

Brainwaves Frequencies and their characteristics

Name	Frequency range	Usually associated with:
Gamma waves	30 to 70 Hz	<p>Processing of various attended stimuli (visual, auditory, touch) and the grouping of the various features of a given stimulus, particularly visual, into a coherent whole.</p> <p>Important points about Gamma Waves :</p> <p>(1) There is no such thing as a “gamma state” of mind. Gamma waves largely play a supporting – though integral- role in the brain. From an EEG point of view, they will be present mostly while a subject is awake, but they will always be supported by other waves in the beta, alpha, theta, or delta ranges.</p> <p>2) They have been noted during Buddhist meditation of compassion & music listening experiments.</p>
Beta waves	13 to 30 Hz	<p>Associated with attentiveness, selective attention, concentration & anticipation. They have been related to concentrated mental activity such as solving math problems, anxiety, and apprehension.</p> <p>Important points about Beta Waves</p> <p>: (1) These are the waves of alertness, wakeful state. Most common and most prevalent in the brain. If you are alert and awake, you are in Beta now.</p> <p>(2) In meditation, beta waves have been noticed only in very experienced practitioners that too in a state of ecstasy and concentration.</p>
Alpha waves	7 to 13 Hz	<p>Associated with relaxed wakefulness, and creative thought where attention may wander and free association is favored. They are also correlated with a generally tranquil, pleasant, almost floating feeling.</p>

		<p>Important points about Alpha Waves :</p> <p>(1) Considered as the brainwaves of meditation. Most prominent during meditation.</p> <p>(2) Considered as an integral part of the relaxation process before sleep. The alpha frequency band has been studied extensively in meditations of various kinds (like Zen, TM etc) and in almost all cases an increase in the alpha waves has been noted during meditation.</p> <p>(3) Use of Cannabis (marijuana) has also been linked to an increase in alpha waves in brain. That's why many people love the high they got from using drugs.</p>
<p>Theta waves</p>	<p>4 to 7 Hz</p>	<p>Associated with Dreams, deep meditation, hypnosis and, sleep, meditation, and hypnosis. Seemed to be involved with short-term memory. It is a state of somnolence with reduced consciousness. The theta-state is described by sleep researchers as stage 1 sleep or the twilight state. In this states subjects pass out of the alert alpha-state into a theta-state in which they lose their sense of lying in bed, though still being awake.</p> <p>Important points about Theta Waves :</p> <p>(1) Subjects can be easily awoken from this stage of sleep, and it has many interesting properties. For a brief time as we lie in bed at night, neither fully awake nor yet asleep, we pass through a twilight mental zone like a state of reverie. Many people associate this drowsy stage with hallucinatory images, more fleeting and disjointed than dreams, and compare it to the viewing of a speeded-up, jerky series of photographic slides. A host of artists and scientists have credited the imagery of this twilight state with creative solutions and inspiration for their work.</p> <p>(2) This theta stage is also observed in people under hypnosis.</p>
<p>Delta waves</p>	<p>1 to 4 Hz</p>	<p>Associated with deep dreamless sleep. Consistently observed in deep sleep. The deeper the sleep, the higher is the amount of delta waves.</p> <p>Important points about Delta Waves :</p>

		<p>(1) Meditative states associated with the increased presence of delta waves seem to occur mostly in very experienced practitioners, possibly because entering a delta state and maintaining consciousness at the same time is tremendously difficult.</p> <p>(2) Also related with the state of Samadhi, the deepest state in meditation as appeared in ancient Indian Yoga text.</p>
--	--	--

All the above mentioned five brainwave frequencies are normally present together in the brain. **However, the dominant frequency in the EEG pattern determines what shall be called the current state of the brain.** If the amplitude of the alpha range frequencies is highest, then the brain is said to be in the alpha stage.

Meditation, relaxation exercises, and activities that enable the sense of calm, also enable this alpha state.