive, unpleasant fireworks can be expected from gratuitously treating, or over-treating, them.

Compared to treating everything in the neighborhood, treating the tightest bits has the advantage that fewer parts are treated, so fewer delicate tissues are ruffled. However, ineffective and/or undesirable results will still frequently follow. The tightest parts are seldom the most effective parts to treat. This is key. We are looking for structures we can work on where the change will spread out through the rest of the person in the most beneficial way. Working on the tightest, most defended areas is seldom the answer. As an example, in paired structures such as the facet joints at a particular spinal level, it is usually advantageous to free the less-bound side first. This will soften the more bound side and make it more accessible for change. However, this is not always true – occasionally it really is best to work on the tighter side first.

The question then is, "How do we gain the assistance of a *Geekus Anatomicus Rolfinensus* to tell us which bit is most fruitful to work on at any given moment?" A solution lies in the listening assessment methods taught by Jean-Pierre Barral, D.O., developer of visceral manipulation and its outgrowths: vascular manipulation, joint mobilization, and neural manipulation. These listening assessment methods, discussed below, were originally developed in the 1930s by high-level osteopaths in the United States. Very little has ever been written about them – for a long time they were passed around by word of mouth

among these osteopaths – and exactly who originated them is lost in the mists of time.<sup>3</sup> Barral is the first to teach these in an organized way to a larger audience. Still, there is little written about these methods.<sup>4</sup>

There are several variations of the listening assessment methods, all of which must be learned and used in concert to discover which area to work on to achieve the most benefit for the whole person. Major variations include: general listening, local listening, and layer listening. The basics of these methods are described below. Much more can be learned – the various courses offered by the Barral Institute are highly recommended.

### General Listening

To perform general listening, the therapist stands at arm's length facing the client's back. The therapist checks himself to make sure he is at an energetic neutral, neither projecting into nor drawing energy from the client. The therapist's hand is placed on top of the client's head and a slight compression is given straight down. Within the first five seconds, and usually less, the client's body will bend. The client's body can be considered as a structural column – in response to the downward pressure the column will fail at some point. This lack of support (lift) points to the most fruitful place to work on the body.

The deflection, in response to the downward load, may be in any direction. The deflection may occur at any level between the point of contact on the head and the floor. This point of deflection is detected by the therapist using two senses: proprioception and vision. A check is performed by contacting the client's body at the presumed point of deflection with the therapist's other hand. If this subtle support results in the body righting itself back closer to vertical (or at least its original alignment), then the area of interest is confirmed. The second contact for confirmation is called an inhibitory contact. The image is that the lesion is temporarily taken out of the system. In effect, an "as if" treatment is performed. General listening can usually narrow the field to a few cubic inches of the body. Local listening and layer listening can be used to refine this.

### Local Listening

To perform local listening the client may be in any position – standing, seated, or lying down. The therapist contacts a part of the body with the heel of his hand. If

immediately upon contact the client's tissue engages the therapist's hand and pulls it in, this indicates there is an active lesion in the area. An active lesion is one that is in the process of change. Two characteristics of areas that will produce the greatest change for the whole person are:

- a) the restriction is already in the process of change (as therapists we can assist the body with this change and provide it with information on how to change even better), and
- b) the restriction is well-connected to a substantial number of other restrictions, allowing pathways for the benefit to spread out.

When an area of tissue pull is found, the speed and direction of the tissue pull are noted. The therapist's hand is lifted from the body. A new contact is made nearby to see if there is a different pull there. A succession of nearby points is tested in this way. If a second point is found, the two points can be compared to find out which of the two will be the more powerful in changing the whole body. For convenience, in this example, one point is given the name Sally and the other Morris. To compare the two, touch one of them, for example Sally, and feel the direction of tissue pull. Leave the hand in contact with this point and continue to observe it while touching the other point (Morris) with the other hand and following any movement. If Sally moves again, changing her position in response to contacting Morris, that means that if Morris is treated Sally will also change. If on the other hand Sally does not respond in any way to touching Morris then treating Morris will not alter Sally, and Morris is clearly not the most fruitful point to work on. Pair wise comparisons can be made between any number of points.

### Layer Listening

Once the most fruitful area has been found first by general listening and then refined with local listening, a question remains – at what depth in the body to treat. To determine this, note the direction and speed of tissue movement when it first engages the hand. If this is not felt within five seconds of contact, break contact and start again. After five seconds other movement may occur as part of unwinding but this is not useful for the present assessment.

After the direction and speed of movement are noted, break contact by removing the

hand. In a moment make contact with the hand again with a combination of depth of touch and intent focus on the skin. Is there a tissue engagement pulling your hand into the skin? If so, does it have the same direction and speed as before? If so, treat the skin. If not, gently sink into the superficial fascia. Does it have the speed and direction of the tissue pull originally felt? If so, treat the superficial fascia. If not, proceed to the investing fascia with the same questions. If the investing fascia does not have the original pull, continue layer by layer into the body until the layer is found that has the original pull. This is the layer-to-layer treatment protocol.

### Mobility Testing

Once the most fruitful area to treat has been found by the different listening methods, mobility test the tissue found, as well as neighboring tissues. Details of mobility testing will depend on the type of tissue found. After the tissue is treated, again mobility test it and the neighboring tissue. Also stand the person up to look for alignment change. Do this after every move to gain adequate feedback on the effects of the intervention.

### Additional Thoughts

On the way to developing Rolwing® SI, Rolf studied extensively with several osteopaths including prominent osteopaths Kenneth Little, D.O. and Amy Cochrane, D.O., as well as John Wernham, D.O. Everything in Rolf's philosophy of working with the body is osteopathic. Her genius was to bring the relationship of the body in gravity to the foreground, a minor and often forgotten aspect of osteopathy.

The listening assessment methods described in this article were in use among high-level osteopaths at the time Rolf was developing her work; however, these methods were not widely known and were treated almost as secret inner knowledge, and it seems Rolf did not have access to these assessment methods. The listening methods were originally developed for working with musculoskeletal issues. Barral adapted the listening methods for use on other tissues, first the internal organs and later neurovascular structures.

### Conclusion

When meninges, organ support membranes, nerves, and blood vessels are included in SI, use of the listening

assessment methods is imperative for efficient and safe work. Working with these tissues, the listening assessment protocols discussed in this article become the primary guide to treatment order. The "Recipe," which has value when working only with myofascia and superficial fascia, is not a useful guide when the rest of the body's membrane systems are included. Following the listening assessment methods, the hallmarks of SI will efficiently appear, but in an order unique to each person, generally not the order described in the Rolwing Recipe.

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### Endnotes

1. Richard Demmerle, D.C., N.D., personal communication. As a physician, Demmerle has a solid grasp of anatomy. He describes conversations with his mother (Ida Rolf) while he was assisting her in teaching Rolwing classes, in which he asked her why she did not quiz student Rolfers on anatomy, to which she replied, "Because I am not qualified." He gave other illustrations for the fact that her knowledge of anatomy was limited.
2. Author's notes from a basic Rolwing training with Peter Melchior, held in Boulder, Colorado in July and August of 1977. Melchior repeatedly quoted this statement of Rolf's during the training.
3. Personal communication with Alain Croibier, D.O. After fruitlessly searching the osteopathic literature for the origins of the listening assessment methods, I finally consulted Croibier in 2008. He gave the description used in this article.
4. Personal communication with Jean-Pierre Barral, D.O. Barral graciously supplied me with the descriptions of the different listening assessment methods.