

Neuroregulation – Intended change which aims to improve the functionality of the nervous system to assist the individual with what is happening in one’s life.

Some of the more common forms of neuroregulation are listed below:

Biofeedback – Learning to control and optimize body function.

Biofeedback typically uses a sensor to pick up activity in the body, such as, but not limited to breathing, heart rate, blood pressure, body temperature, brainwaves (EEG), and muscle control.

A device interprets activity and gives real time feedback (typically feedback that comes from what we see, hear or touch) so that the body can learn from this information with assistance from various training programs or activities, and changes to the body can be made in response.

While this is not a complete list, Biofeedback includes activities that can help reduce stress and teach the body better adaptability and development in regulating breathing, heart rate, blood pressure, body temperature, brainwaves (EEG), and muscle control with goals that enhance performance. Biofeedback ultimately affords individuals more flexibility and increased choices in how their body responds to different stimuli.

Neurofeedback – Is a type of biofeedback that involves learning to control and optimize brain function. Neurofeedback may or may not include the use of a direct stimulus or task when teaching the brain new ways of performing.

The process of neurofeedback may include sensors placed on the scalp to measure the brain’s electrical activity. Other methods of monitoring brain activity may be used, such as, but not limited to Functional Magnetic Resonance Imaging (fMRI) or Hemoencephalography (HEG). After this neural information (data) is sent to a computer to be processed, the data is sent back to the brain. The brain then learns to make changes to itself based on this real time data. In Neurofeedback sessions, changes within the brain can be accomplished by either talking directly to the brain electrically, or through stimuli presented to the brain in audio, visual, electrical, magnetic, or tactile form. These changes can positively impact our everyday lives by improving and enhancing our thoughts, feelings, behavior, and performance.

While this is not a complete list, Neurofeedback can include games, activities, or tasks that teach the body flexibility and adaptability in regulating our attention, cognition, executive functioning, processing speed, memory, stress responses, emotional regulation, trauma, traumatic brain injury, seizure, autism, reading, mood, and sleep.

Neuromodulation – Neuromodulation uses a stimulus (i.e., electrical, visual, magnetic, tactile or auditory stimulation, chemical) to change brain function. Neuromodulation may use real time information from the brain during the activity to inform the brain of its current state. With Neuromodulation, the brain directly responds to the stimulus, which can promote strength and stabilization in neural activity, resulting in greater self-regulation. Neuromodulation can also include direct electrical or chemical stimulation to the brain during an operative procedure.