33 - Wave forms noted in EEG

Wave forms noted in EEG

© SPMM Course 6. Neurophysiological measurements A. EEG EEG records the electrical activity of the brain. In psychiatric practice, it is primarily used to rule out seizures, monitor ECT and in polysomnogram for sleep disorders. Standard EEG uses 21 electrodes placed on the scalp. Placement of the electrodes is based on the 10/20 International System of Electrode Placement. This system measures the distance between readily identifiable landmarks on the head and then locates electrode positions at 10 percent or 20 percent of that distance in an anterior-posterior or transverse direction. Activation procedures could be used to bring up abnormal discharges. Strenuous hyperventilation (most common, safe) Photic stimulation using an intense strobe light 24 hours of sleep deprivation can lead to the activation of paroxysmal EEG discharges in some cases EEG recording during sleep (natural or sedative induced) can also be used when the wake tracing is normal. Wave forms noted in EEG

Waves Frequency Notes Beta

> 13Hz Some seen at frontal, central position in the normal waking EEG Alpha 8 to 13 Hz Dominant brain wave frequency when eyes are closed and relaxing; occipitoparietal predilection. Disappears with anxiety, arousal, eye opening or focused attention. Dominance reduces with age. Theta 4 to 8 Hz A Small amount of sporadic theta seen in waking EEG at frontotemporal area; prominent in drowsy or sleep EEG. Excessive theta in awake EEG is a sign of pathology. Delta <4 Hz Not seen in waking EEG. Common in deeper stages of sleep; the presence of focal/generalized delta in awake EEG is a sign of pathology. Mu 7-11 Hz Occurs over the motor cortex. It is related to motor activity, characterized by arch like waves; gets attenuated by movement of the contralateral limb Lambda Single waves A single occipital triangular, symmetrical sharp wave produced by visual scanning when awake (e.g. reading) or in light sleep

 Beta and alpha are called fast waves; theta and delta are slow waves. Newborns Newborns •Dominant delta and theta waves Infants Infants •Irregular medium- to high-voltage delta activity Early childhood Early childhood •Alpha range develops in posterior areas Midadolescence

Midadolescence •EEG essentially has the appearance of an adult tracing by 1214 years. Adults Adults •Normal dominant alpha rhythm

---

Revision #1
Created 2026-01-04 20:02:59 UTC by Omar Ayman
Updated 2026-01-04 20:02:59 UTC by Omar Ayman