

# Clinical Implications and Applications of Psychoneurology: translating neuroscience to the consulting room

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These first three articles introductory articles are meant as an overview and preview of the seminar you're about to take here on the PsyBC website.

1. **Why Study Psychoneurology?**
2. **Individual Psychotherapy as a Right Brain Experience**
3. **The Expansion of Psychoneurology to Couples' Therapy**

## Article #1: Why Study Psychoneurology?

You've had to notice the explosion of research in this area variously referred to as **Psychoneurology**, **Psychoneurobiology**, or 'brain research'. More and more in the **syllabi** of **workshops** or the **back jackets** of newly released books, we see phrases like, "examine the underlying neurology," "investigate and integrate the new brain research" or "understand the brain centers responsible for. . ." among the **educational objectives**.

In this first of three articles, we begin with the most basic question:

### **Why is the psychoneurology important and what, as a clinician, do I need to know?**

The simplest answer is that this new brain research can give us a powerful way of understanding how therapy works, when it works, and of understanding more about the symptoms that can bring any of us, (and have brought many of us), into our own psychotherapy.

The demarcations between the psychological and the neurological are melting. More and more the implications and clinical applications of the data are getting clear.

The research is beginning to direct us to new, non-intuitive, but scientifically sound interventions and it is increasingly able to help us measure both the presenting symptomology, and the shifts in brain functioning that accompany healing. Someday, equipment as available and inexpensive as a laptop may allow us to assess our client's brain activity as part of our diagnostic interview, and to design outcome studies that measure the effectiveness of our clinical interventions.

### **Relevance for clinical practice today:**

"But I'm not a researcher", you might persist. **How does knowing more about the brain help me to become a better therapist?** That's the central question we'll explore in this online seminar. What practical difference does this explosion of research make to me, in my office, on an average afternoon?

One Answer is that **what is going on in the room is going on in the brain** and, if you were so equipped, would show up on a **PET** scan or a functional MRI (**fMRI**). They line up, what you see and hear and feel, and the silent neurology underneath.

Here, by way of preview and to whet your appetite, are some of the new findings emerging from the research literature (apologies for any unfamiliar terms; we'll do some a quick anatomy review in the days to come.)

1. There is a **new Anatomical theory of depression** based on the idea of **Neuroplasticity** (neurons changing shape) and **Neurogenesis** (the growth of new neurons later on in life.) For years we have heard about chemical imbalances, too little of neurotransmitters like serotonin. Now we're hearing about **Cortisol** and other **glucocorticoids** secreted by the adrenal glands killing neurons in vital regulating centers of the brain, and, especially in the

- hippocampus**, and about the capacity of good psychotherapy to stimulate the growth of new neurons in these critical areas.
2. We're learning that the **flashbacks of PTSD** probably involve a dissociative shutting down of the hippocampus during acute trauma in those 15% to 25% of so of susceptible folks so that no explicit, autobiographical memories are being laid down to later ground the surges of implicit (sensory and emotional) memories, which can reactivate and overwhelm the person's consciousness. And since these implicit memories are encoded without language this may explain why verbal therapies don't always work so well with trauma; because we're dealing often with a "wordless or nameless kind of terror". We'll be looking at the work of Bessel **van der Kolk** and his colleagues in the trauma field.
  3. Obsessive compulsive disorder (**OCD**) appears to be caused by an improper filtering of stimuli by the caudate nucleus; such that other nearby centers lock, creating a hyper-metabolic state in parts of the frontal lobe.
  4. If you have a client who can't stay on task or focus, maybe he has **ADHD**. If so, there will be poor profusion in the frontal lobes.
  5. We're learning **how addiction works neurologically** – that it's not the cocaine, for instance, that creates the experience of intense pleasure, that **drug rush**, but our own pleasure related neuro-chemical Dopamine. Cocaine just floods into that gap between cells and fools the neuron into dumping a mass of Dopamine, 2 or 3,000 times the normal amount, completely overwhelming the synaptic receptor sites.
  6. And there is evidence for a **Mirror Neuron network**: An embedded neurocircuitry that may explain our capacity not just to know what someone is feeling, but to duplicate what they are feeling inside our own brains. It's what lets us see anger flash across the face of a client and feel it in our own bodies. This is not simple recognition; recognition activates other areas of the brain. This is more behavioral interdependence. The neurons that fire in your brains in response to your angry client are the same ones that activate when the anger originates in you, so it's a genuine brain-to-brain connecting that we do.
  7. Want to increase feelings of **compassion in** your relentlessly self-critical client? They have been recorded as rapid brain waves coursing in the left foreheads of Tibetan Buddhist monks who have meditated intensely for decades.
  8. Ever wonder what happens during a **spiritual experience**? The brain's frontal and temporal lobes activate while activity in the brain's parietal lobe quiets down.
  9. If you're anxious and saying more in a session than is optimal, unable perhaps to hold the silence and wait in a way that you know is therapeutic, your **left hemisphere is on and dampening excitation in the right**; that's why talking feels good when we're upset and why we use it to self regulate.
  10. If your couple has just erupted into a fight, it may help to know that their orbital frontal cortex (OFC) has gone dark right in front of you and they are, at points, engaging **amygdala to amygdala**.
  11. And on a more **societal scale**, the Supreme Court recently heard testimony from some eminent neurologists and neural psychiatrists questioning whether adolescents or even young people in their early 20's could be ethically tried as adults in crimes involving impulsivity and complex moral judgment since their prefrontal lobes, and thus their ability to reason and restrain, doesn't finish developing until the age of about 25. The court ruled several years back to raise the age of Capitol punishment from 16 to 18 and in the majority opinion, cited some of this neurological evidence

Of course, you don't really need to know all this to do great work, not consciously at least. If you're skilled at listening to what is said, and for what is not; if you can watch carefully, adjust and attune and mirror accurately, the details of the science may only reaffirm what you know intuitively, at least for now. But increasingly there are clinical pointers from the research.

It is perhaps in the area of Affect or emotional regulating that the science finds it's more direct applicability today.

The **DSM** is full of descriptions of **affect regulation problems**, of what brain researchers refer to as neural dysregulation or dis-integration. These are the:

- robot like **rigid states** that characterize **depressions**;
- the wild swings of **bipolarity**;
- the chaos of **Panic** attacks or **Rage**;
- the locking of energy into our bodies in **dissociative** and **somatoform** disorders; and
- the **eating and substance** abuse disorders that serve to regulate affect externally.

A further and major challenge is that we are wired into one another and react automatically. Literally our brains are developed interpersonally. It begins at birth in our first attachment relationships which are almost exclusively a right brain to right brain affair. (**Allen Schore's** contribution regarding the importance of the right hemisphere has been invaluable.) This interpersonal sensitivity can be wonderful; emotionally attuned relationships have the capacity to calm and nurture us. But they have the opposite capacity as well.

Many of our clients (many of us) have the experience of being bounced around inside, especially interpersonally. Disregulated reactivity, the lack of neural integration, can make our bodies a difficult place in which to live and erode the closeness of our intimate relationships. It is this kind of blind reactive stuff we may need to help our clients interrupt. It is the same reactivity we need to work on in ourselves as we hold the powerful transference reactions from our clients, and contain our own countertransference reactivity.

In the online seminar, we'll define one GOAL of psychotherapy as improved affect regulation, increased coherency, or neural integration with its capacity for (as **Daniel Siegel** says repeatedly) "clarity, self-reflection and response flexibility". When we increase this kind of bio integration, we are developing, among other centers, the orbital frontal cortex, the observing mind.

This first article was meant to increase anticipation for those of you who are already on your way to becoming neurologically sophisticated, and as enticement for those of you who feel a bit behind. (The difficulty of keeping up in a field that is growing rapidly in dozens of directions at one time is no small task, evidenced by our guilty response to the stacks of books, magazines, and journal articles piling up our desks and the night stands by our beds.)

In the next of these three articles, we'll look at a paradigm shift prompted by the new research that focuses more of our clinical attention on the right hemisphere: to the powerful healing capacities of non-verbal material, to attunement, resonance, and even love.

There is a beautiful paper by **Shelley Alhanati** entitled "**Still Voices**" which is about the preverbal and non-verbal aspects of doing therapy. To quote her, we have: ". . . over-emphasized the role of the spoken word and knowledge and under-emphasized contact, vulnerability, and aliveness in the therapy room. Although this has been fine for those elements of the mind that are responsive to words, it has left us with a wide gap in our understanding of these non-verbal . . . intuitive layers of our experience. Logical, analytical, verbal, linear modes of thinking (i.e. the left brain) will never understand nor communicate with them."

In other words, deep changes can happen in our offices that are never experienced or processed verbally, i.e. that never make it to the left or into the symbolic register.

**Alhanti, S.** (2002) *Silent Voices. In Primitive Mental States Volume 2: Psychobiological and Psychoanalytic Perspectives on Early Trauma and Personality Development.* NY:Other Press, London:Karnac.

**Siegel, D. J. (1999), *The Developing Mind*: How relationships and the brain interact to shape who we are. New York: Guilford Press.**