

What is the FocusBand?

The FocusBand is a wearable brain sensing headset that measures the frequency of the brain using neurofeedback. The FocusBand contains 3 silver oxide sensors wired to 2 channel EEG system producing samples of 128 measurement per second. (EEG system is a recording of the brain electrical activity over a period of time when placed on the scalp.)

- 3 SILVER OXIDE SENSORS
- 2 CHANNEL EEG SYSTEM
- SAMPLES PER SECOND: 128

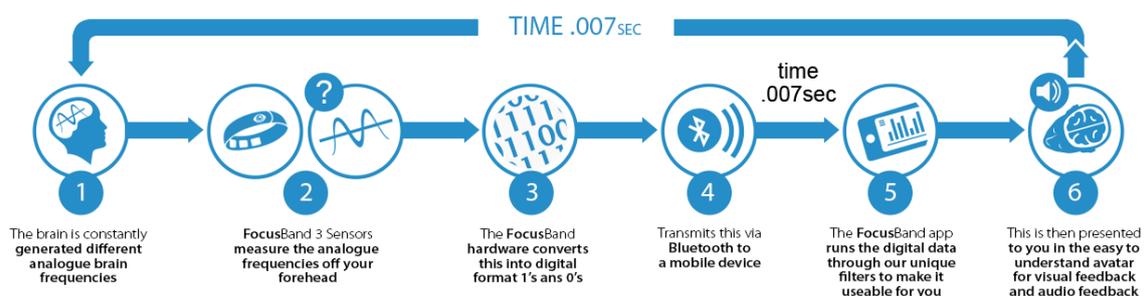


How does the FocusBand work?

The brain is constantly generating different analogue brain frequencies based on your thoughts, activities and movements such as reading a book, exercise or medicating. So, with the FocusBand worn on the head and the sensors placed at the front of the forehead the FocusBand 3 sensors receives the measurement of the analogue frequencies and convert this into digital format, 1's and 0's with the data transmitted to a mobile device via Bluetooth.

The FocusBand app run through that digital data to create a visual representation of what is going on inside your brain to monitor frequency response to give the individual a visual and audio feedback.

- Brain constantly generate different analogue brain frequencies
- Measure the Analogue frequencies of your forehead
- FocusBand hardware converts this into Digital format
- Transmit via Bluetooth to mobile device
- FocusBand app filters the data to make it useable
- Create a visual and audio feedback



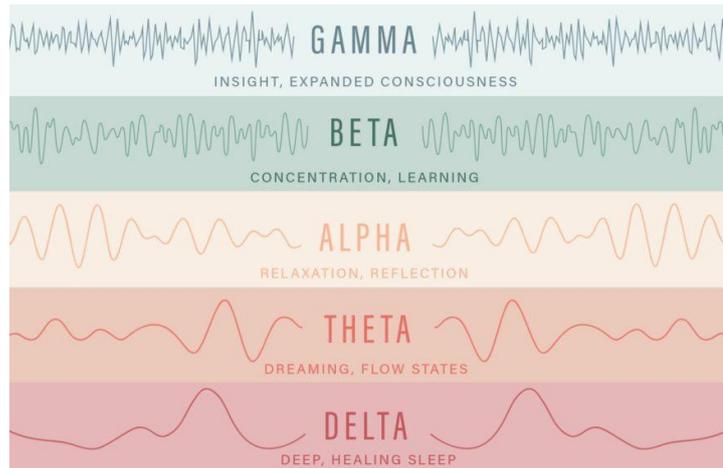
What is the FocusBand measuring?

The FocusBand is measuring the frequencies of the brain waves as follow,

Delta waves (.5 to 3 Hz) – these are the slowest brain waves and occur primarily during our deepest state of dreamless sleep.

Theta waves (3 to 8 Hz) – this occur during sleep but have also been observed in the deepest states of Zen meditation.

Alpha waves (8 to 12 Hz) – they are present when your brain is in an idling default-state typically created when you're daydreaming or consciously practicing mindfulness or meditation. Alpha waves can also be created by doing aerobic exercise.

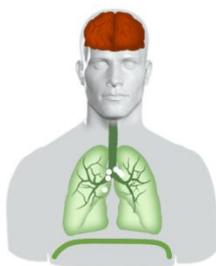


Beta waves (12-30 Hz) – typically dominate our normal waking states of consciousness and occur when attention is directed towards cognitive and other tasks. Beta is a 'fast' wave activity that is present when we are alert, attentive, focused, and engaged in problem solving or decision making. Depression and anxiety have also been linked to beta waves because they can lead to "rut-like" thinking patterns.

Gamma waves (25 to 100 Hz) – typically hover around 40 Hz and are the fastest of the brain wave bandwidths. Gamma waves relate to simultaneous processing of information from different brain areas and have been associated with higher states of conscious perception.

What's the objective from this tool?

Do breathing technique that helps to manage your thoughts with the aim to increase the Delta wave to separate the memory from direct access to the emotions and reduce the other brain waves down in to a curve like pattern.



Picture this scenario

Some who is stressed, anxiety, depressed, have pain or been traumatised would probably have a higher level of brain waves activity that would show the avatar brain on the app is in the red zone. The red zone indicates stress chemicals are being produced that can affect the hormones, immunity system within the body such as cortisol, inflammatory and ability to focus due to distractions caused by worrying, putting pressure on yourself.



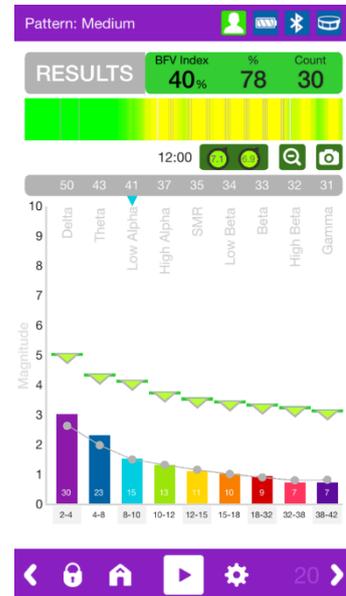
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What can we do to regulate the Frequencies?

Start with basic breathing techniques by following the audio feedback of inhaling and exhaling to the belly that help to focus on the breaths and being mindful of the body as a way of let your thoughts pass by, let it be. The avatar will guide the individual showing a rhythm of this techniques at short interval, as you progress, we would extend these intervals. They only need to do this 2-3 times a day.

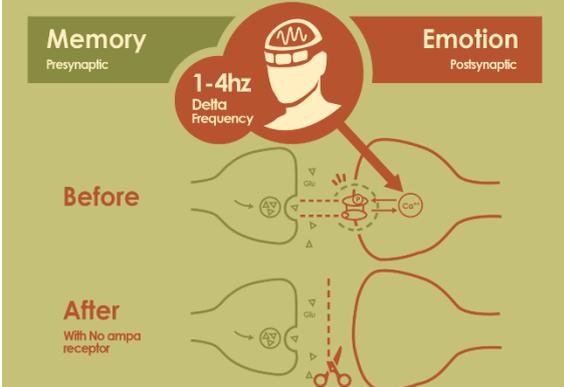
The frequency reading will start to lower itself that was original off the chart but now showing the brain waves are in range, initially this might not happen, or the beta waves could be high with other waves lower. It does depend on the person to control their breathing and ability to focus.

This helps to focus and manage your unwanted thoughts by putting this to one side to calm your mind.



The Neuroscience. Electro Chemical Sequence

Increasing "Delta frequency" objectively activates calcium Channel That dephosphorylates Ampa Receptor from The lateral amygdala >> Memory is now separated from direct access to the emotion



What is happening inside the brain?

The neuron in the brain transmit chemicals from the pre-synaptic to the post-synaptic with the AMPA receptor ready to transmit those chemicals down onwards, for example, seen something that trigger an increase of the stress level or getting anxiety (this can happen unconsciously), all the way to the emotional response that gives a causes a reaction to your thoughts which can have an impact on your mind and body.

Therefore, the objective from this breathing exercise is to change the structural and function of these neurons in the brain over a period of time. During meditation you're training the brain to stop these chemicals being transmitted from the pre-synaptic to the post-synaptic that'll separate the memory from direct access to the emotion.

This will help to reduce the cortisol and inflammatory hormones giving a better immunity system within the body by reducing the stress chemicals reaction in the brain with the aim to improve the Delta frequency and reducing the Beta frequency in to a curve like chart as shown in the above image.