

WHAT IS NEUROFEEDBACK?

BRAIN WAVES

Brain activity is related to the firing of neurons which generates measurable amounts of electrical signals or brain waves, that can be measured on the scalp. When we are sleeping, our brains slow down and the neurons fire at a slower rate, generating more of the slow brain waves. As we wake up, our brains become more active, generating more of the higher frequency brain waves.

When a person is anxious, his brain becomes over-active or over-aroused, generating a higher than normal amount of high frequency waves. Conversely, when a person is depressed, his brain can also be under-aroused, generating higher than normal amounts of slow waves.

In addition, different regions of the brain have different functions. In general, the back region of the brain is responsible for integration of sensory input, the middle region of the brain for processing and the front region of the brain for executive function.

By measuring brain waves at different locations on the scalp, neurologists and neuro-therapists can know whether one's brain, including which region of the brain, needs to be more active or needs to calm down.

NEUROFEEDBACK

Neurofeedback is a way for a trainee to train his brain to increase or decrease its arousal. By measuring brain waves, FDA-approved neurofeedback systems can instantly break down the brain waves into spectral frequency bands. When the brain waves move towards the desired range, the computer would give a "beep" as a reward or an indication to the trainee's brain, to encourage it to move towards or to stay longer in that state.

Some computer systems can also display information about the brain waves visually on a computer screen. Based on the auditory and visual feedback from the computer, the trainee can learn to relax and focus on increasing and/or decreasing the relevant brain waves.

When one's brain waves are within the normal range, psychotherapy and medical interventions can proceed faster. Depending on the need, neurofeedback training can be used in conjunction with medication and psychotherapy. It can also be used by itself, depending on the severity of the case.

Neurofeedback training has been used clinically for issues such as anxiety, depression and insomnia. It is also effective for disorders such as ADHD, OCD, autistic spectrum disorder as well as developmental trauma, addiction, and pain management.

Neurofeedback is a learning protocol. Trainees can learn to bring their brain waves back to, or closer to, normal ranges, thereby alleviating their issues. With sufficient training, this learning will become a habit, forming new neuro-pathways in the brain, and the effect of neurofeedback can be long-term.