



HOW THE BRAIN CAN REGULATE UP AND DOWN

7 minutes

When we talk about neuroscience of Sandtray, we need to talk about Bruce Perry and his Neurosequential Model of Development and what he terms as the “Nested Brain” meaning that each part of the brain develops in sequence, meaning that you cannot jump steps. And, so we as people, and this is terms of evolutionary wise as well as individual, we will develop the lower parts, the less complicated parts of our brain first, and then we can go up. Now, here he talks a lot, with Bruce Perry, he talks a lot about the brain stem, diencephalon, the limbic system, and neocortex. Now, hopefully you are kind of familiar with the brainstem, limbic, and neocortex. Some of you guys may not be as familiar with the diencephalon, but often times that is right, it is in the middle of the brain here, so if you can see, here’s the cerebellum, the mid-brain, and it sits right here on top. And, it is in charge of a lot of activities that we would think of, with hormones, the relay to the cerebral cortex, the subthalamus, which is the rhythmic movements, of course, epithalamus, which is the connection between the limbic system and other parts of the brain. This is important because it’s been linked to rage, aggression, and escape. And, again, not like Daniel Siegel doesn’t talk about the diencephalon as much, but Bruce Perry will use this a lot in the literature, which again, we have linked one of his articles with this video I would highly encourage you to read when he talks about sexual abuse and what it does to the brain. And he talks a whole lot about the diencephalon. So, I wanted to give you guys kind of an overview of what are the components of diencephalon, so you could have kind of something to hang your hat on here. So, again, it’s in the middle part of the brain.

So, let’s talk about it in terms of modulation and neuroplasticity. So, what happens as we develop is we develop our brainstem, diencephalon, limbic, and neocortex here. But, what is interesting is that you can only regulate down. You cannot use your brain stem to develop a neocortex. It just doesn’t work. Now this is why it’s really important to understand. This is why cognitive behavioral therapy does work at times, because we are really good at using our neocortex, our pre-frontal cortex to be able to regulate our emotions, to regulate, to be able to learn how to move

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differently, all kinds of things. But, what happens then, is that when we have trauma, especially severe trauma from an early age, this part and this part of the brain they don't get fully formed correctly. So, then what happens, is when these are maybe "missing" meaning that they're just not on-line the way we would like them to be in order to be a fully functioning person, then what happens is these aren't functioning, and then you can't skip and all of the sudden go up to neocortex and do meta, like thinking about thinking. This is why cognitive behavioral therapy does not work very well with people with complex trauma. You've got to start from the bottom up.

And, so here, this is something that I want you guys to really pay attention to here. When we go up in complexity, we go up in plasticity. What does plasticity mean? It means the availability of, an ease at which that part of the brain can change through thoughts and through thinking differently. So, this is again, why thinking about thinking, which is CBT, works really well for some, like single trauma, or someone who has really good bases and then had something really horrible happen to them like a rape, or shooting, or something like that. They can go through CBT and usually be ok. But, again, if you have someone who has a brainstem, diencephalon, or limbic system that isn't fully developed like it's supposed to, CBT and talking about things just aren't going to work which is why Bruce Perry is a really big fan of play therapy and expressive therapies like art and sandtray, as well. Because what sandtray does, is it allows us to work with the client where they are. So, if we have a client who is 8, but maybe they've been through severe abuse. So, they really maybe more act like a three year old or a four year old, we're going to be able to bring them into the sandtray room and they can run their hands through the sand, they can use the kinetic sand to build however they need to, much like you would expect a three or four year old, when they work through that part of the brain, it gets healed, they're able to move up and they're able to bring miniatures in and they do this on their own. It's not up to us to figure out, "OK. They're in the diencephalon, so they need to do this." The clients will do it themselves and it's our job to provide that neuroception safety and provide that healing space so the brain can heal what it needs to heal. Now this stuff doesn't happen overnight. It takes a while. But again, one of the wonderful things about sandtray is that we can use it for someone who maybe just has a single trauma and is doing really well otherwise, or we can use it for a kid who's been through complex traumas and they're able to regulate using the sand itself. So, this is why I

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say it's helpful, because you can go up and down in complexity and use the sandtray for all different levels. But, I want you to also understand, it is important to use something like sandtray or art, or some expressive therapies when you're working with especially complex trauma, because you don't even have access to this part of the brain if these part of the brains aren't able to come on-line. So, when you try to start teaching things like coping skills, or cognitive restructuring and feel like you're hitting your head up against a wall, and wonder what you're doing wrong. . . you're really not doing anything wrong, your just using not the best tool to access the part of the brain that is really running the show.