

Brainwave Technology: The Science Behind How It Works

Brainwave States

The CDs developed by the Immrama Institute use our proprietary audio technology to guide your brain into various brainwave states. To recognize why this detail is significant, it is important to understand how the brain contributes to a person's state of mind and level of consciousness. There are several different brainwave states. Your brain consistently cycles through each of these brainwave states many times throughout the day and night. It is a completely natural biological occurrence in every human being. Each of these brainwave states occurs in a specific frequency range.

Gamma – bursts of high-level information processing (40Hz or higher)

Beta – a heightened state of alertness and focused concentration (13Hz to 40Hz)

Alpha – relaxed mental awareness, reflection, visualization, and creativity (8 Hz to 12 Hz)

Theta – stress relief, deep relaxation or meditation, light sleep and dreaming (4Hz to 8 Hz)

Delta – deep dreamless sleep, healing and rejuvenation (0Hz to 4Hz)

With the help of our audio technology, you can guide your brain into any of these brainwave states naturally and effortlessly, simply by listening to an audio CD using stereo headphones.

Binaural Beats

Binaural beats were originally discovered in 1839 by German experimenter H. W. Dove. He discovered when signals of two different frequencies are presented separately, one to each ear, the brain detects the variation between the frequencies and tries to "reconcile" that difference. In doing so, as the two frequencies mesh in and out of phase, the brain creates its own third "phantom" signal — a binaural beat — equal to the difference between those two frequencies.



For example, if a frequency of 100 Hz is presented to the left ear and a frequency of 105 Hz is presented to the right ear, the brain "hears" a binaural beat pulsing at 5 Hz, the exact difference between the two frequencies.

Research has proven that introducing a binaural beat will cause the brain to begin resonating in tune with the frequency of that beat.

By listening to a binaural beat pulsing at a frequency of 5 Hz, you can trigger your brain to resonate at a 5 Hz frequency, inducing brainwaves in the Theta range. This method may be used to effortlessly induce any brainwave state.

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Whole Brain Synchronization

Whole brain synchronization occurs when the hemispheres of your brain begin to work together, resonating at the same frequencies and causing neural pathways to fire more rapidly. The left and right sides of your brain begin to work in concert with each other. Electrical activity and energy patterns in your brain become more widespread throughout the brain instead of remaining confined to certain areas. Your brain reaches extraordinary levels of performance not normally attainable without years of practice.

Research has indicated this type of whole brain synchronization is present in the brain at times of intense creativity, clarity and inspiration. EEG patterns recorded from various test groups comprised of extremely successful individuals also displayed an extraordinarily high level of whole brain synchronization.

By listening to the Immrama Institute's proprietary audio technology, you can train your brain to function at this high level of synchronization, opening up the way for positive and beneficial effects. From the moment you first listen to the CDs, your brain will begin the process of reorganizing itself for higher thinking and enhanced levels of performance.

Stimulate New Neural Development

While using our audio technology, electrical activity and energy patterns in your brain become more widespread throughout the brain instead of remaining confined to certain areas.

When this type of stimulation to the brain occurs, your brain begins to create new neural pathways. The neural stimulation encourages new dendritic growth. The dendrites are the many branching fibers extending from the neuron/cell body. These fibers increase the surface area available for receiving incoming information. New dendritic growth allows for faster and smoother neural communication and provides more "processing power" in the brain.

Harmonically Layered Frequencies

At the Immrama Institute, we worked for several years to develop and test our proprietary harmonically layered audio technology — a more advanced and more effective form of binaural audio.

Most companies offering binaural audio recordings stop with one frequency, introducing only one binaural beat that may gradually raise or lower your brainwaves into a specific frequency over a period of time, usually in anywhere from 10 to 60 minutes.

What's the problem with using only one binaural frequency? Your brain normally operates not in only one frequency but in all brainwave frequencies simultaneously, with one frequency typically being dominant at any given time. Every moment of the day and night, various brainwaves in your brain are pulsing in delta, theta, alpha, beta, and even gamma frequency ranges, all at the same time.

Our CDs don't use just one binaural frequency. Instead, we have developed a unique new form of harmonically layered audio technology that works to create actual patterns, not just single frequencies. Our binaural frequencies are combined in a way that replicates your brain's natural way of functioning, with frequencies that interact with your own brainwaves to evoke the most powerful response on all levels for a dramatically improved listening experience.