Something we hear quite often within the Lucid Smart Pill team is the expression, “I’ve just had a brainwave!”. Well the truth is that your brain actually has 5 brainwaves, each one a distinct electrical pattern which operates even when you’re fast asleep. For years, doctors and scientists have studied these brain waves using an EEG or electroencephalograph, a complex device which tracks the neuro activity known as brainwaves over 5 different channels. Lately, these devices have been simplified into consumer devices by our friends at Emotiv. Read more about the Emotiv hardware here.

In all of us, you’ll find the following 5 brainwaves: Gamma, Beta, Alpha, Theta, Delta. Each brainwave has a distinct purpose and helps us behave, think, move and process. Although they channel automatically, it’s our own ability to modulate between them that determines how well we cope with pressure, rational and irrational thoughts, task management and more. If our physiology, diet or environment causes an overproduction or underproduction of a certain brainwave, it can alter the balance of our bodies and induce many negative effects such as insomnia, anger, stress, learning difficulties or...
anxiety. This is why it’s important to optimise our brains for a better wave balance, rather than aim to increase or decrease a particular one.

In case you couldn’t tell, we at Lucid are passionate about body betterment, neuro-enhancement, productivity & focus. To be kept up to date on any other blogs or infographics, add yourself to our community mailing list.

With that in mind, be reassured that every brain wave serves a purpose to help us cope with various situations, whether it’s to amp you up before a game or match, or calm yourself down after a long day at the office.

In order of lowest frequency to higher, the five brain waves are: Delta, Theta, Alpha, Beta and Gamma.

Getting to Know the 5 Frequencies
Throughout the day your brain will utilise certain waves to process certain situations. For example, if you’re in a meeting with a business partner, chances are you’re exhibiting higher levels of Beta and Gamma waves. If you’re fast asleep and mid-REM cycle, you’ll be exhibiting higher levels of Delta and Theta waves. It’s important to know that your brain never ceases to use a certain brain wave, in fact research shows that even during the deepest of memory-storing REM sleep, the brain demonstrates Gamma wave use. This is a particularly interesting field of neuro-research at present.

Delta Waves
Delta waves are associated with deep levels of relaxation and restorative sleep, to remember this simply think of ‘Delta’ for ‘Deep’. They are the slowest recorded brain waves in humans
and higher levels are more commonly found in young children. **During the aging process, lower Delta waves are produced.** Research tells us that Delta waves are attributed to many of our unconscious bodily functions such as regulating the cardiovascular and the digestive systems. Healthy levels of Delta waves can contribute to a more restful sleep, allowing us to wake up refreshed, however irregular delta wave activity has been linked to learning difficulties or issues maintaining awareness.

**Frequency range:** 0 Hz to 4 Hz  
**High levels:** Brain injuries, learning problems, inability to think, severe ADHD  
**Low levels:** Inability to rejuvenate body, inability to revitalize the brain, poor sleep  
**Optimal range:** Healthy immune system, restorative REM sleep

**Theta Waves**

Theta waves known as the ‘suggestible waves’, because of their prevalence when one is in a trance or hypnotic state. In this state, a brain’s Theta waves are optimal and the patient is more susceptible to hypnosis and associated therapy. The reasoning for this is that Theta waves are commonly found when you daydream or are asleep, thus exhibiting a more relaxed, open mind state. **Theta waves are also linked to us experiencing and feeling deep and raw emotions, therefore too much theta activity may make people prone to bouts of depression.** **Theta does however has its benefits of helping improve our creativity, wholeness and intuition, making us feel more natural.** It is also involved in restorative sleep and as long
as theta isn’t produced in excess during our waking hours, it is a very helpful brainwave range.

**Frequency range:** 4 Hz to 8 Hz

**High levels:** ADHD or hyperactivity, depressive states, impulsive activity or inattentiveness

**Low levels:** Anxiety symptoms, poor emotional awareness, higher stress levels

**Optimal range:** Maximum creativity, deep emotional connection with oneself and others, greater intuition, relaxation

---

**Alpha Waves**

waves are the ‘frequency bridge’ between our conscious thinking (Beta) and subconscious (Theta) mind. **They are known to help calm you down and promote feelings of deeper relaxation and content Alpha.** Beta waves play an active role in network coordination and communication and do not occur until three years of age in humans. In a state of stress, a phenomenon called ‘Alpha blocking’ can occur which involves excessive Beta activity and little Alpha activity. In this scenario, the Beta waves restrict the production of alpha because we because our body is reacting positively to the increased Beta activity, usually in a state of heightened cognitive arousal.

**Frequency range:** 8 Hz to 12 Hz

**High levels:** Too much daydreaming, over-relaxed state or an inability to focus

**Low levels:** OCD, anxiety symptoms, higher stress levels

**Optimal range:** Ideal relaxation
Beta Waves
Beta waves are the high frequency waves most commonly found in awake humans. They are channelled during conscious states such as cognitive reasoning, calculation, reading, speaking or thinking. Higher levels of Beta waves are found to channel a stimulating, arousing effect, which explains how the brain will limit the amount of Alpha waves if heightened Beta activity occurs. However, if you experience too much Beta activity, this may lead to stress and anxiety. This leads you feeling overwhelmed and stressed during strenuous periods of work or school. Beta waves increased by drinking common stimulants such as caffeine or L-Theanine, or by consuming Nootropics or cognitive enhancers such as Lucid. Think of Beta as the ‘get shit done’ state of mind.

**Frequency range:** 12 Hz to 40 Hz

**High levels:** Anxiety, inability to feel relaxed, high adrenaline levels, stress

**Low levels:** Depression, poor cognitive ability, lack of attention

**Optimal range:** Consistent focus, strong memory recall, high problem-solving ability

Gamma Waves
Gamma waves are a more recent discovery in the field of neuroscience, thus the understanding of how they function is constantly evolving. To date, it’s known that Gamma waves are involved in processing more complex tasks in addition to healthy cognitive function. Gamma waves are found to be important for learning, memory and processing and they are used as a binding tool for our senses to process new information. In people with mental disabilities, much lower
levels of Gamma activity is recorded. More recently, people have found a strong link between meditation and Gamma waves, a link attributed to the heightened state of being or ‘completeness’ experienced when in a meditative state.  

**Frequency range:** 40 Hz to 100 Hz  
**High levels:** Anxiety, stress  
**Low levels:** Depression, ADHD, learning issues  
**Optimal range:** Information processing, cognition, learning, binding of senses

---

**Our mental states:** Thought waves per second, measurable by EEG Machine  
**Normal conscious state - 14 to 21 waves or pulsation / sec (Beta state):** It is wide awake state

Abnormal mental state including anxiety state: 21-25 waves/ sec vis called neurotic state, 25-30waves /sec is called depression state and more than 30waves per sec is called lunatic or madness state

**Peaceful mental states**  
Alfa state: 7-14 waves/ sec: A relaxed but fully awake subconscious state. We can delete the trash of negative
emotions, accumulated in subconscious mind and make files of positive thoughts

Theta state: 7-4 waves/sec: It is light sleep state. We can link the body to mind effectively, the body starts receiving the thought waves we have programmed in the mind in theta state

Delta state: 4-0 waves/sec: Deepest sleep state in which we develop super natural powers