Principles and Challenges of Trauma Treatment
Webinar Program Level II

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Frontiers of Trauma Treatment: Neuroplasticity and Mindfulness
Janina Fisher, Ph.D.

“...The imprint of the trauma is...in our animal brains, not our thinking brains...”

van der Kolk, 2004

The Legacy of Trauma Resides in the Body

Hyperarousal-Related Symptoms:
- Chronic expectation of danger
- Anxiety disorder
- Hypervigilance
- Post-traumatic paranoia
- Hyperactivity
- Impulsivity
- Risk-taking
- Racing thoughts
- Self-destructive behavior
- Violence toward others
- Suicidality

Hypoarousal-Related Symptoms:
- Flat affect
- Numb
- Disconnected
- "not there"
- Painful feelings of shame
- "deadness" or "emptiness"
- Cognitively dissociated
- Slowed thinking process

Sympathetic Hyperarousal

"Window of Tolerance"*  
Optimal Arousal Zone

Parasympathetic Hypoarousal

Hyperarousal-Related Symptoms:
- Flat affect, numb, disconnected, "not there"
- Painful feelings of shame
- "deadness" or "emptiness"
- Cognitively dissociated
- Slowed thinking process

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The Problem is the Amygdala, not the Event

- The amygdala’s role is to monitor the outside world for signs of danger AND to store emotional memory.
- After a traumatic event, it becomes more “irritable,” sounding the alarm in response to subtle reminders of the past traumatic events. Narrative recall activates emotional memory stored in the amygdala.

A Neurobiologically-Informed Treatment Philosophy

- An event is not just an event: what we take away from an event is an experience of that event.
- What we “remember” is not just the event but its encoding in the form of thoughts, feelings, body sensations, perceptions and movement impulses. The feeling of “what happened” is a combination of narrative and implicit memories which don’t ‘feel’ like memory.
- Influenced by this gestalt sense of “what happened, we develop procedurally-learned” habits of responding to all similar stimuli with the same combination of automatic reactions that were adaptive “then.”

“When the images and sensations of experience remain in ‘implicit-only’ form, they remain in unassembled neural disarray, not tagged as representations derived from the past . . . Such implicit-only memories continue the shape the subjective feeling we have of our here-and-now realities, the sense of who we are moment to moment, but this influence is not accessible to our awareness.”

Siegel, 2010, p. 154

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“The symptoms tell the story better than the ‘story’”
Janina Fisher

Philosophy of Treatment, cont.
• These unconscious habits or “action tendencies” become encoded in our bodies and operate as automatic “default settings” to which we automatically revert under stress.
• Talking about the trauma does not change them and “may actually perturb procedural learning” (Grigsby & Stevens, 2001). That means that having new experiences in therapy is more useful than talking about old experiences!
• To change the procedural learning that drives trauma symptoms requires two ingredients: curiosity and mindfulness. Curiosity challenges the automatic aspect of procedural learning, while mindfulness allows us to track the signs of procedurally learned patterns.

When traumatic activation inhibits the frontal lobes, we cannot regulate overwhelming feelings and sensations.

“Our subcortical regions influence our emotional states, altering our moods, coloring our feelings, and shaping our motivations and behaviors. The prefrontal cortex, sitting atop the subcortical areas, [only] regulates how we bring these emotional states into equilbrium.”
Siegel, 2010, p. 81
Philosophy of Treatment, p. 3

• For new learning to generalize, it must be integrated. The prerequisite for integration is the ability to self-witness: we can’t integrate an experience that we are unaware of having had or haven’t fully “taken in.”

• Self-witnessing requires that the frontal lobes be “online” and arousal within the Window of Tolerance. Because of trauma triggering, that is a challenge for our clients

• Mindfulness skills also facilitate integration. Mindful noticing is the act of self-witnessing without judgment or bias. It is dependent on frontal lobe engagement, and mindful consciousness is associated with decreased arousal.

Philosophy of Treatment, p. 4

• After years or decades of living in triggered states with the frontal lobes shut down, it is challenging for our clients to re-engage cortically much less to become self-aware and to “dis-identify” with their symptoms

• Initial therapeutic interventions that facilitate mindful noticing and re-engage the frontal lobes include:
  • Psychoeducation to reframe the symptoms
  • Using visual aids to increase focus and concentration
  • Therapist modeling of curiosity and “wonder”
  • Asking clients to “drop” habitual interpretations, noticing without judgment, awareness of pattern

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Philosophy of Treatment, p. 5

• Until the client’s working memory is back “on line,” it is the job of the clinician to be an “auxiliary cortex” to translate the trauma-related symptoms, diagnose triggers, anticipate and help client modulate activation, and to remain curious on behalf of the client when s/he cannot be.

• The basic principles of trauma work must be deliberately taught: we cannot assume that the client’s frontal lobes are online or that the client “knows” how to differentiate past/present when s/he is triggered. We must teach clients what a “trigger” is, how their thoughts can negatively impact them, how their symptoms reflect procedurally-learned “survival strategies” Fisher, 2010

Philosophy of Treatment, p. 6

• Mindfulness skills must be deliberately taught: learning to notice, to differentiate thoughts versus feelings versus body sensations, to suspend drawing conclusions.

• We must explain that thoughts represent theories, not facts. Their thoughts that explain or interpret trauma-related body sensation are not creative; they are habitual. They do not resource; they de-resource the client.

• Such thoughts “assign danger” to feelings and body sensations: “You’re so stupid,” “It’s not safe to feel your feelings.” When thoughts interpret body sensation as an indicator of threat, past and present become merged and confused Fisher, 2010

Philosophy of Treatment, p. 7

• A consequence of most types of trauma is that other human beings become stimuli that threaten rather than comfort, that dysregulate rather than regulate. We have to remember that we too are triggers of both the client’s hope and fear: his/her hopes of rescue and fears of harm.

• The therapist must track the client’s arousal and use his or her social engagement skills to up-regulate hypoarousal, down-regulate hyperarousal, and maximize any experience of pleasurable affects and sensations.

• An antidote to feelings of powerlessness and automatic compliance is therapeutic collaboration cultivated as possible in every interaction with clients Fisher, 2010

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Philosophy of Treatment, p. 8

“Change” in the context of trauma is something that happens just before the moment of full impact. Prior to each traumatic event, life is going along normally, then suddenly there is a change, and then the “worst” happens.

• Change is thus threatening for trauma patients: procedurally learned responses occur automatically, while new responses feel uncomfortable and/or dangerous

• Therefore, new actions and reactions must be practiced during therapy sessions: awareness and insight are not sufficient to overcome the automatic nature of procedural responses or the fear of change or to integrate new information.

Resolution of Trauma = Transform Habitual Trauma Responses

“Change happens through discovering how a client habitually organizes experience in response to selected stimuli and then changing how that experience is organized... The ‘tool’ that we use to discover and then [transform] the habitual organization of experience is mindfulness.” Ogden, 2005

PS: Remember the Role of Dissociation in Perpetuating Trauma Symptoms

• The Structural Dissociation model tells us that each and every component of the ordinary response to danger can become encapsulated as a part of the self, that structural dissociation is “normal” in trauma

• Depending on the client, parts can be more or less known to each other and the Adult Self. Each client will differ in the ability to function and internal conflict among parts

• In some clients, the splitting may look like mood swings; in others, it may look like dissociative or personality disorders. In other clients, it is even more subtle: we just know we are stuck!

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Bodies Remember Not Only Feelings and Sensations but Actions

“Long after environmental conditions have changed, we remain in a state of readiness to perform the mental and sensorimotor actions that were adaptive in the past. . . . Once [these] procedures become automatic tendencies, we no longer use top-down processes to regulate them.”

Ogden, Minton & Pain, 2006, p. 22

The neuroscience research has raised an intriguing question for therapists:

If the problem in post-traumatic disorders stems from how traumatic events have been ‘wired’ into the brain and body, then why couldn’t treatment focus on ‘re-wiring’?

Re-Wiring = Neuroplasticity

“Neuroplasticity is the term used when connections [in the brain] change in response to experience”

Siegel, 2007, p. 30
Neuroplasticity [Siegel, 2007]

• The advent of brain scan technology over the last fifteen years has at last created the potential to observe living brains at work. One discovery made possible by this revolution was that brain structure and brain cells actually change in response to experience. This new knowledge challenged beliefs in the brain’s rigidity that dominated the worlds of neurology and psychiatry for centuries.

• The research shows that not only does neuroplastic change result in structural alterations, but these structural changes are accompanied by changes in brain function, emotional experience, stress response and even immune function (Siegel, 2007, p. 32).

Neuroplasticity, cont. [Siegel, 2010]

• Neuroplasticity works in two directions. The brain not only creates new connections and networks as needed, but it also deletes or re-wires old ones.

• Through this process, called “synaptic pruning,” connections that are inefficient or used infrequently fade away, while neurons that form frequently traveled pathways are preserved and strengthened.

• In response to new experiences or information, neuroplasticity allows both the alteration of already-existing connections or formation of brand-new connections. “In either way, the brain is remolded to take in this new data and, if useful, retain it . . . .” (Siegel, 2010).

Neuroplasticity Facilitates Survival

• In childhood, the brain undergoes numerous growth periods followed by “pruning.” Frequently-used pathways become automatic responses and less-used pathways are eliminated. We call this “neuroplastic” change.

• When we must adapt to trauma, the brain develops patterns of response most likely to ensure survival under threat. The resulting pathways become “kindled” or sensitized and increasingly automatic and efficient.

• And when these patterns are no longer effective years later, they are no longer “plastic” or under conscious control: they are automatic responses.

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Neuroplasticity & Trauma Treatment

• If the problem in trauma is not so much the events but the procedural learning as a result of those events, and if the client’s procedural learning resulted from survival-related neuroplastic change, it makes sense that, in treatment, neuroplasticity could be harnessed to create new procedural learning by encouraging neurons to form new connections and assume new roles.
• But how do we accomplish this task?
• First, we need to apply the principles of neuroplasticity to therapeutic work.

“Plasticity is induced by changes in the amount [and kind] of sensory stimulation reaching the brain.”  
Schwartz & Begley, 2002, p.16

Neuralplasticity Theory and the Role of Mindfulness  [Siegel, 2007]

• Neuralplasticity is fostered by inhibition of old responses coupled with repetition of new, more adaptive responses. (Eg, stroke patients inhibit ‘good’ arm and do repetitive exercises with the other)

• ”The way an individual willfully focuses attention has systematic effects on brain function, amplifying activity in particular brain circuits.”  (Schwartz & Begley, 2002, p. 334.)

• We can also de-amplify activity in other areas: ”Attending to one sense . . . does not simply kick up the activity in that region of the brain. It also reduces activity in regions responsible for other senses.”  (Schwartz & Begley, 2002, p. 373)
What does that mean for clinicians?

• It means that each time the client ‘re-cycles’ old material, the same ‘old’ neural circuits will be activated.
• Each time we ‘disrupt’ the pattern, we inhibit the old neural circuitry and have an opportunity to amplify activity in other areas of the brain or parts of the body.
• It implies that intensive repetition of new responses is important for effective therapy. Rather than trying many things, it may be more effective to do fewer more consistently and repetitively.
• It means prioritizing the importance of mindful attention, focused concentration, and “directed mindfulness” (Ogden, 2012). Fisher, 2013

What else does neuralplasticity have to tell us about how to work?

• Have heightened awareness when you encourage clients to talk about their unresolved traumatic experiences. Remembering activates the body and may reinforce the neural circuits holding the “body memories”
• Each time you interrupt the client to disrupt an old pattern, you inhibit old neural circuitry and give the client an opportunity to grow other areas of the brain.
• Don’t be afraid to be repetitive! Intensive repetition of new responses is of critical important for effective therapy. Rather than trying many things, it may be more effective to do fewer more consistently and repetitively. Fisher, 2010

What else can the neuralplasticity research tell us?

• “Doing is more important than talking.” Beware of getting caught up in stories and missing opportunities to practice new alternatives to old patterns.
• The neuroplasticity research tells us to be impeccable about ‘noticing instead of narrating’.
• Attention to empathic attunement should not prevent us from interrupting to inhibit maladaptive patterns.
• Catharsis provides temporary relief, but it doesn’t change brain structure or muscle memory. Only repetition with focused attention actually results in physical change.

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Capitalizing on Neuralplasticity: inhibit old responses, practice new ones

• “As these feelings come up, **NOTICE** what’s happening? Where do you feel them? . . . What do you notice?”

• “As you notice these feelings and sensations, **ACKNOWLEDGE** them as body memory . . . as ‘just sensation,’ just a thought. What happens?”

• “Name them as body memory and **WELCOME** them . . . What happens??”  [Clients report calming]

Now **WELCOME** the new feelings . . .”  
Fisher, 2010

How and why does it work?

• “As those feelings come up, **NOTICE** what happens inside . . .” is a way of facilitating mindful noticing, directing attention to the thoughts, feeling and body sensations that comprise the habitual pattern rather than interpreting it or reacting to it

• **ACKNOWLEDGE** these as body memory . . . ” provides an updated interpretation of the implicit memories: they are past, not present. They are ‘just memory’

• **WELCOME** them . . .” Welcoming or acceptance is a mindfulness practice that facilitates relaxation and integration, presumably also decreasing activity in the amygdala. Welcoming the new pattern increases focus on it and provides repetition  
Fisher, 2010

Trying to stay here, not ‘go there’

Symptoms or crisis

Curiosity

Validation (Re-framing)

Stay here instead of ‘going there’

“Can’t handle this anymore—I give up!”

“I wonder if I’m triggered—there must have been a trigger for me to get so freaked out…”

“I’m going to be curious: how could wanting to give up have helped me survive in an unsafe world? How was that smart?”

“OK—I just have to keep saying, ‘It’s just body memory—just triggering—it doesn’t mean I have to do anything.’”

Fisher, 2009
Neuroplasticity even offers hope to the hopeless

“Plasticity allows the brain to rebuild connections that, because of trauma, disease, or genetic misfortune, have resulted in decreased abilities. It also allows us to compensate for irreparably damaged or dysfunctional neural pathways by strengthening or rerouting our remaining ones.” Siegel, 2010

For further information, please contact:

Janina Fisher, Ph.D.
5665 College Avenue
Suite 220C
Oakland, California 94611
DrJJFisher@aol.com

Sensorimotor Psychotherapy Institute
office@sensorimotorpsychotherapy.org
www.sensorimotorpsychotherapy.org