

## Neurofeedback training (NFT)

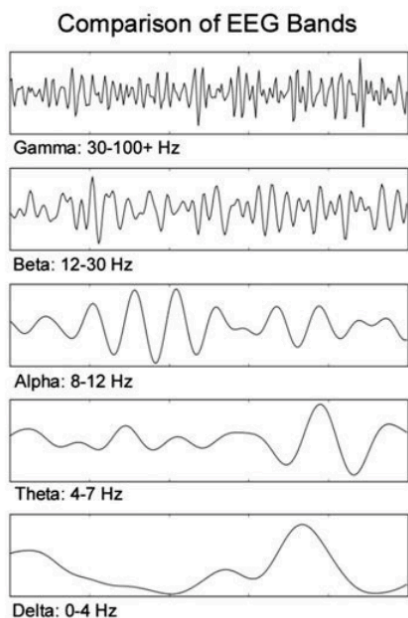
### Explanation

NFT is a biological feedback method that uses the power of technology to tune your brain into better brain wave activity or frequencies. It uses the brain's natural tendency to re-wire itself by giving feedback that helps the brain to grow or change positively. Your brain can adapt quickly to changing circumstances, which is an evolutionary advantage. NFT exploits this evolutionary advantage by using technology through highly focused feedback that is a form of stimulation or information flow to the brain.

NFT has been around for 50 years and has been studied extensively in scientific research. It is considered a powerful, non-invasive method to train the brain using feedback information that represents brain wave activity. The brain learns by receiving feedback and adapts according to the feedback it receives.

NFT starts with a client connected with wires called sensors on their scalp to pick up brain wave activity at a particular site on the cortex. These wires plug into an amplifier, that feeds into a computer, which runs software. The most widely used software is called EEGer, which shows us the activity of the brain (known as EEG) compartmentalised into five types of waves.

### Five wave forms of EEG



Wave 1: Delta. This is sleep wave activity, which is most prevalent when you are asleep. They are large slow, flat waves, that take up a lot of brain power but the brain is not engaged consciously. If we see

high levels of Delta when the person is awake, the brain is interpreted as idling, like a car in park with its engine running.

Wave 2: Theta. This is meditative or drowsy wave activity, which is most prevalent when you meditate, wake up in the morning or take opioid drugs. They are, again, largish waves that make the person feel spaced out or inattentive. If we see high levels of Theta, when the person is awake, then the person is spaced out and not alert.

Wave 3: Alpha. This is wave that makes people alert, that is, when your senses are switched on and you are consciously aware of your surroundings. If a person drinks alcohol, we see a high prevalence of alpha but in lower frequencies of 8 to 9 cycles per second. We prefer to see large amounts of alpha at a frequency of 10 Hertz (Hz) or higher.

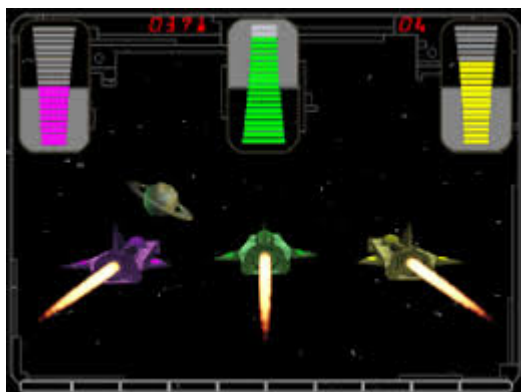
Wave 4: Beta. There are two forms of beta, including good processing Beta (12-18 Hz or cycles per second) and High Beta (22-36 Hz). Good beta is what we like to see when someone is processing information (e.g. learning, memorising), whilst high beta is what we like to see in athletes.

Wave 5: Gamma. Very fast waves (36+ Hz per second), these are present when someone is in a neurotic state or highly anxious.

### **How it works**

In our EEGer software system, we see if the brain is functioning efficiently, and if it is functioning like an out of tune car. If we assess the brain as showing abnormal activity (e.g. high levels of delta, theta or gamma) we can run training sessions to correct those abnormalities.

During the training games, the client watches a screen that has pictures and sound like Space Race (see picture below). The middle (green) ship is efficient brain wave (beta), whilst the left purple ship (delta/theta) and right yellow ship (high beta) are inefficient waves. We ask the client to concentrate on the pictures and keep the middle ship in front of the other ships, and try and make the system beep. The brain slowly understands what the game is wanting it to do, and slowly adapts to the positive brain wave activity.



### **FAQ**



**Does it give electricity to my brain?** No! The sensors detect brain wave activity and feed them into the amplifier. No electricity is delivered from the amplifier into the sensors and into your brain.

**How long does it take to work?** It can work as quickly as one 30-minute training session. It usually takes about 10 sessions before you start to see dramatic changes in the way you feel and behave. It can take about 20 sessions before you see a stabilisation in the person's problem.

**What does it work on?** It works on most neurological problems like autism, ADHD, bipolar disorder, epilepsy, OCD, chronic pain and dyslexia.

**What is the effectiveness rate?** It can range from 30% to 80%, depending on the condition. This compares with most brain medications like antidepressants, antipsychotics and mood stabilisers, that have about a 30-40% efficacy rate.

**What do I do during training?** During training, you sit back, watch a game or DVD, and let the program tell your brain, through feedback, how it should behave electrically. We find that when people try too hard, or believe they must think a certain way, it gets in the way of the program working.