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Embodied Memories: Neuropsychological musings on “enduring” trauma and authentic movement as therapy

In the last eighty years dance has been increasingly used as a healing modality to combat the effects of an array of physical and psychological symptoms as well as normal life difficulties. Dance movement therapy is based on the assumption that people have unconscious memories, feelings and motivations that need to be introduced and integrated into individuals' conscious awareness (Mills and Daniluk 78). *The Embodied Word*, an article that integrates psychology and dance movement therapy perspectives, states that “all memories, significant and insignificant, are represented in the body, therefore, one can access those memories through body or movement work (Panhofer, Payne, Parke and Meekums 314). There are many phenomenological studies that vouch for the existence of *body memory*, which is a type of memory that is distinct from explicit memory recall. *Body memory* is defined by phenomenologist and psychopathologist Thomas Fuchs as “the totality of [bodily] capacities, habits and dispositions as they have developed through the course of one’s life” (Fuchs 10). Our life experiences inform how we encounter and arrive in our bodies. Unfortunately for many people on the planet, life experiences include traumatic ones.

I am particularly interested in how psychologically and emotionally traumatizing memories are stored in the body. Authentic Movement, which is often used as a therapeutic movement modality, is an improvisational dance technique that allows the body to speak thereby bringing “unconscious contents to consciousness” (Tantia 57). If memories are stored in the body, it follows that Authentic Movement is an form of therapy for trauma

survivors because it allows the person to access, process and integrate traumatic memories. My question is, can the phenomenological notion of body memory be neuropsychologically validated, and if so, can this research be used to support dance as an effective healing modality for trauma survivors? To begin to answer this question I will present the phenomenological concept of *enduring* as an example of body memory, propose a neuropsychological explanation for it based on theories on how post-traumatic stress disorder develops, and position Authentic Movement as an effective therapeutic dance methodology that helps trauma survivors access, process and integrate traumatic memories stored in the body. If Authentic Movement's dynamic relationship with body memory can be neuropsychologically validated, it is my hope that dance will be more commonly implemented as a healing modality, which will lead to improved current therapeutic dance practices and increased accessibility to dance as therapy for trauma survivors.

Enduring

Elizabeth Behnke's phenomenological concept of *enduring* is a form of traumatic memory that lives in the body (Behnke 83). It is an internal kinesthetic gesture that was developed to get through a painful or difficult experience. This phenomenon is termed *enduring* because it helps one endure a situation, and it often endures after the threat has ceased, and becomes part of one's automatic way of being in the world, consciously or unconsciously (Behnke 84). Because this physical pattern was birthed during a specific instance of trauma, and the body holds the pattern in its repertoire post-trauma, *enduring* is a clear and compelling example of body memory.

It is helpful to understand *enduring* as it relates to Behnke's three models of coping possibilities. *Complete resilience* is the first possibility, which involves an experience of trauma that is let go without influencing one's kinesthetic life (Behnke 89). *Association reactivation* is the second possibility, where two things are associated because they happened at the same time. In this model, trauma can be re-experienced in situations that are reminiscent of the original context of the trauma. For example, in Fuchs' research on pain memory, he demonstrates an example of an association that caused a corporeal remembrance of a traumatic event: a doctor shook the hand of an amnesic patient with a tack in his hand. The next day the patient refused to shake the doctor's hand without conscious recollection of the reason (Fuchs 17). The patient's body remembered the pain from the handshaking encounter because he associated shaking the doctors hand with discomfort. Traumatic memory is often hidden from consciousness yet remains a vivid memory in the body. It is possible for an internal gesture specific to a traumatic event to be activated via association, but in this model of coping the gesture would cease overtime, so *enduring* by definition does not fit under the coping possibility of *association reactivation*.

The third possibility is *continual reiteration*, a coping mechanism where the traumatic event becomes incorporated into ones continual lived experience. *Enduring* is a form of *continual reiteration*: "in order to survive circumstances one has no power to change, one has to find a way to endure/withstand them-which then becomes the enduring/lasting style of experience as a whole (Behnke 90). *Enduring* makes it so that what is remembered is not the trauma itself, but "how one managed to undergo it" (Behnke 92). The pattern "has forgotten its own situated origins while at the same time memorializing them in the persistent re-enactment of a style of surviving an unendurable

past” (Behnke 96). *Enduring* is a kinesthetic style that was implemented as a way of bearing the unbearable, but persists even when the threat is absent and ingrains as an automatic way of being in the world.

An enduring pattern is inaugurated at the moment of a boundary violation (Behnke 87). A boundary violation is defined as “anyway a person’s dignity is violated through being humiliated, harassed, stigmatized, marginalized, rejected, neglected, abandoned or abused (Behnke 88). The boundary violation *is* the trauma. It disrupts integrity and continues beyond the moment of violation into one’s everyday life, thus the resulting *enduring* gesture persists. The violation is “woven into our existence as a whole” (Behnke 88). Racism, sexism and sexual assault are examples of boundary/integrity violations.

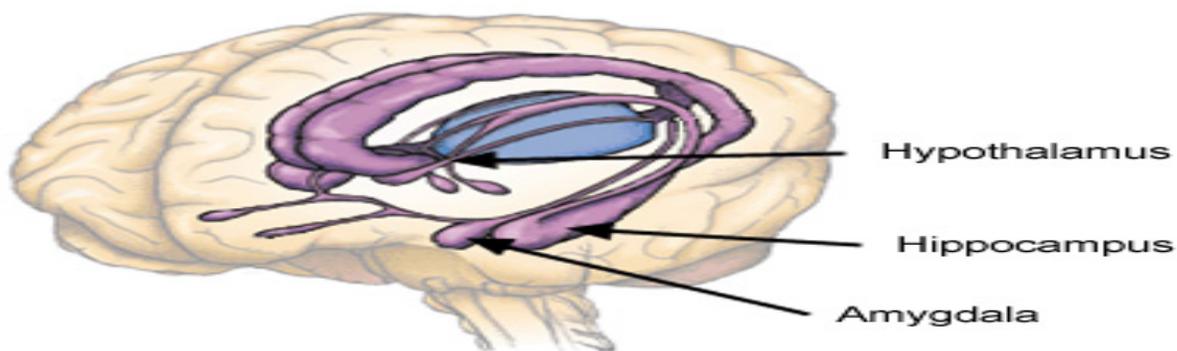
What is the kinesthetic architecture of an *enduring* pattern? There is a simultaneous pulling away from something while also pushing back at it (Behnke 87). Both of these physical motions are present in the body at the same time: withdrawing while defending oneself against something. It is not a “shrinking away” or a “fighting back” (Behnke 87). It is described as “a zone of tension whose lived meaning is that of attempting to establish and maintain a boundary, not just in a moment, but in a sustained effort of self-preservation” (Behnke 87). Holding a boundary while actively preserving the self yields an event specific pattern of tension. This tension *is* the *enduring* pattern.

Since *enduring* is a response to a perceived threat, is it a product of the fight or flight response? Behnke claims that the “kinesthetic possibilities typically summarized by fight or flight are no longer available; one’s kinesthetic freedom is significantly restricted, whether one is physically restrained, powerless in the face of an overwhelming threat, or simply frozen in terror” (Behnke 91). I acknowledge that fight or flight may not be possible in a

traumatic situation, however I argue that the neuropsychological mechanisms that set off the fight or flight response are at play while the *enduring* pattern is being developed and implemented as a coping mechanism. I propose that a neuropsychological explanation for *enduring* can be found when theories on post-traumatic stress disorder (PTSD) are considered.

Neuropsychological theories on post-traumatic stress disorder

The HPA axis is responsible for regulating stress responses, including the fight or flight response. One theory on how PTSD develops involves a malfunctioning of the HPA axis. The fight or flight response begins in the limbic system, located between the brainstem and cerebral cortex (Rothschild 8). The limbic system contains the hypothalamus, the main control center of the autonomic nervous system, and two structures involved in memory processing: the hippocampus and amygdala. The hippocampus is responsible for filing memories away with a definite beginning, middle and end, while the amygdala processes emotionally charged memories without temporal context.



The limbic system regulates survival behaviors and emotional expression. It constantly evaluates the present moment for potential threats (Rothschild 8). When a threat is perceived and escape is possible, the hypothalamus will activate the sympathetic nervous system, a branch of the autonomic nervous system that fires when the body needs to take action, in this case, for fight or flight. Epinephrine and norepinephrine are neurotransmitters that are released to increase heart rate and respiration, providing more oxygen and sending blood to the muscles for quick activation. Corticotrophin-releasing hormone (CRH) is delivered to the pituitary gland, which catalyzes a process that leads to the eventual release of cortisol, also known as “the stress hormone” (Rothschild 8). Cortisol has a soothing effect that halts the alarm response by suppressing the release of epinephrine and norepinephrine. This action brings the body back to homeostasis when the perceived threat has subsided.

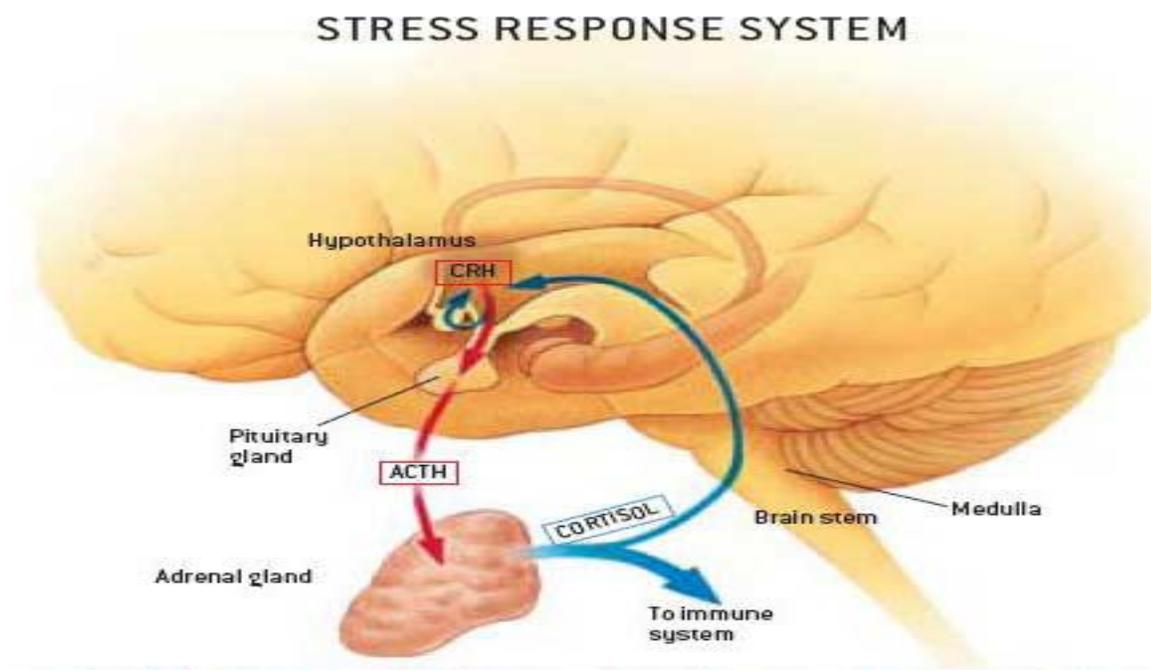


Photo credit: http://www.homeopathyone.in/Psycho_somatic_stress.html

One function that goes awry in the stress response that may lead to PTSD is an insufficient release of cortisol. This means that the body is not able to return to homeostasis and remains in a constant state of alarm (Rothschild 9). The alarm response continues after the threat has vanished. This brain activity is congruent with the kinesthetic activity involved in *enduring*: the internal gesture develops to aid in a traumatic incident and persists in the absence of threat.

Another phenomenon to consider is that the hippocampus is suppressed during a traumatic event. Recall that the hippocampus files memories away in the past, so hippocampal suppression may lead to the inability for the brain to conceive of the traumatic event's ending. The amygdala, the structure that processes emotionally charged memories without a concept of time, is active during the stress response, so traumatic situations, if not logically recalled, are remembered through emotions and sensations. I posit that *Enduring* is an example of a trauma memory that develops during the fight or flight response and is stored as a sensation in the body. Therefore, I propose that *enduring* exists because the body is in a constant state of subtle alarm and the brain has no concept of the trauma's end. I postulate that *enduring* is a form of PTSD that can be explained through insufficient release of cortisol and suppressed hippocampal activity.

If *enduring* exists because the body is in a constant state of subtle alarm, and because the event's end is not in sight, what can be done to root the body in the present and invoke the realization that the original threat has vanished? Behnke proposes somatic re-education as a way to recognize the kinesthetic behavior as an internal ongoing gesture, rather than as an external assault that requires self-protection. The type of somatic re-education they Behnke suggests for *enduring* is called *matching*, which is the act of

inhabiting the *enduring* pattern as something that is consciously being executed, so that it eventually becomes a choice to actualize the pattern and opens up the possibility for other actions. “The movement of yielding to the vaguely felt tension brings a kinesthetic consciousness into play and allows [one] to experience the structure of the inner gesture through which [one is] living- through which [one is] undergoing” (Behnke 86). *Matching* requires the trauma survivor to meet the tension with intention in a way that makes the gesture feel voluntary, so that engaging the gesture eventually becomes a choice. Stated differently, *matching* leads to “a practice of reinhabiting one’s own streamlining life in its living immediacy and reappropriating one’s most immediate horizon of possibilities, and of participating in the play of a world that is not fixed in advance” (Behnke 96). Overtime, *matching* enables a freedom for the survivor to choose another way of being in the body and the world.

Given what is known about PTSD and traumatic memory storage, why would *matching* work as a therapeutic method for *enduring*? By first becoming aware of the unconscious kinesthetic manifestation of the trauma, the trauma survivor acknowledges that there is no longer a need to be in a state of defensiveness. By embodying the gesture until engaging it becomes a choice, the body and mind are reprogrammed to conceive of the threat as having ended. To further illuminate how matching works as a therapeutic method and provide a foundation for understanding Authentic Movement as a therapeutic method, I will present psychologist Babette Rothschild’s scientifically grounded theories on trauma therapy and investigate why she believes body based therapies are essential to the healing process.

Using the body in trauma therapy

Based on the above theories on PTSD formation, Rothschild states that trauma therapy should do three things: 1) Unite memories into a comprehensive narrative of the events and aftermath of the traumatic incident. This includes making sense of body sensations and behaviors within the context 2) to eliminate symptoms of autonomic nervous system hyper arousal in connection with those memories 3) to relegate the traumatic event to the past (Rothschild 150). How can these goals be achieved through the body? An awareness and acknowledgment of body sensations can help people access forgotten memories (Rothschild 108).

Antonio Damasio's somatic marker theory helps elucidate the importance of helping people understand body sensations. The somatic marker theory proposes that sensations precede emotions (Rothschild 43). His theory states that our emotional experiences are a product of body sensations that are activated in response to stimuli. (Rothschild 59). Each basic emotion has an accompanying set of discrete body sensations stimulated by the brain (Rothschild 42). The sensations that we associate with fear, for example, become somatic markers that help us identify the emotion and make decisions based on kinesthetic feelings. Helping a trauma survivor identify body sensations can lead to identifying the unconscious emotions associated with those sensations. Once the sensation is identified the survivor can add language to it and logically connect the sensation to the traumatic experience.

Sensation awareness also comes into play in eliminating symptoms of autonomic nervous system hyper arousal. The autonomic nervous system regulates our internal environment and vital functions without conscious interference. It regulates our breathing, heartbeat, smooth muscle and organ functions. The sympathetic nervous system, which fires in the fight or flight response, is part of the autonomic nervous system. If

enduring is a form of traumatic memory that lingers because the sympathetic nervous system persistently fires, it follows that calming the autonomic nervous system would be an essential component of trauma therapy.

Enacting simple body awareness “makes it possible to gauge, slow down, and halt traumatic hyper arousal and to separate past from present”(Rothschild 101). Tapping into the sensations of the body brings one’s internal state into conscious awareness, and provides a sensitivity that allows the trauma survivor to recognize when to implement calming techniques such as breathing, meditation, positive thoughts and other soothing mental activities. Sensational awareness can provide an opportunity for the trauma survivor to take ownership of the internal state and choose a different way to be in the body, like in *matching*. Additionally, Rothschild proposes that patients can use their body sensations to remember positive experiences and use these sensations as positive coping mechanisms and resources: “Sometimes a positive somatic memory can help an individual resolve a current difficulty without having to confront the terrifying traumatic memory that triggered it. The successful use of the positive memory can help ease the terror” (Rothschild 108).

Applying the above theories in trauma therapy helps survivors integrate the trauma memories into a narrative, eliminate autonomic nervous system hyper arousal, and relegate the traumatic event to the past. A key phenomenon that makes body based therapies effective is that a memory stored as sensations can be elicited if a similar context is replicated (Rothschild 45). Sometimes assuming a particular body position or an internal body state that relates to the traumatic event is sufficient to trigger a flashback (Rothschild 44). This moment is critical in a therapy setting because the trigger or flashback can begin

to reveal suppressed memories and the source of trauma, however it is important for the therapist to use extra care in gauging and pacing hyper arousal by helping the survivor maintain a connection to body sensations (Rothschild 110).

Movement professionals and psychotherapists have a unique sensitivity to the body that can help trauma survivors become aware of the physical manifestations of their traumatic memories. Behnke affirms their ability to help people recognize *enduring* patterns: “The inner gesture of ‘enduring’ then can truly only function as an expressive gesture for those who have learned to see its traces, hear its message, and understand its meaning; then it shines through the flesh and demands an ethical response” (Behnke 101). The subtleties of movement reveal a plethora of information, and the most kinesthetically perceptive therapists can help illuminate these subtleties. Authentic Movement is one method that dance therapists use to connect to subtle internal kinesthetic patterns and give way to unconscious memories. This method helps trauma survivors transform their inner being by implementing the therapeutic theories proposed by Behnke and Rothschild.

Authentic Movement as a therapeutic method

Dancer, psychotherapist and dance movement therapist Mary Starks Whitehouse developed Authentic Movement in the 1950s. This therapeutic dance method is a self-motivated, introspective process whereby one closes one’s eyes and waits for an impulse from his or her body to move” (Tantia 55). This impulse is theorized to emerge from the body as an authentic expression of latent unconscious thoughts, memories and emotions. To access this authentic expression, the mover closes his eyes and waits for the impulse. If a trauma survivor has pent-up unconscious traumatic memories, they will be expressed and unveiled through these movement impulses.

Keeping the eyes closed while waiting for the movement impulse is an important component of Authentic Movement: “Shutting out external visual stimuli thus facilitates deep sensing experience, which has the ability to reach into the very tissues of the body and evoke imagery, emotion, body sensation, memory and dreams” (Tantia 57). Paying attention to the body’s internal sense is a critical step in meeting the first of Rothschild’s goals of trauma therapy: to unite the traumatic memories into a comprehensive narrative of the events and aftermath of the trauma. First the traumatic memories need to be unveiled, and then they can be processed as a narrative with a definite end. “Using language as a secondary form of communication helps the mover make meaning of his or her experience” (Tantia 60).

Authentic Movement requires the presence of a witness. When used in trauma therapy the witness is the therapist. The witness/therapist is “not 'looking at' the person moving, she is witnessing, listening, bringing a specific quality of attention or presence to the experiences of the mover” (Adler 21). Having a witness creates a physically and nurturing safety container for the mover, and facilitates an empowering experience for the mover to deepen his self-awareness in the presence of another. “One of the therapeutic goals of Authentic Movement is for the ‘witness consciousness’ to act as a model for the mover and encourage the development of the mover’s ‘inner witness’ or self-awareness, while moving and being moved without self-judgment” (Tantia 60). This dynamic is similar to *matching* in that the movement is meant to help the survivor become aware of an internal gesture and recognize that the *enduring* patterns is not happening to him, but rather he is executing the gesture unconsciously.

To further integrate the experience, the mover will speak with the therapist about the movement experience and the therapist will share her non-judgmental description of what she witnessed (Stromsted 4). This is a powerful moment in that “the witness’s words can help to reintroduce and support an empowered sense of the mover’s inner experience of safety and resiliency” (Tantia 60). The verbal connection honors the mover’s experience and builds trust to create comfort and freedom within the Authentic Movement structure. Rothschild asserts, “the somatic disturbances of trauma require language to make sense of them, comprehend their meaning, extract their message, and resolve their impact” (Rothschild xiv). Adding language to the movements that unveil traumatic memories is essential in helping the trauma survivor reach Rothschild’s third goal of relegating the trauma to the past. Where Authentic Movement goes next depends on the needs of the mover, but the ultimate goal is to assist the mover in creating “new, healthier, more embodied images and experiences of herself” which brings the mover toward “new possibilities in behavior, in self-knowing, in recovering her body as her own, in relating with others, and in becoming more fully who she is” (Stromsted 5). This goal aligns with the intention of *matching*, which is to “actualizing certain kinesthetic possibilities rather than others, which then allows further possibilities to become [available]” (Behnke 95). Defensiveness is removed as the default way of being in the world and is replaced with other possibilities that allow the survivor to be fruitful with a strong sense of bodily ownership.

Authentic Movement has the potential to meet Rothschild’s second goal of trauma therapy, which is to eliminate autonomic nervous system hyper arousal. Psychotherapist Jennifer Tantia measured the autonomic nervous system activity of the mover via a

biofeedback system. The system measured changes in the autonomic nervous system that were due to emotional experience and movement (Tantia 55). There was a consistent balance of the sympathetic and parasympathetic branches of the nervous system, which suggests that Authentic Movement may help balance the autonomic nervous system (Tantia 62). These findings confirm that Authentic Movement is an effective form of trauma therapy: “Because it appears to address activation and relaxation, the main visceral activities that regulate the autonomic nervous system, Authentic Movement may also have the potential to be empirically validated as an intervention that heals trauma on a visceral level (Tantia 55).

Conclusion and Discussion

Incorporating dance and the body into trauma therapy is imperative. Babette Rothschild’s research on the development of PTSD and using the body in trauma therapy builds a bridge between traumatic body memory and dance as a healing modality.

Enduring explicates the notion of body memory, and makes a clear link between traumatic body memory and the development of post-traumatic stress disorder. In the event of a traumatic experience, if the fight or flight response is activated, the emotional, physical and psychological turmoil involved in the event overwhelms the HPA axis and stores the memory as sensations that live in the body. Memories that are stored non-verbally may be accessed through the body, through dance.

Authentic Movement is an effective therapeutic method because it requires the trauma survivor to intently sense the body’s internal environment, thereby allowing body memories to speak through movement. Authentic movement is not the best option for everyone: “The use of Authentic Movement relies on an adequate degree of ego strength

and is often helpful for those already capable of enduring their forbidden thoughts, feelings, and fantasies in an unstructured environment” (Stromsted 3). The appropriate therapy method depends on many things, including the survivor’s comfort level with her body and where she lies in the healing process. There are many other therapeutic dance methods that can aid trauma survivors in healing, such as improvisation, Laban and Bartenieff Fundamentals, Body Mind Centering and the Alexander Technique. I chose to look at Authentic Movement for this research because its explicit purpose is to expose memories, emotions, stories and feelings that are stored in the body.

Over twelve million people are affected by intimate partner violence per year (qtd. Thehotline.org), and there are 3 million reports of child abuse per year (qtd. Safehorizon.org). Countless people are victims of racism, sexism, bullying, sexual harassment and neglect. Psychologically traumatic experiences are not abnormal. Too many lives are impacted by them, and without proper care and attention, trauma survivors may never fully process what they underwent or its effects. “The body knows, remembers trauma at a cellular level, but without a present and strong enough inner witness when the trauma is occurring, what the body knows cannot be remembered” (Tantia 40). It is my hope that this research will catalyze further investigation into the relationship between body memory and dance as a healing modality for trauma survivors, so that dance and body based therapeutic practices can be improved and made more accessible to the people who need them.

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