

components of trauma that will always be present to some degree in any traumatized person: 1. hyperarousal; 2. constriction; 3. dissociation (including denial); 4 freezing (immobility), associated with the feeling of helplessness...When we learn to recognize these four components of the traumatic reaction, we are well on our way to recognizing trauma. All other symptoms develop from these four if the defensive energy mobilized to respond to a traumatic event is not discharged or integrated..." (p. 132) "In Somatic Experiencing, renegotiation revolves around learning to experience the natural restorative laws of the organism." (Levine, p.205) The use of energy/information methods greatly speeds this learning in my opinion.

The Freezing or Immobility response which comes from the feeling of helplessness "...is one of the three primary responses available...when faced with an overwhelming threat. The other two, fight and flight, are much more familiar...Less is known about the immobility response...However...it is the single most important factor in uncovering the mystery of human trauma...Nature has developed the immobility for ...good reason...[I]t serves as a last-ditch survival strategy." (Levine, p. 16) This interim period of playing dead offers animals a chance to escape. "When it is out of danger, the animal will literally shake off the residual effects of the immobility response and gain full control of its body. It will then return to its normal life as if nothing had happened." (Levine, p.16) This would be an optimal response for human beings but, because of our "higher cognitive processes," it's very rare. Because the state resembles death, humans have a fear of immobility. Thus we avoid it..."but we pay dearly for it. The physiological evidence clearly shows that the ability to go into and come out of this natural response is the key to avoiding the debilitating effects of trauma...The key to healing traumatic symptoms in humans is in our physiology. When faced with what is perceived as inescapable or overwhelming threat, humans and animals both use the immobility response. The important thing to understand about this function is that it is involuntary...[T]he physiological mechanism governing this response resides in the primitive, instinctual parts of our brains and nervous systems. (Levine, p. 17)

People who suffer PTSD are involved in a vicious loop of re-enactment of the trauma in order to renegotiate it; but, without success. "The nervous system compensates for being in a state of self-perpetuating arousal by setting off a chain of adaptations that eventually bind and organize the energy into 'symptoms.' These adaptations function as a safety valve to the nervous system...The first symptoms of trauma usually appear shortly after the event...Others will develop over time...[T]rauma symptoms are energetic phenomena that serve the organism by providing an organized way to manage and bind the tremendous energy contained in both the original and the self-perpetuated response to threat." (Levine, pp. 146-147)

"Re-enactment represents the organism's attempt to complete the natural cycle of activation and deactivation that accompanies the response to threat...In [nature], activation is often discharged by running or fighting -- or by other active behaviors that bring about a successful conclusion to the potentially life-threatening confrontations...[We humans] are vulnerable to traumatization in a way that animals are not. The key to the exit from this seemingly unsolvable predicament lies in...our ability to be *consciously* aware of our inner experience. When we are able...to *slow down* and experience all the elements of sensation and feeling that accompany our traumatic patterns, allowing them to complete themselves before we move on, we begin to access and transform the drives and motivations that otherwise compel us to re-enact traumatic events. Conscious awareness accessed through the felt sense provides us with a gentle energetic discharge...This is *renegotiation*." (p. 187 *italics in original*) "With patience and attention...the patterns that drive traumatic re-enactment can be dismantled so that we again access the infinite feeling tones and behavioral responses that we are capable of executing. Once we understand how trauma begins and develops, we must then learn to know ourselves through the felt sense. All the information that we

need to begin renegotiating trauma is available to us. ...Moving slowly and allowing the experience to unfold at each step allows us to digest the unassimilated aspects of the traumatic experience at a rate that we are able to tolerate." (Levine, p. 188)

Since the autonomic nervous system is very much involved in all this, I believe, as I wrote above, that using the balancing procedure proposed here would greatly facilitate and speed the process of renegotiation. The other most common approach is EMDR (Eye Movement Desensitization and Reprocessing) (Shapiro, 1995; Shapiro and Forrest, 1997; Parnell, 1997)

16.2. THE IMPORTANCE OF BEING AWARE OF THE BODY'S PHYSIOLOGICAL RESPONSE IN TREATING PTSD

Any psychotherapy that doesn't get out of its mind will be less effective and less efficient!

16.2.1. THE IMPORTANCE OF USING NEUROSCIENCE INFORMATION IN THERAPY

In the comprehensive REBsm protocol Module 5 we emphasize the importance of noticing the emotional and body sensations that arise when you contact the issue you are dealing with. One advantage of this approach is that the person dealing with a trauma is less likely to be sucked back into the trauma (re-traumatized) since you are encouraging them to concentrate on the physiological effects and stay in present time. In addition, in Module 2 on accessing the hemispheres, we test to discover whether the felt sense of the issue is different depending on which hemisphere or eye is "viewing" it.

"...[T]he brain produces brand-new cells in maturity...[and] is changing and growing continuously throughout life, shaped as much by experience as genetic heritage...A corollary is that neglected neural patterns fade away, and unused neurons die. 'Use it or lose it,' seems to be the hard law of brain development..." (Wiley and Simon, 2002, pp. 28-29)

SOME LESSONS FROM NEUROSCIENCE FOR THERAPISTS TO CONSIDER

16.2.1.1. LESSON 1: THE BRAIN IS PROFOUNDLY INTERPERSONAL

"Siegel [author of *The Developing Mind*] coined the term *interpersonal neurobiology* to describe how advances in research have created a conceptual bridge among biology, attachment research, developmental psychology, brain science, and systems theory...'[E]volution has designed our brains to be shaped by our interpersonal environment.' Siegel posits a 'multiskull view' of the brain, a way of understanding that brain processes take place through people's interactions with one another...'[T]he cultural transmission of meaning ultimately comes down to neuronal process!...Scientists have particularly focused on the development of the brain's orbitofrontal cortex, an area strategically located behind the eyes, between the 'higher,' thinking areas and the 'lower,' emotional areas. This region integrates and coordinates cognitive and emotional processes, helping us regulate emotional arousal and control our impulses...[It] is wired to read facial expressions and is uniquely sensitive to face-to-face communication...[Parent-child] interactions -- ordinary, routine, repeated innumerable times -- stimulate the growth of synapses in the orbitofrontal cortex that enable children to moderate their [emotions]...and to respond flexibly to other people." (Wiley and Simon, 2002, p. 30-31)

16.2.1.2. LESSON 2: EMOTIONS ORGANIZE THE BRAIN

"...[N]euroscientists have learned that, on a neurobiological level, emotions are integral to such mental processes as cognition, perception, memory, and physical action....[E]motions are regulated along the same brain circuits that govern social relationships and the processes of making meaning. Emotions are neurologically intertwined with the experience of selfhood. In evolutionary terms, emotions are crucial to survival. The need to appraise and respond to a potential threat comes up too fast to address consciously...we're always in the process of catching up with our emotions..." (Wiley and Simon, 2002, pp. 31, 33) This also reinforces and strengthens the "smart/social vagus" (Porges).

"...[E]motions are basically bodily responses triggered by brain circuitry...A stimulus-eliciting fear...bypasses the cognitive centers and goes straight to the amygdala...the brain's 'early warning module...The amygdala sets off a full-body hormonal response that can bypass the conscious brain and is experienced physically as...fear. After the first amygdala-produced shock, the frontal cortex engages, reinforcing the original the visceral fear or [re-interpreting the situation as benign]. The fear process reverses, and we calm down. Therapy with clients [suffering from excessive or irrational fear] teaches people, in part, how to beef up the frontal cortex -- making them more thoughtful, better able to bring reason to bear on their fears, and less liable to freak out...[Pure cognitive approaches have a built-in limit since] more connections run from the amygdala to the cortex than the other way around -- which means that the amygdala has more power to control the cortex that vice versa...Worry, anxiety, and stress...probably stem from the amygdala, and are notoriously resistant to our own attempts to reason ourselves out of them. Once fearful reactions or traumatic memories are burned into the amygdala, they tend to lock the mind and body into recurring patterns of arousal, flooding with stress hormones and irrational fear. We have difficulty restraining [and retraining] an excited amygdala." (Wiley and Simon, 2002, pp. 33)

Indeed "...Joseph LeDoux, [2000] author of *The Emotional Brain*, argues that...all strong emotional memories are neurobiologically indelible. Therapies...can stop the symptoms and gain the person some freedom from them, but...the neuronal residue of the fear remains intact in the amygdala, and may someday return...[T]he neocortex is using imperfect channels of communication to try and grab hold of the amygdala and control it." (Wiley and Simon, 2002, pp. 33-34) This is a researchable issue and by measuring the brain centers involved, we can gain some idea of therapy effectiveness. The neural sites of action for anxiety, fear etc., especially in the right hemisphere, are: amygdala, hippocampus, and the cortices of the periamygdaloid, rhinal, and parahippocampal areas. (Furmark et al, 2002). Nucleus accumbens, amygdala, hippocampus, parahippocampus, hypothalamus, ventral tegmental area, anterior cingulate gyrus (BA 24), caudate, putamen, temporal pole, and insula (Hul et al, 2000). If improvements in the functioning of these areas occur using energy/information psychotherapy methods (which the Hul et al acupuncture data indicate might be so) then we have hope that the memories are NOT neurobiologically indelible.

"Recognizing the centrality of emotion in brain functioning underlines the profoundly collaborative nature of therapy. [If true, this makes the "no talk" and "rapid release" aspects of the energy/information therapies an anomaly. Yet another research area!] In struggling for meaning, weaving stories, and airing grievances, therapist and client are interacting neural net to neural net. 'When a therapist speaks to a patient and the patient listens, ...the action of neuronal machinery in the therapist's brain is having an indirect and, one hopes, long-lasting effect on the neuronal machinery in the patient's brain, and...vice versa.'" (Wiley and Simon, 2002, p. 34) These changes are possible due to "...[N]euro-modularity [which] 'creates a state in which neuron conductivity is more likely to happen and therefore the brain is more plastic.' ...[T]he more brain networks engaged

(especially those involved in emotion), the more pliable the circuitry....'The openness and emotional availability of the therapist seems to be the triggering mechanism...You take those three areas of research -- psychotherapy, attachment, and neurobiology -- and you can make the following statement: psychotherapy which works is using an interpersonal relationship to change self-regulatory circuits of the brain...At the level of the brain, therapy changes the mind by changing neuronal connections.'" (Wiley and Simon, 2002, p. 34)

Neuroscientists "...propose the existence of seven discrete neural systems...brain 'circuits,' each of which activates a specific emotion along with its accompanying, self-perpetuating thoughts and behaviors. The seven primal networks are rage, fear, separation distress (which provokes loneliness and sorrow), nurture, play, lust, 'seeking' the powerful hunting quality that propels us toward our goals. Apparently, when we're confronted by a particular stimulus, a cascade of neurohormones prompts one or more of these 'big seven' mood circuits to activate and commandeer the brain, causing us to feel, think, and behave according to the dictates of the lit-up circuit. Because the emotions, thoughts, and actions of a single mood state tend to powerfully reinforce each other, once we're in the grip of any particular neuroemotional state, it's hard to even conceive of being in another." (Atkinson, 2002, p. 41)

16.2.1.3. LESSON 3: TAILORING INTERVENTIONS TO CLIENTS' BRAIN STYLES CAN INCREASE THERAPY'S EFFECTIVENESS

"...[M]any people are more at home in non-rational, nonverbal modes of communication (visual, kinesthetic, tactile, metaphorical), particularly with the material that therapy often seeks to address." (Wiley and Simon, 2002, p. 35) Multi sensory interventions address this issue. Another way to get this is using a "brain dominance profile" ... "that assesses not just right and left brain dominance, but also the dominant eye, ear, and hand, reflecting more fully people's particular styles for processing information and learning. Under stress and in new learning situations...people have less access to their non-dominant brain, eye, ear, and hand." (Wiley and Simon, 2002, p. 36) See Hannaford, 1997, for details in assessment.

16.2.1.4. LESSON 4: NARRATIVE IS FUNDAMENTAL TO BRAIN FUNCTION AND ATTACHMENT

Storytelling illustrates "...the brain's innate powers of self-creation...the universal human practice of constructing narratives, of drawing from the raw stuff of experience the stories with which our brain explains itself -- to itself and other brains...[T]he neurological subplot...of the well-made story involves the integration of the brain's left and right hemispheres. 'Coherent stories are an integration of the left hemisphere's drive to tell a logical story about events and the right brain's ability to grasp emotionally the mental processes of the people in those events'...Story telling also relies on the prefrontal short- and long-term memory systems and the cerebellum...now believed to coordinate different emotional and cognitive functions [see section 12 of this paper; the REBsm protocol involves the movement of the head and eyes to help in this process]." (Wiley and Simon, 2002, p. 37)

"People tell their stories in therapy. That's how they explain themselves. But they also learn to tell stories, learn how to organize and make something whole from sometimes chaotic feelings...and confusion. The enterprise of therapy is itself a kind of story." (Wiley and Simon, 2002, p. 68)

This tends to be a weakness with the Energy/Information psychotherapy approaches; i.e., they do

not encourage clients to "tell their story." Frequently this is the client's choice since once they have eliminated their "psychogabage" and become clearer on their desired outcome, they don't feel the need.

16.2.2. OGDEN AND MINTON SENSORIMOTOR PSYCHOTHERAPY PROTOCOL

Ogden and Minton (2000) have developed Sensorimotor Psychotherapy, a therapeutic protocol emphasizing the neutral awareness of physical sensations which we have included in thesm protocol (Module 5)

"Traditional psychotherapy addresses the cognitive and emotional elements of trauma, but lacks techniques that work directly with the physiological elements, despite the fact that trauma profoundly affects the body and many symptoms of traumatized individuals are somatically based. Altered relationships among cognitive, emotional, and sensorimotor (body) levels of information processing are also found to be implicated in trauma symptoms. Sensorimotor Psychotherapy [and REBsm] is a method that integrates sensorimotor processing with cognitive and emotional processing in the treatment of trauma. Unassimilated somatic responses evoked in trauma involving both arousal and defensive responses are shown to contribute to many PTSD symptoms and to be critical elements in the use of Sensorimotor Psychotherapy [and REBsm]. By using the body (rather than cognition or emotion) as a primary entry point in processing trauma, Sensorimotor Psychotherapy [and REBsm] directly treats the effects of trauma on the body, which in turn facilitates emotional and cognitive processing. This method is especially beneficial for clinicians working with dissociation, emotional reactivity or flat affect, frozen states or hyperarousal and other PTSD symptoms.... Sensorimotor Psychotherapy [and REBsm], emphasis[e] sensorimotor processing techniques which can be integrated with traditional approaches that treat these symptoms....[T]he therapist's ability to interactively regulate clients' dysregulated states and also to cultivate clients' self-awareness of inner body sensations is crucial to this approach..." We encourage clients to explicitly state their ongoing insights and learnings as they progress through the sessions.

"Sensorimotor Psychotherapy [and REBsm] is a method for facilitating the processing of unassimilated sensorimotor reactions to trauma and for resolving the destructive effects of these reactions on cognitive and emotional experience. These sensorimotor reactions consist of sequential physical and sensory patterns involving autonomic nervous system arousal and orienting/defensive responses which seek to resolve to a point of rest and satisfaction in the body. During a traumatic event such a satisfactory resolution of responses might be accomplished by successfully fighting or fleeing. However, for the majority of traumatized clients, this does not occur. Traumatized individuals are plagued by the return of dissociated, incomplete or ineffective sensorimotor reactions in such forms as intrusive images, sounds, smells, body sensations, physical pain, constriction, numbing and the inability to modulate arousal." (see Levine's approach)

"These unresolved sensorimotor reactions condition emotional and cognitive processing, often disrupting the traumatized person's ability to think clearly or to glean accurate information from emotional states..."

"Sensorimotor Psychotherapy [and REBsm], is a comprehensive method that utilizes the body as a primary entry point in trauma treatment, but one which integrates cognitive and emotional processing as well. [the REBsm protocol includes these aspects but the body's energy/information

system is brought into the picture. We believe that this adds greatly to the efficiency of the procedure] We will emphasize sensorimotor processing, which entails mindfully tracking (following in detail) the sequential physical movements and sensations associated with unassimilated sensorimotor reactions, such as motor impulses, muscular tension, trembling and various other micromovements, and changes in posture, breathing and heart rate. These body sensations are similar to Gendlin's (1978) 'felt sense' in that they are physical feelings, but while the felt sense includes emotional and cognitive components, the sensations we refer to are purely physical. [the REBsm does not restrict the focus but accepts what ever comes up, however, with special emphasis on the physical sensations]. Clients are taught to distinguish between physical sensations and trauma-based emotions through cultivating awareness of sensations as they fluctuate in texture, quality and intensity until the sensations themselves have stabilized, and clients are able to experience these sensations as distinct from emotions."

"Sensorimotor processing [and REBsm] is similar to Peter Levine's (1997) 'Somatic Experiencing' in the tracking of physical sensation, but it differs in intent. For Levine, tracking physical sensation is an end in itself; his approach does not specifically include therapeutic maps to address cognitive or emotional processing. Similar to 'Somatic Experiencing,' Sensorimotor Psychotherapy [and REBsm] encourages sensorimotor processing when necessary to regulate sensorimotor reactions, often the case in shock and non-relational trauma, but sensorimotor processing is most often used as a prelude to holistic processing on all three levels (cognitive, emotional, and sensorimotor). [REBsm adds the energy system to the mix]. For example, a traumatized client's affective and cognitive information processing may be 'driven' by an underlying dysregulated arousal, causing emotions to escalate and thoughts to revolve around and around in cycles. When the client learns to self-regulate her arousal through sensorimotor processing, she may be able to more accurately distinguish between cognitive and affective reactions that are merely symptomatic of such dysregulated arousal and those cognitive-emotional contents that are genuine issues that need to be worked through. As this occurs, the approach of Sensorimotor Psychotherapy [and REBsm] might shift from sensorimotor processing alone to include cognitive and emotional processing, and to address relational and transference dynamics as well. Sensorimotor Psychotherapy's [and REB'ssm] use of the therapeutic interaction to work through relational issues and promote self-regulation can be very effective in the resolution of relational trauma. Thus, Sensorimotor Psychotherapy [and REBsm] lends itself to the treatment of relational trauma as well as shock and non-relational trauma...."

"In Sensorimotor Psychotherapy [and REBsm], top-down direction is harnessed to *support* rather than *manage* sensorimotor processing [which is the intention of Cognitive Behaviour Therapy and similar cognitive approaches. Again, REBsm protocol uses all of these and introduces the body's Energy/Information System into the process]. The client is asked to mindfully track (a top-down, cognitive process) the sequence of physical sensations and impulses (sensorimotor process) as they progress through the body, and to temporarily disregard emotions and thoughts that arise, until the bodily sensations and impulses resolve to a point of rest and stabilization in the body. The client learns to observe and follow the unassimilated sensorimotor reactions (primarily, arousal and defensive reactions) that were activated at the time of the trauma. Bottom-up processing left on its own does not resolve trauma, but if the client is directed to employ the cognitive function of tracking and articulating sensorimotor experience while voluntarily inhibiting awareness of emotions, content, and interpretive thinking [the witnessing stance], sensorimotor experience can be assimilated. Furthermore, it is crucial that the cognitive direction is engaged to help clients learn self-regulation..."

The REBsm includes all levels of the issue as described in Module 5 in the clinical REBsm protocol and introduces the body's Energy/Information System into the process (Module 3). We believe that this will make the process much more efficient and complete. The REBsm protocol asks clients to notice, watch, and witness in a neutral manner the various sensations that arise in their "multi sensory review."

16.3. SUBMODALITIES OF RECORDED EXPERIENCE: REFINED ACCESSING OF BODY SENSATIONS

Part three contains a list of submodalities for the different sensory modes

"Submodalities are...neurocognitive properties that the brain uses to construct internal models of the world...[T]hey are one of the most effective tools for influencing the structure of thought, emotions, and behavior itself. (Furman and Gallo, p. 263) "[S]ubmodalities [are] the atomic building blocks of our model of the world, each submodality in itself being an analogical control parameter capable of influencing thoughts, emotions, and behavior from the inside (reference condition), just as effectively as it did from the outside (perceptual condition)...[S]ubmodalities are incorporated initially from our external environment via mechanisms of sensory perception. Learning to direct attention to submodalities dramatically [expands] conscious awareness and the range of control conscious awareness [acquires]...What are submodalities? If each sensory system is considered to be a system in itself, submodalities are the collection of all possible states of that sensory system...For example, submodalities for the visual system include location of the image, brightness, color, contrast, movement, velocity, field size, image angle, image resolution, clarity, and all other analogical differences detectable by that system. Auditory submodalities...include volume, pitch, rhythm, location, duration, cadence, and so forth. Emotions...all have a unique submodality pattern or structure capable of influencing the meaning of an event and one's response to it...[Meaning can]...be altered independent of context or content. Meaning itself [can] be altered by the submodality building blocks, the very structure of an experience. (Furman and Gallo, pp. 19-20) [Part three contains a list of submodalities for the different sensory modes]

The nervous system has two basic methods for encoding experience which can be manipulated using submodalities: Population or number of neurons activated and Frequency or the number of times a neuron fires.

"Population coding is one way in which the nervous system expresses intensity of a stimulus in the information field. The larger the population of neurons activated by the stimulus, the more intense the feeling, emotion, or tactile sensation. [An illustration using the visual system/mode:] "When we perceive (incorporate) an object or an event through our eyes, it is transmitted to the visual cortex to as many as 30 discrete circuits. [One is to the cortex area for spatiotopical mapping.] That is, the pattern of electrophysiological activity in this part of the brain spatially matches the pattern of activation that a visual image creates on the retina of the eye itself...[T]he spatial relationships of a visual image are preserved... This information is also conveyed to the prefrontal association cortex...[L]ocation is encoded by ...pyramidal cells...In this association cortex, information about one's physiological state is linked with information about the visual image. The somatosensory system, which carries physiological information about emotional state and body sensations, actually indexes the visual image being encoded by these pyramidal cells...This function provides one of the means by which the meaning of a previously stored event can be changed simply by changing the location of a visual image" (Furman and Gallo, pp. 264-265)

"[F]requency coding refers to the number of times a neuron or neuronal pathway fires (propagates an impulse) in a given period of time. The higher the number of impulses per second, the greater the intensity of the stimulus in the information field...[W]hen we ask someone to brighten and internally visualized image, instructions have been given to the nervous system to increase frequency coding of that image and therefore to increase the intensity of the emotions and sensations encoded with that image. The converse is also true..." (Furman and Gallo, pp. 265-266)

The visual-kinesthetic dissociation (V/KD) method uses manipulation of submodalities to reduce the kinesthetic intensity of a memory. "This method requires the subject to recall the experience [that caused the unwanted effect] and make an internal visual image of it... [T]he image is [typically] reported to be 'bigger than life,' occupying their entire internal visual field in their working memory. The first part of the technique simply requires the subject to reduce the size (population coding) and brightness (frequency coding) of the image, which is immediately followed by a corresponding involuntary reduction of kinesthetic (somatosensory) intensity of the connected emotion..." (Furman and Gallo, pp. 266)

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