

## **Rewiring your Brain - Understanding Neuroscience, Psychology and Psychotherapy**

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**Received:** January 10, 2018; **Published:** January 25, 2019

Our brain is not hard wired but soft-wired. Our job is to rewire the brain so that you no longer suffer from anxiety and depression, to name a few.

Neuroplasticity helps psychologists and psychiatrists to overcome the above problems.

Clients often are surprised to learn of the sheer complexity of the brain, the most complex organ, which contains on average a 100 billion neurons, however the same network of neurons can't operate two or in neuroscience more functions before we lose focus. Since neurons are social, they maintain on average, 10,000 connections to other neurons (different networks). Neuroplasticity, as the name indicates, means that the same neurons are flexible/malleable and plastic, meaning they change through various forms of experiences, in specific, learning, environment, quality of information and new challenges, etc. Each of the connections between neurons consist of microscopic gaps called synapses, and learning establishes and strengthens synaptic relationships. Neurons can communicate to one another by sending chemical messengers, of approximately 100 different types, including neurotransmitters, modulators and neuro hormones, across the synapses. The rich cornucopia is partially dependent on a balanced diet. An impoverished lifestyle and diet produce impoverished neurochemistry and probably more anxiety and depressive symptoms. It is important to make clear that healthy brain chemistry is dependent on a healthy brain diet - lots of nuts, all or most berries and food rich in omega 3. Neuroplasticity requires soft and pliable cells that can change shape to facilitate new synaptic connections. On the contrary a diet consisting of excessive bad fats and simple carbohydrates can result in rigid or dead cell membranes that impair neuroplasticity.

Neurogenesis - the building of new neurons at a specific rate. A very interesting part in neuroscience. It was assumed as recently as 25 years ago that we are all born with as many brain cells as we will ever have, according to a study in 1980. As we evolved and technology advanced, we now know that it is a reality to grow new neurons in parts of the brain throughout our lives. Neurogenesis can occur in the hippocampus, specifically in the dentate gyres, as well as the PFC - pre-frontal cortex or cognitive brain we got from evolution. Neurogenesis is facilitated by various growth factors, referred to as neurotropic factors. Key amongst them is brain-derived neurotropic factor, which plays a critical role in reinforcing neuroplasticity and neurogenesis.

**Volume 8 Issue 2 February 2019**

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