



Electrophysiological Recordings of Hippocampal Brain Waves (EEG) in Rats in Vivo



Nwal Toma '25, Eva Beiga'25, Matt Parrella '25

Dr. Harry Blaise
Trinity College

Background

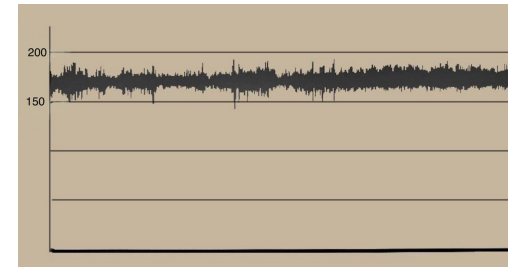
- Brain waves derive from the electrochemical signals that enable neurons to communicate to drive:
 - Emotions
 - Thoughts
 - Behaviors
 - Learning and Memory functions
- Learning and memory processes are inherently abstract and complex
- Can be understood quantitatively with the techniques of hippocampal electrophysiological analyses.

Methodology

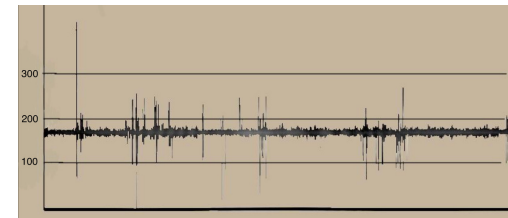
- 3 types of electrodes: Ground screw, recording, bipolar
- Surgery to implant electrodes into hippocampus
- Hippocampus plays critical role in learning and memory
- Screw electrodes served as a reference for recording electrode to record brain waves

Results

After successfully completing the surgeries and implanting the electrodes, we recorded the brain waves in the hippocampus of the rats' brains.



Slight EEG Fluctuations



Exaggerated EEG Fluctuations

Applications

These techniques are useful in further studies concerning the effects of treatments (varying from diets and drugs) on hippocampal brain waves.