

A Ritual for Resolving Chronic, Habitual, and Pathological Implicit Memory and Emotional Disorders, Including Grief and Trauma

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Abstract

A neuropsychobiologically supported protocol/ritual is described for healing implicit memory and emotional disorders. The ritual is consistent with healing protocols associated with Dan Siegel's Interpersonal Neurobiology, Peter Levine's Somatic Experiencing, Candace Pert's *Your Body is Your Subconscious Mind*, Ronald Ruden's *When the Past Is Always Present*, Alan Fogel's *The Psychophysiology of Self-Awareness*, Jon Kabat-Zinn's mindfulness in *Full Catastrophe Living*, and the results of recent neuroscience findings associated with the re-consolidation of memory, and amygdala depotentiation. The paper attempts a unifying theory of trauma therapy. With the psychotherapist's guidance, the patient is able to permanently change the emotional memory of the trauma or grief with writing and mild aerobic exercise in a very controlled and titrated way

Keywords

Implicit memory – Trauma/grief erasing ritual – Somatic Experiencing – Aerobics re-consolidation - Mindfulness

Sometimes grief and trauma become chronic, habitual and pathological memories causing our patients to become dysfunctional socially, vocationally, academically, economically, or medically. Sometimes grief can be experienced as repetitive, inescapable trauma where “first line” fight/flight adaptations have failed. Although patients may not be depressed, they may appear somewhat sad, dissociative, numb and stressed (Schoore, 2009). When grief and trauma become pathological and habitual, the problem often involves unintegrated implicit memory systems mostly of the fast acting limbic system and the right hemisphere of the brain (Cozolino, 2010; Lanius, 2005a; Schoore, 1994, 2003, 2009; Siegel, 2007, 2010a). Parts of the fight, flight, freeze system of the autonomic nervous system may appear to be overactive, underactive or partially stuck, and unable to discharge, de-activate or work through the trauma. There is a breakdown of integration in many areas, especially between explicit and implicit memory systems (Rothschild, 2000, p.161; Siegel, 2010a). Sometimes a tonic immobility or freeze state has developed and the patient has a diminished ability to pendulate between pleasant-unpleasant and comfortable-uncomfortable states. Autonomic dysregulation has developed and has caused the trauma symptoms (Levine, 1997, 2005, 2008, 2010). Massive or widespread amounts of endogenous opiates may be protecting the patient through numbing (Drolet et al., 2001; Fields, 2004; Lanius, 2005b; Pert, 1997, 2006; Scaer, 2000, 2001, 2005; Urry et al., 2006). When conscious awareness has been blocked during grief/trauma, the hippocampus and prefrontal cortex have been taken off-line, and the memory of that experience including sensations, behaviors, images, emotions, feelings, meanings, beliefs, and other cues is typically stored, fragmented in implicit rather than explicit memory. The implicit memory cues for trauma/grief can be unconsciously conditioned and stored as in classical conditioning, as CS (conditioned stimuli), or the cues can become part of an operant conditioning event(s). These conditionings can be out of explicit awareness. Trauma/grief triggers the release of stress hormones which can shut down hippocampal and cortical areas while leaving the amygdala active or hyperactive (Anderson et al., 2007; Bremner et al., 1999; Francati et al., 2007; Cozolino, 2010, pp. 274-278; Maroun, 2006; Rothschild, 2000; Siegel, 2010a, pp. 151-162; Urry et al., 2006). While the evolutionary recent explicit memory circuits are largely contained in cortical areas that include the medial temporal lobe, the hippocampal areas and prefrontal cortex, the evolutionarily older implicit memory circuits are widely distributed throughout the brain and body (Fogel, 2009; LeDoux, 2000, 2002; Pert, 1997). With habitual grief/trauma there appears to be a fragmentation and lack of convergence of internal and external sensory systems and brain maps. The rhinal cortex, sensory perceptual association areas, the hippocampus and several other areas play a significant role integrating sensory/perceptual information while making coherent maps of these sensory elements. With significant trauma, especially of the PTSD variety, the whole prefrontal cortex including Broca's speech area may be offline and the languaging of the experience may be impaired (Lanius, 2005a). When the hippocampus is off line, it's as if no explicit maps were made of the experiences.

Ortony, A., Norman, D. & Revelle (as cited in Ronald Ruden, 2011, p.10) classify emotions into three states: reactive or primary emotions, which are limbic system controlled including fear and defensive rage; reflective or secondary emotions, which are prefrontal lobe managed including jealousy, frustration, indignation and others; and routine emotions such as brave, sweet, irritated, calm, and others. The protocol has been effectively used for reactive and reflective emotions.

The protocol that follows can be viewed as a dually mindful, present in the moment and in the past, process that facilitates the uncovering, organizing, differentiating, integrating, and releasing of traumatic implicit memories and emotions from unconsciousness, such as grief and trauma, as well as a process for a healthy, titrated, slow, step-by-step re-integration and reconsolidation of these experiences into some explicit memory without total immersion, re-living or retraumatization. Blakeslee characterizes Peter Levine's Somatic Experiencing technique as a process that “recalibrates your bodymaps so that you can feel yourself from the inside out” (Blakeslee, 2007, p.48). Interoceptive awareness modulates our emotional memories and processes (Gendlin, 1982; Pollatos & Schandry, 2008). The protocol supports these processes.

Dan Siegel defines the human mind as the “embodied and relational process that regulates the flow of energy and information” (Siegel, 2010a, p.52). He views the healthy human mind as an “integrated system of eight domains” (Siegel,

1999, 2007, 2010a). When there is an implicit memory or emotional disorder, there seems to be inadequate integration in one or more of the eight domains of integration (Siegel, 2007, 2010a). Communication between the upper and lower cortical layers may have been blocked preventing top-down and bottom-up integration in cortical layers 3 and 4 (Siegel, 2010b, p. 105). Cognitive awareness as reflected in the dorsal medial prefrontal cortex has often become distinctly segregated from perceptual/felt sense awareness as reflected in the ventral medial prefrontal cortex. This protocol exercises each of these eight domains of healing integration by allowing the patient to facilitate and manage the regulation and flow of energy and information of the grief/trauma state as well as reactive, reflective and routine/ordinary emotional states. The domains of integration are consciousness, memory, state of mind, horizontal, left-to-right and right-to-left hemisphere, vertical (top-down/bottom-up), time (past/present), interpersonal or narrative integration, and others. With trauma, various parts of the brain and body do not appear to be communicating freely, “flexibly, adaptively, coherently...” (Siegel, 2010a, p.70). There is usually over and/or under-coupling of events, emotions, feelings, thoughts, sensations, even images (Levine, 1997, 2005, 2010). The hippocampus, rhinal cortex, corpus callosum, cerebellum, anterior insula, anterior cingulum, prefrontal and medial prefrontal cortical interneuronal integrating areas do not appear to be fully engaged (LeDoux, 2000; Siegel, 2010). Broca’s area in the frontal lobe, responsible for articulating speech, may have been shut down with the trauma, even in the recalling of the trauma/grief (Cozolino, 2010, pp. 274-278; Rauch et al., 1996; Schore, 2009). The following protocol addresses many of these issues since it is a mindful process engaging the conscious mind in an “embodied and relational” way while titrating and facilitating the regulation of the “flow of energy and information,” using Dan Siegel’s eight domains of integration and Peter Levine’s Somatic Experiencing Techniques (Levine, 2010). It has helped many of my patients to feel better. Many have reported complete relief from their problem.

The nine basic processes that Peter Levine’s Somatic Experiencing therapists use in transforming and healing trauma are reflected in this protocol/Ritual. The purpose/intention of these nine processes is to: “1) Establish an environment of relative safety; 2) Support initial exploration and acceptance of sensation; 3) Establish ‘pendulation’ and containment: the innate power of rhythm; 4) Use titration to create increasing stability, resilience and organization. Titration is about carefully touching into the smallest ‘drop’ of survival-based arousal, and other difficult sensations, to prevent retraumatization; 5) Provide a corrective experience by supplanting the passive responses of collapse and helplessness with active, empowered defensive responses; 6) Separate or ‘uncouple’ the conditioned association of fear and helplessness from the (normally time-limited but now maladaptive) biological immobility response; 7) Resolve hyperarousal states by gently guiding the ‘discharge’ and redistribution of the vast survival energy mobilized for life-preserving action while freeing that energy to support higher-level brain functioning; 8) Engage self-regulation to restore ‘dynamic equilibrium’ and relaxed alertness; 9) Orient to the here and now, contact the environment and reestablish the capacity for social engagement” (Levine, 2010, pp. 74-75). This protocol/Ritual utilizes all nine of these healing processes.

Trauma/grief as used in this protocol will be defined as the “aftermath of a consciously or unconsciously perceived life-threatening or overwhelming experience(s)” (Levine, 2005, p. 7). When grief turns into inescapable trauma, PTSD may follow. When the diagnosis is acute stress disorder, posttraumatic stress disorder, or “normal” grief, the treatment protocols are fairly well established. However there are many patients who will come into therapy with many symptoms of chronic PTSD that do not meet full criteria for PTSD or acute stress disorder. There are others with PTSD diagnoses who have not responded to traditional PTSD or grief treatment protocols or refuse to pursue traditional grief/trauma therapies and deny that their problems are related to unresolved grief/trauma. They are unaware that certain implicit memories or emotions are causing their unhappiness. They will complain about distress or dysfunction in one or more areas of their lives. The amount of distress does not seem normal to them or to others. Many of these patients are mildly to severely dissociated from their emotions and their bodies (Schore, 2009; van der Kolk et al., 2005). As therapists, we must decide whether to treat the grief/trauma as normal or pathological. Typically “normal” grief/trauma is fairly short-lived and can be treated with traditional techniques, supportive therapy and psychoeducation. This protocol has been mainly used for treating chronic, habitual, pathological grief/trauma. Typically habitual, chronic grief/trauma, whether PTSD or not, is “unintegrated, bringing chaos or rigidity,” anxiety or depression into patients’ lives, often for years (Siegel, 2010). These are unhappy patients who often want to know why they are so unhappy. There is often the loss of a significant relationship, whether temporarily or permanently, with their body, self, and/or others; and there are posttraumatic stress disorder-like symptoms. The protocol has been used successfully with reactive, primary implicit emotions such as fear and rage, and with reflective painful emotions that were partially implicit and partially explicit such as jealousy, shame, guilt, and hatred. Some of my colleagues have used the protocol with their patients who were suffering from routine everyday emotions that were upsetting such as feeling confused, annoyed, agitated and others.

A major problem with many implicit memory and emotional disorders, including grief/trauma, and PTSD is that the person is often not aware that the memory/emotion is being recalled from the past and not happening now as a current explicit episode or event. It is like they are having a dream episode, but they do not always know it. What feels very confusing can be partially explained by the fMRI findings: regions of the brain involved in recalling a past, present or imagining a future event partially overlap. The past and the future feel as one (Eisenberger & Lieberman, 2004; Green, 2010). So if the recall of a painful event overlaps with any present or future associated events, pain is experienced and there is shutdown and avoidance. “The right frontal insula is active both when you experience literal physical pain and when you experience psychic pain” (Blakeslee, 2007, p. 188). Stephen Porges (2001, 2009, 2011) has coined this partially unconscious interoception, “neuroception.” The brain continuously monitors internal and external environments to assess safety and threat and it takes action to prepare for survival. Patients often say, “I cannot imagine the future without that person, it is too painful.” Sometimes a patient cannot integrate self into the future because imagining the future brings up the nociceptive signals of

physical and social pain of past events, and the mind avoids thinking or developing any plans for the future. These disorders appear to develop when interneuronal integrating areas of the brain such as the prefrontal cortical and hippocampal areas have been depressed, inhibited or shut down by massive stress (cortisol and/or adrenalin secretion from the hypothalamic pituitary adrenal axis, norepinephrine from the locus coeruleus and activation of the periaqueductal gray) preventing the left hippocampus from integrating experiences and autobiographical time with a resulting decrease in the “feel good” neurotransmitter serotonin, and others (Pert, 2000, 2006; Schore, 2009; Siegel, 2010; Ruden, 2011). The adaptive purpose of neuroception and the initial prefrontal and hippocampal shut-down is to perhaps give our survival mechanisms the highest priority without distractions from past memories of searches for where to put the new information, and to debate whether or not to act. It allows time for the fast and efficient analog part of our brain, the implicit memory system and the amygdala, to get into the quickest possible action. That quick action does not include giving time and space to neural circuits and processes that are designed to organize, analyze, and store information in a linear, logical, methodical way. However, without temporal integration of the memory facilitated by the left hippocampus (Andersen et al., 2007; Siegel, 2010), the regulatory emergent self (possibly involving anterior insula, anterior cingulate cortex, orbital and other prefrontal cortices including dorsal and ventral medial prefrontal nuclei, extrastriate body area, temporal parietal junction, right angular gyrus, cortical layers 3 and 4, and other areas) assumes that any strong memory/emotion is happening in the now. There is little awareness that the memory has come from the unintegrated implicit memory system. Another problem is that implicit memories do not seem to respond to logical, linear, left hemisphere reasoning. These memories seem to be more right brain and right hippocampal facilitated memories and experiences that are felt as intuitive, relational, non-linear, spatial, analog, divergent, holistic, or without a context of autobiographical time (Schore, 2009). Patients will describe them as dream-like. The subjective experience and awareness of implicit trauma memory may share some of the qualities of electrons. You cannot predict exactly where they will be at any one time except with a probability statement; they appear to have little mass and can change from one form to another like electrons switching from waves to particles and vice versa (Siegel, 2011). Yet another difficulty is that these memories will surface at odd times and often unpredictably, thereby temporarily confusing the person or leaving the self in chaos, rigidity, or even in fight/flight, withdrawal, or freeze patterns (Levine, 1997, 2005, 2010; Siegel, 2007, 2010). Somatic complaints such as tension, constriction, muscle spasms, or pain in muscles, organs, viscera and/or parts of the nervous system are common. The chronic activation of the fight, flight, freeze system of the limbic and the autonomic nervous systems results in the habitual shunting of blood, oxygen and nutrients to striated muscles and away from internal organs, sometimes creating chronic disease syndromes (Levine, 2005, pp. 18-20, 2010).

The first challenge for the therapist and patient in dealing with pathological, reactive trauma or grief is the problem of generating motivation and courage to explore and heal chronic, habitual trauma/grief. With less disturbing reflective or routine emotions, patients are more willing to give the protocol a try. Exploring unintegrated trauma or grief is normally very painful. The traditional way our patients deal with and defend against these chronic, unwanted or unpleasant experiences (sensations, thoughts, emotions, beliefs and others) is to ignore, deny, withdraw or dissociate from them and possibly to flood the memory with excessive endorphins (Lanius, 2005b; Pert, 2006). Sometimes these defenses are helpful in the short term. However, defensive behaviors when applied chronically to grief/trauma ensure that they will remain with the patient in an unintegrated way, possibly for the individual's lifespan. The brain needs to use energy to keep these unwanted and unpleasant events out of active, conscious awareness. Sometimes when there is too much trauma/grief, the brain-body will produce numbness associated with the overproduction of endorphins, which block both physical and psychological pain. Endorphins are produced in many parts of the brain, especially in the limbic system, and in many parts of the body. Endorphin receptors are widely distributed throughout the body (Pert, 1997, 2000, 2006). Since trauma and grief do not resolve as long as there is excessive endogenous opiate numbness or numbness from other neurochemicals, healing cannot occur. Naltrexone, an opiate antagonist medication, can often reverse the endorphin numbness and allow the trauma/grief to be reprocessed and healed (Lanius, 2005b; Levine, 2010; Pert, 2000, 2006). The orbital frontal cortex, the periaqueductal gray, the amygdala and the ventral tegmental area (limbic system) have abundant amounts of endorphins and opioid receptors at their disposal for use in numbing. Patients often have great fear in opening or exploring what appears to them to be the “Pandora's box” of trauma and its associated sensations. Since sensation appears to be a mediator between the mind and body, patients often choose to block integration and sensation coming from the body. Since interoceptive awareness can modulate emotional memory and facilitate integration, these patients have lost a major healthy process (Fogel, 2009; Gendlin, 1982; Pollatos & Schandry, 2008; Siegel, 2010b). The thalamus is involved in the early stages of integration of all sensory communication coming into the brain, except for the sense of smell. During trauma/grief, Bergmann (2008) believes that thalamic activity is reduced and with treatment, there is a restoration of thalamic activity. As you will see below, the protocol/Ritual provides a major increase in bilateral sensory input and sensory integration. With trauma/grief, patients often block sensation from the body, keeping the pain away from central awareness and in effect separating the central from the somatic peripheral nervous system. Some of these patients could be misdiagnosed as depressed. Some patients have become so generally numb that they seek out excessive external stimulation in daredevil stunts, or risky adventures, so that sensations can break through the numbing blockade and they can feel alive again. Levine (2010, p.283) states, “The degree to which we cannot deeply feel our body's interior is the degree to which we crave excessive external stimulation.” Most trauma/grief patients have tried to deal with the trauma/grief only to have gotten so frightened by the sensations and feelings that they have learned to try to avoid almost all related thoughts, sensations and feelings. They describe pushing sensation awareness out of consciousness. Excess secretion of endorphins will accomplish their goal, but the endorphins are often not very modality-specific in their blockade. Several sensory systems, both interoceptive and exteroceptive, can become dampened or blocked. Unfortunately, the more we try to push away or block a

memory or neural network, the more energy we put into that memory network, the greater the probability that the network will get stronger and more salient, and the more likely it is to be reactivated when the blockade is released. Try not to think of a “pink elephant” several times and notice what happens. Neural networks get stronger, more likely to fire, the more we use them. Trying not to activate an emotion activates part of the network of the emotion that the patient wants to block. The more the network is activated, the more easily and more quickly it will reactivate the next time it is triggered. Neurons that fire together, wire together (Hebb, 1949).

Therapists need to be able to offer patients something to replace the grief/trauma, something to replace the fatigue and numbness associated with trying to keep trauma out of awareness, and some hope that they will be freed of trauma suffering. The therapists who have already explored this territory who have taken at least one mindful trip from trauma to healthy differentiation, re-consolidation and integration with their own trauma/grief will be more likely to encourage the patient to undertake the journey knowing full well the rewards and the improved health that await the completion of the trip. These therapists describe the journey with contagious enthusiasm, excitement, and encouragement. They also know how scary it can be to take an adventure one has never taken before. Patients need to know that the therapist has been on this trip and will be there for them before and after the trip; and if needed, they can call on the therapist during the trip for coaching. (This protocol/ritual was more fully conceptualized only after I had taken this trip a few times, and I strongly suggest you use it on one or more of your traumas before treating others with it. If you do not have grief or a trauma, you can try the protocol on an unpleasant routine or reflective emotion.) “In treating traumatized individuals, a therapist first needs to cultivate a deep and enduring relationship with his or her own body. Only when a therapist’s embodiment skills are intact and engaged can he/she mentor or self-empower a client.” (Bandura et al., 1969; Levine, 2010, p. 138; Siegel, 2010b). The patient’s mirror neuron system likely resonates with the embodied self-awareness of the therapist (Fogel, 2009; Gendlin, 1982; Iacoboni, 2008). The rewards of taking the trip need to be spelled out clearly and individually for some patients to assist with their motivation for healing and health. For example, one of the rewards of healing the grief over the loss of a loved one is that the positive memories will be recalled without being overcoupled, overshadowed, swamped, or flooded with the negative memories associated with their loss. The loss may then become a small, almost insignificant part of their memory. I sometimes suggest that they will be able to feel the positive, joyful events associated with the loved one. Or if they are overcoming a trauma, they will be able to regain the felt sense of joy in their body that was so familiar before the trauma, and without numbing. If the patient has a long history of many traumas, or developmental traumas, I will sometimes suggest that they will feel a lightening, a little less stressed, a little more open to experience. During this discussion I look for a physiological response indicating that they have a positive memory and immediately ask them to notice or embody the positive feeling, reminding them that they can have those memories and positive feelings again without the negative associations after using the Ritual a few times. One helpful analogy is that of a radio or TV. I sometimes say to my patients such things as, “Of course, you could just mindlessly turn on the radio or TV and find yourself engulfed in the traumas of world news. You could choose a TV station that does not dramatize the news. You could decide to read or listen to the radio rather than the TV news. Or you could choose to just notice the trauma news and decide to tune into fun, pleasant broadcasting; or you could put on your pre-recorded station and experience your favorite programs. Or you might decide to watch the news in the company of your significant supportive others.” Sometimes it is helpful to remind the patient that they have a neural network of positive memories that they can summon at any time. It is helpful to encourage the patient to visualize a positive memory, and bring awareness to the “felt sense” of that resource (Bloom, 2001; Gendlin, 1982; Levine, 2010; Pert, 1997, 2006). This pendulation process appears to instill hope, calmness and a sense of safety and positive attachment in patients, reminding their nervous system that it can pendulate between positive and negative experiences and not be stuck in the negative trauma/grief. Applying this process in the session with the patient helps them to experience mindfulness and attachment in a safe, supportive environment. Hopefully this process engages the orbital and medial prefrontal cortex and calms the amygdala’s alarm system (Akirav & Maroun, 2007; Amat et al., 2005; Bechara et al., 2000; Phelps et al., 2004). If the experience in the session was the least bit positive, I will again remind the patient that eventually they will be able to re-experience joy and positive memories again regularly after practicing the protocol/Ritual several times. The validation of the felt sense of the positive memory is an important part of the protocol. Interestingly, when dealing with implicit memories I have often found that multiple repetitions of instructions and guidelines are necessary. Our patients are often reliving parts of their trauma/grief consciously or unconsciously as we talk about the protocol/Ritual. We often push away and dissociate from our negative memories. This undercoupling or dissociative process may be interfering with the explicit memory instructions necessary for the carrying out of the protocol/Ritual. For therapists trained in Somatic Experiencing (Levine, 2010) this process will be very familiar and easy.

You may find this protocol immediately successful or just helpful for relieving your distress from the loss of a loved one, a relationship, or some other implicit memory problem. It works best when the logical part of your mind tells you that there is no good reason for this problem to be this upsetting. These thoughts are suggestive of an implicit memory/emotional problem with lack of right left-brain integration. It has also worked for problems in which the distress was accepted as reasonable, logical and normal. In this case, there may be partial integration of implicit and explicit memory of the grief/trauma. To be successful, you must follow the Ritual very closely and faithfully. I intuitively and implicitly uncovered this Ritual in the process of trying to resolve some of my most horrific, multiple griefs/traumas twenty-six years ago, long before Somatic Experiencing (Levine, 1997), Interpersonal Neurobiology (Siegel, 1995), EMDR (Shapiro, 1989), and Coherence Therapy (Ecker & Hulley, 1996) were developed. It was discovered at a time when my logical, psychologically sophisticated mind, brain, and body were totally unsuccessful in resolving extreme psychological pain. The ritual was not

planned, thought about, or logically discovered; it was simply followed intuitively, implicitly as if I was doing something that I had done a thousand times. Yet I had never done it before. You can read the details below as “The Original Case.”

The process of healing the trauma/grief appears to be rather sudden for some of my patients. Although they are told to repeat the ritual several times, monitoring their progress with a Subjective Units of Distress Scale (SUDS), usually there is an “aha” moment, possibly as reconsolidation takes place and the trauma/grief memory has been recapitulated, modified, depotentiated and resynthesized (Nader et al., 2000; Hupbach et al., 2009; Kindt et al., 2009; Monfils et al., 2009; Myers et al., 2006; Pedrera et al., 2004; Schiller et al., 2010).

The way the protocol/ritual is introduced to your patients is very important. I always give my patients careful instructions, being very certain that they understand the ritual and are motivated to practice it. They carry out the ritual without much help from me other than encouragement, support, availability, coaching and hope. Occasionally, you may have to remind them to follow the procedure without modifying it. Usually the patients will be anticipating, imagining themselves carrying out the ritual on their trauma/grief as you are describing it to them using their mirror neurons. The instructions are given slowly, reassuringly and repeatedly, as needed. The calm, confident, compassionate, mindful presentation of the ritual is very important. The therapist/patient connectedness is very important for success here. Taking time is crucial; slow is better. “Slow” gives conscious, embodied awareness, and allows the mirror neuron system and the hippocampus time to integrate information. I have sometimes suggested to my patients, “My voice will be with you.” Since the ritual is consistent with the basic principles of Interpersonal Neurobiology (Siegel, 2007, 2010) and Somatic Experiencing (Levine, 1997, 2010) as well as the molecular biological findings and writings of Candace Pert’s *Molecules of Emotion* (1997) and *Your Body is Your Subconscious Mind* (2000), William Bloom’s *The Endorphin Effect*, John Ratey’s *Spark*, (2008) and recent findings in the neuroscience of fear memory (Bergmann, 1998, 2000; Harper et al., 2009; Hupbach et al., 2007; Kindt et al., 2009; LeDoux, 2000; Lee, 2009; Monfils et al., 2009; Myers et al., 2006; Nader et al., 2000; Ruder, 2011; Schiller, 2010; Wang & Morris, 2010), the protocol can be modified only if the principles and findings are honored. I suggest you follow the protocol completely for the first five sessions. In my experience, patients have significantly reduced or eliminated the implicit memory/emotional problem or grief by the fifth session, and sometimes after the first couple of sessions. I have rarely had a patient who needed more than five sessions of the protocol, as I have witnessed having used it successfully for over twenty-four years. Every few years a different explanation of why it works comes to mind. Yet, the protocol has hardly changed in over 26 years. The latest explanations of why the protocol works come mostly from the recent conceptualizations of Dan Siegel, M.D. (Interpersonal Neurobiology Theory), Peter Levine, Ph.D. (Somatic Experiencing), Joseph LeDoux, Ph.D. (Synaptic Self), Candace Pert, Ph.D. (*Molecules of Emotion*), Allan Schore, Ph.D. (*Affect Regulation*), John Ratey (*Spark*) and the many neuroscientists publishing on fear memory and reconsolidation listed above. Psychotherapists using this protocol may be interested in exploring the following therapies which include some elements of my protocol: Dan Siegel’s *Mindsight*; Peter Levine’s *In an Unspoken Voice*; Zindel Segal’s *Mindfulness-Based Cognitive Therapy*; Leslie Greenberg’s *Emotion-Focused Therapy*; Jeffrey Young’s *Schema Focused Therapy*; Ricky Greenwald’s *Progressive Counting*; Francine Shapiro’s *Eye Movement Desensitization and Reprocessing*; Steven Hayes’ *Acceptance and Commitment Therapy*; Ronald Ruden’s *When the Past is Always Present*; and Alan Fogel’s *The Psychophysiology of Self-Awareness*. For your patients who are interested in reading about pathological grief/trauma and healing, you might refer them to one of these user-friendly books on the topic: Jon Allen, Ph.D.’s *Coping with Trauma*, 2nd Edition, 2005; Judith Herman, M.D.’s *Trauma and Recovery*, 2nd Edition, 1997; William Bloom’s *The Endorphin Effect*; and Peter Levine’s *Healing Trauma*. For those patients wanting more experience with mindfulness, you might mention works such as those of Jon Kabat-Zinn (*Wherever You Go There You Are*, and *Full Catastrophe Living: Using the Wisdom of Your Body & Mind to Face Stress, Pain and Illness*), Saki Santorelli and Jon Kabat-Zinn (*Heal Thyself: Lessons in Mindfulness Medicine*), Bob Stahl and Elisha Goldstein (*The Mindfulness-Based Stressed Reduction Workbook*), Les Fehmi and Jim Robbins, (*The Open Focus Brain: Harnessing the Power of Attention to Heal Mind and Body*), Thich Nhat Hanh (*Peace is Every Step: The Path of Mindfulness in Everyday Life* and *The Miracle of Mindfulness: A Manual on Meditation*) and Pema Chodron (*Taking the Leap: Freeing Ourselves from Old Habits and Fears*).

The Protocol and Ritual

When introducing the protocol to my patients, I prefer to call the protocol **The Ritual**. The idea of a ritual implies that the problem is shared by cultures around the world; rituals are a normal part of life as is trauma. Ritual also implies that the person needs to take some ownership of the process and the outcome, with only the help or coaching of a healer/therapist. This particular ritual is consistent with a trauma healing paradigm that many human cultures have used to deal with habitual grief/trauma. This universal paradigm involves variations of four processes:

1) **communication with a resource** [with presence, attunement, attachment and resonance] between individuals (one-on-one or imagined), with a therapist, a priest, a shaman, a God, a group, a family, a nation, using narrative, song, prayer, chant, and more recently, TV;

2) **re-enactment** [symbolic, abstract, concrete or real, with Sensations, Imagery, Behaviors, Affects, and Meanings (SIBAM, from Somatic Experiencing), using one or all senses, and eye movement (Levine (1997, 2005, 2010)]. There is autonomic nervous system involvement including sympathetic, ventral vagal and possibly dorsal vagal activation, depending on the trauma experience (Porges, 2011);

3) **movement** [running, fighting, collapsing, ritual, dance, shaking, trembling, quivering, drumming, posturing] This also includes imagined movement, implicit extrapyramidal movement, as well as explicit voluntary striatal muscle activation, possibly as a means of reconnecting numb and disconnected body parts to re-integrate body and mind, and;

4) **mindfulness** [including mindful body awareness, being aware in the moment (now) of internal and external senses, thoughts, emotions, sensations, spontaneous body movements, beliefs, all without reacting to them (Kabat-Zinn, 2006; Kinslow, 2008; Siegel, 2010a, 2010b)]. Mindfulness provides a “now versus then” experience, letting the mind know that a part of it has survived the trauma/grief. Cortical layers 3 and 4 are activated, along with the anterior cingulate, anterior insula, dorsal medial, dorsal lateral, ventral medial prefrontal nuclei, orbital cortical areas and others. The following protocol and trauma healing Ritual is consistent with that paradigm, and emphasizes dual awareness of “now and then.”

As you read through the rest of the paper and experience the protocol/Ritual, it is helpful to remind yourself of the definition of “mind” that I have quoted from Dan Siegel: “[The] human mind is an embodied and relational process that regulates the flow of energy and information” (Siegel, 2010, p.52). The protocol is embodied in the “felt sense” and interoceptive experience of the patient, and in the resonance of the therapist; it is relational between patient and therapist, as well as relational between the mind and the body in both patient and therapist; and, it involves the regulation of energy and information in a very controlled way throughout, as you will see and experience below. The process of explaining and teaching the protocol/Ritual is actually a process of “mindsight” healing. With presence and attunement, the therapist is modeling, through verbal and non-verbal resonance, a way of re-establishing healthy “mindfulness” (Siegel, 2010b). The postural resonance appears to bypass conscious awareness (Levine, 2010). The dyadic relationship between patient and therapist can be seen as resonating systems, right-brain to right-brain and left-brain to left-brain processes. The attunement with the patient provides the secure, safe activation of the attachment circuitry needed for the journey into the scary, unknown, implicit memory territory (Fogel, 2009; Main, 2000; Ruden, 2011; Siegel, 2010b; Wallin, 2007). I have chosen to use the pronoun “you” in describing the protocol and ritual since I suggest the therapist practice the ritual before coaching others. If necessary, you could ask a colleague to help you through the process, “holding the space” for you. If you are not in touch with a trauma, you might use a routine or reflective emotion that you would prefer to eliminate from your life.

Before starting the protocol for your patient or yourself, it is helpful to model and experience embodied mindfulness regarding the choice of the event(s) to process. For example, if there are several events in a series, I have asked patients to mindfully place the events on a shelf and feel which event is the right one to take off the shelf to work on for this protocol. After the trauma/grief has resolved, they can take another trauma/grief off the shelf for healing. Lately, I have been using my arms to visually demonstrate spreading out the events on an imagined shelf possibly activating “place and grid neurons” of the hippocampus (Gendlin, 1982; LeDoux, 2002). If the patient finds the shelf too close, and/or my resonance supports that felt sense, I will suggest that the patient could visually place the events on separate TV screens and see how that feels. I wait for the patient’s embodied response. Then I might say, “You could choose the first or last event, the most intense, the most representative, or if you believe the stress is extreme, you might select the least intense event.” Often, just letting the patient choose for his or herself works out best. If the trauma is severe (based on the therapist’s resonance and evaluation of severity), I usually suggest that only a discrete, circumscribed event become the subject of the ritual for the first series. I have found that my resonance is more accurate an assessment of severity than the context of the patient’s story. Since patients often have little access to unconscious, implicit memories, they are frequently poor judges of the severity of their traumas. It is up to the therapist to help gauge the severity of the trauma, sometimes by content, but mainly by the patient’s physiological symptoms, signs and reactions. However, if the patient has a strong preference, I suggest you go with it.

Step One: Find a suitable time and place for expression (oral and written) that would also be suitable for a follow-up with mild aerobic exercise...

First, find a time and pleasant, peaceful and relatively safe place where you can explore and express, write and verbalize out loud, the emotion(s), feelings, images, sensations, issue, problem, memory, behaviors or event without anyone interfering with your emotional expressions, shouts, wailing, laughter, cries, collapse, writing, moving and activity. These expressions are a way for your nervous system to reconnect with disconnected parts of the embodied self. Often my patients will find a time and place at home when everybody is out. Perhaps the best place is the patient’s bedroom where it is possible to assume different positions while allowing the nervous system to de-activate, discharge, renegotiate and re-integrate. The discharging can be somewhat upsetting as there may be shaking, quivering, trembling, temperature changes, bracing and a need to collapse mindfully. The patient’s bed can provide a safe haven before moving on to the next steps of the protocol. If the bedroom does not work you might consider driving your car to a comfortable safe place, such as the seashore, where you can park your car, write, and evocatively express and explore your feelings, images, perceptions, beliefs, thoughts and behaviors such as shaking, trembling, shouting, screaming, or crying and others. I often have to remind the patient that if they shut the windows on their car no one can hear their evocative expressions.

When designating a suitable place to engage in mild aerobic exercise...

The most effective places to exercise, jog, or fast-walk are the out of doors on a beach, a boardwalk, near a lake, in a park or forest, or just out in your safe neighborhood. Jogging barefoot on a sandy beach appears to be the best place and it has the advantage of truly grounding the body by connecting the body with the negative ions of the earth (Ober et al., 2010). The beach and boardwalk have the advantage of providing your brain, body and mind with the natural rhythms of life, the ebb and flow of waves and sounds, along with mood-elevating negative ions, bright anti-depressing light, fresh air, and an endless beautiful horizon; the lake, park or neighborhood provide a nature setting where you will feel grounded and your heart can feel at home. Some people decide to do the Ritual in the parking lot of their gym, then tear up the writing and go into the gym using the treadmill for mild aerobic exercise with their friends. Jogging or fast-walking outside seems to work best; however, I suspect that if you could engage in spontaneous, authentic aerobic dance, you might experience a shift in state of mind that may be more powerful and healing for you than the jogging or fast-walking. There is a caveat here: none of my patients have tried this type of dance yet.

Step Two: Estimating the time for each session...

You must decide how much time you can deal with this problem in one sitting. This step is about the duration and intensity of exposure. I usually recommend a maximum of **one to two minutes** for the first session if the problem is severe, or longer if the grief/trauma is not severe. This is a titrating, step-by-step, gradual exposure protocol. You do not want to explore to the point at which it is so painful that you will not want to return for further explorations. You do not want to fully re-live the trauma. "Flooding" will sometimes do that. You probably have been avoiding the implicit memory or emotion for a long time. It is best to allow less (rather than more) time to process the experience. Allowing yourself to get overwhelmed could re-traumatize you. This step is extremely important. You must be mindful of your body and the felt sense of stress you are enduring. If a session felt too stressful, you might shorten the next session. This process is a form of titration of the grief/trauma into smaller pieces. Alternatively, if nothing stressful happened in the first session, you might on subsequent sessions consider increasing the time of the writing and exploration by about 100% or more. For example, in the second session, if the first session was one minute, you might allow two minutes of exposure, writing and expression of the memory; in the third session four minutes etc. If a session felt too stressful, you might shorten the next session. I emphasize that you must be **mindfully monitoring** your level of distress during this step. On a subjective unit of distress scale (SUDS) of 0-10, if you sense that the SUDS is above a 7, it is usually time to proceed to the next step. It is also helpful to take a SUDS reading before and after each session of the ritual to get an idea of the effectiveness of the overall process. Shifting of awareness from the felt sense of the body and evocative expression to cognitive awareness with the SUDS is a pendulation process that promotes healing and integration of several brain areas. It will also inform you of how to proceed with the ritual. This process of attending to the distress and cognitively labeling it (Creswell et al., 2007) enhances mindfulness, dual awareness, the "felt sense" (Gendlin, 1982) of the body, and gives you and the patient some control over a problem that has been out of control. The mindfulness appears to activate several prefrontal areas of the brain including the ventral medial prefrontal cortex, which is one of the few nuclei in the brain that can dampen the amygdala's alarm system (Amat et al., 2005; Bremner et al., 1999; Kalisch, R. et al., 2006; Maroun, 2006; Phelps et al., 2004; Scaer, 2001; Wang & Morris, 2010; Urry et al., 2006). Mindfulness also engages the anterior cingulate and anterior insula, the two cortical areas that mediate between the brain stem and the prefrontal cortex (Corrigan, 2002; Siegel, 2010a). The process of continuously monitoring and managing your stress level as you go through the protocol is a very important part of the mindfulness process and is needed for integrating and healing the trauma/grief. You are coaching your mind to do what it normally does, and what it did naturally before the trauma/grief: successfully managing the flow of energy and information in your systems. The mindfulness engages the executive function of the prefrontal cortices including the orbital (social, attachment, reward potential, positive/negative valence), ventromedial (body input, embodied self-awareness), and dorsolateral (working memory, attention, holding) areas as well as others including the anterior insula and cingulate with their felt sense of the body. Eventually, in subsequent sessions, it is desirable to achieve at least a ten-minute exploration, which will allow for further re-consolidation of new learning and emotional memory. The final re-consolidation appears to take place during the mild aerobic exercise of Step Four.

Step Three: Communicate, resource, write and speak...

Step Three is a controlled re-enactment of the trauma/grief. It will activate various memory systems including episodic, explicit, implicit, autobiographical and psychoneurobiological anticipatory systems, right hemisphere and limbic systems as well as procedural body memories. In some ways, it will surprise unconscious defenses and perhaps allow a lifting of one layer of defense at a time (Main, 2000; Main et al., 2008). Dan Siegel (2010b, p. 114) remarks that "we are a storytelling creature. We could even call ourselves *Homo sapiens narrativatus*—the one who knows we know and tells a story about it." This step is a very stressful part of the protocol where adrenalin, norepinephrine, dopamine and several neuropeptides can be released into the brain and body. While you are exploring you will be writing both positive and negative feelings, emotions, sensations, perceptions, images, and thoughts. Some patients decide to explore only their positive and

negative feelings. That can work. Other patients decide to talk and write (both positively and negatively) to the person that they lost; that can work too. Some will imagine or visualize the person sitting in an adjacent chair as they talk and write about the positive and negative. Some will imagine what the person would be saying to them if they were in the adjacent chair and what they would be saying in return - both positive and negative. You need to feel free to express verbally, out loud, both positive and negative emotions and feelings including anger, rage, loving, caring, and loneliness. The evocative part of Step Three can activate unconscious alarm calls of the amygdala that were part of the original grief/trauma, making that cue vulnerable to extinction and re-consolidation (Kindt et al., 2009; Meyers et al., 2006; Ruden, 2011; Schiller et al., 2010; Wilkins & Wakefield, 1995). The major expression is about your positive and negative emotions, feelings, and experiences; **you must explore both the positive and negative for this protocol to work.** For example, if the implicit memory is about the loss of a loved one, the expressions must be about both positive and negative emotions, feelings, images, sensations, memories and any associated perceptions, thoughts and beliefs. You cannot just explore the positive or just the negative and have this protocol work. The right anterior insula appears to contain re-representative maps of viscerally stored emotions which are “expressed as polar opposites: love-hate, lust-guilt, gratitude-resentment, self confidence-embarrassment, trust-distrust, empathy-contempt, approval-disdain, pride-humiliation, truthfulness-deceit, atonement-guilt. These emotions cause you to approach or retreat...” (Blakeslee, 2007, p. 188). The orbital-frontal cortex assigns positive and negative valences to body sensations and so gets involved in this process. There appears to be a need to balance or pendulate between your positive and negative, approach and avoidance, left and right brain tendencies. The balancing and pendulating also helps to keep the three parts of your autonomic nervous system - sympathetic, dorsal vagal parasympathetic, and ventral vagal parasympathetic-balanced, so you are open and in your zone of resilience and health (Levine, 2010; Porges, 2007). Bringing your attention to the emotion, sensation, memory and experience, exploring it mindfully, writing about it, expressing yourself vocally, and exercising afterward (Step Four) will help you feel more regulated, coherent and integrated because this process mindfully engages the interwoven memory systems of your brain, body, and mind (Pennebaker, 2000, 2004; Creswell et al., 2007; Siegel, 1995, 2010a). Implicit and explicit memory systems will have been integrated. The central, peripheral, and somatic nervous systems that may have re-activated fight/flight/freeze anticipation memories with the writing will be de-activated and re-integrated and re-consolidated in Step Four. It will feel like energy has been discharged or de-activated and integrated (Levine, 2010).

As soon as there is distress that is difficult to handle with a felt sense of stress greater than 7 (0-10 scale), you must tear up the writing and throw it in the wastebasket. If stress gets too high, your body will release enough adrenalin and/or cortisol to down-regulate hippocampus function, inhibit the ventral medial prefrontal nucleus, orbital cortex and other prefrontal areas. Thus it will prevent further new learning, memory, integration, re-consolidation and healing. Mindfulness can get lost. The “tearing up” is an action and a metaphor for bringing back a sense of control and for consciously distancing the self from the emotion, memory, and events. The use of the SUDS scale is another way to enhance mindfulness and dual awareness of sensation and thoughts, while managing energy and information. “Change only occurs when there is mindfulness, and mindfulness only occurs when there is bodily feeling.” Levine (2010, p.338). Conscious, mindful writing enables the hippocampus and other neurointegrating functions to remain on-line and to possibly uncover and enhance the transfer of the implicit memory from right to left-brain functions, via corpus callosum and anterior commissures, where it can be more effectively, logically and coherently handled. The out-loud verbalization activates Broca’s area that may have been shut down with the grief/trauma (Rauch, 1996). The two hemispheres of the brain, right and left, appear to become more integrated and communicate more effectively. Horizontal integration is enhanced. The writing also helps to integrate and modulate the overwhelming emotion arising from brainstem and limbic system arousals. Naming takes the trauma/grief fragments out of direct sensory experience and eventually gives them left hemisphere representation (Kiser, 2010; Margola, 2010; Pennebaker, 1997, 1999, 2004). The rhyme is convenient: name it to tame it (Creswell et al., 2007). Vertical integration is enhanced. Although implicit memory and implicit emotion are often unconscious, this protocol appears to be one way to bring some of the implicit into the realm of explicit memory. However, there have been a few patients who could not verbally describe what happened with the ritual. All they described was that the grief/trauma no longer bothered them. Over the years, a couple of patients refused to write. Instead, they used the morning shower to verbalize the material that I suggested they write about. The shower, like therapeutic touch and massage, can release serotonin and endorphins, which can diminish emotional and physical discomfort and pain. The shower experience for these patients was apparently relaxing, comforting, distracting and private enough to allow them to explore the distress without re-traumatizing themselves. However, these patients did not get as much relief as the patients who were writing as described above. Interestingly, the patients who insisted on the shower venue, had families that were very intrusive and there were usually no private places for them to explore the protocol, as well as the possibility that they did not fully engage in the mild aerobics afterward. Why would they get sweaty after a shower?

Step Four: The correlation of aerobic activity with healing and growth...

You must go immediately for a 20-minute jog, fast walk or some other mild aerobic exercise with the intention of letting go of the grief/trauma memory and discharging some of the arousal energy through striated muscle activity. Some may conceive of this step as a running away from the trauma/grief and running toward a previously familiar experience of joy, calm, beauty, and safety as a way of completing a fight/flight/freeze response (Levine, 2010). Others may conceive of this step as a

distraction that prevents the consolidation of the original trauma/grief (Nader et al., 2000). Still others may conceive of this step as an integration and re-consolidation of new memory (Harper, 2009; Hupback et al., 2007, 2009; Pert, 1997, 2000, 2006; Ratey, 2008; Rasolkhani-Kalhorn & Harper, 2006; Schiller et al., 2010; Schofield & Abbuhl 1975). At the end of the exercise you will take a SUDS reading again to engage the explicit memory system. Re-consolidation (depotentiation, elimination) of reactivated grief/trauma memories can occur soon after the retrieval of the memory. If the mild aerobic exercise is delayed, the window of opportunity for depotentiation of the amygdala's alarm system, re-consolidation of the memory and elimination of the grief/trauma may have passed (Myers et al., 2006; Schiller et al., 2010). Once the trauma/grief or strong emotion has been reactivated or brought out of memory, there is a labile period during which the memory can be modified and re-consolidated (Kindt et al., 2009; Lee et al., 2006; Nader et al., 2000; Schiller et al., 2010). During this period, partial flashbacks to the original memory usually occur for patients; however, the body, being in a relaxed state, no longer has a conditioned response to the conditioned stimuli that triggered the grief/trauma/emotion in the first place. The proprioceptive feedback and context of the trauma/grief memory has been changed (Guthrie, 1952). Patients may sometimes need to be reminded that when fragments of Step Three appear, they are to just notice them mindfully without analysis, evaluation, or rejection. Step Four could be considered a period of classical conditioning extinction training. The conditioned stimuli of the trauma/grief are activated but are not followed by the unconditioned body response of trauma/grief. However, unlike a classical extinction procedure, this protocol has not been followed by spontaneous recovery of the conditioned response even after presenting the original conditioned stimulus. The change appears to be permanent. Several patients have been followed for a few years with no recurrence of the trauma/grief. During the retrieval and during the reconsolidation period, conflicting information is introduced, such as a relaxed state, positive emotions and feelings. The patient senses that it is safe to be with the trauma/grief feelings, thoughts, images, beliefs without getting retraumatized. Jogging or fast walking stimulates the brain within a delta frequency (0-4 Hertz). My fast walking is between 1-3 steps per second which is similar to the bilateral calming frequency used in EMDR. The delta frequency is the frequency of the EEG during slow wave sleep, the period when memory consolidation is enhanced. Heart rate, nursing and other frequencies are all within the delta range. The delta frequency appears to be associated with deactivation and depotentiation of the amygdala's alarm system, as well as activation of the hippocampus, the dorsolateral and orbitofrontal cortices, the cerebellar processing center, and the medial prefrontal cortex, the inhibitor of the amygdala's alarm system (Bergmann, 2000; Harper et al., 2009; Nader et al., 2000; Lin et al., 2003; Rasolkhani-Kalhorn & Harper, 2006; Ruden, 2011). Step Three appears to bring out a mild stress response, a mimic of the original stress reaction, a minor re-enactment of the original trauma/grief; Step Four appears to resolve that response in a natural way. The context of the trauma/grief has changed and context detectors in the hippocampus and rhinal cortex have probably detected the change in the trauma/grief experience. The nervous system re-experiences the natural pendulation from stress to resource that it has perhaps forgotten. The joyful response associated with the mild aerobic exercise is incompatible with the painful grief/trauma response. These incompatible responses appear to set the stage for depotentiation, re-consolidation, and new learning. Studies have shown that some of the neuropeptides and neurotransmitters released during mild aerobic exercise enhance extinction, including brain derived growth factor (BDGF), endocannabinoids, and fibroblast growth factor-2 (Chhatwal et al., 2009; Graham et al., 2010; Peters et al., 2010; Ratey, 2008).

The aerobics must be mild, not moderate or extreme. A word of caution and concern is that the central nucleus of the amygdala could send a signal to the brainstem's locus coeruleus, which could activate the sympathetic nervous system with widespread release of norepinephrine, leading to retraumatization. The norepinephrine energizes and mobilizes the mind and body, while the dopamine sharpens the focus (Jacobs, 1985; Siegel, 2010). As long as this response is mild and significant amounts of cortisol, glutamate, norepinephrine and activating neuropeptides have not been released, the hippocampus and medial prefrontal cortex will remain on line and the experience can be reintegrated. We seem to need to be somewhat conscious and aware for the hippocampus and prefrontal cortex to work best. "We become consciously aware of an emotional stimulus only when that stimulus is processed by networks involved in...working memory" (LeDoux, 2002, p.123). Working memory is believed to involve, among other areas, the dorsal lateral prefrontal cortex. The whole frontal area of the brain often goes "off line" with reactivation of trauma (Lanius, 2005a). During Step Four the frontal lobes, the hippocampus, medial prefrontal cortex and other higher centers will hopefully come back on line. For a million years, man has used movement and "defensive orienting responses" such as running, and fighting to cope with stress. Even the basic "exploratory orienting response" involves movement of the stapes muscle of the ear, the pupillary sphincter muscles of the iris, the head and neck muscles to turn the head and body toward the object of interest (Levine, 2010). Patients report that it feels right to run and/or fast walk after Step Three. Perhaps thwarted fight or flight responses get expressed, completed, and de-activated by the mild endorphin promoting exercise. However, strenuous aerobic exercise does not seem to work as well as mild aerobics both in my experience, and in that of Bercei (2005). Since the publications of Yerkes and Dodson (1908), we have known that low levels of stress or arousal promote learning of new information, but that high levels of stress impair new learning. Perhaps the strenuous exercise causes too much stress for the body, using up endorphins for body discomfort, leaving fewer hormones and peptides for learning and re-consolidation. An alternative hypothesis is that moderate or severe exercise triggers the release of a flood of endorphins to block the muscle pain involved. Such a flood would impair mind-body integration (Lanius, 2005b). Excessive moderate or extreme aerobics may produce too much norepinephrine and/or cortisol, or activate the amygdala's alarm system, which we know can shut down the hippocampus and prevent integration (Lanius, 2005a; McEwen, 1992). Over the years, I have found that patients who used the gym for mild exercise did not fare as well as those who engaged in the mild exercise outdoors, whether it be jogging or fast walking. The guideline for the amount of aerobics is to exercise to the point where you perceive that breathing is just noticeably harder. The right amount of exercise will be accompanied by the reduction

of muscle discomfort, a shift toward positive emotion, and sometimes an increase in energy. Most patients achieve these changes within 10-20 minutes. Of course, medical clearance for the exercise needs to be verified. The mild aerobic exercise done mindfully in this context changes the brain by triggering the release of neurotransmitters, neuromodulators, neuropeptides, brain derived neurotrophic factors, and hormones while facilitating synaptogenesis, neurogenesis, interneuronal stem cells, gene activation, and learning (Chhatwal et al., 2009; Doidge, 2007; Graham et al., 2010; Peters et al., 2010; Siegel, 2010; Ratey, 2008). John Ratey in *Spark* describes aerobic exercise as “Miracle Grow” for the brain in the form of Brain Derived Neurotrophic Factor (BDNF). The molecules of positive emotion released by the exercise can resonate with endorphin receptor cells throughout your body (Bloom, 2001; Pert, 1997, 2000, 2006). The attention to the memory and emotion, the novelty of the experience and the mild aerobic exercise all facilitate neuronal activation and growth (Pert, 2006; Ratey, 2008; Siegel, 2010). The BDNF, endorphins, endocannabinoids, serotonin, dopamine, and norepinephrine released by the exercise all decrease the stress throughout your body and produce an anti-depressant effect (Pert, 1997, 2000, 2006; Ratey, 2008; Varga-Perez et al., 2009; Warner-Schmidt & Duman, 2006; Russo-Neustadt et al., 2000). Exercise also turns on the genes that produce gamma aminobutyric acid (GABA), which is the brain’s major inhibitory neurotransmitter that can calm the amygdala. From the perspective of Somatic Experiencing, the whole protocol facilitates a mindful and titrated re-awakening of Gendlin’s “felt sense” and an embodied self-awareness. This embodied self-awareness activates several brain areas including the sensory motor cortex, the anterior insula, and most importantly, the ventral medial prefrontal cortex (VMPFC). The VMPFC has the ability to dampen and attenuate amygdala alarm responses (Hariri et al., 2003; Kalisch et al., 2006; Phelps et al., 2004; Schofield & Abbuhl, 1975; Urry et al., 2006). After several sessions, the body that has formerly been numb, denied, or dissociated from grief/trauma can be brought back to awareness without the fear, rage, anger, shame, guilt or helplessness that triggered the trauma/grief response in the first place and prevented it from being brought to light for healing. The disembodied, lonely, traumatized, grief-stricken sufferer regains connection with the body, the earth, and life. Within minutes, there can be a pendulation between the chaos of revisited trauma – with its disembodiment, dissociation, and denial, to a state of re-embodiment, joy, calm and exuberance. Integration has occurred from the Interpersonal Neurobiology perspective of Dan Siegel. A Chinese proverb states that emotions must be experienced and expressed if they are to be healed. Peter Levine (2010, p.310) remarks that Austrian-born psychiatrist Wilhelm Reich (1933, 1972) “was adamant that the (trauma) cure could only be realized when there was a powerful emotional release at the same time as the patient remembered the traumatic event.” Reich’s bioenergetic approach to healing trauma involves dealing with the “bioenergetic armour” associated with constriction, in addition to other changes to muscles and organs that result in the restriction of the flow of body energy. Eastern medicine would call this the restriction of Chinese chi, or Indian prana. Interpersonal Neurobiology might refer to this process as the failure of integration (Siegel, 2010a). The protocol/ritual validates Reich’s belief. The human nervous system’s response to grief/trauma initially involves the activation of the social engagement system via the ventral vagal nerve; if that doesn’t work, the fight or flight sympathetic nervous system engages; if that fails, the immobility response of the dorsal vagal system engages and there may be tonic immobility or collapse “fold” (Levine, 2010; Porges, 2001). Step Three of the protocol/ritual may facilitate activation of ventral vagal social engagement defenses that were thwarted with the onset of the trauma/grief. The mild aerobic exercise and movement may also facilitate a completion of a thwarted flight or fight response that was frozen by the trauma (Levine, 1997, 2005, 2010). Peter Levine (1997, p. 29) described his first glimmer of understanding trauma in *Waking the Tiger*, when he was able to help his patient overcome severe panic attacks by encouraging her to imagine running to a safe place. He reports saying to her, “You are being attacked by a large tiger. See the tiger as it comes at you. Run toward that tree; climb it and escape!” This protocol/Ritual uses actual flight to a safe, comfortable, joyful state. Separating fear from immobility is the task of the trauma therapist; the patient learns that he can have fear and still have mindful fight/flight. He can have excess emotion - even fear, without becoming immobilized (Levine, 2010). When the system cannot cope with grief/trauma with social engagement, fight, or flight, it proceeds to immobility and endorphin-induced numbness (Levine, 2010; Porges, 2001). Coming out of the comforting state of numbness can be very frightening for these patients. As the sympathetic nervous system begins discharging the thwarted fight/flight energy, then anger, rage or aggressive tendencies may threaten to emerge. Prior to doing the Ritual, patients have usually had experiences of excessive fear associated with their attempts to bring the grief/trauma out from under the numbness. During the mild aerobic exercise, the sudden surge of sympathetic arousal and energy that is released by the re-negotiation of the trauma is discharged safely through the peripheral somatic nervous system and striated muscle activity. The adrenalin has been used up. The patient learns that he/she has survived, and the numbness, suppression, and/or repression are no longer needed. Depotentiation of the glutamate receptors within the basolateral amygdala complex has occurred and re-consolidation of memory is facilitated (Harper et al. 2009; Rasolkhani-Kalhorn & Harper, 2006; Ruden, 2011, p. 105). Patients will sometimes report they “shook off” or “blew off” the distress. They usually come back to the therapy sessions with smiles on their faces as they relate what happened after they finished the Ritual. They will have uncoupled the fear from the immobility that Levine says is the essence of trauma therapy (Levine, 2010). Most importantly, the patient feels he has done the healing himself/herself.

With the mild aerobic exercise, the body will have a chance to reset itself, feeling the normal flow of energy, information, coherence and integration, as well as enjoy a mild anti-depressant effect. It is preferable to get dressed for the exercise before starting the protocol so that the window of re-consolidation is still open and there is no wasted time before integration and neuronal growth can begin. The exercise will be done without delay and without thinking about the memory or the emotion; it is just a matter of enjoying the exercise and allowing your body to release the endorphins and endocannabinoids that will manage the adrenalin and/or cortisol that were and are continuing to be released with the exploration of the grief or negative implicit memory. The positive feelings, images, sensations, beliefs, and meanings identified during Step Three will

have a chance of being integrated possibly via re-consolidation into the trauma/grief memories. You will feel calmer after your exercise, because the endorphins (the body's natural morphine) will have reduced your psychic and physical pain, and you will have experienced expansion, increased integration, and consolidation of your new learning. Patients report that it feels like: "I 'shook off' the stress." Some patients report a euphoric experience - possibly endocannabinoid releases - during the exercise, which has been described as "pronking" (Levine, 1997). It appears to be an expression of achievement, accomplishment, and celebration. Perhaps it is the effect of depotentiation of the amygdala's alarm reaction to the trauma/grief. The exercise will also enable your brain, mind, and body to develop new integrative neural processes and networks to deal with your past grief or implicit memory experience. The exercise and the dual awareness and mindfulness during Step Three enhance the ability of your hippocampus, corpus callosum, insula, cingulate, orbital-frontal and prefrontal cortices to remain on-line during the processing of your grief or implicit memory disorder so that the memory and experience can be more integrated into your left hemisphere, and its more explicit and logical memory system. Integration of autobiographical memory can occur. Without the exercise and the hormone changes brought on by exercise, your pain will likely remain, and it will prevent your forebrain, mind, and body from integrating the new experience. Without the aerobic exercise, remnants of the trauma could shut down your forebrain and allow subcortical and brainstem excitatory networks to dominate your mind, preventing the neural vertical and horizontal integration that is so necessary for healing. You are likely to return to your old habit of dealing with the grief or trauma, and you do not want that to happen. Many patients who follow the protocol report an exercise bonus: brighter mood, clearer mind, and decreased pain, a release of negative emotion, more energy and sometimes a transformational experience. The transformational experience could be the result of the exercise-induced release of dopamine and endocannabinoids (Ratey, 2008). Dan Siegel (2010b) talks about a transformation event in which the "I" becomes "We," and there is a sense of belonging to the world of humanity.

Step Five: How do I know when to repeat the session and the exercise?

Repeating the ritual is a way to mindfully peel off layer after layer of defenses against awareness of the grief/trauma, whether it is big "T" trauma (PTSD) or little "t" trauma (pathological trauma such as healing of routine emotions, or the trauma of reflective emotions). Some patients will do it once a week, others more than once a week. You could do it again in two weeks; whatever works for the body, the mind, and your intuition. Mindfully and interoceptively listen to all three, and check the SUDS and your resonance. The major concern is re-traumatization, because if it happens you will not want to adhere to the treatment and will continue to suffer from the implicit memory/emotional disorder. With each repetition of the ritual, more of the implicit memory becomes explicit or moves more toward consciousness. If there has been some relief, my patients will go on to repeat the trial at the interval that seems right. If there is a question about whether they should repeat the protocol, they consult their therapist. Remember to check the SUDS, both before and after each session of the ritual.

Although it is uncommon, patients will sometimes fail to follow the ritual. Some forget to write; some forget to exercise; some forget to vocalize their feelings or emotions; some will try it only once; some will keep re-reading their writings; some will engage in analysis, evaluation and judgement during the exercise; some will forget to mindfully assess their SUDS level. In this case, I will remind the patient again to record the SUDS before and after the ritual. Asking them to describe what they did will usually unveil the problem. After this brief discussion, I find that just reminding the patient of the ritual and asking them to try it again is usually enough. I will say something like, "When you do it again, you will repeat the ritual including all the steps: find a quiet, safe, private place to write and explore your feelings, emotions, perceptions, body sensations, and thoughts. You must include both **positive and negative**. As soon as you feel distressed beyond what you can handle, you tear up the writing, and go for 20 minutes of exercise, leaving the implicit memory behind in the wastebasket with the writings. It is very important to destroy the writing since it is only for reprocessing, not for re-reading and re-traumatizing yourself. The tearing up is a ritual that symbolizes a new beginning." Often my patients tell me that after the first session, they can increase the time of the writing, exploring, expressing and vocalization.

Step Six: When and how do I know I am done?

Patients will report that with repeated sessions they uncover more and more of their experience, until with their last session they notice that they have nothing else to say, explore, or write, and that the emotion associated with the memory has gone down from intolerable to just a memory with little or no emotion. They often do not know what to expect or how to describe what has changed. Some formerly grieving patients report that they now have the spirit of the person that they lost back with them, and they can remember the good times without the intrusive memories of the trauma and the loss. Some patients will report that they can converse calmly once again with the person they lost, because now they feel their spirit again, this time unblocked from negative, implicit memories. Others will report that the implicit memory is now just a memory from the past, without significant arousal in the present; they feel differently about that person or event. Interestingly, some patients will report a new sense of trust in their bodies, and trust in the instinctive tendency to share their traumas with safe, knowledgeable others, including therapists. This trust might have been lost when the patient tried to bring up the trauma/grief event, and instead of feeling resolved, wound up having the sensations associated with the original trauma/grief surfacing in a pure re-enactment. The patient quickly learned that it was unsafe to explore trauma/grief with anyone, even oneself. These

events are the processes associated with the after-effects of trauma/grief. Some patients report a transformational experience that changes their lives in significant ways. There are sometimes comments such as: I feel more whole; my panic is gone; my sense of humor is back; I am not alone anymore; I can see more clearly; I feel like the world is a safer place; my nightmares have stopped; my dreams are more positive. A few patients have been courageous enough to try the protocol on other implicit trauma/grief memories from their lives on their own.

Step Seven: Email me...

Let me know how the protocol /ritual worked for you and your patients at DrLoPresti@verizon.net. Please note that this protocol is not a replacement for psychotherapy with a licensed mental health professional. You may replace my email with your own email in the ritual for patients below. However, I would appreciate learning from you what experience you had with the protocol.

Cases

Stephen was a 47-year-old married male executive, complaining about panic attacks that had not resolved with traditional therapies. The panic was threatening his ability to function at work. He had sought me out because he had heard that I gave workshops on panic and was a local panic expert. At the time, my training was limited to cognitive behavior therapy. We tried some of my traditional and “expert” therapies and techniques, with no success. He was beginning to challenge my panic-expert reputation. I reviewed his history again carefully, and came up with nothing. It did occur to me though that during one session, he inadvertently revealed a fact that suggested to me that he had not dealt with the death of his mother, 16 years ago. Stephen had said that her death had nothing to do with his panic, but his facial expression told me otherwise. We had good rapport and he was willing to give my grief/trauma ritual a try. He was instructed carefully, slowly, calmly, and compassionately on the purpose of the ritual and I shared with him how it had helped me with some of my grief, and that grief can sometimes express in certain situations as panic. He reported that he did not have grief, but seeing how I was the expert, he would give it a try. Within three practices of the ritual, a week apart, Stephen reported that the panic attacks had stopped; he was able to function better at work, able to visit and discuss his mother’s passing, and to re-unite with a sibling. He was experiencing joy in his life. The follow-up a year later revealed that the panic had not returned and he had even been able to be present with the death of a sibling without the return of his original symptoms. Note that the shortened description of the Ritual was used with Stephen because, in spite of his complaints, he was very compliant and “present.”

John was a 27-year-old, single male with a stable career and a good income. He presented as somewhat hyperactive, hypervigilant, and complained of chronic anxiety and depression, which we discovered had started seven years ago, about the time that his mother died. John had been extremely close to his Mom, and her loss was devastating for him. John’s current romantic relationship was becoming troublesome and he was beginning to fear for its stability. He wished his Mom was still around so he could talk to her about the relationship; however, whenever he thought about his mother, his mind would go blank. He said he could not describe what happened to him when he tried to think about his Mom. He would say, “What’s wrong with me Doc, I’ll pay you anything you want to fix me.” John reported that neither traditional psychotherapy, nor a grieving group or medications had helped him. The Ritual was explained to him in detail and the procedures described carefully until I was sure he had memorized them. I told him stories about the positive things that happened to my patients after they had dealt with their grief/trauma. In particular, I told him that after I had mourned the death of my grandfather, he had come back into my life in a way that I could remember conversations with him, and feel his spirit with me whenever I wanted it. John left the session saying he would call me. It was not clear to me if he would ever come back to therapy. I did not hear from John for three weeks, and assumed that he was not ready to deal with these problems. Then I got a phone call from a very excited patient insisting he needed another appointment right away. John had hardly sat down in his chair when a huge smile came over his face, relieving my anxiety. He reported that his depression and anxiety were beginning to lift. He was happier, and he had written several letters to his Mom; he reported she was back in his life. John needed to talk about what happened to him as he began healing from the grief. We had a couple more psychotherapy sessions, and John decided that he was fine, happy, and no longer needed psychotherapy. He was informed that he was welcome to come back if his symptoms returned. I never heard from John again, except when he referred a traumatized friend of his to me, a year later.

Matthew was a 49-year-old married executive of a large company who was suffering nightmares, flashbacks, and anxiety about a professional relationship that had violated his professional boundaries. These symptoms were disrupting his life, threatening his company and livelihood. He appeared to be an extremely active man who was very competent, intelligent, and hypervigilant. The violation of his boundaries was a recurring theme in his life since late adolescence. The betrayal involved in this latest violation appeared overcoupled with earlier betrayals in his life. The ritual was described and the procedure explained several times. He understood it very quickly and I was convinced he would carry it out faithfully, and probably that day. The next session, Matthew came into therapy very excited. He had tried the Ritual immediately after the session. He reported that the nightmares and flashbacks about the betrayal had ended and he felt very happy. Some of the positive feelings about the boundary violator had returned without the overwhelming sense of terror, abuse, shame, and anger that followed him whenever he thought about the violation. He felt surprised that he could now recognize and validate both the

positive and negative sensations and feelings. There was a new “felt sense” about himself, as well as about the person who had violated his boundaries. There was an uncoupling of his sensations, emotions, and events (Levine, 1997, 2005) along with horizontal and vertical brain integration (Siegel, 2010). He could now experience them independently. We continued working with his issues for a few sessions, but he felt that the resolution of the boundary issues had restored his health.

Joann was a 37-year-old widow and mother of three teenagers. She was financially stressed and suffering from depression and anxiety, along with flashbacks and nightmares about her deceased husband who had been a wonderful provider for her and her children, as well as a major emotional support. She reported that she had grieved and mourned his death repeatedly without any relief. She deeply missed her husband and the life they had together. Her depression, anxiety, flashbacks, and nightmares had not resolved after four years of constant attempts to resolve her pain. Joann did not have health insurance or much money and wanted to know how fast I could help her resolve some of these problems, which were becoming overwhelming. Grieving groups and therapy had not helped her. The ritual was described and the procedures explained many times to her. She appeared to have more difficulty than most of my patients in accepting hope that the ritual might help her. I assured her that if it did not work, then we could explore other ways to help rid her of the symptoms. She was encouraged to call me after her first ritual session or at any time between sessions. She called after the first session worried that her grief had not disappeared, and voicing that she only felt a little more hopeful. After four sessions of the ritual, Joann reported with a smile that she no longer had the negative flashbacks, and that her dreams had taken a turn for the better. The dreams now included her husband but often they were about funny experiences that they had shared; she reported that she felt very relieved and that she was going to start losing weight and possibly consider finding a male companion. I never saw her again.

Original Case—Current Perspective

The following case and original experience gave birth to this protocol/ritual.

I was a 44 year old psychologist experiencing occasional feelings of numbness, confusion, short term memory problems, insomnia, anxiety, and mild depression. I was suffering from flashbacks related to several traumas and grief of the past three years and was having some difficulty functioning at work. Three years prior, I had suffered a concussion from an attack by an employee at the hospital where I had worked. Within several months, I was served divorce papers and became to my surprise, a single parent for the first time. I remained “in love” with my ex-wife, and hoped that someday we might remarry; I think I was delusional. I had moved into a rental apartment with my fourteen year old son, but soon discovered that it was both flea and bat infested. After several months of trying to be a successful parent to my son, learning how to cook and care for a teenager, and dealing with the turmoil of a worksite where my employee had attacked me, I decided to leave the job that I loved and move to New Jersey to be nearer to my supportive, Italian family. I had good relationships with them, my son, and with co-workers at the new job. The protocol/ritual was used for several of the traumas, one at a time. Each experience that I reactivated was resolved after one to three sessions of the ritual. I was soon able to resolve the grief from the divorce, to accept my new role with my son, and to feel an alleviation of the flashbacks from the assault. Sleep and short term memory recovered. The numbness, sadness, anxiety, and insomnia were no longer issues. The biggest concern was raising a teenage son alone. The ritual appeared to bring some insight, but it was not dramatic. I still had loving feelings for my ex-wife and still missed my former job; but I was able to adjust to the new circumstances. When I was jogging on the beach after the writing in Step Four of the ritual, I would often experience brief fragments of the grief/trauma, but the fragments would not last, nor were they as disturbing as they had been in the past. With each session of the ritual, the fragments diminished further; usually new fragments would emerge with each repetition of the ritual. I never needed to go beyond five repetitions, and I always stayed with one problem until it was resolved. Eventually, even the fragments were gone and I thoroughly enjoyed the mild aerobic exercise. At the end of the jogging I always felt more hopeful, alive, and thankful that I had survived so many traumas and grief. I returned to work more optimistic and ready to explore new relationships in my life. The relationship with my son improved as we began doing more fun things together.

Discussion

The protocol/ritual appears to be consistent with several models and techniques for healing trauma/grief including the Interpersonal Neurobiology and Mindsight Model of Dan Siegel, the Somatic Experiencing Model of Peter Levine, the Depotentiation and Re-consolidation Model of recent neuroscience research, as well as other cross cultural models of trauma/grief healing. Many religious and spiritual traditions have abbreviated methods for healing trauma/grief using these general guiding principles: 1) Be open, present, attuned, and resonant with God, with your life force, or its surrogate; 2) Briefly bring conscious attention to the trauma/grief; 3) Focus your awareness on your specific intention for healing; 4) Immediately let go of conscious control. Common phrases are: Let it be; So be it; Let God; Amen. Throughout these spiritual/religious models there is communication, re-enactment, mindfulness, attention, intention and resourcing. The processes could enhance the integration, contextual change, re-consolidation, and healing that are consistent with the more recently discovered protocol/ritual.

In addition to utilizing the eight domains of integration of the Dan Siegel's Interpersonal Neurobiology model, and Peter Levine's nine steps of his Somatic Experiencing model, the protocol has elements of cognitive behavior therapy, exposure and response prevention techniques, counterconditioning techniques, EMDR, Gestalt, and among others, mindfulness therapies, emotion focused therapies, and attachment therapies. The counterconditioning involves the replacement of the typical proprioceptive reaction to thoughts, memories and emotions associated with the grief/trauma with a pleasant proprioceptive experience associated with the mild aerobic exercise of Step Four. The protocol is also consistent with the model of Alan Fogel (2009, pp.23-24) for treating "lost embodied self-awareness." Fogel outlines several principles: activating resources, slowing down and shifting from thinking to feeling into the "subjective emotional present," regulating autonomic arousal, finding words to place onto interoceptive sensations, bringing awareness to body integration, and encouraging the use of the patient's own body as a resource. The protocol/Ritual is also consistent with the model of Ronald Ruden (2008, 2011). Ruden outlines how the trauma memory can be removed by depotentiating the glutamate receptors in the amygdala that are keeping the trauma memory alive. He postulates a "havening" process, a felt sense of safety and security that involves touch and a close intimate (physically and psychologically) relationship with the therapist. Ruden's theory is consistent with the work of LeDoux and his group (Doyere et al., 2007; Monfils et al., 2009; Nader et al., 2000; Phelps et al., 2004; LeDoux 2000, 2002) who hypothesize that after activation of the trauma memory, there is a "labile" period involving protein synthesis when the trauma memory is vulnerable to revision and removal. In my protocol/ritual, this period is in Step Four when mild aerobic exercise (fast walking or jogging) is bilaterally stimulating the brain with a calming delta frequency of 0-4 hertz, promoting a re-consolidation process in the prefrontal cortex, medial prefrontal nuclei, and amygdala (Bergmann, 2000, 2008; Harper et al., 2009; Rasolkhani-Kalhorn & Harper, 2006). When jogging or fast walking, my frequency is usually 1-3 steps/second, the same frequency of the electroencephalographic waves of slow-wave sleep, a time in the diurnal circadian cycle when many researchers believe memory consolidation occurs. Interestingly, this stimulating frequency is about the same as the bilateral sensory stimulation associated with EMDR, and the frequency of tapping in Emotional Freedom Technique (EFT) and Thought Field Therapy (TFT), as well as the frequency of fast walking, jogging, heart rate, and nursing rates. It is reasonable to assume that mild aerobic exercise outdoors, either fast walking or jogging, activates the thalamic sensory nuclei. This activation has been associated with new learning in EMDR (Bergmann, 2008). While fast walking, jogging, or just walking, and bringing the felt sense of awareness mindfully to internal and external sensory systems, there is a quieting of habitual thoughts and calming of the mind (Chodron, 2010; Nhat Hanh, 1975, 1991; Kabat-Zinn, 1990, 1995, 2006). The fast walking, jogging and mild aerobic exercise of the protocol may be an activation of the "havening" process of Ruden's theory. The mild aerobic exercise may be a brain process which could be called "kindling" resources, in contrast to the process of "kindling" a seizure-like alarm response.

The works of Alexander Lowen (1958), Wilhelm Reich (1933, 1972), and Marion Rosen (2003) emphasize the importance of body armor, regional muscular bracing, the body's ability to hold patterns of unresolved motor tension (Levine, 2010) and the influence of these motor patterns on personality and psychological symptoms (Guthrie, 1952). It is tempting to suggest that the mild aerobic exercise in Step Four of the protocol/Ritual provides a corrective experience, an uncoupling of the grief/trauma motor patterns from the implicit memory of the grief/trauma; the mild aerobic exercise accompanied by mild euphoria or at least a mildly pleasant experience is incompatible with the rigid unpleasant structure and experience of the body armor (Drolet et al., 2001; Fields, 2004; Reich, 1972; Schofield & Abbuhl, 1975). The mild aerobic exercise helps to keep the patient in the "subjective emotional present" as flashbacks to Step Three occur simultaneously with an "embodied self awareness" produced by the aerobic exercise, the two conditions necessary for healing trauma (Fogel, 2009). During my first sessions of the ritual there was a sense of surprise that the old grief or trauma could be remembered or activated at the same time that the felt sense of the body remained pleasant and comfortable. The surprise appeared to trigger an exploratory orienting response. The incompatibility of past and present experience simultaneously held in the dorsolateral prefrontal cortex could set the stage for new learning, re-consolidation and depotentiation of the old amygdala response.

In some of the patients who experienced the ritual, implicit memories and emotions became conscious. They would talk about them in sessions, revel in the marvel of the process, and most wanted to talk about their experiences. They were able to recall events that had been blocked for years; they remembered conversations, scenes, images, beliefs, and sensations that had been scattered, unorganized and out of conscious awareness. Vertical and horizontal integration was apparent, as well as uncoupling of events, emotions, and sensations.

How were these patients able to access implicit memories and emotions? My guess is that the Ritual provided a relatively safe, self-empowering and controlled environment, a mindfulness process which down regulated fight, flight, and freeze processes, several techniques for diminishing fear and enhancing self-control and self-efficacy, and the release of healing hormones and neuropeptides both in the central nervous system and in the body, facilitating re-consolidation of memories pulled out of implicit subconsciousness during the writing and expressing of the trauma/grief. A critical part of the protocol was the structure that allowed for only limited exposure to the grief/trauma in each session, which was then followed by mild aerobic exercise which prevented the patient from fully re-experiencing all of the grief/trauma response. This may be conceptualized as an exposure (Step Three) and response prevention (Step Four) cognitive behavioral technique. Another unique and critical part of the protocol was the elicitation of both positive and negative emotions, feelings, and images. This conscious positive-negative pendulation process appeared to be essential for the success of the protocol/ritual. It appears that the anterior insula cortex, especially the right insula, maps visceral emotional states in positive-negative dimensions. The elicitation of the positive and negative may have added new positive information to the trauma/grief that was integrated during the re-consolidation phase of memory retrieval. The mismatch between what was negatively expected from the activation of

the trauma/grief, and what was actually experienced in the protocol/ritual, especially in Step Four, could be the trigger for reconsolidation or extinction (Pedreira et al., 2004). The orbital frontal cortex is involved in placing positive and negative valence on experience, so it was likely activated by the writing phase of the protocol. The instructions may have facilitated both pendulation, the natural healing rhythm of the mind and body, and the natural expression of the anterior insula to map visceral states. There was possibly the activation of the VMPFC, the modulator of the amygdala alarm (Harper et al., 2009; Rasolkhani-Kalhorn & Harper, 2006). There was also integration of the eight domains defined by Siegel in *Mindsight*. There was some evidence that the grief/trauma memories were state dependent; and, as the state normalized and changed, the access to memories changed (Fields, 2004). The cognitive memory of the grief/trauma remained, but the felt sense, the embodied emotion of the experience changed. This new association was possibly re-consolidated into a new form of the grief/trauma.

It is important to note that there were a few patients who had relief from their grief/trauma, but seemed unable or unwilling to describe explicit experiences other than positive outcomes. This group is very interesting. In Somatic Experiencing Therapy, it is not uncommon to find that a patient has resolved a trauma without any conscious awareness of what happened, other than the feeling that the trauma has resolved. These cases reflect the views of Peter Levine and others that the trauma is in the body, and can be healed without the talking therapies. The healing takes place unconsciously through the regulation and discharge of the autonomic nervous system. The importance of this observation for the therapist is that the positive outcome is more important than whether the patient can explicitly describe what happened and what was uncovered by the protocol/ritual. The proof of the effectiveness of the ritual will be in the positive behavioral outcomes for the patient. Interestingly, a similar phenomenon of healing without explicit knowledge of what happened occurs frequently with EMDR, TFT, EFT and David Grand's Brainspotting.

Teaching of the ritual has always been by word of mouth, with modeling, resonating and sometimes sharing the narrative of my personal experience with trauma resolution. The ventral vagal social engagement systems of both therapist and patient are engaged. "As mammals the very stability of our nervous system depends on the support from a safe other" (Levine, 2010, p.293; Bowlby, 1982, 1988; Main, 2000, 2008; Ruden, 2011; Solomon & Tatkin, 2011; Schore, 1994; Wallin, 2007). The Ritual has never been written to share, but there have been requests to craft a version for patients. There are several caveats. No written version can capture or replace the embellishment, enthusiasm, body resonance and realism that come from a therapist sharing his/her story or their patient's stories. The teaching of the Ritual is an interactive, relational, somatic experiencing process that is filled with secure attachment feelings. In the eyes of Dan Siegel, it would be called a "Mindsight" experience for both the patient and therapist (Siegel, 2010a, 2010b). Many studies have supported the notion that it is the relationship between patient and therapist that is the major healing force in psychotherapy (Gendlin, 1982; Norcross, 2002, 2005; Siegel, 2010b). The key to that healing may very well be the felt sense of the resonating mirror neurons accessing the VMPFC, anterior cingulate, orbital frontal cortex, anterior insula and other resonating circuits of both patient and therapist. During the teaching of the steps, there is also experience and practice in regulating the autonomic nervous system. Over the years, I have added increasingly more information about brain function and body physiology which patients have found very helpful in being more mindful of their emotions and feelings, and in being able to let go of shame, embarrassment or guilt associated with the grief/trauma. The information about the brain and body is best done in session as the ritual is being modeled and taught. If we think about the ritual as a mind healing process, and remember that the mind as defined by Dan Siegel and others is an embodied and relational process that manages energy and information, then we can see that the one-on-one patient-therapist relationship can be part of the healing. The therapeutic relationship facilitates and models the management of the energy and information of the grief or trauma; the therapist's voice acting as a resource can go with the patient when the ritual is practiced. In describing the writing and expression, Step Three, the therapist teaches again the importance of mindfully managing the patient's relationship with the trauma/grief. The therapist encourages management of the energy of the process with the discussion of the SUDS and the mild aerobic exercise. During the teaching, the Somatic Experiencing therapist models mind-healing as the patient begins to think about and activate the grief/trauma in the session prior to using the ritual.

Although the protocol seems quite elaborate and somewhat cumbersome, there have been many patients who, after developing rapport and right-brain to right-brain attachment with me, were able to successfully resolve their grief/trauma with the following simple instructions: "Find a quiet, safe, private place to write and vocally explore your positive and negative feelings, emotions, perceptions, body sensations, beliefs and thoughts. You must explore both the **positive and negative** emotions and feelings. As soon as you feel distressed beyond what you can handle, at or above a 7 on a scale of 0-10, you tear up the writing, and go for your 20-minute **mild** aerobic exercise leaving your implicit grief/trauma memory behind in the wastebasket with your writings. It is very important to **destroy the writing** since it is only for reprocessing not for re-reading and re-traumatizing yourself. The tearing up is a ritual symbolizing for you a new beginning. Often you will find after the first session, that you can increase the time of the writing, exploring, expressing and vocalizing, as long as your SUDS remains 7 or below. You will find your grief/trauma has been relieved or gone after a few sessions."

Step Four of the protocol/ritual has also been used after a Cognitive Behavioral or Emotionally Focused couples therapy session, with some success. The couples fast walk or jog together without conversation for the 10-20 minutes of Step Four. Some couples have used Step Four after having an Imago Dialogue (Hendrix, 1986). The protocol/ritual appears to facilitate re-consolidation of what has been heard and processed during the "Mindsight" Imago Dialogue.

A simplified protocol/ritual is available below. Much of the neuroscience and technical language has been removed. The therapist can decide on an individual basis whether to give the Healing Ritual to the patient. As of this writing, none of my patients have used the written Healing Ritual.

The Healing Ritual

The Healing Ritual has been used by hundreds of people to help resolve habitual grief and trauma. They have followed the ritual as described below. As your therapist, I will be your guide, resource and coach along the way should you encounter any difficulties. Most people find it easy to follow. You have already decided what experience, event or events need to be healed. As your therapist, I will guide you through an understanding of the following steps, giving you examples and answering any questions you may have. You can think of the Healing Ritual as a process of resetting your home alarm system that was set off by the invasion of trauma/grief into your life. This alarm system can be reset only during a short period after the alarm goes off. If the alarm is not reset during this period of time, it will continue to go off with the same triggers over and over again. The resetting of the alarm requires the programming of new information into the alarm. Here are the seven steps of the Healing Ritual that will reprogram your alarm system:

Step One: Location

Find a time and place where you can privately explore the feelings, emotions, images, sensations, issues, problems, memory, or event without anyone interfering with your emotional expressions, shouts, wailing, laughter, cries, writing and activities.

The best place is usually your bedroom when everybody is out. As you allow your nervous system to reset itself, it may mildly shake, quiver, or tremble. You may want to lie down briefly. Those symptoms are part of the resetting and can be very healing as long as you are mindfully monitoring stress levels, which we will describe below. An alternative to your bedroom might be to drive your car to a comfortable safe place, such as the seashore or park in winter or early morning where, with your windows closed for privacy, you can **write**, and **vocally express** and explore your feelings, images, perceptions, beliefs, thoughts, and behaviors. The major expression is about your **positive** and **negative** emotions, feelings, experiences etc. You must explore both the positive and negative for this Healing Ritual to work. For example, if the memory is about the loss of a loved one, the expressions must be about both positive and negative memories, emotions, feelings, images, sensations, and any associated perceptions thoughts and beliefs. You cannot just explore the positive or just the negative and have this Healing Ritual work. It appears to be necessary to balance or pendulate between your positive and negative feelings, approach and avoidance, left and right brain tendencies. The balancing and pendulating also helps to keep your autonomic nervous system balanced and happier. Your task is to bring attention to the emotions, feelings, sensation, memory and experience, exploring them mindfully, writing about it, expressing yourself out loud, and exercising afterward in **Step Four**.

Step Two: Time

We will **estimate and decide how much time** you can deal with this problem in the first sitting. I usually recommend a maximum of **one to two minutes** for the first session if the problem is severe. This is a “baby steps” exposure procedure. You do not want to explore to the point where it is so painful that you will not want to return for further explorations. Your nervous system/brain probably has been trying to avoid the memory, emotions and feelings for a long time. It is best to allow less than more time. Allowing yourself to get overwhelmed could re-traumatize you. This step is extremely important. If a session feels too stressful, you might shorten the next session. Alternatively, on subsequent sessions you might consider increasing the time of the writing and exploration by 100% or more. For example, in the second session, if the first session was one minute, you might allow two minutes of exposure and writing of the memory; in the third session four minutes, etc. If a session felt too stressful, you might shorten the next session. I emphasize that you must be **mindfully monitoring** your level of distress during all the steps of the Ritual.

A guide for determining how much time to spend on each session is the Subjective Units of Distress Scale (SUDS) which ranges from 0-10, with 1 being very little stress and 10 being extreme stress; if you sense that the SUDS is above 7, it is time to proceed to the next step. This process of attending to the “felt sense” of the body, embodied self awareness, while attending to the writing and speaking, is also called mindful dual awareness. This dual awareness will give you some control over the “felt sense” of a body that has sometimes been out of control because of the setting of your alarm system. The process of continuously monitoring your stress level as you go through the Ritual is a very important part of the mindfulness process and is needed for integrating and healing the trauma/grief. The mindfulness engages and manages the executive function of the forebrain including your short term, working memory systems and the alarm system of the limbic brain. Eventually after several sessions, it is desirable to achieve at least a ten-minute writing and speaking exploration, which will allow for a confirmation of the re-setting of your alarm system, re-consolidation of new learning and memory, and relief from the habitual way of experiencing the grief or trauma.

Step Three: Communicating and Resourcing: Writing and Talking Out Loud.

While you are exploring your experience and keeping your therapist/healer/resource in mind, you will be writing both **positive** and **negative** feelings, emotions, sensations, perceptions, images, beliefs and thoughts about the grief or trauma. Some people decide to explore only their positive and negative **feelings**. That can work. Some people decide to talk and write (both positively and negatively) to the person that they lost; that can work, too. Some will imagine or visualize the person sitting in an adjacent chair as they talk and write; that can work. Some will imagine what the person would be saying to them if they were in the adjacent chair and what they would be saying in return. You need to feel free to express verbally, **out loud**, positive and negative emotions, and feelings including anger, rage, loving, caring, loneliness and others. As soon as there is distress that is difficult to handle with a felt sense of stress greater than 7 (0-10 scale), you **tear up the writing** and throw it in the wastebasket. If stress gets too high, your body will release cortisol and/or adrenalin, enough to stop your conscious mind from being aware, integrating, and healing. The “tearing up” part of the Ritual is also a metaphor for bringing back a sense of control and for consciously distancing a part of yourself from the emotion or memory of the event(s) so that you have a safe enough space to make sense of the event(s). The use of the SUDS scale is another way to enhance mindfulness. The writing also helps to integrate and modulate the overwhelming instinctual emotion arising from “reptilian” brainstem and limbic system arousals. Naming takes the trauma/grief fragments out of direct sensory experience and gives them left hemisphere representation. (**Name it to tame it**). Over the years, a couple of people refused to write. Instead, they used the morning shower to verbalize the material that I suggested they write about. The shower, like therapeutic touch and massage, can release serotonin and endorphins, which can diminish emotional and physical discomfort and pain. The shower experience for these people was apparently relaxing, comforting and private enough to allow them to explore the distress without re-traumatizing themselves. It enveloped the grief/trauma in a new, more pleasant context. However, these individuals sometimes did not get as much relief as those who were writing as described above. Interestingly, the individuals who insisted on the shower venue, had families that were very intrusive; and there was usually no private place for them to perform the Ritual. I suggest using the shower as a last resort place.

Step Four: Aerobic Healing.

You must go immediately for a 20-minute jog, fast walk, dance, or some other mild aerobic exercise. Gentle jogging or fast walking seems to get the best results. Strenuous aerobic exercise does not seem to work. The guideline for the amount of aerobics is to exercise to the point where you perceive that breathing is just noticeably harder. The right amount of exercise will be accompanied by the reduction of muscle discomfort, a shift toward positive feelings, emotions or thoughts, and sometimes an increase in energy. Most people achieve these changes within 10-20 minutes. Of course, check with your medical doctor to be sure that you can do mild aerobic exercise. The mild aerobic exercise done mindfully in this context changes the brain by triggering the release of neurotransmitters, neuromodulators, neuropeptides, brain derived neurotrophic factors, and hormones, while facilitating synaptogenesis, neurogenesis, interneuronal stem cells, gene activation, myelination, and learning. In short, your experience of the trauma/grief will eventually change. John Ratey in *Spark* describes aerobic exercise as “Miracle Grow” for the brain. The molecules of positive emotion released by the exercise can resonate with cells throughout your body. The brain derived neurotrophic factor (BDNF), the endorphins, the endocannabinoids, the serotonin, dopamine, and norepinephrine released by the exercise all decrease the stress throughout your body and produce an anti-depressant effect without drug side effects. Exercise also turns on the genes that produce gamma aminobutyric acid (GABA), which is the brain’s major inhibitory neurotransmitter and natural tranquilizer that can temporarily calm you, your alarm system in the amygdala, and other areas of the brain. The calming will allow you to intuitively reset your alarm system without the alarm going off.

The whole Ritual facilitates a mindful and step-by-step re-awakening of the “felt sense” of your body, the embodied self-awareness. If your body has been numb from grief/trauma, it can be brought back to awareness and life without the pain, panic, fear, rage, anger, shame, guilt or helplessness that triggered the trauma/grief response in the first place. If your grief or trauma has been very severe, and you have felt numb or disembodied, you may begin to feel you are being reconnected and re-acquainted with your body, the earth, and life. The changing experiences, from Step Three to Step Four, from writing and expressing to aerobic exercise - like the ups and downs of the rhythms of life - will remind your body of its natural healing rhythm called pendulation, which may have been lost with the trauma/grief. A Chinese proverb states that emotions must be experienced and expressed if they are to be healed. The mild aerobic exercise and movement may also facilitate a completion of a thwarted flight or fight response that was frozen by the trauma. You may feel that you “shook off” or “blew off” the distress. Completing the first run through the Ritual is the hardest. Some people use their therapist as coach for the first run-through. It is your choice. When you get through the first run, consider it a success and a change in the habit of avoiding the healing process. Eventually after a few runs through the Ritual, you will likely come back to your therapist with a smile on your face as you relate what happened. During the aerobic exercise, just enjoy the exercise without deliberately bringing up the grief/trauma, without analyzing, judging or reacting to the fragments of your trauma/grief.

Regardless of the setting of the exercise, your body will have a chance to reset itself feeling the normal flow of energy, information, and coherence, as well as enjoy a mindful, anti-depressant, tranquilizing effect. It is preferable to get dressed for the exercise before starting the Ritual so there is no wasted time for integration and neuronal growth to begin. The

exercise will be done without delay and without thinking about the memory or the emotion; it is all about enjoying the exercise and allowing your body to experience the release of the endorphins and endocannabinoids that will manage the cortisol and adrenalin that were and are continuing to be released with the exploration of the grief or negative implicit memory. You will feel calmer after your exercise, because the endorphins (the body's natural morphine) will have reduced your pain and you will have experienced expansion, increased integration and consolidation of your new learning. People report that it feels like they "shook off" the stress. Some patients report a euphoric, marijuana-like experience during the exercise which is best described as "pronking" (Levine, 1997). It appears to be an expression of achievement, accomplishment and celebration. Without the exercise and the hormone changes brought on by exercise, your pain will likely remain, and it will prevent your forebrain, mind, and body from integrating the new experience. Without the aerobic exercise, remnants of the trauma could shut down your forebrain and allow subcortical and brainstem excitatory networks and the "reptilian brain" to dominate your mind, activate your alarm system, and prevent the re-setting of the alarm and healing. You are likely to return to your habitual ways of dealing with the grief or trauma; and you do not want that to happen. Many people who perform the Ritual report an exercise bonus: brighter mood, clearer mind, decreased pain, a release from negative emotion, more energy and sometimes a transformational experience. The transformational experience could be the result of the exercise-induced release of dopamine and endocannabinoids (Ratey, 2008). Dan Siegel (2010) talks about a transformation event in which the "I" becomes "We" and there is a sense of belonging once again to the world of humanity if that world has been lost.

Step Five: How do I know when to repeat the session and the exercise?

Some people will do it once a week, others more than once a week. You could do it again in two weeks; whatever works best for your body, mind, and intuition. Listen to all three and check your SUDS. You can also check with your coach/therapist. The major concern is that you do not re-traumatize yourself, because if you do, you will not want to continue the Ritual and you will continue to suffer from the grief/trauma. If there has been some relief, go on to repeat the Ritual at another time. If there is a question about whether you should repeat the Ritual, consult your therapist. On the subsequent trial, you will repeat the first five steps: find a quiet, safe, private place to write and explore your feelings, emotions, perceptions, body sensations, and thoughts—positive and negative. As soon as you feel distressed beyond what you can handle, you tear up the writing, and go for your 20-minute mild aerobic exercise, leaving your implicit grief/trauma memory behind in the wastebasket with your writings and enjoy the exercise and environment. It is very important to destroy the writing since it is only for reprocessing - not for re-reading and re-traumatizing yourself. The tearing-up is a ritual symbolizing for you, a new beginning. Often you will find that after the first session, you can increase the time of the writing, exploring, expressing and vocalizing, as long as your SUDS remains 7 or below.

Step Six: When do I know if I am done?

People will report that they have nothing else to say, explore, or write, and that the emotion associated with the memory has gone down from intolerable to just a memory with little or no emotion. Some formerly grieving sufferers report that they now have the spirit of the person that they lost back with them, and they can remember the good times without the intrusive memories of the trauma and the loss. Some people report that they now can talk calmly with the person they lost, because they feel the spirit of that person again unblocked from negative implicit memories. Others will report that the implicit memory now is just a memory from the past without significant arousal in the present. They will report that they have clearer boundaries. They feel differently about that person and about themselves. Interestingly, some patients will report a new sense of trust in their bodies, and trust in the instinctive tendency to share their traumas with safe, knowledgeable others, including therapists. This trust might have once been lost when the patient tried to bring up the trauma/grief event, and instead of feeling resolved, wound up having the sensations associated with the original trauma/grief surfacing in a pure re-enactment. The patient quickly learned that it was unsafe to explore trauma/grief with anyone, even oneself. These events are the processes associated with the after-effects of trauma/grief. Some people report a transformational experience that changes their lives in significant ways. Their alarm system is no longer going off at unsuspecting times. There are sometimes comments such as: I feel more whole; my panic is gone; I am not alone anymore; I can see more clearly; I feel like the world is a safer place; my dreams are more positive. . A few patients have been courageous enough to try the protocol on other implicit trauma/grief memories from their lives on their own, with some degree of success.

Step Seven: Feedback

Email me. Let me know how the Ritual worked for you. Please note that this Ritual is not a replacement for psychotherapy with a licensed mental health professional.

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Biography

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