



Los Angeles County DMH, Continuum of Care Reform Division

Trauma / Resilience Tip of the Week: Neurobiology of Trauma - Attachment

The attachment bonds formed between an infant and their primary caretaker profoundly influences both the structure and function of her developing brain. Failed attachment, whether caused by caretaker abuse, neglect or emotional unavailability can negatively impact brain structure and function, causing developmental or relational trauma. Early-life trauma affects future self-esteem, social awareness, ability to learn and physical health. When the attachment bond goes well, neurological integration develops normally, and relationship brings the expectation of safety, appreciation, joy and pleasure. If the attachment bond was unsuccessful and traumatic, neurological impairment and memories of a failed relationship become the basis for adult expectations.



The human brain is a complex organ comprised of over 100 billion neurons, all organized into networks that are interconnected into systems designed to sense, process, store, perceive, and respond to information from the external senses and the internal environment.

Different systems in the brain mediate different functions:

- Systems in the **frontal cortex** are involved in abstract thought
- Systems in the **brainstem** are responsible for regulating heart rate, blood pressure and arousal states
- Systems in the **limbic areas** are responsible for attachment, affect regulation and aspects of emotion; and
- Systems in the **cortex** responsible for abstract cognition and complex language.
(<http://www.ccaa.net.au/documents/TheEffectsOfTraumaOnAttachment.pdf>)