TRAUMA INFORMED OSTEOPATHIC APPROACH: THE ART OF LISTENING

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Table of Contents

Abstract

Trauma informed osteopathic approach: The Art of Listening is a subjective thesis and inquiry of how to integrate deep listening skills, inclusion and craniosacral osteopathy as a foundational concept in wholistic osteopathic approach to practicing osteopathy. The inquiry references the origins of trauma informed in the beginning of Dr. A.T. Stills' work in developing osteopathy. Furthermore, an exploration of embodiment as an indigenous perspective, broadening an understanding of vagal treatment and the importance of an osteopath who lives the work. In addition, the influence of female bodied osteopaths as influential and need for recognition in the field of craniosacral therapy.

Keywords: Trauma Informed, Osteopathy, Listening, Inclusion, Fluid Movement, Craniosacral, Embodiment

TRAUMA INFORMED OSTEOPATHIC APPROACH: THE ART OF LISTENING

The history of a trauma informed approach is implicit in the history of osteopathy through the origin stories of osteopathy. The intention of this paper is to explore the roots of trauma informed approach in osteopathy as well as how an osteopath may approach listening and holding space in a practice of osteopathy in the 21st century.

The founder of osteopathy Dr. Andrew Taylor Still lived and practiced during the 19th century in Kansas Territory and developed the foundations of osteopathy and treatment (Museum of Osteopathic Medicine A.T. Still University, 2023). He was the son of a Methodist-circuit riding minister and physician who had been assigned to the Wakarusa Shawnee Mission in Kansas. “At least part of the reason he received this assignment was to get him out of Missouri, a pro-slavery state where his strong anti-slavery sermons were getting an increasingly hostile reception (Museum of Osteopathic Medicine A.T. Still University, 2023).” Dr. Still trained as a physician through apprenticeship and first-hand experience in the field as well as self-study. “It was common practice in those days for a would-be doctor to train by studying medical books and working with a practicing physician – in this case, his father. He may have received additional formal training at a school in Kansas City, but no records remain to establish where and when this training took place (Museum of Osteopathic Medicine A.T. Still University, 2023).”Dr. Still trained as a physician through apprenticeship and first-hand experience in the field as well as self-study. “It was common practice in those days for a would-be doctor to train by studying medical books and working with a practicing physician – in this case, his father. He may have received additional formal training at a school in Kansas City, but no records remain to establish where and when this training took place (Museum of Osteopathic Medicine A.T. Still University, 2023). Furthermore, Dr. Still ”alluded to the bone-setting methods of the Shawnee (Renfrew, 2015)” which establishes that the development of osteopathic manipulation is influenced by indigenous practices of healing and not established within it as osteopathy is the work of Dr. Still.

Dr. Still suffered the loss of his wife during childbirth in 1859. Furthermore, both of his children died from spinal meningitis and later, his third daughter from his second wife, Mary, died of pneumonia. It is purported that his experience with the failure of medicine of the time led him to research better methods and treatments and this laid out the foundations of how we know osteopathy today.

Dr. Still wrote “Osteopathy is to me a very sacred science…because it is a healing power through all Nature (Still A. T., 1992).” He believed that the osteopath was a philosopher and master mechanic. Early on in the development of osteopathy, the first osteopathic treatment in Autumn of 1874 demonstrated Dr. Still’s compassion and trauma informed approach to treatment (Still A. , 1981). The story is of a young boy with “flux”, abnormal discharge of blood, that he helped treat. Significance is attributed to the story due to the economic disadvantage of the child and how Dr. Still offered support to the mother and child. The story stated the following:

"I knew that a person had a spinal cord, but really I knew little, if anything, of its use. I had read in anatomy that the upper portion of the body was supplied with motor nerves from the front side of the spinal cord, and that the back side of the cord gave off the sensory nerves, but that gave no very great clue to what to do for flux. I began work at the base of the brain and thought by pressure and rubbing I could push some of the hot to the cold places. While so doing I found rigid and loose places in the muscles and ligaments of the whole spine, while the lumbar was in a very congested condition. I worked for a few minutes on that philosophy and told the mother to report to me the next day, and if I could do anything more for her boy I would cheerfully do so. She came early next morning with the news that her child was well." (Still A. , 1981)

Still showed that he had a sensitivity to touch and listening to the spinal cord, motor nerves, sensory nerves as well as awareness of interoception through the sensation of hot and cold. He was treating multiple systems in the body—a wholistic approach to treatment. Historically, from the text and stories by Dr. Still's former students, he developed a wholistic approach to treatment where "the fundamental principles of osteopathy are different from those of any other system and the cause of disease is considered from one standpoint (Still A. T., 1992)."

In 1882, Dr. Still opened the American School of Osteopathy in Kirksville, Missouri. Emphasis was on the study of anatomy and osteopathic philosophy. "No technique of any sort was taught, we are told (Still A. T., 1992)." Students' growth was through their own development and evolution as a practitioner of the art of osteopathy. Dr. Still is often quoted to say, "dig on", meaning it as an invitation for each of us as in osteopathy to keep seeking and learning and growing the art of osteopathy.

History of Trauma

The word "trauma" has become a common term in Western culture in the 21st century. One can open up any social media site or pick up a book on trauma, unlike when I was a young child in the 1970's where trauma was rarely discussed and we still hadn't defined Post Traumatic Stress Disorder as a recognized condition by the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. In the 20th century, one could find different doctors and hands-on practitioners from Doctors of Osteopathy, traditional healers, psychologists, embodiment practitioners and structural integrators who were exploring ways of supporting patients and clients in their process to find health and balance in their systems of well-being. The word trauma comes from Greek and literally means "wound". In allopathic medicine, trauma is defined as either a physical and/or psychological in nature. In this thesis I will compare and contrast how trauma, in both physical and/or psychological forms, may inform the osteopath in the diagnostic and treatment process. It is important to consider two terms that have arisen in trauma work in behavioral health in recent years, "Trauma Informed" and "Trauma Trained".

- *Trauma Informed* implies a practitioner who is aware of the neurobiological, biological, psychological and social impacts of trauma which a client may experience. One is able to notice the signals of trauma the client experiences in a non-verbal setting.

- Whereas *Trauma Trained* is a practitioner who has taken specific courses to be trained in working with clients who have a trauma diagnosis. The practitioner is able to provide trauma specific care.

A trauma informed osteopath may be a practitioner who is informed and able to contextually listen and have compassionate empathy with their patient. Whereas a trauma trained practitioner is trained to treat a specific condition listed in the DSM. Within this context I will explore different aspects of the practice and art of osteopathy. In my experience, I have learned that how we listen and hold space for the patient is extremely important to the outcome of treatment.

Listening

The etymology of the word "listen" is from German and means "to pay attention to". Indeed, this may be the biggest skill an osteopath can cultivate in conjunction with their anatomical knowledge to truly enter into the mastery of the field of osteopathy. James Jealous, DO would tell stories of going into the woods in Maine to be still and listen, watch and feel the presence of deer. One would have to find oneself in absolute stillness so as not to scare a deer away. To me the stillness is the heart of what I am exploring as this stillness is also the expression of health in craniosacral osteopathy.

Another factor is that a practitioner must have done their own work in the osteopathic medium such that they have embodied and integrated their own trauma history so that it does not affect the sessions with one's patients. This is where self-care and living a life as an osteopath becomes imperative to the wellness of both the practitioner and patient.

I will address listening skills further in the paper.

History Untold of Craniosacral Osteopathy

The history of craniosacral osteopathy beyond Dr. Still is often credited to William Garner Sutherland, DO. In the chiropractic field Dr. Nephi Cottam is attributed with the discovery of the work (Unknown, My Better Brain, 2023). In my trainings, the oral tradition equally, or more accurately, accredits Dr. Charlette Weaver, DO, who graduated from the American School of Osteopathy in 1912 (Weaver C. , 2023). The oral story speaks of Dr. A.T. Still as encouraging her with the responsibility to continue his work in the cranium and craniosacral field. Whether or not the oral stories are truthful, what is interesting to note is the male body doctor received more accolades for his work than the female bodied doctor. “In fact, her work on the "Basio Cranium" has been touted as the "greatest single original addition to the science of osteopathy since Dr. Still's own work" (*Women of Ohio*; *ATS Museum Bulletin*). She determined the "Basio "Cranium" as being malleable in newborn children and therefore contended that any associated problems could be corrected in young children (Weaver C. , 2023) .”

A second female bodied osteopath I would like to acknowledge is Dr. Viola Frymann. Born in England in 1921, “Dr. Frymann grew up wanting to become an osteopathic physician after being treated by osteopathic physicians as a child. This goal, however, was interrupted by World War II, and instead, she earned an MBBS degree from the University of London. After the war, she immigrated to the United States where she earned her Doctor of Osteopathic Medicine degree from the College of Osteopathic Physicians and Surgeons in Los Angeles (Kaiser, 2021).“ Dr. Frymann founded Osteopathic Center for Children and was instrumental in the creation of College of Osteopathic Medicine of the Pacific.

Dr. Frymann’s research was, and continues to be, instrumental in the understanding of the importance of cranial osteopathy in the treatment of children after birth. “In a study of 1,250

Figure 1: Charlotte Weaver

newborns I conducted a few years ago, it could be demonstrated that severe visible trauma as inflicted on the head—either before or during labor—in 10 percent of the infants. Membranous articular strains, which could be detected by the physician proficient in the diagnostic techniques

of osteopathy in the cranial field, were present in another 78 percent. Thus, nearly nine of every 10 infants in the study had been affected (Frymann, 1966)."

"How important are these membranous articular strains to the physician? I have found that common problems of the neonatal period—such as difficulty in sucking, vomiting, nervous tension, and irregular respiration—are frequently overcome just as soon as these strains are corrected. Similar strains are encountered in school children who have learning and behavior problems. In a study of 100 children between the ages of five and 14 who were having learning or behavioral difficulties, it was found that 79 had been born after a long or difficult labor and had one or more of the common symptoms of the neonatal period. Also, it is my impression that many cases of childhood allergy can be traced to musculoskeletal strains originating at the time of birth. And vertebral scoliosis occurring in childhood and adolescence is, in many instances, the consequence of cranial scoliosis originating during birth. Thus, recognition and treatment of dysfunction of the craniosacral mechanism in the immediate postnatal period represent one of the most, if not the most, important phases of preventive medicine in the practice of osteopathic medicine (Frymann, 1966)."

Another influential female bodied osteopath includes Anne Wales, DO, an instructor and friend of Dr. Sutherland. She stated "…a successful response from the cerebrospinal fluid is an intensified interchange between all the fluids of the body. It is definitely evident that the reaction is systemic and includes the whole body even within the bones (Wales A. D., 2023) ." In her lecture on the *Sphenobasilar Activity* Dr. Wales states "one of the main functions of the middle face, the whole head, is mobilizing the anterior superior attachment of the reciprocal tension membrane…. the inferior attachments are at the clinoid processes and sella turcica… (Wales D. , 2020)" She goes on in great detail on the relationship between the mechanisms of the cranium and middle face to the whole in the health of one's being. She makes a point to say she is tired of the whole argument brought up by the medical field that the sutures are ossified and there is no movement. She takes care to demonstrate the movement of the cranium and explains in detail how the function and structure are related.

Louis Burns, DO research focused on the viscerosomatic reflexes with her research on rabbits and other organisms to study "osteopathic lesions" (Allan, 1986). She headed the A.T. Still Research Institute from 1917-1935. Dr. Burns is quoted as saying "…move the vertebrae and the ribs and note any limitation of the motion, the speed of return to the normal relation after the release of pressure, and bilateral symmetry of the spinal tissues and the vertebrate. By so palpating, layer by layer, and by devoting constant attention to the information which is derived from palpation, a student can gain a very exact picture of the lesion and its surround tissue (Allan, 1986)." Furthermore, Dr. Burns development of the viscerosomatic reflexes continues to influence treatments in osteopathy.

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As a female bodied practitioner, I have also experienced this continued oversight on the female bodied practitioner and an invalidation of our work and experience. In fact, most trainings are not designed to be inclusive of the female practitioner due to the nature of child rearing and work responsibilities. I believe this is why Dr. Ida Rolf, founder of Structural Integration who studied with Amy Cochran, DO, founder of Physiosynthesis, found herself developing a separate field even though there are several stories of her attending lectures at the osteopathic school in Kirskville (Jacobson, 2011). This brings me to the next topic on Embodiment and Inclusion.

Embodiment and Inclusion

I am an experienced 55-year-old female bodied practitioner (they/she) who has been practicing for 27 years and teaching full-time at a university training bodyworkers for 16 years. I identify as mixed race—Celtic, African and Indigenous. In my experience, I have witnessed and experienced exclusion within the university system by colleagues and administration. I am still amazed that in 2023 the struggle for inclusion is still commonplace in institutional and social settings. What I have learned is embodiment is the key to health, listening and healing the nervous system from injustice in the many forms it arises through microaggressions, blatant exclusion and disrespect. One can think of this as a coming-out party, as I dream of more respect, grace and inclusion in our professions where the male body practitioner is not the only person seen as a person of resource and authority. I am quite aware that I have had to work harder and obtain more degrees than my male colleagues to earn the respect that is past due. What I am about to share is a conglomeration of my path to healing and becoming the osteopath I am today. My hope is others may be able to employ some of the skills of osteopathic listening to aid them in their journey.

The Embodiment Journey

"Without learning to know ourselves as intimately as we possibly can, we limit our choices. Life is not very sweet without freedom of choice." – Moshe Feldenkrais

"We are not separate from this Earth; we are a part of it, whether we fully feel it in our bodies yet or not." ― Sharon Blackie

Introduction to Embodiment an Indigenous Way of Knowing

A student of structural integration inquired on resources to learn and better understand embodiment, it offered a pause of reflection to find deeper meaning and inquiry. First of all, I want to say that I am an orphaned peoples that was displaced from their homelands due to economic impacts, slavery and occupation. As a mixed raced Celtic, African and Indigenous person I can speak to my experience and how the traumas of generations infused into my blood, heart, nervous system, sinew and bone. I am tribeless, an orphan of culture that has strived to practice and heal myself, ancestors and mother earth through my practices. This has come primarily through my hands. I have always had an ease with using my hands and sense of Soma, Greek derivation of body, within my experience. My sense is I have been journeying to integrate the diverse ancestry I was born into and root in place through building slowly with my hands a home here in Taos, New Mexico. I acknowledge the Indigenous people to whom the land belongs Jicarilla Apache and Comanche, across from the land of the indigenous people to whom the land belongs Tewa Red Willow People.

One of the challenges in our times is a disconnect from the very land we come from during the age of Anthropocene, viewed as the period during which human activity has been the dominant influence on climate and the environment. I was recently driving through the central valley of California—a settling of chemical haze of growing agriculture dominated the landscape. This was after visiting the Giant Sequoias that were saved from destruction, where the rest of the forest was burnt to the ground. The dichotomy and juxtaposition of landscape reminded me of the film *Koyaanisqatsi* film from 1975-1982. The title is a Hopi Indian word meaning "life out of balance. To say the least, the landscape we drove through shook me to the core of my being. I later experienced the antithesis on the luscious coastal waters aligning the Pacific Ocean.

The sense of being from orphaned people is borrowed from Stephen Jenkinson, who I may describe as a rebel and astute thinker in his school Orphan Wisdom located down North. He writes "Our culture, if a culture it can be called, or all those things we have instead of a culture, has come to a time of savage despair, it seems. We've surrounded ourselves with the debris of refugeehood, to fill the hollow of orphanhood. We have become a danger to ourselves, and a menace to all who will come after us, and to the world. We abandon our dead to make our way, and we are mostly singular people. We might now be the twilight of our ancestors' dream (Jenkinson, 2022)."

In a sense, it is challenging to be *whole* when one experiences their body as fragmented. The work I live in invites people to find wholeness. I should say we don't find IT—it is experienced within living in connection to land, place and culture. One can imagine a person lying on the

ground, as they breathe in and out, they have fields of energy and life experiences around them. In wholeness there are no holes in our field and fragmentations. Like the Torus, our fields are in movement with ease.

Dr. Tyson Yunkaporta, author of *Sand Talk* says, "an Indigenous person is **a member of a community retaining memories of life lived sustainably on a land-base, as part of that land-base**. Indigenous Knowledge is any application of those memories as living knowledge to improve present and future circumstances" (Yunkaporta, 2021).

To be embodied is to be an indigenous person that is living in such a manner. This is what I believe embodiment is about. This isn't meant to exclude non-indigenous peoples—rather taking a look at how one may become indigenous through embodiment. This also isn't meant to offend one who has tribal affiliation and grew up in the cultural practices of their tribe. Maybe it is offering a hope and pathway to mend the hoop of life.

"It is the cultural lens that we carry everywhere with us.

Remember when I showed you a hand gesture demonstrating

that perspective, carrying the message that Indigenous

Knowledge is not about the what, but the how?

It is about process, not content. Your culture is not what

your hands touch or make—it's what moves your hands."

--Dr. Tyson Yunkaporta author of *Sand Talk*

Definitions of Embodiment

As any good academic, we start with etymology and origin of a word. Embodiment disappointed me when I looked it up in our etymology dictionary. It basically said embodiment is from Old English and German but didn't offer any new insights—To be in the body, which isn't very sexy from an intellectual challenge. Maybe that is the point!

Here you go...

Merriam Webster defines Embodiment as "1: that embodies something the embodiment of all our hopes and 2**:** the act of embodying **:** the state of being embodied. An example of usage is in a sentence is the following from Sherlock Holmes!

*Watson is the perfect embodiment of the Victorian soldierly virtues that Holmes defends, while Holmes himself engages in cocaine and irony (*Adam Gopnik, *The New Yorker*, 12 Sep. 2022).

The etymology of embodiment is from Old English and German. Which wraps around other meanings such as "investment in or manifestation through a physical body; a bringing into or presentation in or through a form," 1824, from embody + -ment.

As a verb embody is referred to in reference to soul and spirit from the 1540s and from 1660s of principles, ideas, etc., "express, arrange or exemplify intelligently or perceptibly" (Unknown, www.etymonline.com, 2023).

The Oxford Dictionary offered these definitions for embodiment:

A tangible or visible form of an idea, quality, or feeling.

"She seemed to be a living embodiment of vitality"

- the representation or expression of something in a tangible or visible form.
- "it was in Germany alone that his hope seemed capable of embodiment"

What surprised me is the reference to soul and spirit. This arose from Aristotle:

"A soul, Aristotle says, is 'the actuality of a body that has life,' where life means the capacity for self-sustenance, growth, and reproduction. If one regards a living substance as a composite of matter and form, then the soul is the form of a natural—or, as Aristotle sometimes says, organic—body (Unknown, www.britannica.com, 2023)"

I have dabbled in many readings and experiences over the years in psychology, philosophy, spirit and soul. I surprised myself in that I don't always remember consciously the intellectual musings of these studies and it is embodied. A good reminder came from Dr. Sharon Blackie in her new book *Hagitude*. In her previous work. *Women Rose Rooted* she shares the concept of Anima Mundi or the imaginal world—which is an indigenous Celtic perspective on living.

"Celtic mythology, especially in the Gaelic (Irish and Scottish) traditions, is both intensely ecological and intensely woman-centred. It offers up a world in which there's a reciprocal and respectful contract between the people and the land – a world which is dominated by powerful divine women who are the creators and shapers of the land, its guardians and protectors, and who represent the moral and spiritual authority of the Otherworld. And so they represent the spirit of the Earth itself: the anima mundi (Blackie, 2023)."

The Anima Mundi comes from the time and philosophy of Pythagoras and Plato. It is so deeply interwoven in our Western culture we often are not conscious of how it influences are ideas around spirit and soul. One might notice that it separated out matter from in the philosophical approach. A truly indigenous lens would not separate matter. Matter is living. Here lies a conundrum of First Peoples and Second Peoples coming together to share, listen and understand each other. Our living experiences are quite wide and varied...maybe we just need to take the time to share and deeply listen to one another in an aspiration to heal. I bring this up as for those of us from mixed cultural backgrounds our body can feel split or divided, even pulled in multiple directions as we stand across cultures that inherently have a different epistemology.

Anima Mundi defined as follows for your own musings:

“anima mundi (n.)

"spiritual essence, distinct from matter and supposed in the philosophy of Pythagoras and Plato to be diffused throughout the universe, organizing and acting through the whole of it," 1670s, Medieval Latin, literally "soul of the world;" used by Abelard to render Greek psychē tou kosmou. From fem. of Latin animus "the rational soul; life; the mental powers, intelligence" (see animus) + genitive of mundus "universe, world" (see mundane) (Unknwon, 2023).”

animus (n.)

1820, "temper" (usually in a hostile sense), from Latin animus "rational soul, mind, life, mental powers, consciousness, sensibility; courage, desire," related to anima "living being, soul, mind, disposition, passion, courage, anger, spirit, feeling," from PIE root *ane- "to breathe."

It has no plural. As a term in Jungian psychology for the masculine component of a feminine personality, it dates from 1923 (compare anima). For sense development in Latin, compare Old Norse and "breath, breathing; current of air; aspiration in speech;" also "soul, spirit, spiritual being."

mundane (adj.)

mid-15c., mondeine, "of this world, worldly, terrestrial," from Old French mondain "of this world, worldly, earthly, secular;" also "pure, clean; noble, generous" (12c.) and directly from Late Latin mundanus "belonging to the world" (as distinct from the Church), in classical Latin "a citizen of the world, cosmopolite," from mundus "universe, world," which is identical to mundus "clean, elegant," but the exact connection is uncertain and the etymology is unknown.

Latin mundus "world" was used as a translation of Greek kosmos (see cosmos) in its Pythagorean sense of "the physical universe" (the original sense of the Greek word was "orderly arrangement"). Like kosmos (and perhaps by influence of it), Latin mundus also was used of a woman's "ornaments, dress," which also could entangle the adjective mundus "clean, elegant."

The English word's extended sense of "dull, uninteresting" is attested by 1850. Related: Mundanely. The mundane era was the chronology that began with the supposed epoch of the Creation (famously reckoned as 4004 B.C.E.).

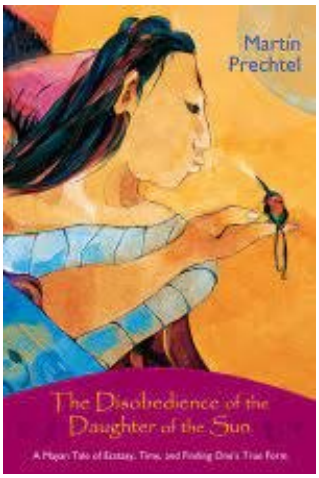


Figure 2: Martin Prechtel Book Cover

"I've been so lonely, mother, I decided to converse with my belly button, it talks just like my sweetheart but sometimes does not obey. I've seen yours, it really has a big smile; I guess as you get older your navel becomes more expressive."

— Martin Prechtel, *The Disobedience of the Daughter of the Sun: A Mayan Tale of Ecstasy, Time, and Finding One's True Form*

Definitions in Psychology and Somatic Movement

There is an interesting intersection between First Peoples and Second Peoples ontology around Cosmos and origin stories. First Peoples have their stories in oral traditions that they pass on in stories, music and gathering. As Second People stories are often written. I experience oral tradition as embodied. The stories fuse into my cellular memory and awaken the crystal like memories. I had written that my first ancestors were the Wolf Clan. It is my matriarchal lineage. I learned this through ceremony, deep listening, working with bones, plant medicine and more. It isn't documented on a piece of paper and it is a deep knowing—not some "New Agey" bullshit.


Figure 3: Celtic Wolves

Movement, dance, art, music, stringing beads, forming prayer offerings, making talking sticks, growing food, cleaning the house, making ready for Winter, celebrating Spring, harvesting in

Late Summer the fifth season...this is to be embodied. This is an offering of an indigenous lens and world view of experience and being embodied.

Now psychology and somatic arts define Embodiment practices as:

“Embodiment practices use the body as a tool for healing through self-awareness, mindfulness, connection, self-regulation, finding balance, and creating self-acceptance. Embodiment explores the relationship between our physical being and our energy. It involves the interaction of our body, thoughts, and actions.” Aug 11, 2021 (Unknown, positivepsychology.com, 2023).

Is this really any different from indigenous knowing?

Another definition:

“An embodiment practice is a method of using the unique sensations of our body as a tool to develop awareness, stay present, self-regulate, feel whole, find balance, feel connected, know ourselves, love ourselves and be empowered (Unknown, Somatic Movement Project, 2023).

I might offer after several years of teaching yoga and movement classes, I often saw how folks struggled to be still, move slowly and find peace within themselves. It challenged me to be creative in developing explorations that would help them find themselves anew. In our traumatized culture this included finding ways to create safety in the movement studio.

Figure 4: Vagus Nerve

To change the world, we women need first to change ourselves – and then we need to change the stories we tell about who we are. The stories we’ve been living by for the past few centuries – the stories of male superiority, of progress and growth and domination – don’t serve women and they certainly don’t serve the planet. Stories matter, you see.”

— Sharon Blackie

Social Engagement System

What works for you may not work for someone else! Let me say that again "what works for you may not work for someone else". The whole idea of "safety" is individual and varied experience. If I learned anything during the pandemic, is that my idea of what was "safe" and "health" had the extreme opposite of the culture I lived in. It was the first time in my adult life I found myself at odds with the culture norm of what is "health" and what it means to live in health. Suffice it to say it prompted me to write about it here https://www.drkirstie.com/about-2.

The second conundrum is all the hype around the vagus nerve—it is like the second coming of the Psoas. Which a write about here https://www.drkirstie.com/post/it-is-not-just-about-the-vagus-the-wandering-nerve (Note the piece on the vagus nerve is added below).

Enough of me standing on my soap box. If it interest you read the other blogs. Seriously, I really care about the health, well-being and safety of myself and my clients and there is big difference to blaming it on the vagus nerve, psoas or individual parts instead of seeking whole in the system. Again, what contextual setting, set of relationships, what is happening in the field for the client and the practitioner make a difference to setting up an environment for a client to heal and it starts with me—the practitioner!

Since my first introduction to craniosacral therapy in the 2000's, I practiced finding "neutral" as a practitioner. Which means I am not doing anything and I am doing everything at the same time! It is a Zen approach to listening. This fit quite well in my ontology of being and previous trainings in Zen Buddhism and study of art, music and dance. The field of bodywork aligns nicely with the practice of the arts. What seem to arise later was the field of trauma and how to support people who have trauma, especially from the Adverse Childhood Experience (ACE) research of the mid 90's (Unknown, Violence Prevention, 2022). This work came out when I had just finished grad school. I stumbled on it later working on my first doctorate. The pattern I saw in my clients was consistent with early childhood trauma. Later I studied perinatal and prenatal psychology and how in utero trauma influenced outcomes of experience or predisposition to various forms of trauma later in life such and PTSD, CPTSD, Anxiety and more. Keep in mind that when war veterans came home from Vietnam and earlier wars we did not have a term for PTSD until the 1980's. Dr. Bessel Van de Kolk's work in Body Keeps the Score was pivotal in defining and including childhood traumas. In other words, this work is still new in the modern era.

The pivotal piece for myself, was my own experience as I score high on the ACE and experience pre and perinatal trauma. Because I am high functioning and have resiliency I was missed by my teachers and peers as a person with anxiety, PTSD and more. I was able to mask it and compartmentalize during school and work. Fortunately in my 20's I found myself in the field of bodywork, movement and spiritual practice which offered me the support and pathway to heal thyself.

I think it is worthy an inquiry for the person seeking support. What makes one feel safe? Where do you feel it in your body? Can you feel it in your body? When feelings, senses of unsafe arise,

how does it arise for you—sense, feelings or thought? How is your breath when you feel safe? When you feel unsafe, how is your breath?

Here is the image I post in my practice. I don't have to say anything...clients will often take their finger and point and say this is me! This opens the door for conversation and support.

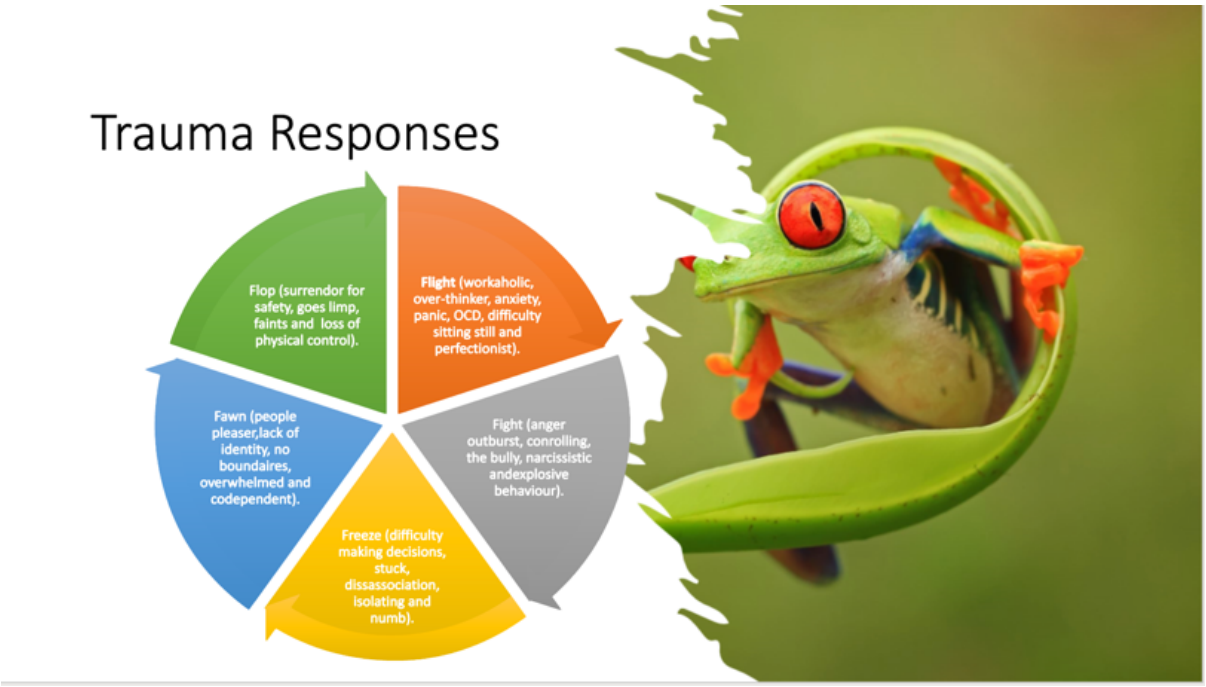


Figure 5: Trauma Responses

She Blinded Me with Science

Science has been all the rage of late, and it hasn't been good science. Papers have been rushed to be published, a lot of data miscalculated and misleading media. As an early 80's teenager, Thomas Dolby's song goes off in my head:

Ha! It's poetry in motion
She turned her tender eyes to me
As deep as any ocean
As sweet as any harmony

Mm, but she blinded me with science
(She blinded me with science!)
And failed me in biology, yeah

Huh-huh
When I'm dancing close to her

(Blinding me with science, science)
(Science!)
I can smell the chemicals
(Blinding me with science, science)
(Science!)

Mm, now but it's poetry in motion
And when she turned her eyes to me
As deep as any ocean
As sweet as any harmony

She blinded me with science
(She blinded me with science!)
And failed me in geometry

When she's dancing next to me
(Blinding me with science, science)
(Science!)
I can hear machinery
(Blinding me with science, science)
(Science!)

Hah! It's poetry in motion
And now she's making love to me
The spheres are in commotion
The elements in harmony

She blinded me with science
(She blinded me with science!)
And hit me with technology

I don't believe it, there she goes again
She's tidied up and I can't find anything
All my tubes and wires and careful notes
And antiquated notions

But, it's poetry in motion
And when she turned her eyes to me
As deep as any ocean
As sweet as any harmony

Uh, she blinded me with science
(She blinded me with science!)
She blinded me with

What I learned as a baby holder at Seattle Children's Hospital in the mid 90's is that being present, staying calm and neutral was all the "failure to thrive" babies needed from me. I help support several families in a times of need and have seen a beautiful turn around and health in the babies I have worked with. This was before my formal craniosacral training. I was exploring healing my own birth trauma using my skills as an artist!

This brings me to Polyvagal theory, Stephen Porges's work, which was first published in 1994. His work came from mamas and babies and coregulation of the nervous systems. It was the same thing I was playing with through the arts—honestly it is intuitive for any loving and caring person holding a baby. We all have access to this basic biological behavior—it just got programed out of us from war, violence and lack of caring.

I studied in Bali, Indonesia in the mid 90's as well and lived with a Balinese family. My spiritual Ibu I Gusti Puspawati, who you can catch in Eat Pray Love, showed me what a loving family experience could be like. It was pivotal in changing my neuroception, body, heart and mind. It was and continues to be the Biology of Love. Thus I am not sure we need all the fancy science if we can get to the heart of the matter.

Social Safety—The Science

Aye, here is a definition of Polyvagal. "The human neurobiological network that is accessed when individuals feel safe, which facilitates connection/affiliation with others and surrounding environment through eye contact, facial expressions, vocalization and orienting of the body/face toward others.

According to polyvagal theory, shifts in the autonomic nervous system produces three elementary states: rest-and-digest (social and safe), fight-or-flight (mobilization) or shutdown (immobilization) (Unknown, Complex Trauma Resources, 2023)."

Dorsal Vagus (Regulation, Rest and Freeze)

Dorsal is the upper side of the back in location. But in the vagus nerve it is the most back side of the vagal nuclei arising from the inferior brain stem—medulla oblongata. "The dorsal vagus is **a** large, primitive nerve that is common to all animals, including fish. It goes down the spine and has a role in controlling our lungs, hearts (moderating heartbeats so they don't get too rapid) and stomach (where it actually aids digestion)."

Ventral Vagus (Social Engagement System)

Ventral is the front, which I always remember because "to be in front of" is the French word *devant.* Again, this is just meaning is arises from the front of the medulla oblongata. "The ventral branch of the vagal nerve affects body functioning above the diaphragm. This is the branch that serves the social engagement system. The ventral vagal nerve dampens the body's regularly active state."

The vagus nerve is the wandering nerve and innervates much of our thorax and visceral cavities. It is a regulator of many systems including the afferent pathways from our gut, which our 85% sending signals to your brain to tell you how you feel. So you are what you eat and your gut instincts. Vagus helps regulate breathing via the heart. “The vagus nerve is basically listening to the way we breathe, and it sends the brain and the heart whatever message our breath indicates. Breathing slowly, for instance, reduces the oxygen demands of the heart muscle (the myocardium), and our heart rate drops (Unknown, www.thecut.com, 2023).”

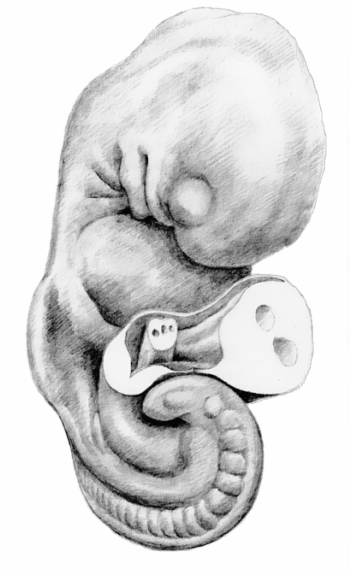


Figure 6: Embryo 28 Days

Notice the image of the embryo above. How do you feel? What do you sense when you observe the embryo? The embryo is 28 days old when the cranial nerves grow, including the vagus cranial nerve X—it has been a part of our system for quite some time. I like to hold the embryo in the field of my client when I treat many parents don’t know they are pregnant yet at this stage of embryonic development.

As you can see, it is easy to blame it our say we just need to treat the vagus nerve. However, the vagus nerve grew within in us and is a part of a complex intelligent system—You. This leads me to how important it is as practitioners we treat the health in the system and the whole, not the parts.

Practitioner Neutral

I just came home from a workshop with Hiroyoshi Tahata (Rolfer) and Carol Agneesens (Rolfer) in Spatial Somatics. Hirosan lead us practitioners through the Art of Yield and incorporating the concept of Ma. Carol supported him in the first three days. I observed and experienced a third instructor appear between Carol and Hiro—as they became Ma! It was so beautiful to see the deep care and support between two experienced instructors sharing their knowledge. Truly humbling.

The space between them allowed for something else to happen. We could call it a third organism, I like to call it spirit walking in the door.

“Ma; the empty space, the in between, the silence, the pause, the emptiness, the interval, the distance, the timing etc., is something that is present throughout the entire Japanese society, but it’s predominantly in the traditional arts that you usually refer to the concept of Ma. In old ink painting for example, you would say that the focus should lie within in the absence of the brush and the ink. The blank paper is a state of limitlessness where anything is possible. It symbolizes the source of all shapes, beyond time and space (Sverdrup)”.

Figure 7: Sense of Ma—Space and Time

Hirosan brought us through a series of practices that refined my sense of finding neutral. Previously, I had taken an online version of Hiro’s work through the IASI conference and read his articles in the Rolf Journal. The deepening of the work helped me refine the art of yielding. “The system's perception of its surroundings as safe allows itself to yield. Yielding is a movement when the system feels safe in contact.” He showed us another way of languaging with our clients to be curious as to what is safe for the client and still honor what is safe for ourselves—powerful work for those of us who grew up taking care of everyone around us.

Yesterday, I had a client running late for their appointment, I have worked with them for several years. I decided to start their session while they were still on their way. I smudged and sang songs with my Balinese rattle in the beauty way. Then I walked the field to find neutral around my table choosing the better position, not best. After listening at the base of the table at the feet, I was called to put my pelvis tensegrity model on the table to represent my clients field. It immediately let me know to pay attention to the right hip bone. When my client arrived 15 minutes late, she smoothly transitioned to the table and we continued the work—she confirmed

my listening that it was her right hip. I usually meditate when clients are late and attend to the field. It was a gift to be active and moving around in a new way.

Hirosan worked with tensegrity models in his space as well. I really enjoyed the transmission through watching him work. It seemed seamless and natural and reminded me of the traditional Balinese healers I apprenticed with in the 90's.

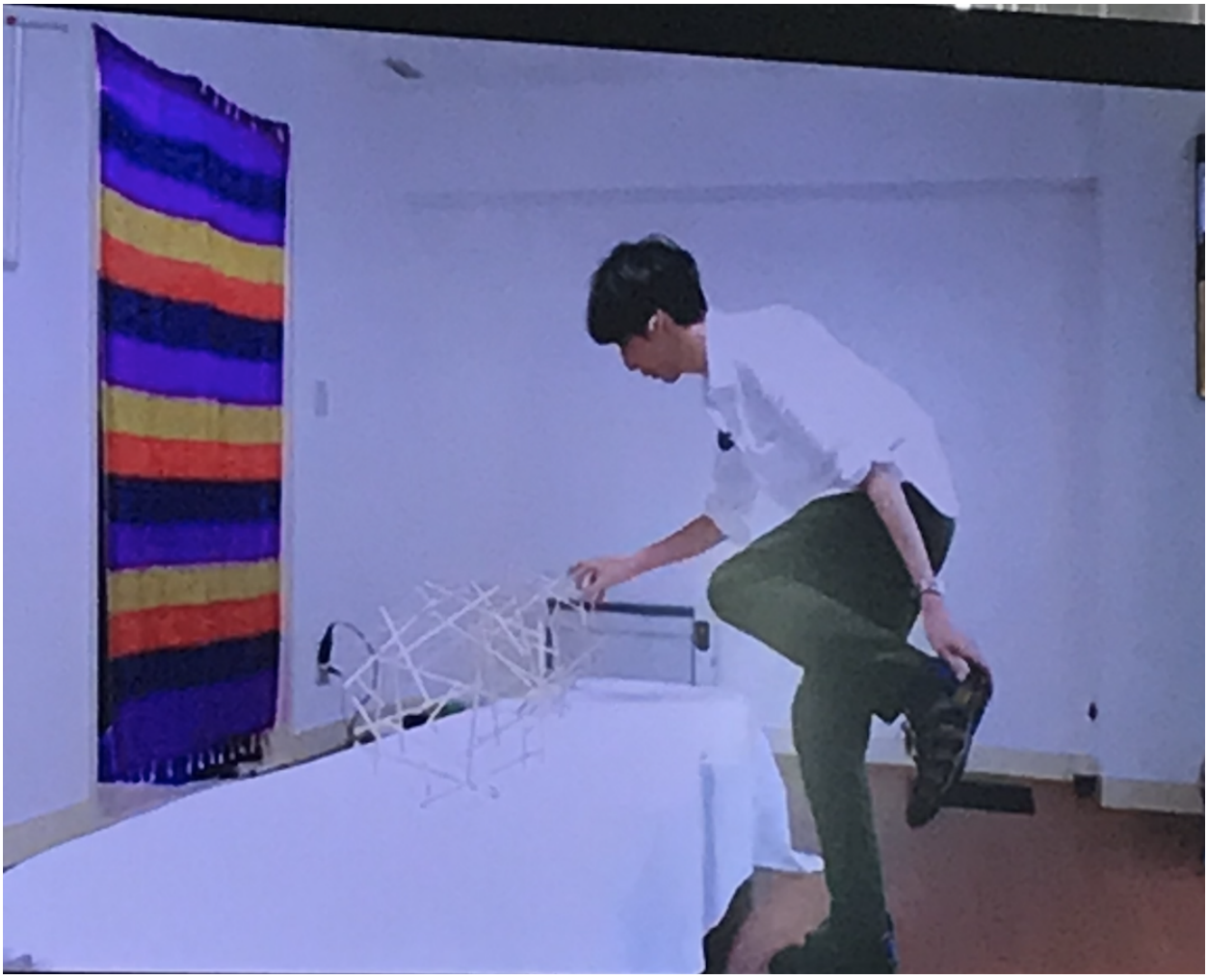


Figure 8: Photo of Hiroyoshi Tahata

In the second half of the course Carol Agneesens invited us to pattern recognitions and fluid listening. She invited us to learn from *Sand Talk* indigenous way of knowing and of course listening for the Leminiscate.

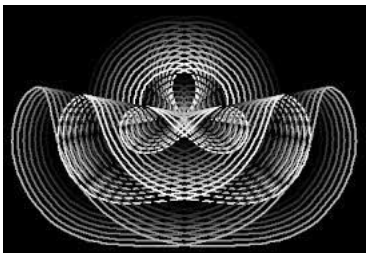


Figure 9: Leminscate

I have been working with the Leminscate ,aka Figure 8, for several years. It was an absolute joy to continue to explore and play in the field. For myself, these ways of practicing are embodied and the practice and art of embodiment. My sense is each of us must practice and refine our way of embodiment and what works for me may, may not work for you. I believe we pre-practiced this in utero as embryos when we stood up within ourselves for the first time and experienced our midline. If you have learned the "Rolf Line" then you have something to work with to help orient yourself in space to embody center, periphery, front, back, up and down. I have given you some clues to the indigenous way of centering as well. I read a story once about a wolf pack. The Elder and sick move first in the line of movement. The healthy follow to protect. The theory was disproved by Wolf experts. Wolf ethologist say it is the following:

The wolf pack, led by the alpha female, travel single-file through the deep snow to save energy." The others in the family unit follow in her footsteps.

"The size of the pack is a sign of how rich their prey base is during winter when the bison are more restricted by poor feeding and deep snow. The wolf packs in this National Park are the only wolves in the world that specialize in hunting bison ten times their size. They have grown to be the largest and most powerful wolves on earth. (https://factcheck.afp.com/sick-wolves-dont-lead-pack-and-leader-isnt-last-line)."

Figure10: Social Media Image of Wolves

"The story tells us that living the life of an artist is not as useful as living our lives as a work of art."

— Martin Prechtel, The Disobedience of the Daughter of the Sun: A Mayan Tale of Ecstasy, Time, and Finding One's True Form

Pattern Recognition or “Patterns of Creation”

How do we recognize pattern? How do we perceive it with in the field? What I have learned through years of teaching bodywork is there are many learning styles they fan over a full spectrum. Some folks have an easy time seeing with their eyes and others feel with their body. My sense is we can develop other ways of “seeing” over time just as we develop the ability to see/feel with our elbows after practicing in bodywork. We can develop the indigenous embodiment perspective too.

The following First Peoples story of creation shared Dr. Tyson Yunkaporta cites the big bang theory of Second Peoples. “The trauma of this event caused the sky camp and earth camp to separate, and the universe to begin deep cycles of expansion and contraction, like breathing, in a pattern shaping everything.” One might see a Leminiscate or Torus within this pattern or Spirals. I wonder if this is what we are up to in finding the health in the system?

“The two symbols within the hexagon represent different things, more than their recent mathematical meanings. Separately, they are signs of marsupials (<) and birds (>) as different totemic categories of meat, based on the direction their legs bend at the knee. Together (<>) they represent the only two placental mammals native to this continent, humans and dingoes. They form a shape that shows the rules of marriage in a kinship system; on a different angle they can form a Men’s

Business symbol. They also show a point of impact, a creation event associated with the Orion constellation (always a hunter or warrior everywhere in the world), a big bang caused by Echidna fighting with Turtle. The trauma of this event caused the sky camp and earth camp to separate, and the universe to begin deep cycles of expansion and contraction, like breathing, in a pattern shaping everything." ― Dr. Tyson Yunkaporta author of *Sand Talk* p. 17

Osteopathic Listening Skills

In the previous section, I offered a deeper look at embodiment and what it means to be embodied so that as a practitioner one can explore ways of knowing and remembering who one is. An embodied practitioner is one who has integrated their own history and experience so that they may be able to hold space and/or the container in the field of relations with healthy boundaries and inclusive listening.

In the following section, I introduce the concept of *implicit bias* or *schema* which is a term to describe a set of preconceived ideas that our brain has used to perceive or interpret new information based on our life experiences. I find it helpful to take a deep breath as a pause before reacting or even thinking about what you want to say while holding back your thoughts or judgements in order to feel first. There may be a learned bias that you are unaware of. It takes courage to be vulnerable and deeply listen to other peoples' experiences and stories from embodied listening.

Implicit Bias

“Bias consists of attitudes, behaviors, and actions that are prejudiced in favor of or against one person or group compared to another (NIH, 2023).” Implicit bias often occurs quickly, automatically and unintentionally—nevertheless it delivers a judgement and affects behaviors and decisions. Our brain operates with efficiency in mind and in doing so, we have created pathways of neuronal firing and thought that make quick responses. To become aware of our implicit bias requires us to slow down and practice awareness in order to change the responses.

"The mind sciences have found that most of our actions occur without our conscious thoughts, allowing us to function in our extraordinarily complex world. This means, however, that our implicit biases often predict how we’ll behave more accurately than our conscious values. Multiple studies have also found that those with higher implicit bias levels against black people are more likely to categorize non-weapons as weapons (such as a phone for a gun, or a comb for a knife), and in computer simulations are more likely to shoot an unarmed person. Similarly, white physicians who implicitly associated black patients with being “less cooperative” were less likely to refer black patients with acute coronary symptoms for thrombolysis for specific medical care (Unknown, https://perception.org/research/implicit-bias/, 2023)."

In American and European cultures, we have many biases that are culturally learned with a long history of enslaved peoples and gendered oriented exclusion such as the witch hunts beginning in the 16th century (Federici, 2004). The author Sylvia Federici, in her book on *Caliban and the Witch* goes in-depth in how the history of enslaved people from the Roman Empire, church dominance and class system led to the formation of capitalism and the inequities and control of women’s reproductive rights to create more workers and free labor of women as housewives. This history is so dominate in our culture that it informs even administration at a university where they expect a female bodied professor to work for free under the guise of service but a male bodied colleague is not expected to provide the same amount of service hours. “Women incur a

disproportionate burden of institutional service with little recognition from their universities and review committees for such "invisible" labor (Shalaby, 2020)."

I believe this maps back to how our implicit bias has been developed within our culture as a learned behavior. Our brains and neuronal firing may be wired to use less energy to be more efficient. However, if we practice slowing down and taking a pause, we can learn to intercept our implicit bias patterns and change the very systems we are part of.

Heart-Centered Practice

Having a heart-centered practice is a great way to prepare for sessions with patients. The more we practice being centered we are able to move more freely into the presence with awareness from moment to moment. One practice I have found useful is the following exercise:

- Take a moment to find a comfortable seat.
- Bring a hand or both hands to rest on your heart.
- Feel yourself touching your body.
- Notice your heart rhythm and breath.
- Ask who you are in this moment?
- What feels good in your body?
- What feels like it pulling you to pay attention?
- Center in your breath and in your "Line" or center of your being.

Practices such as the heart-centered practice train the practitioner to become aware of how important being centered in ourselves is and to reground and reorient during our work. This helps to bring a deeper presence of listening in one's touch and to not get pulled into one's own bias or story. The point is to be present so that we can hear the client's story and be an active, present and compassionate witness (Cabral, 2020).

Mirror Neurons

Our mirror neurons, as practitioners, set an example of how to self-regulate and find a high vagal tone. "Vagal tone is the ability of the ventral vagus nerve to regulate the heartbeat. It is referred to in medical literature as "cardiac vagal tone." Vagal tone is measured by tracking heart rate and breathing rate at the same time. The heart rate speeds up a little when we breathe in, and slows down a little when we breathe out (Elisabeth, 2020)." What I have learned is that my ability to self-regulate and stay grounded in my listening invites the patient's nervous system to self-regulate vis-a-via the mirror neurons. It is akin to a mother nurturing a newborn baby, which is alluded to in Polyvagal Theory by Stephen Porges work (Porges, 2017).

I have noticed that when working with new mothers with unresolved trauma their nervous system impacts their ability to care for the newborn infant. This led me and colleagues to develop protocols for working with birth parents to help them self-regulate so that they can nurture their newborn.

One definition of mirror neurons is that “mirror neurons represent a distinctive class of neurons that discharge both when an individual executes a motor act and when he observes another individual performing the same or a similar motor act. These neurons were first discovered in monkey's brains. In humans, brain activity consistent with that of mirror neurons has been found in the premotor cortex, the supplementary motor area, the primary somatosensory cortex, and the inferior parietal cortex (Acharya, 2012).” This brings us to a tricky piece in working with persons with trauma symptoms described below. If as a practitioner, I am unaware of my symptoms I express then I am unconsciously teaching vis-a-via my mirror neurons and nervous system how to be wired in a particular bias. However, if I am consciously practicing within my own awareness and creating a safe and regulated system as a teacher/practitioner then I am teaching my patients nervous system how to be the same.

“Your mirror neurons (located in the frontal lobes, which help you pick up on other people’s actions, emotions, and intentions and are responsible for empathy) interpret people’s emotions through their body language, and then your body adjusts in response; if you pick up calm vibes from someone else, you’ll unconsciously relax (Acharya, 2012).”

Trauma Responses

Knowing one’s own trauma responses helps in understanding how a client may trigger a counter-transference response in a practitioner. The following are 5 types of trauma responses:

- Flight (workaholic, over-thinker, anxiety, panic, OCD, difficulty sitting still and perfectionist).
- Fight (anger outburst, controlling, the bully, narcissistic and explosive behavior).
- Freeze (difficulty making decisions, stuck, disassociation, isolating and numb).
- Fawn (people pleaser, lack of identity, no boundaries, overwhelmed and codependent).
- Flop (surrender for safety, goes limp, faints and loss of physical control).

"Trauma is routinely passed on from person to person—and generation to generation—through genetics, culture, family structures, and the biochemistry of the egg, sperm, and womb. Trauma is literally in our blood (Menakam, 2017)." Resmaa Menakam in his book *Grandmother’s Healing Hands* writes of two kinds of pain—clean and dirty.

"*Clean pain* is pain that mends and can build your capacity for growth. It's the pain you feel when you know what to say or do; when you really, really don't want to say or do it; and when you do it anyway, responding from the best parts of yourself. *Dirty pain* is the pain of avoidance, blame, or denial—when you respond from your most wounded parts (Menakam, 2017)."

The following body centered practice by Resmaa is a way to explore how hope and fear is lived in the experience of the body.

- Take a moment to ground yourself in your body. Notice the outline of your skin and the slight pressure of the air around it.

- Experience the firmer pressure of the chair, bed, or couch beneath you—or ground or floor beneath your feet.
- Can you sense hope in your body? Where? How does your body experience hope? Is it a release or expansion? A tightening born of eagerness or anticipation?
- What specific hopes accompany these sensations? The change to heal? To be free of the burden of racialized trauma? To live a bigger, deeper life?
- Do you experience any fear in your body? If so, where? How does it manifest? As tightness? As a painful radiance? As a dead, hard spot?
- What worries accompany the fear? Are you afraid your life will be different in ways you can't predict? Are you afraid of facing clean pain?
- Are you worried you will choose dirty pain instead? Do you feel the raw, wordless fear—and, perhaps, excitement—that heralds change?
- What pictures appear in your mind as you experience that fear?
- If your body feels both hopeful and afraid, congratulations, you're just where you need to be for what comes...

I have shared this exercise with several student practitioners and have found that the sense of safety and where one feels hope or fear varies from person to person. It sets a nice context for discussions in how to find safety in one's system and create a safe context for a practitioner and patient.

Movement and Resilience

"All expressions of life have greater vitality when they are free to cycle through their natural rhythms of movement (Gintis B. , 2007)."

What is health? In osteopathy nature is the cure. We do not prescribe pharmacology aka drugs as is the legacy given us from. Dr. Still. As an osteopath, we are listening and seeking the health and/or vitality of the patient's system. Health seems to be described by many osteopaths as a form of movement. As Dr. Bonnie Gintis, DO writes to paraphrase Dr. Still, "to find movement should be the object of the doctor; anyone can find inertia (Gintis B. , 2007)." In my own experience, I found that learning to find or listen for movement first is a way of noticing the health in the system. Then we notice the "blocks" or "lack of movement" in the system. "Poor health and disease always correlate with altered motions and disturbed natural rhythm somewhere in the body (Gintis B. , 2007)." If a person has been diagnosed with a disease, this does not mean they do not have health in the system. This is one of the greatest challenges in modern allopathic medicine. Many patients have been "nocicept", a play on the word nociception or shown the "no" in their system. What is wrong or what they cannot do. Instead as an osteopath we use language to teach the patient what is the "yes" or "yesception" in their system. This teaches health not sickness as the primary model for healing. In this way we can help support the patient's system to find health.

Through my listening touch, I am seeking the fluid body like a healthy spring, stream and river system flowing through the mountain forest—allowing life force to bubble forth in support of the patient's healing process. Through my craniosacral teachers I have learned that fluid systems

unite the wholistic systems of the body—circulatory, nervous and myoskeletal. Whereas the fluid body "is a term that implies our ability to instantaneously resonate the whole (Gintis B. , 2007)."

As an osteopath, I am interested in creating a natural context of healing. Where my patients can find trust in their body. Soma is the Greek derivation for "body" and I practice a form of medicine that is to help my clients dialogue and "rewyld" their soma. Bringing them back to their origins as natural whole beings without the weight of modern culture that inherently keeps us from our wholeness.

As Dr. Charolette Weaver, DO writes "Healthy extracosmic receptors and healthy extracomsic correlations produce healthy concepts. A healthy concept is a reliable concept. The interocepts of the human being will be well received in the forming awareness of a human person so equipped. The full formed awareness of such a person will be a reliable awareness. The intercepts of the human being, the healthy percepts of the human physical organism and healthy concepts of the human person produce healthy observations and healthy experience (Weaver C. , 2023)."

Movement can be seen through the lens of the biodynamic metabolic fields described by Dr. Erich Bleschmidt. Embryological growth gestures are an important aspect of a patient's system returning to health. I wrote previously in an article, *Heart as a Fulcrum,* that "the biodynamic metabolic fields can be used to describe the growth of the organs as well as cell to cell zones of loose and dense tissue. As we explore the embryology of the heart, we will discover some of the biodynamic metabolic fields that support growth of the organ of the heart. With regards to the heart as a fulcrum, it can be experienced as a center for the whole system or as an articulation between two parts such as the liver and brain. In my practice, my tendency is to listen to the early embryological growth story of the heart, and I witness a settling within the ebb and flow of the fluids when heart comes to center (Segarra, 2020-2021)." This same process may be applied to all growth gestures (e.g., how a limb grew in the body to help invite the health in the patient's system).

Furthermore, resilience of a person and accessing resilience is an important part of health. Doctors Bonnie Gintis and Steve Paulus speak in their podcast of different types of resilience—physical, mental, emotional and social resilience. They define resilience as an important aspect of biological health. "Biological definition of health is an organism's ability to adapt to changes in its environment. A person who can adapt well to change in their environment is therefore resilient (Gintis B. D., 2023)."

The subject of resilience is so important that I chose to directly quote the definitions of the four types of resilience presented.

"Physical resilience refers to the ability of the body to recover quickly or adapt well to illness, injury, change or any physical demands. It is the ability to deal with change and compensate rather than decompensated. Physical resilience is important in the process of aging well compared with aging poorly. Up to a point, physical resilience is something people can improve by making healthy lifestyle choices. Some aspects of physical resilience are genetically

determined, and other components are based upon past injury, illnesses or traumas. In others, aspects are simply unknown.

Mental resilience refers to the ability of a person to adapt to difficulty situations. In this aspect of resiliency people are flexible rather than closed-minded. Calm rather than agitated in crisis. Exercise equanimity in the face of misfortune. This category of resilience is what we call mental strength. Allowing us to move forward and solve problems and remain hopeful.

Bonnie interjects that mental resilience ‘comes from flexibility and fluidity, it is not a rigid kind of strength’.

Emotional resilience consists of being able to regulate emotions during times of stress, adversity or trauma. Emotionally resilient people still experience anger, grief or pain but are able to stay in touch with their inner life. They are able to calm their mind and manage emotions while maintaining a sense of optimism when times are tough.

Social resilience takes all the characteristics discussed in the first three categories and applies them to groups or communities. In this context the group is an organism with its own life force determined by group connection. Social resilience is seen when people connect to other people. When they work together with a common goal to solve problems.

In Finland, the word for resilience is *sisu*. It is a part of their national character and therefore is a component of social resilience combined with physical, mental and emotional resilience. It is incompletely defined as heartiness, bravery, fighting against the odds, determination, toughness, stamina and confidence. In summary, resilience is possibly the same as health or a close effect of health (Gintis B. D., 2023).”

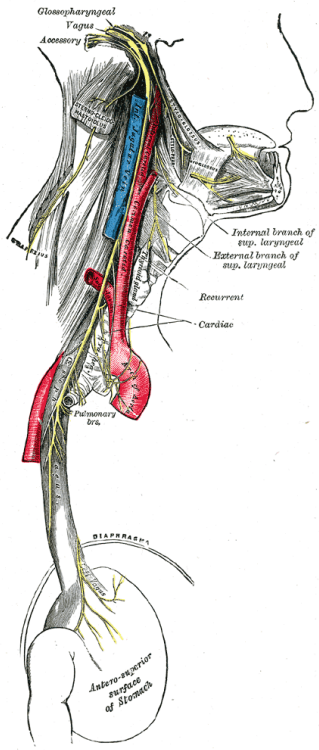


Figure 11: Vagus Nerve

Now I a fourfold vision see,

And a fourfold vision is given to me;

'Tis fourfold in my supreme delight

And threefold in soft Beulah's night

And twofold Always. May God us keep

From Single vision & Newton's sleep!

--William Blake, Letter to Thomas Butts, 22 November 1802

In memory of my mentor Rodney E. Donaldson, PhD

It is not just about the Vagus—the Wandering Nerve: A holistic systems approach to the nervous system.

I am an explorer of anatomy and physiology. I am interested in learning and growing my skillset as a hands-on practitioner under the lineage of osteopathy and structural integration. I have noticed a trend in the last year of vagus nerve treatments and online trainings to reset the vagus nerve. The more I see these the more annoyed I become. Why am I so annoyed to the point of wiggling in my seat—wiggling is a good way to reset your vagus nerve! Here it is, the vagus nerve is a made-up construct. It is another form of anatomy that has been dissected out of relationship from other structures, much like what happened to connective tissue a.k.a. fascia.

Rudolph Steiner said that there is no differentiation between motor and sensory nerves (Steiner, 1917). The more one may study anatomy, then step out to the macro view—one realizes we cannot cut up a human into individual parts to explain the experience of being in the world. An embryo grows in a field of relationships to the womb, its surrounding environment, the experience of the mother and family. The embryo's nervous system grows within this context and is formed throughout the growth in the womb and outside the womb. For example, if the birthing parent plans to have a child, eats well and energetically nourishes their body, feels supported in their relations this invites a conception bond from preconception forward as the embryo grows themself. When a conscious preconception is not what happens, there are other energetics and relations that influence how the embryo grows, including the nervous system.

My skin is highly innervated with skin nerves that have pathways through and within the superficial fascia. One can follow these pathways through the perifascia (fascia wrapping around fascia) (Structure of Perifascia? Learn Integral Anatomy with Gil Hedley [Vide0], 2022), then diving through superficial fascia, then deep fascia wrapping around muscles (fascia profunda/investing fascia), then into periosteum of the bone and the central nervous system (brain and spinal cord) via the dorsal spinal roots (afferent fibers that return sensory signals to trunk and limbs). It is a little like walking from the ocean, along the river that feeds the ocean, up a stream to a mountain and finding the spring that feeds the stream. This still does not teach you how the water came from the earth and arose as a wellspring in the first place and it demonstrates how deeply intertwined the parts are of the whole.

Embryology allows us to see the holistic growth of the human form. Dr. Cherionna Menzam-Sills describes the arising of the primitive streak (Figure 12) which forms our future notochord (spinal cord) as a "quantum midline established at conception—the primal midline, primitive streak and the notochord following it—are like reflections of this original energetic shimmer, like the bioelectric midline seen in frog embryos (Sills, 1947)."

The quantum midline is our inherent nervous system before it is specialized and differentiated into the parts we describe in modern anatomy. I joked yesterday with a colleague that my spinal cord and brain was my largest nerve. Within my joking I was speaking a truth expressed throughout my whole being. My perinate-self grew in a hyper vigilant environment within the family field. When a birth parent releases stress hormones the growing embryo feels

and takes on the same. There is an intimate relationship on a biochemical level early on between "mom" and "baby". Most of us have grown in a variety of circumstances and may find ourselves healing and integrating our experiences throughout our lives. What I learned is that my growth field "set my nervous system up" for hyper vigilance and predisposition for Post-Traumatic Stress Disorder (PTSD).

There are many great innovators of somatic work. I am grateful for two of them, Dr. Stephen Porges in Polyvagal theory and Dr. Peter Levine in Somatic Experiencing, because they

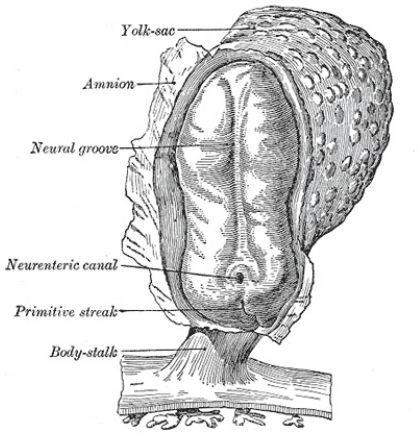


Figure 12: Human embryo, length 2 mm. Dorsal view, with the amnion laid open. X 30.

have developed tools for practitioners and clients to titrate and integrate their nervous systems in a new way of being. However, my experience has shown me that we cannot quantify the experience of hyper vigilance as only one nerve in the body. As Dr. Bessel van der Kolk book implies "the body keeps the score". Every cell has an intelligence that is expressed in health within the whole of the human. Also, every cell remembers this primal intelligence and can access it at any time. For some, it means relearning how to access the primitive streak, a deep trust in one's system through breath, through finding joy in a dance, walking amongst the trees in connection or washing dishes with presence. There is no one way to fix a nervous system. The neuroplasticity of the brain is also extended to the nervous system and can rewire—neurons that fire together wire together.

Observe Figure 13 below of a casting of the embryo by Dr. Erich Blechschmidt. Ask yourself what do you notice and feel as you observe the inherent beauty of our growth as an embryo? I notice the circularity of the whole, a quality of movement and fluidity inherent within and a wisdom of knowing how to grow.

The term *biodynamic* is used frequently in the field of bodywork. Dr. Blechschmidt is credited for the term Biodynamic to describe the fundamental forces of living organisms. The importance is that organisms differentiated biodynamically not by chemical nor genetic information (Blechschmidt 2004). Dr. Blechschmidt was influenced by the works of Dr. Rudolph Steiner and German philosopher Johann Wolfgang von Goethe.

Within this time of growth for the embryo, it is in relationship to its surrounding and grows in response and within its own wisdom to what is happening in its environment. Dr. Humberto Maturana coined the term ontogenetic structural drift (Maturana, 1992). He wrote extensively on cognition of structurally determined systems and how organisms come into being. Dr. Maturana emphasized the importance of a loving environment that is mutually accepting of other for healthy systems. When we do not have mutual support we disintegrate—disintegration can be death, loss of a personality, loss of relationship, etc. This is important because we find ourselves in an increasingly diffusive and disconnected world that is impacted by the overuse of technology, disempowering propagandized media, isolationism and separation. Most of us do not live in a village or in village mind in the western world. In fact, I find that a lot of my work in my practice is basic listening and loving care in presence.

The term *biodynamic* is used in many different forms from gardening to human function. Dr. Blechschmidt use was "biodynamic metabolic field" and was picked up by the biodynamic craniosacral founders. Within Dr. Blechschmidt's definition a biodynamic metabolic field is a "field of force based on a locally ordered metabolism (Blechschmidt, 2004)." "Metabolic fields are those morphologically definable regions, at all different levels of spatial resolution, which

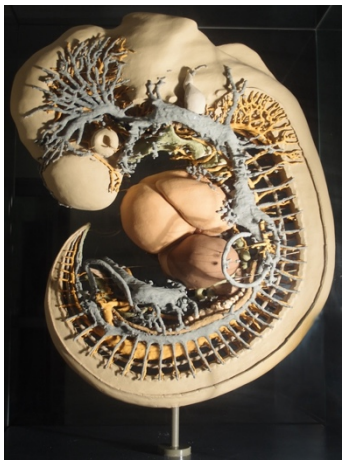


Figure 13: 7.5 mm Embryo, 6 weeks, 6 days old from conception.

contain spatially ordered metabolic movements." In other words, our form/shape is dynamic in movement based in space, relationship, and nutritional demand in growth. We are living systems that are always in growth and motion as embryo. "The embryo functions, behaves (growing and changing) in its shapes and Gestalt. The embryo is motion in process. The embryo 'per-forms' gestures and movements. Its growth and metamorphosis, its continuous changing shapes, represent its performance and behavior. The embryo behaves! The body is behavior! (Van der Wal, 2015)" With the embryo and human in motion we are invited to a more wholistic and systems approach to becoming.

Furthermore, there are two disciplines I was trained in my systems training. The philosophic study of *Epistemology*, "how we know what we know", and with *Ontology,* the "nature of being". An important piece in first order systems theory is derived from the "black box" theory of feedback loops. Imagine a black box and you do not know what is inside of it. When an input, such as an electric signal is sent into the box, you do not see what happens inside, but you can see the output. If the output amplifies change it is a positive feedback loop. If it negates change it is a negative feedback loop. What is humbling to understand is we really do

not know what happens inside and a human, a second ordered biological system, which is no different in many ways to the black box described previously.

This is important because a hyper vigilant system is akin to the positive feedback loop. It will keep escalating into sympathetic overdrive unless there is a negative feedback loop to reduce the sympathetic or invite in the parasympathetic nervous system. Or at least, this is what we have studied and believe is happening. The study of babies coregulating with the mother is another explanation of how our nervous system can adjust within the social regulatory system. This is how the field of bonding and attachment styles has developed because some do not get the coregulation and bonding needed for a vital nervous system. The field of craniosacral has also shown how regulating the dura mater and spinal cord can also have a regulating affect. For that matter, so can a hot bath filled with flowers. The complexity of biological systems and the many feedback loops continually happening for homeostasis is complex. This brings back to me standing on my soapbox about the vagus nerve. I think and feel that we need to be careful at over attributing the effects of the vagus nerve treatments across many disciplines. This is a Cartesian/reductionist way of thinking and eliminates the complexity of the living embryo in us all, which is whole from the beginning of the ovum, the cosmic dance of the sperms and ovum, to the first growth of the morula, hatching, nesting and all the amazing gestures of the first few weeks *in utero*.

My hope is that practitioners will continue mindfulness in their presence and listening and being opening to learning from their client—the teacher as embryo. The living embryo in each of us knows how to connect to the healing within. I believe how we language our discussion about the nervous systems is a conversation about the embryo in each of us. We can choose a wholistic loving approach, if we fall out of grace into the biology of reductionism we are already split from heaven.

Heart as a Fulcrum

This section was previously published in the IASI Yearbook 2020-2021.

"Our knowledge about the human body is so small compared with the unbounded intricacy and richness it possesses. It is important to start the journey of discovery even though we cannot see where it will lead."

-Jean-Pierre Barral, DO, MRO(F), PT

Many of us have experienced birth and early childhood trauma without the appropriate container of support to heal. This sense of loss of self, as articulated by Dr. Gabor Maté in his lecture on plant medicine, illustrates the impact that early childhood trauma has had on bringing us out of our center (Maté, 2021). What I am interested in is how we come back home, like Dorothy clicking her heels three times in the Wizard of Oz saying, "there is no place like home, there is no place like home, there is no place like home." How we find our way home may be mirrored in our embryological growth, especially the growth of the heart. In connecting to our hearts, we are able to come back home—our center.

I have come to understand the heart as fulcrum. The fulcrum is a “balance point” of an old scale in a dry goods store and a place where we find ourselves listening and orienting our work as a practitioner of craniosacral therapy and other modalities of bodywork such as structural integration and osteopathy. While giving a lecture two years ago, I found myself stating that the heart was a fulcrum because of how the brain arches in relationship to the heart in embryological growth (Figure 1). I would spend hours watching embryology videos and reading Dr. Erich Blechschmidt, an embryologist, and reviewing my material by Dr. Jaap van der Waal, a gross anatomy professor, who developed embryophosophy. Embryophosophy is Dr. Waal’s philosophical inquiry of Dr. Blechschmidt, Dr. Rudoph Steiner and Johann Wolfgang von Goethe work and how it may influence our understanding of embryo. Indeed, it seems that the heart is a center place to come home to.

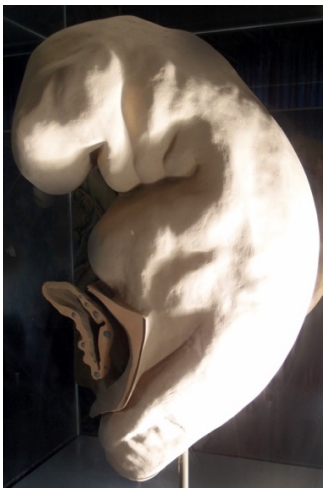


Figure 1: Blechschmidt Embryo 3.4 mm

I was not consciously aware of others utilizing the term “heart as a fulcrum” until I reread Dr. Michael Shea’s book in which he describes his account of the heart acting as a fulcrum: “Healing emerges biodynamically via remembering one’s inherent plan of being and its reconnection to Source through the skill of synchronizing with the Primary Respiration and its fulcrum of stillness that resides in the human heart. The natural resting place of being is the heart center (Shea, 2007, p. 165).”

Photo by Brocken Inaglory: The side of a tide pool 2007

It reminds me of the tide pools I played in as child on the beaches of the Puget Sound in the Pacific Northwest. When the tide receded during low tide, it would reveal tide pools with small crabs, sea anemones, sea urchins, starfish and a microecosystem within. You could stick your finger in the center of a sea anemone, and it would close up, folding in its tendrils to protect itself in the saltwater. The sea anemone would stay still in its center. This center is self-organizing and is foundational in living systems. Living systems adapt to their environment while maintaining structure, just like the sea anemone.

What is it that is specifically unique about how the heart arises that supports us as living systems? Is it the relationship of the arching brain growth? Is it the fluid dynamics that influence and support the arising of the heart? Or, is it a metaphysical inquiry of "I am"? It is all of the above.

In my inquiry, I took Dr. Waal's Embryo in Motion class in Boulder, Colorado a few years ago. His lectures remind me of an enthusiastic Hobbit on caffeine. He brings a big heart and joy to sharing his love of embryophosopy. Dr. Waal says, "you can live without a head, but you can't live without a heart" (Waal, 2009). He speaks of the heart as the moment when "I" arises within the embryo from out of the sea, mimicking the fluid dynamics that influence the growth of the heart. Of course, we can't live without a brain and the heart arises in service of the growth of the brain.

To dive further into the fluid dynamics, I reviewed Dr. Brian Freeman's lectures on Human Embryology from a Biodynamic Perspective. "A biodynamic metabolic field is a field of force based on a locally ordered metabolism. Metabolic fields are those morphologically definable regions, at all different levels of spatial resolution, which contain spatially ordered metabolic movements (Blechschmidt, 2004, p. 22)." The biodynamic metabolic fields can be used to describe the growth of the organs as well as cell to cell zones of loose and dense tissue. As we explore the embryology of the heart, we will discover some of the biodynamic metabolic fields that support growth of the organ of the heart. With regards to the heart as a fulcrum, it can be experienced as a center for the whole system or as an articulation between two parts such as the

liver and brain. In my practice, my tendency is to listen to the early embryological growth story of the heart, and I witness a settling within the ebb and flow of the fluids when heart comes to center.

Below I outline the early embryology as well as the embryology of the heart so that a practitioner can orient to the growth story and fulcrum with more precision of listening. Indeed the heart arises from the fluids that trickle toward the brain within the ectoderm and mesoderm out of a chiasm or crossing over of the fluids. These fluids, chorionic and extra embryonic fluid merge together, continue to wash over the area and we don't see a heart until the brain arches over. It might be helpful to keep in mind that I am describing the first three to four weeks of life in utero. There is a simultaneous and deep relationship of arising of some of the key structures. We will explore them more deeply in the next sections.

Early Embryology

"Embryology always starts with the whole and the parts come out of it."

Dr. Jaap van der Waal

Early embryology remains a curiosity in my inquiry. It is a demonstration of the energetics and potential somatic experiences that get written into our early experience of growing ourselves. For example, how the process of nidation, which is the process of the embryo "implanting" on the uterus in second week, may have an energetics of peace and acceptance or more sadness and rejection. These energetics can be carried within our own somatic story. I recently discovered this in sharing the nesting somatic experience of using a 5 by 5 foot pink t-shirt fabric, where a person sits on it while the group supports them by holding the corners and edges of the fabric on all sides with tensional support. The person seated on the fabric is slowly lowered to the ground to mimic the action of backing into the uterus with our back body. I borrowed this exercise from Carol Agneessens, Rolfer and I am in deep gratitude for it. Every time we explore this exercise different somatic memories arise for the participants. It demonstrates to me that we indeed have a memory of our in utero experience that has a tangible somatic experience. In fact, the participants were surprised they could access these seemingly primal somatic memories. Within the experience, the group offering support listened and witnessed the somatic story, which offered an opportunity for healing by being heard somatically.

Summary of embryological early phases:

One-chambered conceptus—mineral phase, center, and periphery.

Two-chambered conceptus—plant phase, dorsal and ventral.

Three-chambered conceptus—animal phase, cranial and caudal pole.

During conception, an ovum is large oneness and floating, whereupon many sperm swim around the ovum and begin to work away the nutritional lining around the ovum. The old story tells us that the first sperm to reach the ovum is the one to unite. The revised story is that many sperm

work together, and a communication happens in this living dance between the sperms and ovum for a few hours in which the ovum invites one of the sperm inside. After ovum and sperm unite through a cosmic dance, there is a division of cellular growth, in which we are completely dividable in sameness—blastocyst or one-chambered conceptus. The cells are all the same and have not differentiated yet. This is considered the mineral phase in embryosophy and has an essence of eternity. This is the stage that can be frozen and kept for an eternity.

You may have learned about the morula and blastocyst in your other embryology courses. Blechschmidt points out that the morula is a stage in sea urchin development and has nothing to do with the structure and function of human development (Blechschmidt, 2004, p. 30). In all animals and in human beings, the blastula phase takes one week. A blastula is a term for the hollow ball of cells formed during this first week which includes the morula and blastocyst. Paraphrasing Dr. Waal, sameness in cellularity does not make a human, for something else needs to happen for the growth of a human.

The first change in early embryology is from sameness/oneness to differentiation of cells which happens in the first week with center and periphery used as a way of describing inner and outer. “Differentiation: From the one comes the two—the prenatal body is two-fold ” (Waal, 2010).” The outer is the trophoblast and the inner are the embryoblast cells (Figure 2). Herein are the first metabolic fields of limiting tissue and inner tissue. Limiting tissue forms a “boundary between fluid on one side and inner tissue on the other” (Blechschmidt, 2004, p. 62). Inner tissue (connective tissue) is enclosed on all sides by limiting tissue (epithelium). “Inner tissue could therefore be described as undifferentiated connective tissue,” which is responsible for the construction of form growth (Blechschmidt, 2004, p. 63). One finds the limiting tissue as “cell mosaics along fluid boundaries” (Blechschmidt, 2004, p. 63). There is an interchange of ebb and flow within the inner tissue that is induced by the growth of the limiting tissue. This ebb and flow are the precursor of our blood vessels. It may help to imagine a water balloon, where the balloon is the limiting tissue and the water is the inner tissue—future ground substance and connective tissue. To unpack this further, growth is dependent on the limiting tissue or boundary to encourage growth through the ebb and flow of the fluid fields. The fluid fields are where our heart arises in growth described in the next section.

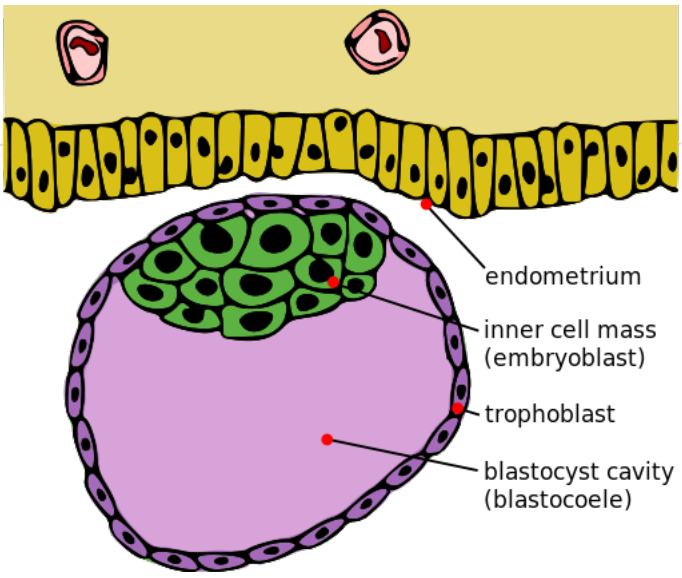


Figure 2: Embryoblast in relationship to blastocyst and trophoblast.

The nesting phase to the uterine wall happens in the end of the first week and the zona pellucida goes away, which increases the probability of nesting. At 7 days old a trophoblast (which will become the future placenta) is 100 cells, the next day 1,000 cells, then 10,000 cells in growth after nesting. This exponential outward growth, though likened to a plant stage in embryophosophy with more outward growth, like a tree growing outward. This, however, will not make a human. Imagine a tree growing inside of a uterus to see how ridiculous it would be if we had continued outward growth. Something else will need to happen, a folding inward, for the development of a human embryo as we cannot continue in outward growth exponentially and survive in the uterus.

After the growth of the blastocyst stage, one-chambered conceptus, an outer membrane (mantel) is developed in which the periphery is trophoblast (ectoblast) and the center is embryoblast (endoblast) (Figure 2). This growth occurs with the process of nidation, occurring in the second week. Without nidation, we would not survive. The two-chamber conceptus “orients itself and nestles onto the uterine surface” and “comes into contact with the metabolic fields of the maternal tissues” (Blechschmidt, 2004, p. 33). According to Dr. Waal, nidation is not an aggressive act. “Mother withdraws her identity out of the womb, giving the space for the embryo. Pregnancy is shaping the space for each other (Waal, 2010).” There is mutual acceptance in the biological act through the chemical and molecular processes. I feel this is an important distinction as I have heard reference to this act as being more aggressive and “war” like (Radke 2021). If we learn a more violent story, we project that on our own experience, if we learn a peaceful way, we experience more acceptance in the biological act and how we grew our own system.

Dr. Waal explains that the “yolk sac and amniotic cavity develop and there appears a split…separates from the center body. Amniotic cavity is dominated by expansion and hypertonic, wants to get large and clear water. Now the yolk sac is hypotonic, shrinking inward and the water is cloudy. There is a polarity between the two” (Waal, 2010). The two layers are called endoderm (yolk sac) and ectoderm (amnion). This polarity is an invitation for a balance point to happen between them, for something new to arise. In the textbooks, this is the stage that the term “derm” is brought forth. However, it really is not “derm” in how we think of it in the grown body—it might be better to say inside and outside, as it is not skin yet.

The ectoblast cells grow faster than the endoblast cells. As a result a space arises between them to form the mesoblast (middle) cells, where we arrive at the 3rd week of development and approximately 2 mm in diameter—the endocyst, the three-chambered conceptus (Figure 3). The middle cells are formed in the loosening field, the metabolic field that is literally describing a loosening of the cells in growth. Imagine a sphere where the outer layer is the ectoblast. Then, imagine that within that sphere several other spherical shapes appear within each other—like a set of nesting Russian dolls. The next layer is the ectoblast, then the mesoblast which lines the choronic sac—within this layer is the conceptus (the split heart shape in the middle of Figure 3), a two-chambered endoblast will become the embryo. The fold between the dorsal and ventral of the conceptus will become the notochord. The folding of the conceptus is the third stage, animal stage, in embryophosophy. This is our growth gesture of front and back. In the next paragraph we will explore our upper and lower poles, cranial and caudal.

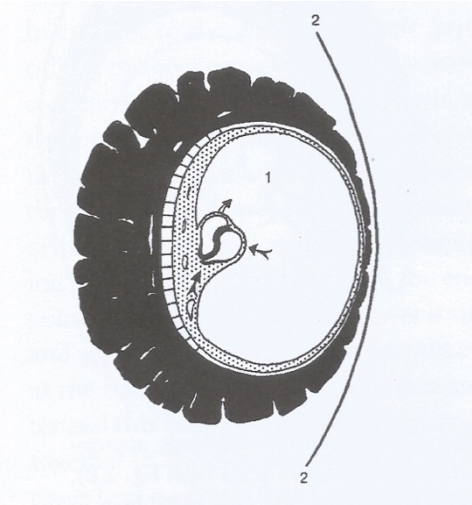


Figure 3: Three Chambered Conceptus beginning of 3rd week of development (2 mm). Black: ectoblast. Hatching: transition zone in the ectoblast. Stipple: mesoblast. The lining mesoblast lines the chorionic sac, the covering mesoblast covers the two-chambered endoblast. The solid tailed arrows represent nutrient-uptake from chorionic sac and the body stalk; outlined arrow signifies growth movement of amnion. 1) chorionic sac, 2) luminal surface of uterine mucosa.

The development of the three-chambered conceptus brings us to how to orient top and bottom via the growth of our future umbilical cord. The umbilical cord begins dorsally and is commonly called a connection stalk and is named body stalk by Blechschmidt. The body stalk (containing allantois) is the tissue bridge connecting endocyst (yolk and amnion sac) and chorion (future fetal blood role in placenta) (Blechschmidt, 2004, p. 229). The body stalk arises in the nutritional fluid located in "the transition region between the lining mesoblast and covering mesoblast" (Blechschmidt, 2004, p. 36). In the third week, the body stalk moves to center becoming the second body axis. The human endocyst disc resembles a pear shape, with the body stalk connected to the disc at the caudal pole (Figure 4). With the body stalk shift from dorsal to caudal there is an experience of cranial pole (head) and caudal pole (rump/pelvis). Where the head is the anti-rooting pole and the pelvis is the rooting pole.

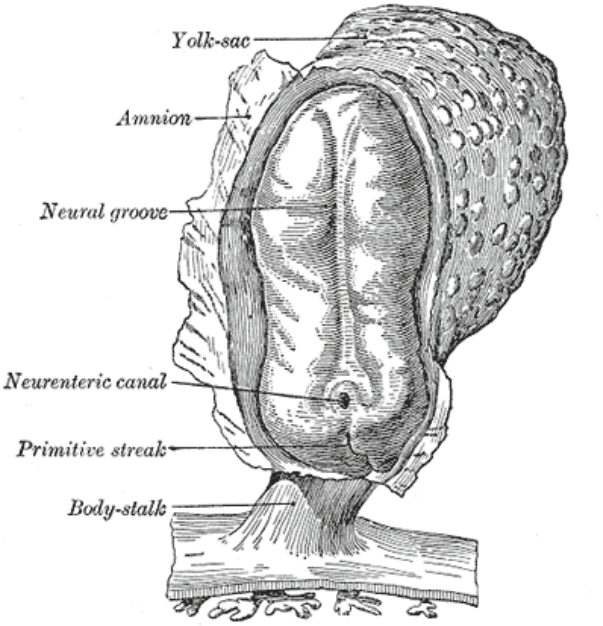


Figure 4: Human embryo, length 2 mm. Dorsal view, with the amnion laid open. X 30.

The notochord grows from an invagination growth near the body stalk. The impansion pit of the notochord or head point of notochord is a null point, it hardly grows. Elongation comes from the rolling over at the posterior end (rump end). The growth of the notochord is like a "cue" with more people adding to the end at concert (Freeman, 2011).

This earlier embryology sets up the discussion for the arising and growing heart in the third week of development.

Embryology of the Heart

"When you develop a heart you come into center. Before you are out there."

Dr. Jaap van der Waal

Historically, the heart was described as a pump by Dr. William Harvey in his seminal work in the field of cardiology in 1628 (Cowan, 2016, p. 7). Dr. Cowan states that Dr. Harvey's work dealt "a deathblow to the theory of vitalism" (Cowan, 2017 p. 7). The big shift happening as a result of the recent works of Blechschmidt, Freeman and Waal is changing the paradigm of the role of the heart in our physiology. Freeman describes the heart as a reactive structure to flow, not a pump, due to the clockwise twist in growth of the heart (described below). It reverses the direction of the flow. Blechschmidt called the heart a momentum switch, more specifically "the heart as a commutator or switch that reverses the direction and momentum of the blood current between inflow and outflow" (Blechschmidt, 2004, p. 173). In the adult heart, demonstrated by John Sharkey on YouTube, you can see the de-spiraling of the heart growth (Ana Outsubo, 2020).

Dr. Brian Freeman a retired embryology professor from the University of New South Wales, who translated Dr. Blechschmidt's work, expresses that "flow proceeds the development of the contracting heart" (Freeman, 2011). Before we have a beating heart, the fluid dynamics form the right and left vessels (veins) within the meso between conceptus and amnion sac of the embryo. In other words, the "heart arises in the posterior wall of the body sac (intra-embryonic coelom) (Blechschmidt, 2004, p. 171)."

Dr. Freeman is wise to present an order of teaching that invites us to look at position, form, and structure. He believes that we misunderstand our gross anatomy when we do not understand position and form first. "To comprehend any structure first try to understand its position and development of position, then its form and the development of its form then the structure and the development of the structure. So often in teaching we start with structure and we have lost the whole (Freeman, 2011)."

The liver growth is metabolic support for the heart and the heart is metabolic support for the brain. There is a symbiotic nature in the growth of these three organs. "Metabolic movements occur in the heart from the anlage of the liver toward the brain (Blechschmidt, 2004, p. 171)." The transverse septum described below will become the diaphragm, which is between the growing heart and self-enlarging liver that becomes taut to form the central tendon of the diaphragm.

"The heart-fold is broad inferiorly where it lies transversely on the margin of the umbilicus, resting as it were upon this margin known as the transverse septum (Blechschmidt, 2004, p. 171)." On each side is the veins running through transverse septum drawn toward the brain, which is sucking fluid up. This emphasizes the importance of metabolic relationships in growth—the brain needing more nutrients for growth. The heart arises in the transverse ridge of the two flows of the veins, which ebb and flow of the tide with a preferred direction toward the brain. The flows start parallel, then horizontal and with the upward growth form an "X" pattern (Figure 5).

Then the intra-embryonic coelom appears and splits in a horseshoe space filled with fluid—not an empty sac (Figure 5). The two fluids become confluent and wash over the area where the heart will arise (e.g., chorionic fluid). We don't see a heart until the brain arches over in growth. This is positional growth. It appears that the heart is descending, apparently changing positions according to brain growth. The heart is more of a center, like a sea anemone staying still in a tide pool being washed by the sea water, as the brain growth arches over. Where the heart is, position-wise, does matter!

You may also see the heart as a hub of a wheel and the brain as the rim with growth arching over in conjunction with the hub. The aortic arch arteries create lines of tension like spokes of the wheel between the heart and the brain. The aortic arches are mechanically strong and create the strong connections between the heart and the brain. These lines of tension determine the arching movement because it is a strong pull within the aortic arches. Thus the brain has to arch. You can feel the brain arching in your own body in the flexion and extension of the cat/cow exercise or a simple yes/no movement of tucking the chin down and up with a slight bend through the thoracic vertebrae.

It is interesting to note that the first aortic arch arteries get hemmed in and corrode away (corrosion field), then a second, third and fourth are created. Eventually, the third and fourth remain to become our future aortic arteries. The term corrosion field is another biodynamic metabolic field and is expressed in "the growth of the two capillary-like aortae in the young embryo" as well as the growth of the ventral spinal arteries, kidney tubules and cloacal membrane (Blechschmidt, 2004, p. 73).

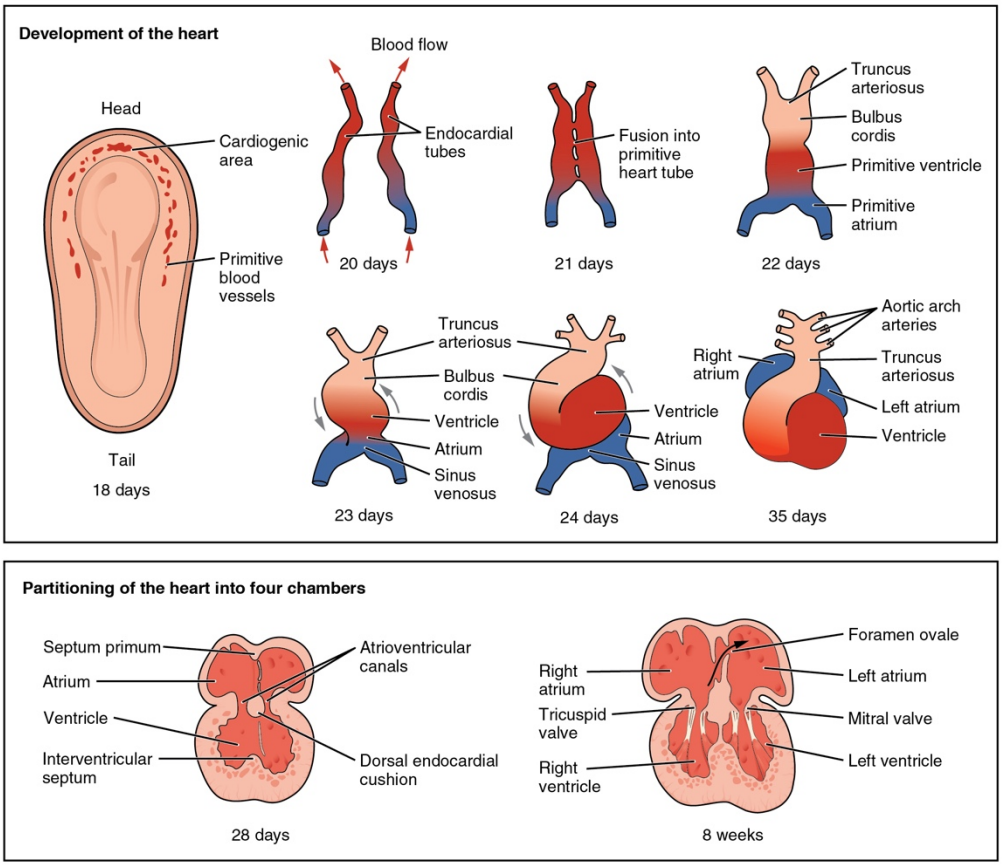


Figure 5: Horseshoe shape of vessels in primitive blood vessels and growth of the heart.

The forming of the "X" pattern is more accurately the two parallel tubes shown in Figure 5 and a fusion (corrosion field) of the two tubes in the middle which form the "X" shape. "When viewed from the outside, the fold-like anlage of the heart has the form of a short but wide "X." The two

lower limbs of the "X" are separated from each other by a wider distance than the upper limbs. The lower limbs represent the two inflow paths and the upper limbs, the two outflow paths. (Blechschmidt, 2004, p. 17, 172)."The middle of the "X" is the inlet and outlet of the fluid flow and begins to elongate in the 3rd week. At the beginning of the 4th week, we see the heart loop formed. It may help to imaging forming to long tubes with playdough. Then bringing them next to each other, parallel. Then attach them in the middle by smooshing the playdough together to mimic the corrosion field. Then you are set up to create your own heart loop.

I had watched many animated versions of the heart loop, which misled me in my understanding of the heart growth. They left me with the impression that it was a tube that then twisted where the caudal in one of the tubes became cranial. Dr. Freeman clears this up demonstrating how the caudal end of the tube stays anchored in the meso tissue at the umbilicus and transversus septum—it is not a free floating tube. The heart loop is demonstrated by Dr. Freeman with the use of his tie. Imagine a tie with the loop around your neck hanging straight down. Take the bottom of the tie up (cranial) with your left hand and secure it just above your diaphragm (this represent the caudal end of the heart that stays anchored). This will form a loop that falls forward above your left hand. The upper pieces of the tie around your neck represent the arteries that go up to the brain. With your right hand, turn the loop to your right side—clockwise 180 degrees. This is the motion of how the heart loop is formed and gives the appearance of the reversal of cranial and caudal but is a forming through the S shaped heart loop (Figure 5).

To understand how fluid moves through the vessels of the heart, remember that flow proceeds the development of the contracting heart. This flow is akin to a tidal ebb and flow, so there can be a back flow in the movement through the heart. The diastolic flow is first, followed by contraction (systolic).

One can mimic the flow of the heart by orienting one's right hand toward the body with the 4 fingers pointing toward your chest and the thumb toward the sky. The pulmonary flow is in the anterior portion of the hand and the aortic flow in the posterior. To mimic systolic rhythm, draw the hand away from the chest and rotate the hand to the left slightly, then flip the wrist to the left and bring it back towards the chest for diastolic rhythm (e.g., thumb is right inflow, pulmonary), 4 fingers, aortic, left inflow away, stop flip wrist over and thrust back. This movement of the flows is the "reverse switching of the blood current by heart" (Blechschmidt, 2004, p. 174).

I have focused on the flow development, position, and form of the heart as it arises in the embryo as a metabolic gesture. I am leaving structure to the textbooks. I am continually amazed at how dynamic and fluid the gesture of the heart arising from the fluid field is. The positional growth demonstrates how the heart arises in the ebb and flow of the fluids, the arching of the brain growth influences the heart in a tensional field and the heart remains in the center—a fulcrum.

In the following sections, I will offer diverse ways to explore and support coming into the experience and presence of the heart as a fulcrum in embodiment, heart field meditation and

palpation. Each of these offer an opportunity to support healing trauma or the term I prefer is "wounding" due to the over use of the word trauma currently in the field. Practicing the heart as a fulcrum within my own practice has improved my listening as a practitioner, increased the entrainment of practitioner to client hearts, and invited an overall sense of peace within the practice likened to a gentle calm within the tide. The practices that follow maybe modified or added too within your own artfulness as a practitioner.

Embodiment

How can a sea anemone know that it has a center? How do we know when we are centered? This type of knowing is not intellectual, it is embodied. As the French saying goes "Le coeur a ses raisons que la raison ne connaît point." The heart has its reason which the head-reason does not understand.

Take a moment to sit and breathe in through your nose, then invite the breath around your heart via the pericardium sac—the heart protector. Then breath out through your nose. Inhale and exhale for a few minutes. Scan your body—do you notice any change of sensation? Do you feel more present in your heart center? The first time with this exercise it is hard for you to settle into your body or to connect with center. I encourage you to practice and notice the subtle shifts in your interoception which is how you interpret internal signals from your body as a quality of sensation not emotions—hot, cold, hungry. The more we practice, the more we blossom into our centers.

I have experienced my heart letting me know that I am embodied fully within my being. My sternum feels lifted and curious of my surrounding, like it has eyes gazing around me and curious of the space I am standing in. "The heart is a here I am organ…what ends at end of third week—being dividable the embryo becomes individual (Waal, 2009)." This sense of becoming individual arising in me at the third week in utero in my heart center! This would have been the first time I experienced this sense of knowing in this lifetime.

A movement practice for treating the heart as a fulcrum may be lying on your back in a bent knee position. Place your hands on your heart. Then slowly rotate your legs to the right and left in a range of motion that feels good for you. The levering of the legs and the stillness of the fulcrum hold on your heart will invite a recentering in the heart center.

Within the same timeframe of embryological growth, the future umbilicus shifts caudally, attached to the pelvis, then to the navel center. This is a shift in orientation to the chorion (our future placenta) and the relationship to "mother" via the uterus. Prior in the nesting/nidation phase, we meet our mother via our back body. Our mother literally has our backs. Then, in the shift of the umbilicus attachment, we stand up to our mother for the first time with a growth gesture of "here I am." The placenta is part of us, a way of connection to the outer world via the umbilicus. One may explore this connection through seated meditation and using one's imagination to feel the umbilicus coming from the navel center and imagine the connection to

another person or object, which brings the object into a placenta relationship, or inviting in other as us—I am you and you are me relationship.

Heart Field

Another exploration is seeing the heart as a field of electromagnetic energy coming from our center and emanating outwards around us. “The heart's energy is said to reach about three feet outside of the physical body and can be detected in another person sitting nearby via an electrocardiogram (ECG) (Morales, 2020, p.1)”. On a side note, horses have a range five times larger than a human and a group has documented bidirectional healing between humans and horses (Mistral, 2014). This makes me curious about my cat’s heart field.

This speaks to the resonance we cocreate with our clients as practitioners. As a practitioner, if I am in my heart center, I may support the field and entrainment of my client’s heart with mine. Shea describes this as a compassion reflex. “The heart is ignited by the union of Dynamic Stillness and the spark of the Breath of Life as a compassion reflex. The compassion reflex, as I like to call it, occurs in the heart when the embryonic heart seeks accurate reflection with the mother’s heart. This is a relational compassion in the sense that our deepest instinct and embryonic imprinting is to be in relationship with another person and to be held and met equally by that person with loving kindness (Shea, 2007, p. 164).”

As a practitioner, I feel that I have a responsibility to attend to my own heart centering and to hold a field of neutrality with a sense of Ma—“Ma; the empty space, the in between, the silence, the pause, the emptiness, the interval, the distance, the timing etc.” (Sverdrup, 2006, p.1). Through embodiment and practice, this becomes an intuitive artform in our practice.

In Practice

Incorporating direct treatment in a practice may look like treating the sternum. Ask consent to touch the sternum of your client. With the client supine, stand or sit at the head of the table and place your dominant hand on the sternum (fingers pointing caudal), which will be the listening hand, with a soft touch. Then place your nondominant hand on top of your other hand, which will be the more active hand, gently sinking the hand with a sense of weight that allows you to listen to the sternum and then the deeper layers—pericardial ligaments, pericardium, and heart organ. Stay here for a few minutes listening and witnessing the unwinding of the tissues and fluid. Hold space for the compassion reflex, grounded in your own system while listening and witnessing the embryonic heart story of your client. It is truly an honor to offer embryonic listening and witnessing of the growth gestures.

Conclusion

The heart as a fulcrum offers an evolving story of the embryonic nature of living from our hearts-the heart as an “I am” organ within. We arise along with the growth gesture of the heart. Dr. Waal says the essence of being “with the heart is brought towards it’s center” (Waal, 2009).” In other

words, as we come into our own center, hearts, we find ourselves experiencing a sense of home. This sense of coming home can heal the early birth and childhood trauma through bringing us into the present experience—embodiment, heart field and palpation. The more we experience this, the more we heal the historic wounding, trauma, in the soma.

Our heart offers us an opportunity to center from moment to moment. It is where we find ourselves in connection with our soul. As Rudolph Steiner said, “the soul incarnates into the body in the third week in utero, the same time the heart arises in embryonic growth.”

As living systems, structurally determined systems, we orient and adapt to our environment from a heart center and our overall structure. I believe we have an inherent wisdom within our soma and can change our adaptation through or orientation and support with the heart as a center to guide us.

Within the centering of our own hearts, we may find ourselves participating in the healing of human and global consciousness. The Heartmath Institute is researching these impacts. One of their hypotheses is that “collective human consciousness affects the global information field. Therefore, large numbers of people creating heart-centered states of care, love and compassion will generate a more coherent field environment that can benefit others and help offset the current planetary discord and incoherence (Heartmath, 2021).” What a beautiful opportunity for us all. Indeed, the heart is a fulcrum.

Application of Craniosacral Sequence as Art of Listening

"Life expresses itself as motion. There is a clear relationship between motion and health."

Michael Kern, DO

"All life is manifested in energy or motion. Without motion, in some degree there can only be death…"

Harold Magoun, DO

As a craniosacral practitioner, I have employed thought processes previously discussed. In addition to that, I am a strong advocate for "digging on" and studying anatomy and physiology to deepen one's listening as an osteopath. I have taught several human cadaver labs at the Institute for Human Anatomy in Colorado Springs as well as taught anatomy for bodyworkers for 16 years at the University of New Mexico-Taos. Unfortunately, I have run into many practitioners who have taken one weekend workshop in craniosacral or have developed strong biases toward exceptionally light touch in the craniosacral field and are not able to deal with an anatomical shear and/or somatic dysfunction (lesion) that is needed for a biomechanical correction. This brings me to define these terms and explore them further.

The definition of shear and somatic dysfunction are the following:

"Shear: An action or force causing or tending to cause two contiguous parts of an articulation to slide relative to each other in a direction parallel to their plane of contact. ((AACOM)., 2006)."

"Somatic Dysfunction: Impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial, and myofascial structures, and their related vascular, lymphatic, and neural elements. Somatic dysfunction is treatable using osteopathic manipulative treatment. The positional and motion aspects of somatic dysfunction are best described using at least one of three parameters:

1. The position of a body part as determined by palpation and referenced to its adjacent defined structure,
2. The directions in which motion is freer, and
3. The directions in which motion is restricted ((AACOM)., 2006)."

Dr. Still would say "find it, fix it, and leave it alone." The find it part is identifying a somatic dysfunction. Somatic dysfunction is an expression of health. It is the body's way of organizing within the field of health. As an osteopath we are looking for the health in the system not the disease process that is familiar to many with the allopathic medical field.

This bias for light touch has led to undo suffering of clients who need access to well-trained “10 fingered osteopaths”. I do believe there is a place for the lighter touch in the field and feel that discernment and greater in-depth study and practice is necessary to support patients.

Furthermore, humans are more resilient than many give us credit for. To be alive is to be resilient. It is within this resiliency and treatment of health in the patient I hope we can improve the human condition and suffering that occurs in our living world. My dearest intent is to support peace and freedom in our biological systems.

This brings me to share some of my favorite craniosacral holds and how they may be used in treatment. Also, the conditions in which one may apply these.

Neutral

There are two types of neutral—neutral for the practitioner and neutral for the patient. Before beginning a craniosacral treatment, an osteopath should find neutral within themselves. One may use the centering techniques described previously to come into one’s ground and center. I am always curious as to what “neutral” may be for each practitioner. For myself, it moves beyond what is called “the line” in Structural Integration. It is an ability to dance within a centered state of being, then move to somatically feel what the client is feeling, then shift to what is happening in the field (a.k.a. matrix) and back to my center. This may be what Dr. Barral calls dialoguing with the tissues and what other osteopaths call the Leminscate or Figure 8. There is a language that attempts to describe a creative process of listening that invites balance, neutrality, and health in the system. Within the listening one may feel a pull to many separate places in the client’s system. A trick is to not let the somatic dialogue of the tissues of the client pull you away from the primary fulcrum—if you will, be willing to wait for the primary fulcrum to arise. The primary fulcrum should lead to neutral.

Dr. James Jealous, DO describes neutral in a patient as the following:

“Neutral is the moment when the whole of the patient starts to feel fluid; there are no reference points anymore, where a treatment according to Sutherland could start. In Sutherland’s model the reference points are local neutral points with the aid of which somatic dysfunctions can be treated. In the biodynamic approach according to Jealous the biodynamic treatment can only start if the patient has reached a systemic neutral on the basis of these local neutral points. In Jealous’ opinion the biodynamic treatment starts where the treatment according to Sutherland’s model ends (Nyul, 2009).” Whereas neutral is the following:

1. “A point of balance unique to the moment and the individual through which the Tidal forces can act to regenerate function. This point is collective; a function of the Whole, an integrated tone of body, soul, and spirit. Through this “neutral” the priority and intention of the Breath of Life is able to permeate and “work” with as little unresolved tension (in the patient) as possible. (Jealous J. S., 2000).”

2. “The Neutral is the state where the patient is free to be shifted by both the thoracic and the Primary Respiration (Jealous, 2000).”

3. “Neutral – the point at which a direct response to the Tidal forces is possible; a point of balance in the reciprocal tensions that is free to shift with Primary Respiration (Jealous J. , 2003).”

To elucidate on the ideas of neutral, is that the still-point Dr. Sutherland was speaking about is also “health” and “neutral.” I disagree with the previous author that there is a difference between Dr. Sutherland’s work and Dr. Jealous’s work as a craniosacral-osteopaths. Indeed, many of us are treated in a similar understanding but get lost in the semantics of how to describe what it is we are doing after all, and they are describing various stages in treatment that are contextually influenced. It is normal for a skilled and mature osteopathy to develop a lighter touch through one’s experience of manual osteopathy and many have written about this newfound quality of touch. Additionally, we are talking about two stages in treatment, whereas Dr. Sutherland is dealing with the somatic dysfunction and Dr. Jealous is treating more the fluid field.

Dr. Rollin Becker called health a living principle and a living body ((Becker, 2000). It is more than a principle it is a field that makes things happen. To paraphrase Dr. Gintis in her podcast, “our perception as creating a field. A perceptual field of health. Health can be sensed, it is not necessarily palpated, health is invisible, it is not a movement pattern nor reciprocal tension. The unfolding effects of health where movement is foundation. If our perception creates field our therapeutic process influences. What we perceive influences our therapeutic process (Gintis B. D., 2023).” It is interesting that the listening I am referring to has underpinnings in honoring how life arises—or what it means to be living in health.

Within the semantics in the craniosacral field, I have found that the Biodynamic model of craniosacral uses slightly different language than the traditional craniosacral-osteopaths. This may lead to confusion for some students of craniosacral therapy. Fundamentally, Primary Respiratory Mechanism (PRM) has several features mapped out by Dr. Sutherland and the first is “fluctuation of the cerebrospinal fluid—the potency of the Tide (Sutherland, 1990).” The second principle “is the function of the reciprocal tension membrane (Sutherland, 1990).” Whereas the third principle, “is the motility of the neural tube…brain and spinal cord (Sutherland, 1990).” The fourth principle being the “articular mobility of the cranial bones and involuntary mobility of the sacrum between the ilia (Sutherland, 1990).” These four features are a deep part of the listening an osteopath brings in how they notice, observe and respect what is happening in the dynamic body of the patient.

The PRM is supported by the Breath of Life, which is an unknown ordering principle. I say unknown because we inherently do not know how life arises—we have many explanations to how life arises in science and philosophy, however, it is an experience that is lived.

Dr. Sutherland describes the “Breath of Life” as “an invisible element” with the cerebral spinal fluid. “I want you to visualize this Breath of Life as a fluid within this fluid, something that does

not mix, something that has potency as the thing that make it move (Sutherland, 1990)."

Furthermore, Dr. James Jealous describes "The Breath of Life comes into the body. We can sense various rhythms that are created from it, and we can perceive that process taking place…We can actually perceive the Breath of Life come into the body, come into midline, and from the midline, generate different forms of rhythms in the bioelectrical field, fluids, and tissue. Essentially, we are building new form and function (Jealous J. D., 1997)."

Within the wisdom of Dr. Sutherland, "In other words, don't try to drive the mechanism through any external force. Rely upon the Tide (Sutherland, 1990)." Dr. Sutherland is speaking at the invitation not to force change in the patient's system, rather inviting an allowing of the system to find health. It seems there exists a polarity within the field of craniosacral therapy between applying force to light touch. What I have learned from my experience in practice is that within treatment the path of least resistance in the patient arises naturally without needing to use high levels of force—there is a time and place for application of all mechanisms and each practitioner should stay in their scope of practice.

Diagnostic Osteopathic Touch

It stands with reason to know the principles of osteopathy in order to facilitate a listening touch. In addition to the structure and function principle, there is the assessment of Position, Mobility and Vitality (PMV) important diagnostic principles in the osteopathic treatment approach. To assess PMV one needs to have a palpatory sense of what is "normal."

Dr. Still wrote about bringing the structure back to normal. To quote, "To cure disease the abnormal parts must be adjusted to the normal (Gintis B. D., 2023)." How does one know what "normal" is in practice? This comes with study of anatomy and physiology and palpatory skills including listening touch.

Structure and function are a lemniscate of each other and are deeply related to the embryological growth patterns touched upon previously. I have learned in my own embryological story that my own growth gestures in relationship to the environment I grew up in had a profound effect on my functional patterns that led to my growth. For example, a wrapping of the umbilical cord around my left ankle *in utero* leading to a subtalar coalition. From an embryological point of view, function informs structure. An informed osteopath can listen to the growth gestures inherent in the growth of the patient to assess "normal." In other words, by studying embryology we improve our osteopathic listening skills.

Reflex Arcs and Assessment

Dr. Louis Burns researched animals to study the viscerosensory impulses entering the spinal cord via the posterior root. She wrote that the "somato-visceral reflexes are less circumscribed and less direct than are viscerosomatic reflexes" and clarified that "normal visceral activity depends in part upon the stimulation derived from the somatosensory nerves…the possibility of recognition of abnormal viscerosomatic reflexes as an aid in diagnosis is inferred (Burns, 2000 Apr)."

The results of Dr. Burns' work would lead to the term “somatic dysfunction” in current osteopathy and classical osteopathy known as a “lesion.” To add to the previous definition, somatic dysfunction is defined as "impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial, and myofascial structures, and related vascular, lymphatic, and neural elements (Brindise JP, 2014 Jul)."

“The acronym T-A-R-T may help clinicians remember the criteria for the diagnosis of somatic dysfunction: Tissue texture changes; Asymmetry; Restriction of motion; Tenderness (primarily used for specific osteopathic manipulative techniques, namely counterstrain). These criteria are commonly referred to as "TART changes" (Bath, 2023). “

There are different reflex arcs that may be used in assessment as well to understand how to determine a fulcrum of treatment—viscerosomatic, somatovisceral, viscerovisceral and somatosomatic to name a few.

- Viscerosomatic- Localized visceral stimuli producing patterns of reflex response in segmentally related somatic structures.
- Somatovisceral: Localized somatic stimulation producing patterns of reflex in segmentally related visceral structures.
- Viscerovisceral: Localized visceral stimuli producing patterns of reflex in segmentally related visceral structures.
- Somatosomatic: Localized somatic stimuli producing patterns of reflex response in segmentally related somatic structures.

Another viewpoint is including psychosomatic and psycho-visceral as a reflex pattern. With the continued work in chronic pain science, the “pain is in the brain” model is valid. With person centered treatment versus diagnosis-based treatment one may validate the individual and their personal story. It is incredibly important for practitioners to pause and listen, be careful with the words they choose in how they mirror their patients.

Listening Touch

Observe your patient and notice your client in gravity while standing how they are standing and any restrictions in breath throughout the thorax, restrictions in breath in the clavicle, Ribs 1-12 from anterior, lateral, and posterior.

Then notice how the patient stands from an anterior to posterior view, lateral and how the kyphotic and lordotic curvatures relate from cephalad to caudal. With these two forms of seeing the patient’s body place one hand on top of the patient’s head to listen with a felt sense, while standing behind the client—always ask permission to touch first, informed consent. Check in with your felt sense of what you notice.

Figure 14: Image of Dr. Jean-Pierre Barral demonstrating General Listening

Then have the patient lay supine on your table and notice their breath throughout the diaphragms. Are there any noticeable differences out of gravity? Take note of them. Then hold the patient's head with a general cervical hold listening and checking if there is one condyle that is more caudal. Then do a gentle leg raise assessment and hip joint ROM—the leg raise is the first soft barrier, specifically listening for restrictions in the dura and spinal cord. Then check the ROM of both sacral iliac joints. Note restrictions and come back to this assessment to recheck the diaphragm balancing.

Balancing the Diaphragms

"The work of the osteopath is to adjust the body from the abnormal to the normal. Then the abnormal condition gives place to the normal and health is the result of the normal condition."
A.T. Still

With the skills in your scope of practice, balance the essential diaphragms of the body from base of the foot diaphragm, pelvic diaphragm, respiratory diaphragm, thoracic inlet, styloid/hyoid diaphragm, and tentorium after balancing the atlas axis base. Then the patient has the mechanism to receive the craniosacral osteopathy that follows. As a side note, as a practitioner is more advanced, one can determine if one may start directly on the cranium and work from cephalad to caudal.

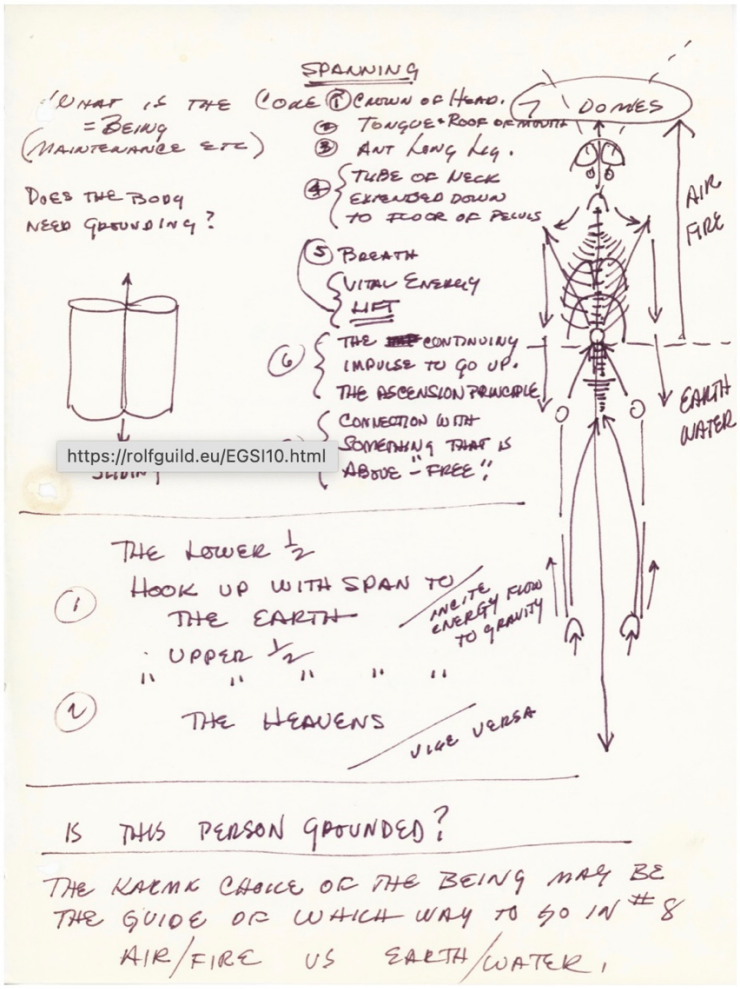


Figure 15: Image of John Lodge Notes of Domes of Lift in Structural Integration.

I have chosen four primary craniosacral holds as a basic sequence for treatment. These holds offer a deep listening and integrative approach to craniosacral osteopathy. The four holds are EV4, CV4, Vault and Temporal Balance. More details of each of the holds are offered below. My reasoning is from my experience starting training in craniosacral in 2007 and what I have learned over the years of study and as an apprentice/student of many different osteopathic teachers. These 4 holds have a lot of "bang for the buck" so to speak. To paraphrase Dr. Still "find it, fix it and leave it alone."

EV4 Expansion of the 4th Ventricle

In Dr. James Jealous lectures available on audio, he spends quite a bit of time lecturing on the subtly of the work and inviting the practitioner to not just jump on a person cranium and do a compression of the fourth ventricle (CV4) technique. His invitation is to allow for expression of the fluid in expansion of and space of the 4th ventricle by listening with an external expansion phase of the fourth ventricle (EV4)—not compressing toward the midline. This helps the nervous system self-regulate and gives space for the nuclei of the vagus nerve that arises from the 4th ventricle. It may be helpful to keep in mind our natural breath cycles of inhale and exhale. With

sympathetic nervous system in a heightened state, patients are frequently locked in an inhalation phase, which brings the occiput posterior and pulls cephalad on the spinal cord. However, patients with trauma often have a spinal cord that is pulled caudal due to trauma. This counteraction between occiput and spinal cord creates tensional forces that should be treated as previously stated with somatic dysfunction. It is important to be with listening skills and to be present with what is happening in the patient's system.

In practicing EV4 over the years I think of it as an expansion invitation into the field and space that creates a keen sense of safety for the patient's nervous system. It helps establish a baseline for the patient to return to without forcing a change. In practice, my EV4 hand position is the same as CV4. It is where my attention goes to those changes. When you hold a newborn, they are 90 percent or more fluid, there is no need to be forceful. I use a similar gentle touch with an adult body, inviting the fluid body to emerge. Within the practice there is a lemniscate relation that arises between operator and patient. It is this third relation where the work arises—the space in-between.

An EV4 is great preparation and listening. One example of hand placement is the following:

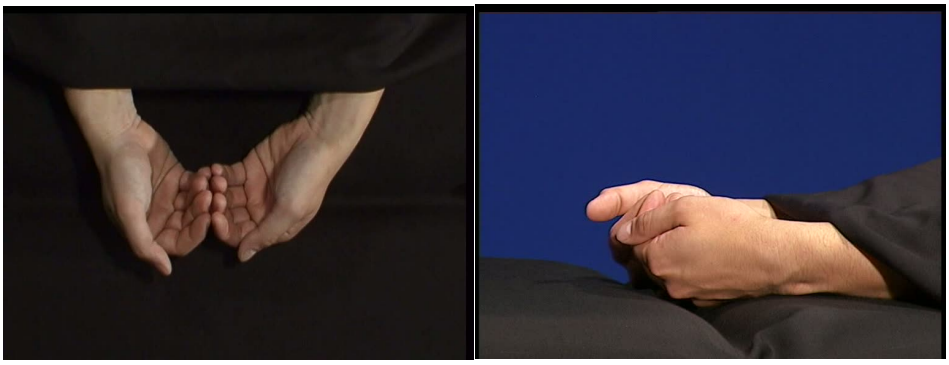


Figure 16: EV4

"The occipital bone is in the palms of the hands. The fingertips meet in the middle and point anterior. During the inspiration phase the therapist follows the occipital squama into external rotation. In the expiration phase he prevents the extension and internal rotation of the occipital squama by giving a gentle anterior pressure with his fingertips in the midline of the occiput. In the next inspiration phase the hands follow the occipital squama further into external rotation (Unknown, Load Medical, 2023)."

Do not be surprised that you may be holding an EV4 for up to 20-30 minutes in some dysregulated systems. It takes time for some bodies to settle and feel safe. We must let go of our agenda as the operator to let health express itself. In some cases, I may start with EV4 then balance the diaphragms then add the following holds.

CV4 Compression of the 4th Ventricle

"The CV4 technique is, quite simply, an excellent "shotgun" technique for a multitude of problems as it enhances tissue and fluid movement and restores flexibility of the autonomic response (Kaminsky, 2023)."

CV4 means compression of the fourth ventricle, located dorsal to the pons and medulla (of the brainstem) and ventral to the cerebellum, in the head vis-à-vis the occipital bone which can be done with a similar hold to EV4. CV4 was originated by Dr. Sutherland and the goal is to achieve a still point. Dr. Sutherland believed in compressing the 4th ventricle of the brain and thus affecting all the vital nerve centers located in and about the walls of this ventricle.

Dr. Sutherland writes "compression of the fourth ventricle is directing the Tide, is it not? Bring the fluctuation down to the short rhythmic period is the point (Sutherland, 1990)." In the treatment of the patient with CV4 there is a change "in the poison in the lymph nodes before the lymph is dumped back into the blood vascular system, into the subclavian vein (Sutherland, 1990)." Dr. Sutherland states this is the effect of CV4. Dr. Jealous speaks of CV4 as bringing a patient back to midline. This is an important distinction for me as an operator between EV4 and CV4. With EV4 I am inviting an expansion into the soma to the skin and container of the patient and even beyond skin whereas with CV4 I am inviting a central fulcrum in the cranial sacral fluid in the spinal cord and a sense of centering in one's system.

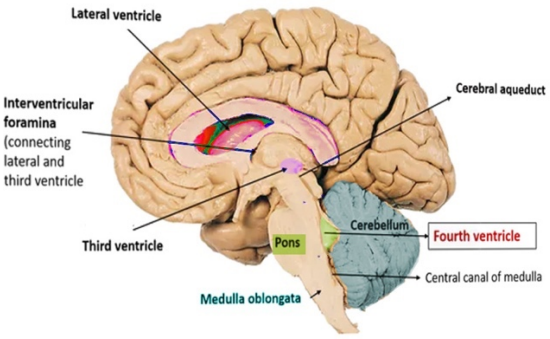


Figure 17: Fourth Ventricle

"The occipital squama provides an accommodation to changing intracranial fluid pressures. The CV4 technique significantly reduces the ability of these squama to accommodate. The intracranial hydraulic fluid pressure is therefore increased and redirected along all other available pathways when the motion of occipital squama is extrinsically restricted. Thus, the CV4 technique promotes fluid movement and hence, activation of dormant fluid pathways leading into the body. The enhancement of fluid movement is always beneficial except in cases of abnormal intracranial pressure, aneurysm, or hemorrhage.

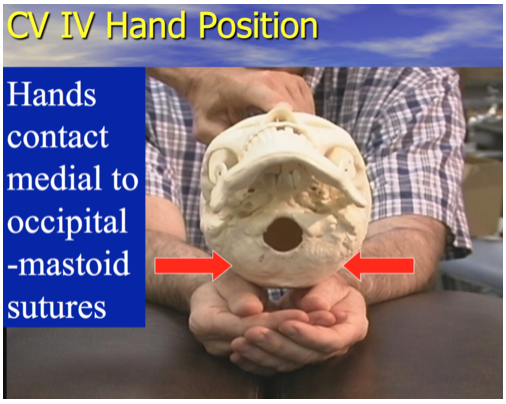
The CV4 technique positively affects diaphragm activity and autonomic control of respiration and seems to relax the sympathetic nervous system tone to a significant degree. Autonomic functional improvement is *always expected* "because of still point induction (Kaminsky, 2023).

Hand Positions CV4

Noted in the review of the literature available that slight variations of hand positions presented for CV4. It is important for the operator to be comfortable and not carry strain in their hands

depending on the position they choose to use. Additionally, one does not want to compress the mastoid process and inhibit the tentorium. Note that this applies to EV4 as well.

Examples of hands positions:



(a)

(b)

(c)

Figure 18 a, b, c: CV4 Hand Hold Variations.

Vault Hold

Dr. Sills invites the use of two classic vault holds—Dr. Becker's and Dr. Sutherland's. The vault hold may be used to listen to the physiological and non-physiologic patterns around the Sphenobasilar Junction (SBJ). "Physiological patterns are those that are naturally allowable in the joint dynamics of the SBJ and include flexion-extension, side-bending, and torsion. Non-

physiological patterns are those that are not normally allowable in SBJ dynamics (Sills, 1947).” Non-physiological patterns include lateral shear, vertical shear, and compression.

Dr. Sills equates the opening of the flower petals as the movement in the SBJ on inhalation. In inhalation, the flower petals “open and widen in a symmetrical, fluid and organic manner and, in exhalation, as the SBJ settles, the flower petals likewise close and narrow in symmetry (Sills, 1947).”

I have found that vault hold is a lovely way to assess the patterns present within the cranium, especially at the SBJ. While listening with a vault hold one may notice a shear pattern. For example, a right lateral shear, which may be associated with dyslexia in birth trauma.

“Lateral shear patterns are commonly fed into the system in birth Stages One or Two. The infant experiences compressive forces on the birth lie side conjunct with the maternal sacrum. The forces introduced either by dragging forces or prolonged pressure, shift the sphenoid to the opposite side, generating a lateral shearing in the SBJ. Thus, if the baby is a left lie, the left side of its head will be in conjunct with the maternal sacrum and the sphenoid bone may be forced in the opposite direction, yielding a right lateral shear pattern (Sills, 1947).”

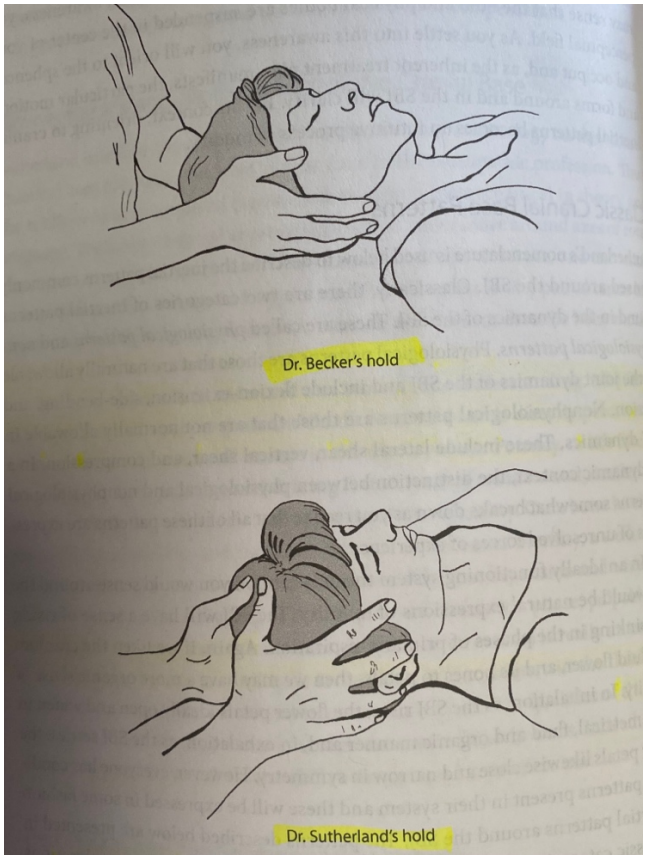


Figure 19: Vault Holds

Furthermore, vault hold allows for a felt sense of the sutures and the relations between the cranial bones in how the finger joints lay across them. See Figure 18 for the sutures the fingers lay across. Thumbs are on parietal suture, index finger on sphenoparietal suture, middle

finger on sphenosquamous suture, ring finger on petrous of temporal bone and pinky finger on occipital mastoid suture. As the operator learns to listen with the vault hold, an inherent change in tidal rhythms occurs vis-à-vis the listening.

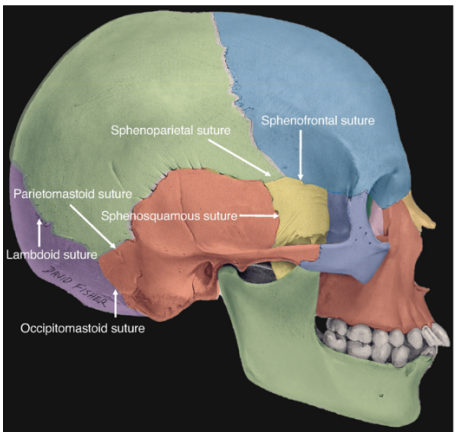


Figure 20: Cranial Sutures

Temporal Balance

The temporal bones are known as troublemakers or mischief makers due to their influence on surrounding structures.

The two temporal bones are reflections of the two innominate bones. The temporal bones have two axes—one axis is perpendicular to the auditory canal and is rotation (Figure 19). The second axis is along the petrous apex from an anterior to posterior direction (Figure 20). When placing the hands on the sides of the cranium the middle finger should line up with the petrous apex. This allows for listening to the movement of both axes. With the rotational axis it feels like a fulcrum of a wheel rotating forward and back. With the petrous apex as the fulcrum the squamous portion of the temporal bone externally and internally rotates whereas the inferior portion of the temporal bone does the opposite.

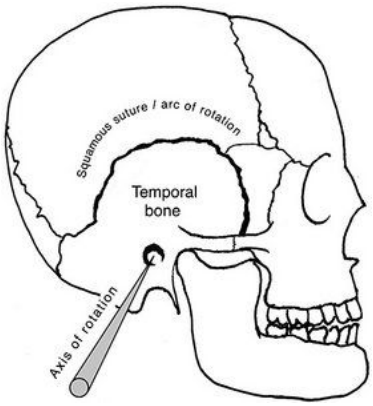


Figure 21: Temporal Bone Rotational Axis

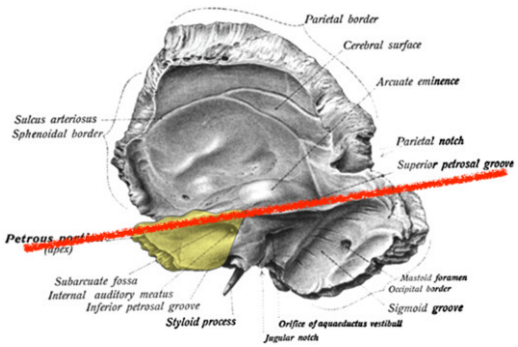


Figure 22: Petrous Apex Axis

The temporal bones are key bones for balancing the cranium due to the inherent structures and relationships of the sutures, connections to tentorium, and venous drainage from the cranium through the shared foramina. I would like to credit one of my osteopathic teachers, Ron Murray, DO for teaching me the importance of the temporal bone and its relationship to inviting balance throughout the patient's systems. Thus, ending a session in temporal balance invites integration for the patient.

Conclusion

"The same forces of healing that fix a broken bone mend a broken heart."

Steve Paulus, DO, Osteopathy Unplugged Episode #7

"Embryology is not just something that happened at the start of our lives; it continues throughout our lifespan. We are constantly being created. This is how a great source of health and healing can be found, as the body is in a constant state of creation, maintenance, and repair. The highly organized forces that created us during our embryological development continue to maintain and heal us through our lives. Consequently, even so-called "incurable" diseases can sometimes be healed if the right conditions can be established." Michael Kern, DO

In conclusion, trauma informed osteopathic as an art of listening is an expression of how an osteopath may practice from an inclusive, informed and wholistic perspective. Trauma informed inherently means that as an osteopath, one has and continues to do one's own work to find health. It takes a unique person to walk the life of an osteopath. Our western culture offers many distractions that invite disintegration as opposed to integration of oneself. To be embodied, whole and present in health takes the support of a lifestyle, community, and dedication that 21st culture does not support. Distractions come in the forms of technology, noise, and wave signal pollution, fast paced nonorganic ways of movement such as cars and sitting, demands of employment to produce at increasing and unrealistic levels, social isolation and more. An osteopath lives a life that sets an example of how to be resilient, inclusive, compassionate empathetic and reflective of wholism and health in living systems.

In this thesis, I looked at embodiment as indigenous way of knowing, broadening the understanding of the vagus nerve, fluid movement and embryological field relations—the heart as a fulcrum. I looked at how implicit bias may affect listening for even a skilled practitioner and some somatic exercises to learn how to "pause" and invite a change in one's implicit reactions.

Furthermore, we looked at a short treatment protocol to treat the diaphragms and four craniosacral holds to use and deepen the listening. For myself, there is no difference between osteopathy and craniosacral therapy. I bring this up as in manual therapy, craniosacral therapy has been separated into separate trainings and certification processes. Historically, this has been helpful in unveiling the approach to craniosacral therapy to a broad spectrum of manual practitioners. However, in doing so the inherent wisdom of listening that osteopathy nurtures were lost as well as the skills of the practitioners to treat somatic dysfunction and shear. Osteopathy is the founder, creator and most skilled in craniosacral therapy.

As Dr. Paulus says, "The same forces of healing that fix a broken bone mend a broken heart." This is the beauty of working in the field of osteopathy. I feel blessed and grateful to be living and working in the field of osteopathy.

A student once asked anthropologist Margaret Mead, "What is the earliest sign of civilization?" The student expected her to say a clay pot, a grinding stone, or maybe a weapon.
Margaret Mead thought for a moment, then she said, "A healed femur." A femur is the longest bone in the body, linking hip to knee. In societies without the benefits of modern medicine, it takes about six weeks of rest for a fractured femur to heal. A healed femur shows that someone cared for the injured person, did their hunting and gathering, stayed with them, and offered physical protection and human companionship until the injury could mend. Mead explained that where the law of the jungle—the survival of the fittest—rules, no healed femurs are found. The first sign of civilization is compassion, seen in a healed femur (Byock, 2013)."

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