

Review

“Understanding the Neuroscience of PTSD: Clinically Useful Applications”

presented by Amy Banks, MD

Reviewed by Ricia Fleming, Ph.D.

We were fortunate to have Amy Banks, MD, return to share with us more of her experience and extensive knowledge of the neurobiology of trauma and relatedness. In addition to being knowledgeable, witty, and relationally responsive to her audience, Amy Banks is a realist. She told a full house in the Lexington Heritage Museum’s main auditorium on Sat Jan 22, 2011 that because this neurobiology material is so heady and intellectual, it is really tough to apply it directly to what goes on in therapy sessions. It *is* tough. And it is worth doing: So, in spite of the obstacles presented by the headiness of the past decade’s neuroscientific discoveries that she will be sharing with us, and in spite of the difference between the atmosphere of that science and the atmosphere of a therapy session, we will all make the attempt to understand the science and apply it to our therapeutic work with clients.

Relational Cultural Theory and the Neurobiology of Connection

Relational-Cultural Theory, formulated and studied at Wellesley’s Stone Center and the Jean Baker Miller Training Institute where Banks is Director of Advanced Training, asserts that connection is crucial to neurological development; that dynamic changes in neurology continue throughout the life span; and that social connection also plays a crucial role in these ongoing neurological changes.

Relational-Cultural Theory arose in the cultural context of the women’s movement and offers a wholesome corrective to the earlier (and perhaps still culturally prevalent) Separate Self model. The social impact of the Separate Self model, summarized by the phrase “born alone; dies alone,” has been devastating.

Banks offered a wealth of information confirming the Relation-Cultural Theory that “we grow in, through, and toward relationships.”

Moving to specifics of how social relationships affect our bodies, Banks guided us deeper into the chemical and cellular level where biography literally becomes biology. Here are some of the things we learned from her:

<> The Autonomic Nervous System has a hierarchy of responses to stress and the first priority response is not “fight or flight.” The first priority response is in fact the “Social Engagement System,” which seeks safety in relationship. Only if relating fails will we resort to “fight or flight.”

<> The SPOT theory: fMRI studies revealed that the pathways in the anterior cingulate cortex portion of the brain are the same for both physical pain and the pain of social exclusion. Both pains are neurologically “real.”

<> The “Smart Vagal Nerve” connects people’s interpersonal expression with their core physiological operations such as heart and lung function. Good “vagal tone” allows people to tolerate and repair moderate distress in relationships, rather than withdrawing or becoming violent.

<> Neuroception is a process by which the neural pathways themselves directly assesses situations as safe, dangerous, or life threatening.

<> The mesolimbic “Dopamine Reward System” regulates the brain-stem produced, “feel good” chemical, dopamine. Evolution favored individuals who felt good doing what was good for them: eating, drinking, nurturing, and reproducing. If past relational trauma or present circumstance blocks our ability to get our “feel good” dopamine from healthy relating, nature assures that we will try to find it elsewhere through such deleterious activities as excessive eating, drug and alcohol use, or other addictions.

<> PTSD disorganizes the feedback process that regulates the amount of neurotransmitters and receptors in the “Stress Response System,” especially in the Hypothalamic-Pituitary-Adrenal Axis and its most famous player--the anti-stress hormone cortisol.

<> Brain changes predispose the post traumatic limbic system to hijack the more rational cerebral cortex. These changes include a smaller memory-storing hippocampus, a more irritable alarm-sounding amygdala, and decreased activity of both the speech controlling Broca’s area and the calming, rational prefrontal cortex.

How does this neuroscience apply to our work with clients?

Banks accepted the challenge to apply this neuroscience clinically, and got us started on the process. One of her approaches for accomplishing this was inviting Madeleine Pluhar, LICSW, to present an anonymous case for us to think about together. This case had features familiar to us all: chaotic family of origin, a variety of abusive and traumatic experiences, and a very sparse and disturbing relational history.

In exploring therapeutic strategies, Pluhar courageously addressed what for many psychotherapists is “the elephant in the room,” that is, the issue of physically touching our clients. Touch is a core part of our body experience, and Banks’ information indicates that touch plays a crucial role in human neurobiological development and well being. Because Pluhar’s client needed self-soothing skills and had no memories of being held when she cried, Pluhar wondered with us about whether sensitive touch and cradling would help her client to heal. She paved the way for a valuable discussion of touch in therapy that continued in the open after-meeting luncheon session.

One clear cut clinical application of the neuroscience of PTSD is an increase in empathy. The therapist understands that it isn’t the client’s willful refusal to connect, or selfish disregard for others’ concerns, but rather structural and functional factors in the client’s

body that are driving the client's difficult behaviors. Furthermore, when a therapist shares this knowledge with a client and role-models this knowledge-based empathy, a client is helped to be more empathic toward themselves.

Similarly, knowing that the neural pathways are built by repetition can increase both the therapist's and the client's' patience with having to repeat the same thing over and over again.

Knowledge of neurobiology can help us know what direction to take with clients, and by sharing this knowledge we can facilitate their understanding of how going in this direction can help them. For example, we know that the Medial PreFrontal Cortex is the top down regulator of the Limbic System. We also know that emotional awareness leads to an increase in stable emotional and cognitive processing by the anterior cingulate cortex, which in turn leads to the inhibition of fear responses in the limbic system's amygdala. And we know that turning attention inward leads to an increase in medial prefrontal cortex activity, which leads to regulation of the limbic system. This scientific explanation can provide scientific reassurance to a skeptical client that the skills they are working so hard to learn will benefit them in the long run. We can use this knowledge to strengthen the loving and effective inner parent who helps a child manage overwhelming inner states.

Banks also shared with us some of her own clinical applications of this neuroscience. She uses some of the material on her power point slides directly with her clients. For instance, she offers the list of "Five Good things a in Growth Fostering Relationship" to clients who have come to believe that relating to people is dangerous. She shares the SPOT theory with pain patients, explaining that they make neurological sense because social pain and physical pain use the same nerve pathway and feel alike. She even shares the highly technical diagrams of synaptic neurotransmitter activity because these diagrams help clients appreciate that their bodies have responded effectively to very stressful circumstances and that way they feel makes scientific sense.

Strategies for translating the neuroscience into clinical applications fall into three categories. The first is psychoeducation of clients by directly teaching them about themselves via handouts, books, diagrams, verbal explanations, and so on. The second is experiential, or, as Banks put it, “doing what we do already but doing it out loud.” We can call attention to micro-moments of connection between ourselves and our clients, and give these micro-moments verbal labels. And we can stress that even though doing this over and over is sometimes tedious, it is valuable because neurocircuitry develops through multiple repetitions.

The third strategic category for translating neuroscience into clinical action is that of directly calming our clients’ post traumatic amplification responses via psychopharmacology, meditation, tapping, EMDR, neurofeedback, and the like. We can also guide the formation of a skill set comprised of neural pathways for stepping back from the overamplification and saying, “That’s my PTSD; it’s not the core, essential me” and for intentionally strengthening calm, positive neural pathways.

Knowledge that the neurophysiological interactions are complex and far reaching suggests too that we can take an informed team approach to helping our clients. (One thinks “it takes a village.”) For example, we can intervene by referring people to occupational therapy listening programs which strengthen the inner ear function, which connects to the vagus nerve, which in turn improves social engagement, which in turn permits use of the preferred autonomic nervous system response to distress, namely, seeking safety in a relationship.

Banks got us started on the work of finding clinical applications for the wealth of neurobiological information she provided. She gave us a rich box of goodies: facts, models, diagrams, research results, and even cartoons. She role modeled a caring psychoeducational process in her presentation to us. She shared some applications from her own clinical practice, and provided a conceptual overview of three general application categories.

The work of discovery continues with us, as we find more ways to use relational neurobiology to further our clients' healing and well-being. Banks' outstanding presentation will stand us in good stead as we do this work.

In conclusion, not only do I feel so fortunate to have had this experience, but I am also happy to know my learning with her can continue via her paper and her upcoming webinar which I'm confident will be as inspiring, delightful and informative as her presentation here at NESTTD. Thank you.

For further learning:

Amy Banks, "Developing the Capacity to Connect" thru JBMTI.org

Amy Banks, JBMTI.org; Neuroplasticity On Line Webinar series coming this spring. "When to Say When: The Dopamine Reward System from Moderation to Addiction" - FREE! Friday, March 25, 2011 • 11:00 AM to 12:30 PM EST

Louis Cozolino, Neuroscience of Human Relationships: Attachment and the Developing Social Brain

And, especially good for clients, Norman Doidge, The Brain that Changes Itself'
http://fora.tv/2010/09/02/Norman_Doidge_The_Neuroplasticity_Revolution_An_Update

<http://stephenporges.com>