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# Breathing Life into Life: A Literature Review Supporting Body-Based Interventions in the Treatment of Trauma

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Breathing Life into Life:  
A Literature Review Supporting Body-Based Interventions in the Treatment of Trauma  
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### Abstract

In the recent turn toward a more trauma-informed practice of mental health counseling, a glaring gap remains between the research validating that trauma is a somatic experience and the continued privileging of cognitive and behaviorist interventions commonly used to treat trauma. In an effort to explore this gap, this paper presents a literature review inquiry into the neurophysiological and overall life effects trauma can have on the people who experience it. The review further explores how Stephen Porges's Polyvagal Theory elucidates the benefits of using body-based therapeutic interventions in the treatment of trauma. The inquiry investigates the wide gap between the 25-plus years of research by leading trauma specialists such as Judith Herman, Peter Levine, Pat Ogden, Stephen Porges, Dan Siegel, and Bessel van der Kolk pointing to the somatic basis of trauma's effects and the current commonly used behaviorist and cognitive models of intervention, such as CBT and exposure therapy. The paper further delves into body-based treatments and body-oriented expressive arts therapy interventions that have long been used to treat trauma, in hopes that expressive arts therapists will take to the task of implementing them more commonly in order to further the field of mental health counseling. Specific body-oriented interventions covered include: clay field work, Somatic Experiencing, Developmental Transformations, bi-lateral sensorimotor art therapy, trauma-informed play therapy, and polyvagal-informed dance movement therapy.

*Keywords:* trauma, body-based interventions, expressive arts therapy, Polyvagal Theory

### Breathing Life into Life:

#### A Literature Review Supporting Body-Based Interventions in the Treatment of Trauma

*There is a vitality, a life force, an energy, a quickening that is translated through you into action, and because there is only one of you in all of time, this expression is unique. And if you block it, it will never exist through any other medium and it will be lost. The world will not have it. -Martha Graham*

*Below personality, emotion, and physiology, we are composed of approximately thirty trillion cells. - Rose Eveleth*

Dance movement therapist, Amber Gray (2017), specializing in treating torture survivors, believes passionately in “the human right to embody” and states that what drives her work with trauma is the belief that “all human beings have the right to inhabit their bodies in ways that they choose” (p. 44). Unfortunately, as leaders in trauma research and treatment such as Judith Herman (1992, 2015), Peter Levine (2008, 2010), Pat Ogden (2006, 2015), Stephen Porges (1994, 2009, 2018), Dan Siegel (2003, 2007), and Bessel van der Kolk (2014) have studied, on both levels of neurophysiology and overall life function, trauma greatly blocks a person’s capacity for full vitality, embodiment, presence, and connection. The hopeful news is that just as each human’s unique directive is to embody, express, and translate lifeforce through action, these researchers have also found that it is by mobilizing energy through the body that one reclaims life after trauma.

Stephen Porges’s (1994, 2009, 2018) Polyvagal Theory does much to explain why and how trauma affects both the neurophysiology and overall life function of a person who has experienced it. By studying the function and interconnections of the tenth cranial nerve, called the vagus nerve, Porges posits that there are three, not two branches of the autonomic nervous system. In addition to the commonly studied sympathetic system (fight or flight), the parasympathetic system (freeze or faint) is actually comprised of two subsystems, the dorsal

vagal system and the ventral vagal system. Porges (2018) found that the vagus nerve has a branching system that is bidirectional, creates a person's "social engagement system" (p. 54), and connects the brain stem not only to below-the-diaphragm organs but also to facial muscles, the inner ear, the larynx, the gut, the heart, and the lungs. These areas have long been known to be affected in the presence of imminent danger (e.g., a racing heart or shortened breath), but Porges's theory helps explain more intricately how these mechanisms operate and how they remain stuck in a person who has experienced danger as trauma. Thus, Porges's theory, as cited and clinically adapted by leading trauma specialists like Levine (2008, 2010), Ogden (2006, 2015), and van der Kolk (2014), supports with neurophysiological evidence why and how the effects of trauma can be treated most effectively through body-based interventions.

While research of the past 25-plus years strongly supports the use of body-based interventions in the treatment of trauma, most interventions currently used in broadly accessed institutions (such as schools and the Veterans Administration) favor behaviorist and cognitive-based therapies. These therapies, including CBT, talk therapy, and exposure therapy, may provide part of the solution for treating trauma but fall short in addressing the deeply rooted effects trauma has on a person's neurophysiology and overall quality of life. As Levine (2008, 2010); Ogden, Minton, & Pain (2006); Ogden & Fisher (2015); Rothschild (2017); and van der Kolk (2014) have long researched, trauma is in fact stored in the body. Despite this research, there still exists a wide gap in what is known and what is commonly implemented in the treatment of people who have experienced trauma. In an effort to more thoroughly explore this gap, this paper will be broken down into five sections:

- Overview of trauma: Defining trauma and trauma recovery
- Adverse life effects of trauma

- Polyvagal Theory and the neurophysiology of trauma
- How/why body-based interventions work
- Specific interventions explored in my research

Working at internships with traumatized populations over the past two years (last year in an elementary school and this year in transitional housing for homeless veterans) and having been an educator in various institutional systems from schools to prison for the past twenty years, I have found it disturbing to witness just how much the systems fall short in dealing with what is actually happening to people. I have seen people at all points of the lifespan continuum who have lost their spark from trauma. Having so often encountered this firsthand, I am deeply aware of and saddened by the truth about which Martha Graham cautions at the onset of this paper, that each personal expression of the lifeforce spark is unique, and that, if blocked, the world will not have it. I have often been forced to watch a child screaming and crying and thrashing or banging their head for 20 minutes or more, obviously stuck in a trauma pattern and unable to regulate their nervous system on their own, while staff merely stands by marking down the number of times they hit their head in order to report it for their IEP. I have listened to veterans speak about their childhood trauma, compounded by their military trauma, and then explain that they recently punched a professor they perceived as cornering them or avoided a job interview that felt viscerally terrifying, thus sabotaging their efforts to better their life. Clinicians and educators continue to tell people to simply think or behave differently while my experience has shown me how strongly trauma is held in people's bodies, how much a past traumatic event is involuntarily triggering their disproportionate responses to present situations and preventing them from moving forward.

These first-hand experiences motivated me to study what could create a change. Since the research I encountered strongly supports the use of body-oriented interventions, I chose to pursue an inquiry about exactly how trauma affects a person both neuro-physiologically and in their life overall, as well as to study literature about specific body-oriented interventions used in trauma treatment. My hope was to discover how specific interventions can help expressive arts therapists continue to innovate, expand, and move forward the mental health counseling field.

I believe that the role of the expressive arts therapist involves helping people reignite their lifeforce spark. I agree with Cathy Malchiodi (2002) when she states, “Transformation is a process that involves positive, long-term change, and practice is the seedbed where the miracle of transformation takes place” (p. 34). I hoped through this inquiry to learn which practices provide the most fertile ground for therapists to help cultivate the miracle of transformation.

### **Literature Review**

#### **Trauma: What is It?**

I want to clarify that I am not attempting to throw a blanket statement over trauma to imply that there is a one-sized-fits-all definition of trauma or its treatment. Trauma can occur from experiencing events and situations as varied as, but not limited to: sexual abuse, a war-torn environment, car accident, cataclysmic event, natural disaster, combat, loss of a loved one, abandonment, psychological abuse, rape, neglect, exposure to the harm of another, an unsafe home<sup>1</sup>, medical procedures, prolonged exposure to extreme temperatures (Herman, 1992; Levine, 2010; Mohr, 2014; Payne, Levine, & Crane-Godreau, 2015; van der Kolk, 2014). Heller (2018) makes even further distinctions between narcissistic abuse and sadistic abuse.

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<sup>1</sup> van der Kolk and his colleagues attempted to use their extensive research to get “Complex Trauma” (continued trauma experienced over time) and “Developmental Trauma” (trauma experienced as part of one’s growing up years) into the DSM5 to no avail (van der Kolk, Ford, & Spinazzola, 2019; van der Kolk, 2005).

Since trauma is varied and widely defined, for the purposes of this paper, I will use a combination of two definitions of trauma I believe most appropriate for this discussion. Johnson (2002) states, “trauma occurs when a person is confronted with a threat to the physical integrity of self or another, a threat that overwhelms coping resources and evokes subjective responses of intense terror, helplessness, and horror” (p. 14). I would add that it is not always a threat to one’s physical integrity, but quite often to the integrity of one’s mind, spirit, emotional well-being and, most importantly, to one’s nervous system. Levine (2008) writes:

People often ask me to define *trauma*. After thirty years, this is still a challenge. What I do know is that we become traumatized when our ability to respond to a *perceived* threat is in some way overwhelmed. This inability to respond can impact us in obvious ways, as well as ways that are subtle. (p. 8)

Levine further cautions that it is crucial to understand that “not all stressful events are traumatic” (p. 7), that what is traumatic for one person may not be for another, and that, especially for children, “a series of seemingly minor mishaps can have a damaging effect on a person” (p. 8).

Also important to note for further discussion, I am not hoping throughout this paper to explore therapeutic interventions with the treatment goal of making sense of traumatic memories. Rather I am inquiring into body-based interventions in what Rothschild (2017) calls “trauma recovery,” which “includes: understanding that a traumatic incident is over and in the past; freedom from or good-enough management of symptoms, including flashbacks and dissociation; and reestablishment or significant improvement of quality of life” (p. 11).

### **Adverse Life Effects of Trauma**

**Disconnection, avoidance, and isolation.** The effects of trauma on a person’s life are long-lasting and complex. Herman (1992) explains that trauma fundamentally disrupts trust and



shakes a person's belief that the world is a safe place, and, as Lopez-Zeron and Blow (2017) expound, this "disruption in interpersonal trust paired with the consequences of victimization, such as isolation and disconnection, can have a deep negative effect on the survivor's overall quality of life" (p. 584). Levine (2008) summarizes:

In short, trauma is about loss of connection – to ourselves, to our bodies, to our families, to others, and to the world around us. This loss of connection is often hard to recognize because it doesn't happen all at once. It can happen slowly, over time, and we adapt to these subtle changes sometimes without even noticing them. These are the hidden effects of trauma, the ones most of us keep to ourselves. (p. 8)

While the experience of a traumatic event or circumstance can itself be isolating, the longstanding effects of the experience continue to create isolation through a person's resultant maladaptive behaviors; emotional dysregulation; shame; and distrust and avoidance of people, places, situations, and their own feelings (Herman, 1992; Lopez-Zeron and Blow, 2017; Scoglio et al., 2018; van der Kolk, 2014). Silverstein, Lee, & Seligowski (2018) add that "functional impairment across [many] domains erodes critical social support systems . . . , creates fiscal hardship . . . , [and] exacerbates physical health difficulties" (p. 1).

Levine (2008) offers the broad perspective that long after surviving the traumatic event or circumstance itself, a person often experiences "feelings of extreme isolation – a sense of not feeling connected to one's environment, to the human race, and to one's self" (p. 73). The DSM-5 (APA, 2013), the first version of the manual to add an overarching category for "trauma and stress-related disorders," lists "persistent avoidance of stimuli associated with the traumatic event(s)" (p. 271) as one of the criteria for a post-traumatic stress disorder (PTSD) diagnosis. In my own clinical experience, I have witnessed how avoidance, and what van der Kolk (2003)

calls a profound sense of alienation and disconnection, play out in various ways in a person's life, often involving using substances to avoid feelings related to or resulting from the trauma. Levine (2008) points out that avoidance caused by past events has deeply detrimental results on both the present and the future of a person's life, "Our choices become limited as we avoid certain feelings, people, situations, and places. The result of this gradual constriction of freedom is the loss of vitality and potential for the fulfillment of our dreams" (p. 9).

**Disembodiment/ diminished capacity to be present.** Levine (2008) explains, "The body is the container of all of our sensation and feelings. It is also the boundary separating us from our environment and from others. This boundary gets ruptured in trauma so that we often feel raw and unprotected" (p. 39). As a result, van der Kolk (2014) states simply, "traumatized people chronically feel unsafe in their bodies: The past is alive in the form of gnawing interior discomfort" (p. 98).

This feeling of discomfort and disembodiment results in a diminished capacity to be present, often making people who have experienced trauma "unable to make real here-and-now contact no matter how hard they try" (Levine, 2010, p. 112). Whether hyper-vigilant and over-responsive to the slightest perceived provocation or dissociated, numb, and distanced, people who have experienced trauma are thereafter predominantly out of their bodies and therefore not able to fully physically, emotionally, and cognitively engage with their present reality (Lopez-Zeron & Blow, 2017; Ogden, Minton, & Pain, 2006; Rothschild, 2017; van der Kolk, 2014). The neurophysiological reasons for this phenomenon will be discussed in subsequent sections of this paper.

**Diminished sensation/awareness.** Levine (2010) cites Dr. Rajan Sankaran to define sensation:

Sensation is the connecting point between the mind and body, the point at which physical and mental phenomena are spoken in the same language, where the boundaries between these two realms disappear and one can actually perceive what is true for the whole being. (p. 281)

Levine and trauma specialists like van der Kolk (2014) and Ogden et al. (2006) agree that this connecting point is what is ruptured in trauma, thereafter creating a schism for the person between their physical, mental, and emotional realms, disrupting awareness of sensation and fragmenting wholeness of being. Van der Kolk (2014) cites brain imaging studies that show that many traumatized people lose the neural capacity for self-sensing altogether<sup>2</sup>. Traumatized people often report not only a diminishment of physical sensations or a stunted capacity to self-sense, but also a dulling of their five senses. This can result ultimately in an overall feeling of being greyed out and cut off from oneself, “dysphoria” (“a state of unease or generalized dissatisfaction with life”, “anhedonia” (“reduced ability to experience pleasure, or a diminished interest in engaging in pleasurable activities”) (APA, 2013, p. 265), diminished or distorted self-concept, constriction of vitality, and a decreased engagement in life (Levine, 2010; Gray, 2018).

Since awareness of moment-to-moment sensation is necessary for an organism to “self-regulate” (Levine, 2010, p. 288), lack of awareness of sensations takes away one’s ability to self-regulate. Without the capacity to effectively self-regulate, van der Kolk (2014) cautions, one must rely on “external regulation” (p. 99) – often from substances, reassurance from others, acting out in physical outbursts to seek attention (as with kids), and/or “compulsive compliance”

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<sup>2</sup> van der Kolk (2014) cites a study done by Ruth Lanius, in which brain scans were done while a group of untraumatized people and a group of people who had experienced extensive childhood abuse were each told to think about nothing. Van der Kolk notes that this idling in the “default state network” normally “activates the brain areas that work together to create your sense of ‘self’” (p. 92). The brain scans of the abused group idling showed almost “no activation of any of the self-sensing areas of the brain” (p. 93).

(p. 99). Frequently, people who have been traumatized not only lose awareness of their own physical sensations but also distrust what they do feel (Levine, 2008, 2010; Ogden & Fisher, 2015).

Referring to the work of Antonio Damasio, van der Kolk asserts, “One of the clearest lessons from contemporary neuroscience is that our sense of ourselves is anchored in a vital connection with our bodies” (p. 274). Van der Kolk writes about this somewhat poetically,

We do not truly know ourselves unless we can feel and interpret our physical sensations; we need to register and act on these sensations to navigate safely through life. While numbing or compensatory sensation seeking may make life tolerable, the price you pay is that you lose awareness of what is going on inside your body and, with that, the sense of being fully, sensually alive. (p. 274)

**Loss of vitality.** As van der Kolk (2014) articulates above, the net result of the adverse effects discussed in previous sections is the diminishment of a person’s overall vitality and capacity to engage with and inhabit their own life. Levine (2010) describes the phenomenon, writing, “The constriction of sensation obliterates shades and textures in our feelings. It is the unspoken hell of traumatization. In order to intimately relate to others and feel that we are vital, alive beings, these subtleties are essential” (p. 283).

In addition to a compromised self-concept, distorted perceptions of external reality after trauma further contribute to a person’s withdrawal from life. Amber Gray (2018) explains that after the imprint of trauma, “we appraise everything as dangerous or life-threatening when it is not . . . and then we react to it [as danger], so we’re not fully engaged with life” (Krug, 16:10). People can experience a host of emotional, psychological, and physical maladies after trauma<sup>3</sup>

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<sup>3</sup> For more extensive discussion of how adverse childhood experiences create physical disease, watch Dr. Nadine Burke’s Ted Talk about a study done by the Center for Disease Control and Kaiser Permanente.

(van der Kolk, 2014), including an overarching numbing; *alexithymia*, characterized by an inability to aptly identify and process emotions in oneself and others, restricted imagination, and/or restrictively concrete thinking (“alexithymia,” n.d.); and a generally diminished capacity for life-affirming emotions like joy, in extreme called *anhedonia* - all of which decrease a person’s vitality. Levine (2008) discusses the subtlety and complex interconnection of trauma’s effects, stating, “we may simply sense that we do not feel quite right, without ever becoming fully aware of what is taking place; that is the gradual undermining of our self-esteem, self-confidence, feelings of well-being, and connection to life” (p. 9).

**Distrust.** A fundamental underlying effect of trauma is distrust - of people, situations, feelings, and even one’s own instincts or bodily sensations (Gray, 2018; Mohr, 2014; van der Kolk, 2014;). The bitter irony of this is that it is actually social engagement and involvement with close relations that could foster post-traumatic growth on social, emotional, and physiological levels (Lopez-Zeron & Blow, 2017; Porges, 2018). Johnson (2002) explains,

Trauma intensifies the need for protective attachments and often, simultaneously, destroys the ability to trust that which is the basis of such attachments . . . [Thus] trauma survivors are more likely to experience distress in their close relationships and to have fewer resources to deal with this distress. (p. 10)

In addition to fear of intimacy or strained relationships, trauma-shattered trust may cause a deep distrust of oneself, a decreased capacity to play<sup>4</sup> or learn, or a feeling that one’s very soul has been compromised<sup>5</sup>. The Appendix contains a more comprehensive list of some of the known adverse effects trauma can have on a person and their life.

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<sup>4</sup> Sivi (2010) cites a study conducted by Panksepp (1998) in which rats at play ceased play when cat fur was introduced to their environment and did not resume play for over a week after the fur was removed.

<sup>5</sup> Linder (2015) used an arts-based research approach to explore six forms of “soul loss” (“soul wounding, soul withering, soul shattering, soul flight, soul theft, or soul murder”) as effects of sexual abuse (p. 145).

### **Polyvagal Theory and the Neurophysiology of Trauma**

In order to better understand the overall effects trauma can have on a person's life, it is helpful to look at its neurophysiological mechanisms, as the main function of the nervous system is to maintain the body's necessary physical functioning. Damasio (1999) explains that in order to maintain physical function, animals are in a constant state of sensing any changes occurring internally and in their environment, especially any changes that present threat to well-being. The mechanism by which this is achieved is called *interoception*. Damasio writes, "The internal milieu and visceral division is in charge of sensing changes in the chemical environment of cells throughout the body. The term *interoception* describes those sensing operations generically" (p. 150). Porges, Doussard-Roosevelt, and Maiti (1994) add that unlike other animals, the human nervous system and its mediation of physical function also involves the regulation of emotion. Citing Craig and Fogel, Dietrich-Hartwell (2017) synthesizes this differentiation:

Different from exteroception, which is responsible for receiving and transmitting information from the outside through sensory receptors, and proprioception, which informs the individual how body parts are moving in relation to each other, interoception plays a role in emotional processing, perception formation, and identity. (p. 40)

Like other animals, when the human nervous system detects imminent danger or life threat, the autonomic nervous system reacts with either a sympathetic (hyper-arousal, mobilization, fight/flight) or a parasympathetic (hypo-arousal, immobilization, freeze/faint) response (Levine, 2010; van der Kolk, 2014). These responses are evolutionary responses<sup>6</sup>, parasympathetic immobilization response being the most primitive (Porges, 2009, 2018).

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<sup>6</sup> Stress hormones like cortisol and adrenaline are also released. In traumatic situations, especially those involving prolonged immobility, these hormones stay stuck in the body and become part of the brain-body reaction chain that occurs when a traumatized person thereafter encounters danger. This occurs whether the danger is real or perceived as such based on past traumatic experiences (van der Kolk, 2014).

Sympathetic and parasympathetic responses to danger are designed to save our life in the face of threat by either mobilizing us toward safety or against the threat or, in extreme endangerment perceived as unavoidable, by collapsing us into “tonic immobility” (Levine, 2010, p. 48), or feigned death. This type of immobility response is described by some as *freeze* when action is stopped and *faint* when we numb out and dissociate from our bodies even if we continue to move. In a state of tonic immobility, endorphins flood the body, pain receptors shut down, breath and heart rate slow down, and metabolic function down-shifts into a slowed state (Levine, 2010; van der Kolk, 2014).

Levine (2010) adds the crucial point that falling into a state of tonic immobility is not in itself trauma-inducing. Founding his initial deductions on animal studies done by Gallup and Maser in the 1970’s, Levine asserts that “it is only when the immobility becomes inextricably and simultaneously coupled with intense fear and other strong negative emotions that we get the entrenched trauma feedback loop” (p. 56). However, Levine cautions, since “the more primitive the operative system, the more power it has to take over the overall function of the organism,” when coupled with intense fear, “the immobilization system all but completely suppresses the social engagement/attachment systems” (p. 101). This has long-term adverse effects, as discussed in previous sections, and creates a physiological and social loop of trauma isolation.

Sympathetic mobility or parasympathetic immobility are not only responses to danger but can occur in various other forms without inclusion of fear, as in sports for the former and orgasm for the latter. In a healthy nervous system, people constantly fluctuate between these dynamic states fluidly throughout the day (Levine, 2010; Ogden, Minton, & Pain, 2006) as they encounter various stimuli and shift between states of being. “When there are no challenging environmental

demands, the autonomic nervous system, through the vagus, services the needs of the internal viscera to enhance growth and restoration” (Porges et al., 1994, p.172).

It was previously believed that these responses are generated solely by the amygdala, often known as the danger alarm of the limbic system. However, as Buckley et al (2018) explain, defense responses in humans are not only generated by the amygdala, but also by the bed nucleus stria terminalis (BNST), both, according to Porges (2009) mediated through the pathways of the tenth cranial nerve, known as the vagus nerve. Porges (Porges et al., 1994; Porges, 2009, 2018) based his work on the original studies of the vagus nerve by Charles Darwin and on Darwin’s late 1800’s research into the bidirectional relationship between emotion and visceral fluctuation<sup>7</sup>.

Porges’s Polyvagal Theory deepens the understanding of the neurophysiological phenomenon of trauma by studying the safety function of the vagus nerve in humans and its branching physiological connections of the brain, autonomic nervous system, musculature, vital organs, and affect states. Contrary to what Porges calls the “cognitive-centered or cortical-biased” (Plurly, 2015, 4:15) lens of most modern psychology, Porges explains that in fact, “we are biological” (Plurly, 3:56). Further, Porges details, “the way our body is functioning also feeds back and provides portals of accessibility to different mental competencies” (Plurly, 4:31).

Polyvagal Theory breaks down the subsystems of the autonomic nervous system beyond the more commonly known two subsystems - the sympathetic system (arousal/mobility, hyperarousal/fight-or-flight) and the parasympathetic system (downshift/immobility,

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<sup>7</sup> Porges et al. (1994) cite Darwin as writing, “When the mind is strongly excited, we might expect that it would instantly affect in a direct manner the heart; and this is universally acknowledged . . . When the heart is affected, it reacts on the brain; and the state of the brain again reacts through the pneumo-gastric (vagus) nerve on the heart; so that under any excitement there will be much mutual action and reaction between these, the two most important organs of the body” (p. 168). Darwin based his work on that of Claude Bernard, whose construct of *le milieu interior* evolved into the modern concept of *homeostasis*.



hypoarousal/freeze-or-faint) – into a three-part system. Porges (2009, 2018) explains that when mammals evolved from their more basic single-celled forms, they developed a new “second vagal motor pathway” (2018, p. 52) of the parasympathetic system to accommodate their need for more complex physiological responses to more complex dangers. Unlike other animals, the human parasympathetic system is actually itself comprised of two sub-systems – the original primal unmyelinated dorsal vagal branch and the more developed myelinated (fat-sheathed<sup>8</sup>) ventral vagal branch. “These autonomic subsystems are phylogenetically ordered and behaviorally linked to social communication (e.g., facial expression, vocalization, listening), mobilization (e.g., fight–flight behaviors), and immobilization (e.g., feigning death, vasovagal syncope, and behavioral shutdown)” (2009, p. 2).

Thus, Porges’s (Porges et al., 1994; Porges, 2009, 2018) Polyvagal Theory explains that the vagus nerve, meaning in Latin “the wandering nerve” (Dana & Grant, 2018, p. 195), not only bidirectionally connects the brain stem to the heart, lungs, and gut, but also that the more complex mammalian myelinated ventral vagal system further branches through the facial muscles, inner ear, and larynx. Specifically, the ventral vagal pathway, originating in the part of the brain stem called the “nucleus ambiguus,” “conveys a respiratory rhythm to the heart’s pacemaker,” “travels primarily to organs above the diaphragm and interacts within the brain stem with structures regulating the striated muscles of the face and head” (Porges, 2018, pp. 52-53). Porges hypothesizes that the more primitive unmyelinated dorsal vagal pathways “primarily remain dormant until life-threat,” at which point they inform the immobilization response “mediating trauma-elicited dissociation” (p. 53), including the *faint* response experienced as the feeling of leaving one’s body or becoming numb to what is happening. Levine (2010) notes,

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<sup>8</sup> “Myelin is a fatty substance that surrounds the fiber. Myelin provides electrical insulations for the fiber, which enable the signal to be transmitted with greater specificity and speed” (Porges, 2018, p. 52).

“Highly traumatized and chronically neglected or abused individuals are dominated by the immobilization/shutdown system [while] . . . acutely traumatized people (often by a single recent event . . .) are generally dominated by the sympathetic flight/flight system” (p. 102).

These vagal pathway functions are not conducted solely in a top-down structure from the brain stem through motor fibers to the body, but instead, according to Porges’s (2018) research, “approximately 80% of the vagal fibers are sensory (efferent)” (p. 59). This means that not only is the vagus pathway bi-directional (brain-to-body and body-to-brain), but it is also mediated in both directions by both motor function and sensory information. Porges (2018) expounds, the heart and respiratory system are “integrated in the brain stem with structures that regulate the striated muscles of the face and head via special visceral efferent pathways, resulting in a functional social engagement system” (p. 54). Thus, Porges clarifies, on a neurophysiological level, the functions of this social engagement system, “talking, listening, engaging, smiling, these are neural exercises of this face-heart connection” (Plurry, 2015, 21:19).

Social engagement signals safety, and feeling safety allows for proximity, intimacy, and emotional regulation (as well as physical health and mammalian functions like sleep; Plurry, 2015). The hypo-arousal or hyperarousal states invoked by traumatic events physiologically hijack the social engagement system. Thereafter, a traumatized person often experiences trouble activating their social engagement system or connecting to that of others, misreading social cues or showing flat affect (Krug, 2018). “Diminishing the individual’s future capacity for relationships” (Ogden et al., 2006, p. 33), this can become an “intimacy barrier” (Levine, 2010, p.107) that furthers their isolation and disconnection.

Conversely, because of the bidirectional function of the vagus nerve, the social engagement system can also bring someone back out of these hypo- or hyper-aroused states

through facial interaction, vocal prosody, and calming sounds (as oft seen with mothers and babies). “Emotion process may originate on a cortical level or may be initiated and/or regulated by afferent feedback from visceral organs” (Porges et al., 1994, p. 176). Levine (2010) explains that “the social engagement system is intrinsically self-calming and is, therefore, built-in protection against one’s organism being ‘hijacked’ by the sympathetic arousal system and/or frozen into submission by the more primitive emergency shutdown system” (p. 94).

Crucial to this phenomenon is Porges’s (2009, 2018) concept of “neuroception”. Porges (2018) proposes that “the neural evaluation of risk does not require conscious awareness” (p. 58), but rather that it involves “a neural process, distinct from perception, capable of distinguishing environmental and visceral features that are safe, dangerous, or life-threatening. . . . [and that this is] a reflexive mechanism capable of instantaneously shifting physiological state” (p. 58).

Unlike *interoception*, “neuroception functionally decodes and interprets the assumed goal of movements and sounds of inanimate and living objects,” embedding into this mechanism the “capacity of the nervous system to react to . . . ’intention” (p. 58). This involves a constant bidirectional assessment of one’s surroundings through the social engagement system, with facial expressions, vocal prosody, and specific movements and gestures reading as either safety or threat and affecting one’s autonomic nervous system and physiological states accordingly. The social engagement system is also what is mobilized as a means to seek safety, including smiling to disarm and connect with others and crying for help when threat is detected.

For people who have experienced trauma, neuroception remains adversely affected and causes a misreading of external stimuli and social cues. Gray (2018) writes,

A traumatized system, locked down in fear or terror, sends signals of fear even when there is no viable threat. This faulty neuroception contributes to thoughts, feelings,

behaviors, and actions that are rooted in past experiences of fear rather than what's current, present, and accurate. (p. 210)

This may present as hypervigilance, with traumatized people constantly seeking cues of danger, or as the avoidance previously discussed in this paper, whether as an effort to avoid perceived danger or as a coping strategy for feeling flooded by social cues.

Hence, "Polyvagal Theory proposes that physiological state is a fundamental part, and not a correlate of, emotion and mood" (Porges, 2018, p. 59). This specifically plays out in trauma, as "a change in state will shift access to different structures of the brain and support either social communication or the defensive behaviors of fight-flight or shutdown" (p. 59). More specifically, this theory supports the use of body-based interventions in trauma treatment because it "emphasizes a bidirectional link between brain and viscera, which would explain how thoughts change physiology, and physiological state influences thought" (p. 59.). Thus, Polyvagal Theory helps therapists understand how facilitating the release of patterns stuck in the body during traumatic events can create long-term changes in one's nervous system, overall sense of safety, and physiological access to affect, expression, and connection.

### **How/Why Body-based Interventions Work**

Van der Kolk (2014) notes, "Most traditional therapies downplay or ignore the moment-to-moment shifts in our inner sensory world" (p. 275). However, he cautions, "these shifts carry the essence of the organism's responses: the emotional states that are imprinted in the body's chemical profile, in the viscera, in the contraction of the striated muscles of the face, throat, trunk, and limbs [Polyvagal Theory]" (p. 275). Levine (2010) adds, "Self-awareness requires us to recognize and track our sensations and feelings. We unveil our instincts as they live within us, rather than being alienated from them or forcibly driven by them" (p. 278).

Stella (2018) states succinctly, “Emotions and memories are experienced in and through our bodies” (p. 60). This simple statement is hard to debate when held in the light of general human experience, and it is the basic premise of all body-based interventions. Further, it is physiologically true that all spoken or written language must emerge from our bodies. Working from an intersection of sensation and embodiment, body-based interventions operate from the same fundamental premise that Polyvagal Theory supports – that somatic experience, reactions, memories, and emotions are innately interconnected with shifts in the autonomic nervous system, with breath and pulse and heartbeat, with organ function and verbal and nonverbal expression (Levine, 2018; Ogden, 2018; Porges, 2018). Levine (2010) adds, “The way we *know* we’re alive is rooted in our capacity *to feel*, to our depths, the physical reality of aliveness, embedded within our bodily sensations – through direct experience. This, in short, is embodiment” (p. 287).

Gray (2018) contributes to this the fact that movement innately involves direct immediate communication with the nervous system and therefore “the tiniest micromovement to large, expressive gross motor movements can initiate shifts in physiological state via the nervous system” (p. 210). As previously discussed, Polyvagal Theory further establishes that this communication is in fact bi-directional, as well as both afferent (motor) and efferent (sensory), so that our emotions inform and are informed by our breath, heartrate, facial expressions, sensorimotor faculties, and various states of affect and arousal, in an endless dynamic loop (Porges, 2018). Ogden, Minton, and Pain (2006) put this bidirectionality in a perspective of how trauma can create debilitating self-beliefs that manifest in body tendencies and how these, in return, perpetuate limitations in emotional experience, stating:

When trauma has induced a negative belief about oneself, others, and the world, the harmonious interaction . . . of the body is typically sacrificed. . . . The corresponding

emotions of shame, anxiety, or hopelessness further exacerbate the physical tendencies.

These physical tendencies support cognitive distortions and trauma-based emotions, and, in turn, concomitant emotions manifest in [hindering] physical tendencies. (p. 271)

Likewise, body-based interventions can utilize this interconnection from both directions, working with the emotional body and the physical body to facilitate integration and wholeness.

According to leading practitioners (Brantberg, 2018; Elbrecht & Antcliff, 2014, 2015; Gray 2001, 2015, 2017, 2018; Johnson, 2013, 2014; Levine, 2008, 2010; Ogden et al., 2006; Ogden & Fisher, 2015; Rothschild, 2017; van der Kolk, 2014), the fundamental somatosensory and psychomotor elements of body-oriented trauma treatment include: alignment, breath work, orientation, boundaries, containment, contact, sense and sensation (including haptic sensation/perception), posture, movement, awareness, grounding, centering, calming, mutuality, attunement, encounter, and completion of action. “Somatic resources emerge from physical experience yet influence psychological health” (Buckley, Punkanen, & Ogden, 2018, p. 229). The goals of body-based trauma treatment, though achieved differently through different interventions and modalities, primarily seek to foster and cultivate internal resources in order to rebuild the diminished life aspects discussed in previous sections of this paper. These include: vitality, present moment awareness, trust (including self-trust), agency, presence, connection, self-compassion, centeredness, embodiment, flexibility/fluidity, relational capacity, distress tolerance, curiosity, playfulness, and capacity for life-affirming emotions.

Van der Kolk (2014) explains, “After trauma, the world is experienced with a different nervous system. The survivor’s energy now becomes focused on suppressing inner chaos, at the expense of spontaneous involvement in their life” (p. 53). Further, van der Kolk describes, the internal chaos wreaked by trauma can cause a person to ignore their own instincts, stating:

Their bodies are constantly bombarded by visceral warning signs, and, in an attempt to control these processes, they often become expert at ignoring their gut feelings and in numbing awareness of what is played out inside. They learn to hide from their selves. (pp. 98-99).

Van der Kolk cautions that since the suppression of internal chaos can result in physical, mental, and emotional maladies, “it is critical for trauma treatment to engage the entire organism, body, mind, and brain” (p. 53).

Ogden et al. (2006) reference Janet’s late 1800’s discussion of trauma as a “failure of integrative capacity” and explain that the goal of sensorimotor treatments is to “expand the client’s integrative capacity” because without it, people “cannot maintain regulated arousal, resolve their memories, or lead productive, satisfying lives” (p. 182). Just as trauma overwhelms the nervous system with fear, horror, and/or helplessness, body-based interventions can work directly with the functioning of the nervous system to help restore a person’s sense of agency, trust, and empowerment. In most body-based intervention techniques, the locus of control is in the client. This not only helps to rebuild agency and self-trust, but also allows the client to determine the depth and pace of the treatment, increasing feelings of safety and decreasing the chance for flooding, shutdown, or re-traumatization (Levine, 2010; Rothschild, 2017).

Because body-based interventions do not depend solely on verbal language, they can access the embedded roots of traumatic experience and create shifts that don’t hinge on a narrative recall of the event. A traumatic event not only shuts off the language center of the brain (Broca’s area) as it is occurring, but, as previously discussed, trauma can eradicate a person’s neurophysiological capability for self-sensing and fracture their sense of wholeness. After trauma, people are left with the feeling of fundamentally not being themselves (Levine,

2010), sometimes, as van der Kolk (2014) reports, to the extreme of not even being able to recognize themselves in a mirror. Van der Kolk points out, “It is excruciatingly difficult to put that feeling of no longer being yourself into words,” especially because “the language center of the brain is about as far removed from the center for experiencing one’s self as is geographically possible” (p. 239).

Since trauma activates the primitive parts of the brain that lack linguistic representation and shuts down the language center of the brain (van der Kolk, 2014), traumatic memories “are not encoded . . . in a verbal, linear narrative” (Herman, 1992, p. 37). Instead, traumatic memories are most often held as implicit memories in body responses and disjointed sensorimotor, affective, five-sense-based splinters (Ogden & Fisher, 2015; Malchiodi, 2019). As Ogden, et al. (2006) warn, “It is not the events themselves but these nonverbal fragments from the past and their unresolved maladaptive action tendencies that wreak havoc on the client’s experience and ability to function in daily life” (p. 235). Secrecy, denial, body/mind disconnection, and shame can also prevent people from talking about what has happened to them (Herman, 1992). Therefore, attempting to process trauma solely through cognitive and verbal interventions or trying to reconstruct a trauma narrative using prompts like “tell me what happened” or “use your words” can be ineffective, frustrating, and detrimental.

Even if words are found to adequately express the memories and feelings, visceral experience remains embedded (Ogden et al., 2006). By directly accessing the somatic and affective system nonverbally, “body-based therapy . . . can unlock the implicit memory of traumatic experience and access the imaginations that support a restoration of well-being” (Gray, 2015, p. 172). Then deep change can occur, and this is vital, van der Kolk (2014) warns, because “people’s lives will be held hostage by fear until that visceral experience changes” (p. 99).



Awareness is a key component in body-based trauma interventions, both as a treatment tool and as a treatment goal. “Stated simply: *awareness is the spontaneous, and creatively neutral, experiencing of whatever arises in the present moment – whether sensation, feeling, perception, thought or action*” (Levine, 2010, p. 289). Van der Kolk (2014) asserts, “cultivating sensory awareness is such a critical aspect of trauma recovery” because “if you are not aware of what your body needs, you can’t take care of it” (p. 275). This is why, “traumatized people need to learn that they can tolerate their sensations, befriend their inner experiences, and cultivate new action patterns” (p. 275). Using various techniques depending on the intervention, therapist and client(s) can simultaneously explore here-and-now awareness as well as whatever embedded implicit memories or emotions may arise from the past (Entcliff & Albrecht, 2014, 2015; Johnson, 2009, 2013, 2014; Ogden & Fisher, 2015; Richardson, 2016; Scoglio et al., 2018). Client and therapist can also use awareness of state shifts, sensations, and bodily reactions to uncouple present time mobility or immobility response states from the fear enmeshed into them by past trauma and to facilitate a more fluid fluctuation between emotions (Gray, 2015, 2018).

By utilizing the whole body, titrating between various states of the autonomic nervous system, and incorporating the subtleties of non-verbal communication, practitioners can facilitate clients’ awareness of the sensations in their bodies and in the environment around them (Levine, 2010; Ogden & Fisher, 2015; Payne, Levine, & Crane-Godreau, 2015). This, in turn, rebuilds self-trust, self-compassion, and nervous system fluidity and can increase capacity for spontaneity, feeling, and connection to self and others (Johnson, 2014; Nguyen-Feng, et al., 2018; Scoglio et al., 2018). “Simply noticing what you feel fosters emotional regulation, and it helps you stop trying to ignore what is going on inside you. . . . Once you start approaching your body with curiosity rather than with fear, everything shifts” (van der Kolk, 2014, p. 275).

Because trauma creates “disorder in one’s capacity to be grounded in present time and to engage, appropriately, with other human beings” (Levine, 2010, p. 94), restorative shifts enable presence and engender a renewed “desire and capacity for embodied social engagement” (Levine, 2010, p. 94). This social connection further fuels post-traumatic growth (Buckley et al., 2018; Lopez-Zeron & Blow, 2017; Mohr, 2014) and, as explicated by Polyvagal Theory, bolsters feelings of safety on both a greater socio-dynamic life level and on a neurophysiological/somatic level (Gray, 2017; Porges, 2018). Getting the social engagement system back on-line can also increase vagal tone, physiologically enabling more fluid sympathetic/parasympathetic fluctuation so that traumatized people can experience more joy and greater life balance (Shiota et al., 2011).

Levine (2010) states, “Trauma could appropriately be called a disorder in one’s capacity to be grounded in present time and to engage, appropriately, with other human beings” (p. 94). Trauma treatment, Levine continues, can restore dynamic equilibrium and, with it, “the capacity for presence, for being in ‘the here and now,’ . . . [thereby increasing] the desire and capacity for embodied social engagement” (p. 94). Body-based interventions are able to both cultivate and utilize attunement as a means of restoring this capacity (Ogden & Fisher, 2015).

Key to this attunement are the “mirror neurons” Siegel (2007) discusses as vital to the way “our social brain . . . perceives the intentional, goal-directed actions of others and links this perception to . . . priming the motor systems to engage in that same action” (p. 347). This is vital for trauma treatment, as it relates directly with Porges’s (2009, 2018) concept of *neuroception*, which is compromised by trauma, as well as to on-boarding the social engagement system. Attunement through mirror neurons offers therapists the present moment opportunity to mend or recalibrate broken or distorted past attachment patterns (Ogden & Fisher, 2015) because, as van der Kolk (2014) points out, “trauma almost invariably involves not being seen, not being

mirrored, and not being taken into account” (p. 59). Further, in sadistic abuse, where being seen is used for harm (Heller, 2018), safe attunement can slowly repair fractured attachment and trust.

Geller (2018) and Ogden and Fisher (2015) illuminate how body-based interventions afford practitioners and clients an opportunity to attune to each other and to themselves and to access the potent tool of *co-regulation*. Citing Porges, Siegel, and Butlar and Randall, Geller (2018) explains that just as a bidirectional communication exists between each person’s own brain, emotions, heart, breath, and face (as explained by Polyvagal Theory), “there is also a bidirectional communication between the nervous systems of people who are in relationship with each other” (p. 112). Geller defines this *co-regulation* as “the bidirectional linkage of oscillating emotions between different partners, contributing to the emotional stability of both” (p. 111). Citing Diamond, Balvin, and Diamond, Ogden and Fisher (2015) advise that often a therapist using nonverbal body-based techniques can act “as an auxiliary cortex” (p. 46) for clients, allowing clients to borrow their regulated nervous system while clients build skills to regulate their own. Co-regulation and mirroring are particularly helpful in play therapy and in helping to calm a traumatized child who is acting out behaviorally as their only means of communicating their dysregulation and needs (J. Le Febre, personal communication, October 13, 2018).

### **Specific Body-based Interventions Successfully Used in Treating Trauma**

Body-based interventions in trauma treatment are varied in concept but all incorporate aspects of somatic resourcing discussed in the previous section. Levine (2010) offers,

Embodiment is about gaining, through the vehicle of awareness, the capacity to feel the ambient physical sensations of unfettered energy and aliveness as they pulse through our bodies. It is here that mind and body, thought and feeling, psyche and spirit, are held together, welded in an undifferentiated unity of experience. (p. 279)

Commonly practiced interventions include but are not limited to: sensorimotor psychotherapy, Somatic Experiencing, trauma-sensitive yoga, clay field work, bi-lateral sensorimotor art therapy, focusing-oriented art therapy, and trauma-sensitive play therapy (including Theraplay and techniques aimed at co-regulation), Developmental Transformations (DvT), and dance movement therapy (especially polyvagal-informed dance movement therapy). Also of note is the *Four-Phase Model of expressive arts therapy for traumatized children and adolescents* developed by Carmen Richardson (2016). Due to the limitations of this paper, I cannot discuss all, but I encourage any interested reader to research these techniques further.

Because it is seminal work, it is important to explain some basics of sensorimotor psychotherapy and Somatic Experiencing, both based on the premise that the integration of awareness, viscera, and the nervous system is fundamental to recovery after trauma. In short, “Sensorimotor psychotherapy is a body-oriented method that integrates physical, emotional, and cognitive aspects of experience, within a framework supported by neuroscience, theories of attachment and dissociation” (Buckley, Punkanen, & Ogden, 2018, p. 225). This can involve psychomotor skills, which as Brantjberg (2018) states simply, “means working with muscles and movements” (p. 91), as well as inquiry into one’s embedded thought patterns and beliefs (Ogden & Fisher, 2015). Like trauma-sensitive yoga and dance movement therapy, sensorimotor psychotherapy works with breath, posture, movement, and sensation awareness (Nguyen-Feng et al., 2018; Nguyen-Feng, Clark, & Butler, 2018, Price et al., 2017). Goals include: building self-trust, self-compassion, and presence; restoring “balance in the sensory nervous system” (Rothschild, 2017, p. 57); developing internal resources like centering and grounding; fostering sympathetic/parasympathetic fluidity; rebuilding sensation and awareness; and cultivating self-modulation and self-regulation (Ogden & Fisher, 2015; Ogden, Minton, & Pain, 2006).

Somatic Experiencing (SE), developed over the past 45 years by Peter Levine (2008, 2010, 2018), operates from the premise that a person's body stores their uncompleted response to the situation(s) that traumatized them, and that "drive to complete the freezing (or fight/flight) response remains active no matter how long it has been in place" (Levine, 2008, p. 65). The practitioner uses nine "basic tools for "renegotiating and transforming trauma" (Levine, 2010, p. 74), which can be used in a non-linear way after the first three are established. These first three are: "establish an environment of relative safety, support initial exploration and acceptance of sensation, establish pendulation and containment: the innate power of rhythm" (p. 74).

SE uses "titration" to "provide a corrective experience by supplanting the passive responses of collapse and helplessness with active, *empowered* defensive responses" (Levine, 2010, p. 75). The goal is to uncouple the fear from the immobility response and to facilitate the body to complete any uncompleted danger responses. This allows the nervous system to "discharge" and redistribute the stuck "survival energy," thereby "freeing that energy to support higher level functioning" (p. 75) and enabling the nervous system to return to a state of "dynamic equilibrium and relaxed alertness" (p. 75). Ultimately, clients are facilitated to "orient to the here and now, contact the environment and reestablish the capacity for social engagement" (p. 75). Levine is a long-time friend and colleague of Stephen Porges, and SE has progressed over decades to incorporate vast aspects of Polyvagal Theory.

**Polyvagal-informed Dance Movement Therapy.** Speaking of her dance movement therapy work with survivors of torture, Amber Gray (2001), offers this reflection:

The history of an individual is enacted through the body. DMT [dance movement therapy] honors the powerful relationship that the human body has to life experience. . . .

Working with, and through, the experience of the body and its expressive voice of movement, survivors . . . are welcomed home. (p. 41)

Gray (2018) describes how the human body, when faced with imminent danger or life threat, will effectively disassemble/reassemble to accommodate and survive the experience. It is therefore crucial to a person's restoration to access the nervous system through breath and movement to shift trauma-created patterns and return a person to feelings of safety in their body and their life.

Gray has created polyvagal-informed dance movement therapy from her years of studying Stephen Porges's Polyvagal Theory, explaining in a podcast interview with Orit Krug that the work is founded in "recognizing the role of the autonomic nervous system, and more specifically the vagus nerve, in helping us appraise/respond to/negotiate/be in relationship with/engage with space, the environment, the world, the people around us" (Krug, 2018, 12:36). Polyvagal-informed dance movement therapy focuses not only on the sympathetic nervous system's (fight/flight, hyperarousal) stress response, as Gray cautions most past trauma theories have, but also on helping people navigate their "parasympathetically driven . . . behavioral strategy in response to life threat and the terror that we experience [in trauma]" (Walsh, 2018, 28:20), as well as navigating the effects that strategy has on one's nervous system and life overall. Grey explains, "It's the neurological basis of human behavior that the Polyvagal Theory has really highlighted, . . . how important the body is in the restorative process" (Krug, 16:28). As Porges (2018) details, "As individuals change their facial expressions, the intonation of their voices, the pattern in which they are breathing, and their posture, they are also changing their physiology through circuits involving myelinated vagal pathways to the heart" (p. 59).

Specifically, Gray's work operates not only from the dance movement therapy premise that "movement is the primary language of the body" (D. Halprin, personal communication,

March 3, 2019), but also from the reality that “movement directly accesses the neurological underpinnings of everything. When we move, we’re in direct dialogue with the nervous system. There’s a dance there” (Krug, 2018, 16:58). In fact, Gray (2018) clarifies, the body lives as a rhythmic dance of breath and pulse and heartbeat, and Polyvagal Theory elucidates how these rhythms directly connect to emotion and experience. Polyvagal Theory highlights the bidirectional connection between heart and brain and breath, our faces, emotions and the nervous system, and Gray believes these interconnections offer “a portal to our humanity” (Krug, 2018, 42:33). According to Gray (2001, 2015, 2017, 2018), Polyvagal-informed DMT can help a person regain access to this portal to restore their humanity in the aftermath of trauma.

Working with body awareness through breath, movement, and posture, polyvagal-informed DMT explores subtle states shifts (“mood states, affect states, feeling states”; Krug, 2018, 31:42) to facilitate a greater awareness of sensation and to uncouple fear from the states of mobility and immobility employed by the sympathetic and parasympathetic nervous systems respectively. Whereas, in the presence of imminent danger and life threat, the body experiences mobility and immobility with fear (as previously discussed), mobility without fear is experienced in play, athletics, or sexual arousal, and immobility without fear exists in the restorative state of rest, digest, and relax. Engaging the social engagement system through prosody of body<sup>9</sup>, prosody of movement, and prosody of facial expression, polyvagal-informed DMT helps a person restore balance and returns their capacity to access various sympathetic and parasympathetic states in a fluid fluctuation without the fear, rigidity, stuckness or spiking that trauma can lock into the nervous system. Hence, “movement helps us regain mastery over our body’s day-to-day function and engagement with the world” (Gray, 2018, p. 210).

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<sup>9</sup> Gray (2018) defines this as the “posture, shaping, action, and the congruency between movement and emotional and verbal expression that can literally be silenced by the horrors . . . of trauma” (p. 211).

**Developmental transformations (DvT).** Perhaps one of the less widely-practiced body-oriented interventions, Developmental Transformations (DvT) was developed by David Read Johnson out of the object relations theories of Jacobson and Mahler, the developmental theories of Piaget and Werner and Kaplan, the existential philosophy of Sartre, the deconstructionist philosophy of Derrida, and the theatrical lens of Grotowski<sup>10</sup> (Johnson, Forrester, Dintino, James, & Schnee, 1996). DvT was originally developed from drama therapy work with Vietnam veterans suffering from PTSD (James & Johnson, 1997) and has since been used with populations as varied as traumatized children, the elderly, and schizophrenic adults experiencing homelessness. Unlike many other therapeutic interventions, DvT seeks not to create stability as a means to safety but instead takes a decentering approach to build one's tolerance to instability. As Johnson (2013) explains,

DvT aims to *lower fear* of the instability of being rather than lowering the instability of Being . . . [This] involves learning how to accept *risk* and learning how to maintain one's balance amidst uncertain and unstable circumstances. The result is a dimensionalization of experience that allows for a dynamic equilibrium (p. 32).

This is accomplished through an improvised interaction by the *players* (participants) and *playor* (facilitator) in which any topic is playable and, while treatment goals are kept in mind by the therapist, no known outcome is set as a goal for the play session. In DvT, the direction of play is dynamic, ever-mutable, and entirely created anew out of whatever emerges and develops in each new moment (Johnson et al, 1996; Johnson, 1999, 2013). With key principles of “playspace, embodiment, encounter, and transformation” (Johnson, 2013, p. 38), DvT privileges “mutuality” and “reversibility” (p. 43). DvT founds itself on the notion that players are making a

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<sup>10</sup> Johnson et al (1996) note, “Technical aspects of the method have also been influenced by Viola Spolin, Sanford Meisner, Carl Rogers, and dance therapists Marian Chace and Mary Whitehouse” (p. 293).



conscious agreement to: restrain from doing harm, acknowledge that everything that occurs in the playspace is paradoxically real and not real, and accept that whatever arises is reversible and mutable and therefore in no single person's control. Play involves "immediacy," "engagement," and "emotionality" (Johnson, 2014, p. 68), a fluid negotiation of unstable circumstance between participants and the content that arises. "DvT emphasizes the player's *courage*, rather than safety" (Johnson, 2013, p. 35). Players are encouraged toward expression more than restraint.

Thus, through performative, kinesthetic interaction, DvT can directly and indirectly explore the core patterns that can result from trauma. Johnson (2013) explains DvT's inherent benefits for trauma most succinctly when he states, "The goal in DvT is to help the player gradually let go of their persona, history, issues, and beliefs to the playspace, where they can be given their freedom to transform in a space mutually governed by others" (p. 44). Johnson (1999) lists the "Aims of Creative Arts Therapies" and DvT in particular as: "Alleviating Distress," "Increase Understanding," "Improve Relationships," and "Change Physiological Responses" (pp. 126 - 129). These could just as easily represent a list of trauma treatment goals.

In DvT, play is grounded in most of the components trauma adversely affects. "Play is embodied, relational, aesthetic, developmental, and it transforms" (Johnson, 2013, p. 38). Here-and-now interpersonal connection holds the foreground of experience as "participants are encouraged to bring their attention to their encounters with each other, rather than their own personal histories or inner processes" (p. 46). In this way, DvT allows for the unknown and unpredictable to emerge, facilitating an environment of transformation that enables participants to release their "clinging attachments to 'what is'" (p. 50) and embrace change. Entrenched old patterns can transform, effecting both change inside the person and in their life. DvT bypasses the need for a person to directly recount a trauma narrative by kinesthetically facilitating shift.

James and Johnson (1997), explain DvT “offers [people] an opportunity to experience . . . tolerance rather than suppression of emotion; and freedom to play with, rather than be constricted by, their memories” (p. 385), to embrace “an attitude of acceptance and tolerance of the multifaceted aspects of the self, good and bad, profound and superficial” (p. 385).

### **Discussion/Conclusion**

A recurring theme in the discussions of leading researchers and practitioners of body-based trauma treatment is the theme of home. I remember listening to Eve Ensler (personal conversation, January, 2016), founder of One Billion Rising, a dance movement to end violence against women, speak about how powerful it would be if the one billion women estimated to have experienced violence against them would return to their bodies. Ensler said that these one billion women were refugees of their own bodies, having fled in the dissociation of trauma. How much more powerful the planet will be, Ensler mused, when those one billion refugees return home to themselves. Levine (2010) poetically describes people’s return journey to selfhood:

In healing the divided self from its habitual mode of dissociation, they move from fragmentation to wholeness. In becoming embodied, they return from their long exile. They come home to their bodies and know embodied life, as though for the first time. While trauma is hell on earth, its resolution may be a gift from the gods. (p. 356)

Expressive arts therapists can be a part of facilitating this homeward journey for people, and perhaps the invitation to do so is something we as a field must also come home to.

It seems, through my research, like the choice is literally a matter of coming to our senses. Just as the human body is a dynamic arrangement of engagement and sensation, the professional body of expressive arts therapy is a dynamic sensing organism that must adjust to the needs of its environment in order to flourish. As Levine (2010) describes, “When embodied,

we linger longer in the lush landscape of the present moment. . . . When we are able to be fully present, we can thrive with more pleasure, wonder, and wisdom than we could have imagined” (p. 278). As this rings true for an individual, so, too, can it be for the field of expressive arts therapy. Inviting people to the lush landscape of presence, we, too, can thrive. I deeply believe in and hope to professionally contribute to the phenomenon of which Levine effusively writes:

Through embodiment we gain a unique way to touch into our darkest primitive instincts and to experience them as they play into the daylight dance of consciousness; and, in so doing, to know ourselves as though for the first time – in a way that imparts vitality, flow, color, hue, and creativity in our lives. (p. 279)

Yes, that sounds like just the mission for an expressive arts therapist.

The research pointing to the use of the body itself to help heal the trauma stored there has existed and evolved for the past several decades. Van der kolk (2014) muses that perhaps by looking to the development of penicillin, we can gain patience in knowing that the practice of psychotherapy will eventually catch up to the research. He writes, “Almost four decades passed between the discovery of its antibiotic properties by Alexander Fleming in 1928 and the final elucidation of its mechanisms in 1965” (p. 264). Four decades have now easily passed since the initial work of researchers like Damasio, Herman, Levine, and Porges. The time is now for the implementation of this powerful medicine known as embodiment, and expressive arts therapists are surely the ones to breathe life into this vital body of work. Wisdom and wonder await us.

*My belief is in the blood and flesh  
as being wiser than the intellect.  
The body-conscious is where life bubbles up in us.  
It is how we know that we are alive,  
alive to the depths of our souls  
and in touch somewhere  
with the vivid reaches of the cosmos.  
- D.H. Lawrence*

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## Appendix A

## Some Known Adverse Effects of Trauma

<b>Somatic Effects and Maladies</b>	<b>Behavioral and Emotional Effects</b>	<b>Psychological and Mental Effects</b>
migraines	flattened affect	depression
dizziness	avoidance of people, places, feelings	dissociative states
cardiovascular disorders	sudden or chronic sadness	symptoms of ADD/ADHD
stomach aches	fits of anger, overblown emotionality	anxiety
changes in posture	chronic state of aggravation	alexithymia
shallowness of breath	addiction	distrust
rigid musculature	over-reactivity, easy to anger	mood disorders
chronic fatigue	mood swings	personality disorders
clammy hands	fidgeting, inability to focus	racing thoughts, chaotic thoughts
sexual dysfunction	diminished executive function	obsessive thoughts
cold sweats/body temperature dysregulation	nightmares/flashbacks/intrusive thoughts and images	difficulty learning/taking in information
insomnia	compulsive behaviors	experience of stimulus as triggers
PMS	self-harming behaviors	diminished curiosity
neuropathy	inability to calm down once upset	diminished self-esteem/self-hatred
fibromyalgia	high-risk behaviors	overly-compliant/eager-to-please
decreased capacity to feel sensations, dulled senses	clumsiness, lack of spatial awareness & physical boundaries	changed worldview, world as unsafe, fear of others
autoimmune disease	dysphoria	fugue states
panic attacks	hypervigilance	symptoms of ODD
tics	amnesia	constant need for approval
body dysmorphia	brain fog, spaciness, forgetfulness	avoidance of intimacy
exaggerated startle response	under-reactivity, apathy, numbness	reactive attachment disorder
sensitivity to light/sound	oppositional behavior	shame
tinnitus	diminished capacity to emote	chronic self-doubt

<b>Somatic Effects and Maladies</b>	<b>Behavioral and Emotional Effects</b>	<b>Psychological and Mental Effects</b>
blurred vision	generalized feelings of fear	decrease in cognitive function
digestive issues (e.g., I.B.S.)	diminished capacity to feel joy (or anhedonia)	compromised memory function

***THESIS APPROVAL FORM***

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In the judgment of the following signatory, this thesis meets the academic standards that have been established for the above degree.

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