

Lesson 9:

Neuroscience and couples therapy: Integrating attachment and differentiation frameworks

What every couples therapist needs to know

You can save this PDF and refer back to it after listening to the audio.

A recap of Lesson 9 audio:

You can read this PDF independently or follow along with the audio of Lesson 9. Book resources related to this material are at the end of this document.

Note: The PDF of part II will be delivered in the next Module.

This Lesson is based primarily on the ideas described by Mona Fishbane in her book: *Loving with the Brain in Mind*

Part I

Introduction

Whether couples handle their relationship stress by fighting or by avoiding fights, one thing is for sure: The brain is involved.

Sigmund Freud knew that in order to understand who and what we are, we need to understand the part of us that we share with non-human species. He was ahead of his time and chose to focus only on the mind, instead of on the structures of the brain.

Freud thought that psychoanalysis would eventually be reunited with its neurobiological origins when the time was ripe for a synthesis. Our current scientific understanding of the brain makes it hard for therapists to ignore these developments.

The old nature versus nurture has now been finally put to rest. We do have genetic predispositions for abilities and temperament, but the genes get turned on or off depending on experiences. Those experiences then shape the brain and our gene expression, which, in turn, affect experience in a recursive and reciprocal way.

Therapists often have a bias against neuroscience.

And yet, couples therapists who don't pay attention to the connections between the mind, the body, and the brain may be missing important information about the process of change and may end up, ultimately, not serving their couples well.

A neuroscience perspective is the foundation of a synthesis among the different frameworks. As is true for other forms of therapy, one size does not fit all in couples therapy. Our practice is well served when therapists can integrate various frameworks, using multimodal interventions, including the ones based on principles of neurobiological growth, to achieve emotional regulation and integration between affective and cognitive states, and body sensations, one of the goals of the work with couples.

The aim of this two-part lesson is to help couples therapists decrease their bias against neuroscience, and increase their repertoire of interventions so couples can create new brain pathways in order to alter their interactional cycles of blame and disconnection when they feel hurt, rejected, lonely, or disrespected.

1. Why do couples therapists need to know about the brain?

Couples therapists have a lot in common in terms of what they want for their clients: increasing empathy and connection, healing old wounds, understanding the intergenerational transmission of interactional patterns, dealing with disagreements, disappointments and disconnection, and learning acceptance, to name a few.

Understanding the role that brain function, brain development and brain plasticity play in helping couples in distress is crucial for helping couples bring about emotional regulation to change their dynamic. As couples therapists begin to understand the cycles of blame and disconnection, and the ways in which each member of the couple reacts to tone, for example, or a raised eyebrow in a split second, we can help couples explore what happens to them neurobiologically.

When couples therapists understand how the brain operates, they can educate clients with more clarity and they can design interventions that alter the brain. Psychoeducation about the brain helps clients feel less ashamed about their tantrums and meltdowns, encourages them to be more open to learning how to manage their emotions, and can make them more optimistic about the possibilities for change. Feeling less ashamed increases their self-compassion and their ability to understand the intergenerational transmission of patterns and attachment styles. Finally, education about brain plasticity and interventions that alter the brain may help clients differentiate what they can change and what they cannot, providing both a sense of agency and, simultaneously, a modicum of acceptance.

Neuroeducation and interventions that affect brain functioning have the potential to increase the therapeutic alliance and may even have the effect of increasing commitment to change on the part of the clients. Of course, neuroeducation *is* itself an intervention and like all interventions depends on timing for optimum receptiveness. Also, when therapists working with couples understand the basics of neuroscience, they can regulate themselves better, they can repair breaches of the therapeutic alliance faster—a common occurrence in couples therapy—and become models for their clients.

2. What are the parts of the brain and how do they function?

This part of the lesson is a simplification of a very complex system that organizes, reorganizes, and disorganizes human consciousness, experience, and relationships. A simple way to understand brain structure is to think about it as having three sections. In this lesson I will focus on the **organization of the brain, rather than on the other systems. But it's** important to know that, in addition to this organization of the brain in three parts, there are other organizations: the left and right hemispheres, the sympathetic and parasympathetic systems, and the hormonal systems.

Finally, there is constant flow between the brain and the body. All these systems are intertwined and communicate with each other at higher or lower levels of integration, constantly interacting and influencing one another. Facilitating integration at multiple levels is the work of therapy.

At the base of the brain is the brain stem that we share with lizards, the lower brain. It controls balance and heart rate, among other functions, and it includes the fight, flight or freeze reflexes. The middle brain is the limbic system that includes the amygdala which mediates the fear response and the hippocampus, involved in memory, learning and emotional processing. The higher brain contains the prefrontal cortex (PFC) which is most developed in humans. From the evolutionary point of view, the PFC is the **last one to develop, and from the individual development point of view, it's** also the last one to develop fully. The PFC is the seat of analytical thinking, planning, problem solving, and rationality. These parts of the brain communicate with each other but not very well because they have different **"operating systems."**

To simplify, I will call the prefrontal cortex the higher brain, and the limbic system and the brain stem, the lower brain.

Humans share 98% of their DNA with chimpanzees. The 2% difference resides in the PFC. As I mentioned, the PFC is the thinking, planning, information gathering and problem-solving part of **the brain. It's also the** seat of consciousness and self-awareness and the area of learning and integration.

As humans, we share with other species the older, more primitive part of the brain. The limbic system is the seat of fear, responses to stress, survival strategies, emotion formation and processing, and memory. We have evolved to connect and bond. But we have also evolved to protect ourselves and survive, which is what leads to war-like behaviors between partners.

The lower brain is always on duty, scanning the environment for potential threats or danger. When we experience threat or danger, the amygdala, which is a part of the limbic system, gets activated. We have been wired to fight, flee, or freeze from danger in order to protect ourselves. This survival system has kept our species alive for a long time. The reality of what danger looks like has changed over time and is different for every person, depending on the early experiences that shaped our brain and how we learned to survive, cope and defend ourselves from the perceived threats.

The amygdala does not distinguish between psychological and physical **danger, painful recollections, or painful emotional states. Couples' reactivity is driven by the amygdala of each partner. When partners don't feel safe,** they go into self-defense mode rapidly and automatically. Partners use threatening words, movements, or facial expressions because the amygdala is ruling, not the PFC. When the amygdala rules, memory and thinking fails. This is one of the reasons why highly dysregulated partners will frequently misreport events and attribute bad intentions to their partner.

Most of what happens between two people under stress is not explicable to the partners which is why they are often surprised at how they act. The brain in love generally results in self and mutual regulation: partners feel safe, at home, calm. But the brain at war is the result of self and mutual **emotional dysregulation: partners who don't feel emotionally safe don't** seem to be able to calm themselves or each other.

The interplay between the lower brain and the higher brain is crucial for emotional self-regulation. But emotional reactivity is more primitive, more automatic and faster than self-regulation. Our higher brain is built on top of our older, reptilian and mammalian brains and the older parts work faster than the newer, making it hard for us to believe that we are not quite the rational creatures we think we are.

As humans, we toggle between the operation of one part of the brain or the other. The PFC is not always operational, not always in control, not always online. The lower brain reacts as a reflex, floods our body with adrenaline (a stress hormone) and comes online especially when we feel threatened or are psychologically in pain.

Neuroscience helps us understand the blame cycle in couples. A lot of what happens between people can put any person on alert, in part, because it is a **reminder of what's stored in the limbic system, the seat of memory: I will be hurt again...I will be abandoned.... It's my fault.... I am alone.**

When we feel rejected, blamed, criticized, or humiliated, the brain goes into lockdown and we use our survival strategies to cope. There is a region of the brain that lights up as when we step on glass, which means that physical pain affects us as much as painful words, or memories of painful words. And when we feel threatened or in pain, we react with a (generally ineffective) survival strategy. So, when we respond by either trying to dominate or disengage, we are trying to protect ourselves from pain. We are not even conscious of our survival strategies and skills. They were developed early and they are fueled by the lower brain system.

3. How does couples therapy alter the brain?

We now know that psychotherapy in general, and couples therapy in particular, changes the brain. One assumption of both neuroscience and psychotherapy is that optimal functioning is related to increasing levels of integration which results in emotional regulation. Across all forms of therapy and across all frameworks, positive outcomes are related to the combined

integration of thinking and feeling, simultaneously supporting and **challenging clients' ability to tolerate both positive and negative feelings, and** increasing their tolerance for stress.

The brain is not done changing after childhood. When couples therapy works, the brain has in some way been altered by increasing neuronal connectivity, which in turn, increases integration. One way to define integration is to say that it consists of the ability to experience life while utilizing a minimum of defensiveness, which couples in distress have a hard time doing. The process of integrating affects and cognition, and increasing access to information across networks of sensation, behavior, and emotions, produces neurochemical changes. These changes enhance the integrative capabilities between all parts of the brain to gradually bring them under the control of the PFC executive functions. When emotions are under the control of the higher brain, couples become less aroused, less dysregulated, and less anxious.

We are continually learning and changing. Emerging from childhood, with an ability to experience a range of emotions and tolerate stress is the pathway for brain growth and psychological development. When we learn something new, we increase the neuronal connections in our brain. When the connections in our brain increase, we have more energy and we are able to process more information. The neuronal connections are the basis for our habits, thoughts, feelings and behaviors. When we behave and experience things in a certain way, we are creating and reinforcing neuronal networks. The influence is recursive: that is, everything we do, imagine, think, or learn changes the brain. Every time we become reactive, or we blame, or we treat our partner as our enemy, we are reinforcing the networks that make us reactive in the first place. From that point of view, we are what we do. As **Mona Fishbane says, quoting Daniel Siegel: "Experience is biology."**

The brain develops by way of increasing connectivity among the brain cells called neurons. Infants are born with very few neural connections. As it grows, the connections begin to grow exponentially. The early interpersonal environment is imprinted in the human **brain by shaping the child's neural** networks and establishing the biochemical circuitry dedicated to memory, emotions, and attachment. This is the basis for the infrastructure for later

developing intellectual skills, affect regulation, attachment, and the sense of self as differentiated from the other.

As we now know, from the point of view of the brain, there are experiences that function as neural enhancers and others that operate as inhibiting neural connections.

Some of the things that operate as neural inhibitors prevent us from feeling **safe or regulating our emotional reactivity. We don't always remember our inhibitors, because many of them occurred when we were too young and didn't have the language yet. So, we call them unconscious. And some inhibitors are unconscious, not because we didn't have the language when they occurred, but because we didn't have connections to make meaning of them. They have not become integrated into a cohesive narrative.**

We may not have the words or the meaning, but we have the emotions, the feelings and the body sensations associated with them. So all the experiences we have are recorded in the brain, whether we remember them or not, whether we are aware of them or not. They have been imprinted on the brain somewhere as sensations, as implicit memories, and as body memories.

The work of couples therapy is, in part, about increasing the connections between the experiences, the emotions and the body sensations associated with them. Neuroscience teaches us that the connections that go from the PFC to the amygdala are far weaker than the connections from the amygdala to the PFC, for example. This is one of the reasons why emotional information invades our conscious thoughts and why it difficult to achieve conscious integration between thinking, feeling, and language.

When our internal questions, such as: "Are you there for me? Can I count on you? Do I have to hide parts of myself to be loved?" are answered without a resounding "Yes!" but rather with a "Maybe" or a "No," we don't feel safe, and this can trigger our lower brain response.

And when disagreements and disappointments fuel the anxiety of difference, some people feel threatened, and resort to disconnection, protests, or coercion.

The problem is that what helps one partner get relief and feel momentarily better (shutting down or attacking), provokes pain in the other partner.

No problem solving, information processing, listening, empathy, or rational dialogue can take place when the lower brain is activated. And yet, couples **keep repeating the cycle even though it's ineffective.**

4. **Why do we keep repeating what doesn't work?**

There is tension between the lower brain and the higher brain. As I mentioned, the lower brain is the seat of emotion formation and emotion **processing, memory, survival. It's always scanning for danger. It acts as a reflex.** It takes much less than a second for it to make an association with a **painful experience that's stored there, and it sets off the fight, flight, or freeze response when it's activated by threats. It doesn't differentiate between a bear in the woods and a spouse's aggressive tone of voice or dismissing actions.** It works faster than the higher brain—it hijacks it, and takes it out of operation. In those moments, the higher brain decision-making process is not operational.

But things get even more complicated. The higher brain does have the capacity to regulate our lower brain. When that happens, we can think, plan, deal with anxiety, and solve problems. But, the higher brain functions either on the basis of habits to conserve energy, or on the basis of choice, which requires intentionality, patience, and learning new habits of mind.

So, while the higher brain does give us the power of choice, most of us live on automatic daily habits. The stronger and older the habit, the stronger the neuronal circuit that sustains it. So, habits, emotions and implicit memories run the show in our lives. Not the thinking, rational, problem-solving, thoughtful parts.

Anything that resembles something stored in the limbic system puts us on high alert, ready to react or overreact. We have so much history stored in our limbic system that we will get triggered no matter what because we are so interdependent with our partners. And remember, the lower brain acts faster than the higher brain. This is also why arguments escalate so fast: **“Wow, what just happened here?” “How did we get from 0 to 60 in a second?”** It may help to remember that when it comes to dealing with a human being, we are simultaneously dealing with a human, a horse, and a crocodile.

Couples can become dysregulated by getting angry and raging (high arousal), or by avoiding arguments, keeping a low volume so to speak, but feeling alone and neglected (low arousal).

In one of P’s earliest memories, he is sitting under the dining room table in his house, covering his ears to shut out the parents fighting in the bedroom. As an adult, when his wife raises her voice at him or the children, he reacts by withdrawing. Her main complaint could be that “he doesn’t hear me.” Even though his higher brain “knows” that it’s not the same, his lower brain reacts as if it were the same kind of danger, because of the stored emotional memories. Stored in P’s brain is the survival strategy of dissociation and withdrawal. Other people faced with screaming parents may have stored other strategies in their limbic systems.

Doing something different is difficult because the structure of our brains makes it difficult, if not impossible, for us to engage in random actions. Our behaviors, thoughts, and feelings are guided by patterns established through previous learning to which we automatically return.

The other reason we repeat behaviors even though they don’t work is because in order to change, we have to involve planning a new action, a higher brain activity. It means taking risks, growing, stretching out of the comfort zone, doing something different, something new. What if it doesn’t work? What if we get rejected or disrespected anyway? What if we don’t succeed? Planning a new action (change) will trigger some kind of stored pain in our lower brain. The lower (emotional) brain is actually acting in a way that reminds the higher brain that change can be dangerous.

Here is another reason why we repeat. Attachment and emotional arousal are memory systems. We anticipate the future in relation to our past experiences. We are generally not aware of the connection between what **makes us anxious and afraid and why, because we don't have a** conscious memory of it, but we have implicit memories. We repeat that of which we are not aware. **We also repeat what doesn't work, because we are more** inclined to laziness than effort, to automaticity than consciousness.

So, our higher brains are not always in control, it takes enormous effort to create a new habit, and we **don't think we have a choice—we think "this is the way I am."** No wonder we keep repeating and repeating the patterns.

There are other reasons why we repeat what doesn't work, and I will cover some of that when I discuss intergenerational transmission of patterns in another Module.

5. The Blame Game

When a human being falls in love, the region in the brain that lights up is the same as when someone is on cocaine, as demonstrated by the latest imaging techniques. We are wired to scan for danger and threats, but we are also wired for connection, empathy, and bonding.

As time goes by, couples lose the new love feeling and either move from passionate love to grown up, mature love, or they go to war. Relationships **always deteriorate over time, even when there's not a whole lot of damage,** in part because the habits of mind take over, and couples become lazy, less kind, and more prone to habitual responses. But love also turns to war because an adult intimate relationship reminds us of our conscious and unconscious injuries, and of our emotional dependency on our partner.

Partner A may protest because of partner's B inability to sooth Partner A, and by not soothing, they are not healing **Partner's A past experiences in** which they felt shame, hurt, or pain.

We begin to tell ourselves stories that explain what's happening and lower brain self-protection takes over. In unhappy couples, each feels like a victim and blames the other. And each member of the couple feels justified. **The power struggles make it hard for each to see the "dance of the amygdala"** each of them created in the tension between connection and disconnection.

The PFC, the higher brain, is the last one to develop. We learn kindness, restraint, compassion, empathy, and consciousness in the process of our development as human beings and these are the only things that distinguish from other beings. When couples therapy begins to work, people often get **confused: "What should I be doing instead?" "I've already tried everything, what else can I do?"** Confusion is a sign that therapy is working and priming the brain to make different associations and different connections. If things go well, couples learn to tame their tantrums, deal with frustrations when **they don't get their way, and to handle crises, anxieties, disappointments, and disconnections.** But when things don't go well, couples regress, get triggered as the lower brain takes charge, and all of it in a split second.

6. Do we really have a choice?

If building the human brain is complex, rebuilding it is even more challenging. Can the human brain change? Can we find our way back to integration, consciousness, and self-regulation?

The PFC gives us the power of choice. But it's not easy. It's easier to repeat the unconscious, automatic ineffective behaviors—attack or withdrawal—rather than using the effective ones. And most of the time the brain functions on autopilot.

But stressful and dangerous situations alert and prepare the brain to pay attention and to learn. Stress provides an opportunity that triggers neural plasticity and is a key element in the success of therapy. Couples therapy provides that opportunity.

There are many ways to regain some control. Every time we learn, experience, and practice with intentionality, we create new pathways. When we repeat a thought, a feeling, a word, a movement, we change our brains.

This is the End of Part I of Neuroscience and Couples Therapy.

Part II will be delivered in the next Module. Part II contains interventions for helping couples with self-regulation and other-regulation

Sources utilized in this Lesson

- 1) Loving with the brain in mind by Mona Fishbane
- 2) The neuroscience of psychotherapy: Building and rebuilding the human brain by Louis Cozolino.
- 3) Neuroscience and accessing the emotional brain. Lesson 8. Ellyn Bader. The Couples Institute.
- 4) Working with couples with the brain in mind. Lesson 18. Ellyn Bader. The Couples Institute.
- 5) Treating complex trauma by Mary Jo Barrett.
- 6) Love and War in intimate relationships by Marion Solomon and Stan Tatkin.

- 7) Solving the moment: A collaborative couples therapy manual, by Daniel Wile.

Recommended reading

- 1) The Mindful Therapist: **A clinician's guide to mindsight and neural integration**, by Daniel Siegel
- 2) Mindsight: The new science of personal transformation, by Daniel Siegel
- 3) Being a brainwise therapist: A practical guide to interpersonal neurobiology, by Bonnie Badenoch.