Trust Based Relational Intervention ©

Neurotransmitters and Their Impact on Behavior

TBRI was developed by Dr. David Cross and Dr. Karyn Purvis , Texas Christian University, Karyn Purvis Institute for Child Development
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TBRI® is an attachment-based, evidence-based, and trauma-informed intervention that is designed to meet the complex needs of vulnerable children's uses Empowering Principles to address physical needs, Connecting Principles for attachment and Correcting Principles to disarm fear-based behaviors.

Neurotransmitters and Behavior

By Dr. Karyn Purvis

Neurotransmitters are the chemical messengers that help our bodies think, feel and move. However, the levels of key neurotransmitters in many children from hard places are often too high, too low and/or out of balance. In this brief video, Dr. Karyn Purvis explains the importance of neurotransmitters, both in terms of helping parents gain new insight and compassion for their children and for understanding how families might begin to address this important issue.

Note: In this TBRI video clip Dr. Purvis uses biblical references and stories to illustrate a principle of Trust Based Relational Intervention . TBRI is NOT a faith based approach but one that is solidly grounded in neuroscience and brain based research.

Neurotransmitters and Behavior

The best way to regulate brain chemistry is to build a safe, nurturing relationship with your child where he knows he is precious and adored. Dr. Purvis's research has demonstrated that using the principles of TBRI will help regulate brain chemistry!

Understanding Mirror Neurons

Did you ever notice that if you smile at a baby, she smiles back? If someone in the room yawns, pretty soon you echo his sleepiness and you yawn, too? Did you know you can also download another person's anger and rage? That is due to a phenomenon called "mirror neurons." Check out the video below to learn more about how mirror neurons impact relationships.

Below is a resource to help you understand varying functions of different neurotransmitters. Parents can promote the feeling of felt safety by using the Empowering and Connecting principles, and actually change a child's brain chemistry!

NEUROTRANSMITTER PATTERNS & BEHAVIORAL CORRELATES*

Dopamine Excitatory Catecholamine	At optimal levels	Fluid body movement, clear thinking, joy, happiness, enjoyment of life, clear thinking, pleasure, memory, cognition, learning, reduces hunger
	Above optimal	ADD/ADHD, euphoria, manic symptoms, aggression, symptoms of mental illness, Autism, and at extremes, Schizophrenia, poor intestinal function
	Below optimal	Sleep disorders, lack of motivation (Avolition) or joy (Anhedonia), Parkinson's Disease, urges, impulsivity, cravings, movement disorders. (Substances used to compensate: Alcohol, marijuana, cocaine, caffeine, amphetamines, sugar, tobacco.)
Norpinephrine Excitatory Catecholamine	At optimal levels	Optimal levels of attention, appropriate fight-or flight responses, optimal levels of energy, thinking, responding to stressful situations
	Above optimal	ADD/ADHD, anxiety, hyperactivity, stress, Type A personality, aggression, high blood pressure, insulin resistance, stress, obesity
	Below optimal	Fibromyalgia, pain disorders, mood disorders, low energy, lack of focus, Avolition, sleep difficulties, hot flashes, headaches. (Substances used to compensate: Caffeine, cocaine, speed, tobacco, marijuana, alcohol, sugar.)
Epinephrine Excitatory Catecholamine	At optimal levels	Optimal levels of energy, attention, focus, learning, associated with proper responses to "challenge", (heart rate, respiration, etc.)
	Above optimal	Anxiety, hyperactivity, stress, ADD/ADHD, sleep difficulties, attention issues
	Below optimal	Fatigue, poor concentration, ADD/ADHD, low mood, Avolition. (Substances used to compensate: Caffeine, cocaine, speed, tobacco, marijuana, alcohol, sugar.)
Glycine Inhibitory	At optimal levels	Special influence of inhibition in the spinal cord, brainstem, essential for healthy CNS and digestion, helps regulate blood sugar, inhibits Bipolar and ADHD symptoms and improves memory retrieval
	Above optimal	Anxiousness, low mood, stress-related symptoms, high immune activity
	Below optimal	Anxiousness, mood issues
Glutamate Excitatory	At optimal levels	Touches 70% of CNS, most common excitatory NT, necessary for learning and memory
	Above optimal	Behavioral problems, aggression, violence and at extremes, Alzheimer's Disease, immune upregulation
	Below optimal	Fatigue, learning difficulties
Histamine Excitatory	At optimal levels	Optimal capacity for attention, memory, learning, arousal, enhances cognition & sensory processing, aids in control of appetite, reduces hunger
	Above optimal	Allergy, inflammation, UTIs, restlessness, inability to relax, ADD/ADHD, irritability, asthma, sleep difficulties
	Below optimal	Poor focus, poor levels of attention/learning, fatigue, sleep difficulties
PEA Excitatory	At optimal levels	Creative thinking, clear thinking, learning, retention of memory/learning, Executive function, decision-making, inhibitory controls, concentration
	Above optimal	Mood disorders, ADD/ADHD, Autism, problems with memory/thinking (potential cue to alcohol exposure during pregnancy). psychotic symptoms, mind racing, anxiousness, sleep difficulties
	Below optimal	Depression, fatigue, problems with memory/thinking/learning/attention

* Chart is reproduced from Principles of Neural Science (Kandel, Schwartz & Jessell, 2000, and from the NeuroScience Inc. website (www.neurorelief.com)

On the chart above, notice there are behavioral outcomes for both when the neurotransmitter levels are too high or too low. Levels have to be within the optimal range for the desired outcome. Levels have to be measured through a saliva or urine test by a professional . ***DO NOT*** attempt to regulate a youth's neuro-chemistry with supplements without professional assistance.

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