

## Brain Speed

<i>Wave</i>	<i>Frequency Range</i>	<i>Physiological State</i>	<i>Psychological Benefit</i>
<b>Delta</b>	< 4 cycles per second	Dreaming	Restoration
<b>Theta</b>	4 to 8 cycles per second	Meditation	Memory
<b>Alpha</b>	8 to 13 cycles per second	Attention	Functioning
<b>Beta</b>	> 13 cycles per second	Alert	Problem Solving

The brain cycles most slowly when it needs to restore and repair the body. Most often, this happens during sleep (delta cycle). In the theta cycle, the body achieves a state of meditation that is somewhere between sleep and wakefulness. This is the state in which we have the greatest access to memory. When we are awake and attentive, the brain is cycling at an alpha rhythm that allows us to function in most routine tasks with little effort. In situations that require alertness, however, the brain speeds up to a beta rhythm that enables analysis and problem solving to take place. In academic situations, the student optimally performs according to the benefit most needed: memory, attentiveness or analysis.

During times of analysis and problem solving, the body can escalate to a “fight-flight” state of anxiety. The physiological changes that occur during stress are designed for temporary crisis response. In this state, the body views it as inefficient to gain access to memory among other “lower priority” functions like operating an immune system. This is not a physiological state that can be sustained very long before feeling depleted and exhausted. The brain needs to slow down for restoration to take place.

It is usually from a low-alpha rhythm that people can access theta memory and tap beta analysis to perform most effectively. At this level, the body and mind achieve their greatest harmony. This is when athletes describe feeling “in the zone” and artists, writers and musicians describe feeling their greatest flow of creativity. Similarly, this is the level in which student performance most reflects ability and preparation.