Week 4 In-Lab

BIOE 320 Systems Physiology Laboratory

Experiment 1

Table 1: EEG amplitudes for each brain wave

Rhythm	Eyes Closed stddev (μV)	Eyes Open stddev (μV)	Eyes Re-closed stddev (μV)
Alpha			
Beta			
Delta			
Theta			

4. What information does using the computed value of the standard deviation of the amplitude give you as compared to other statistical measurements such as the mean of the amplitude?

Table 2: Frequency measurements for each brain wave

Rhythm	Cycle 1 (Hz)	Cycle 2 (Hz)	Cycle 3 (Hz)	Mean (Hz)
Alpha				
Beta				
Delta				
Theta				

10. Are the frequencies within the range of expected, published values?

11. Examine the alpha and beta waveforms for change between the "eyes closed" and "eyes open" states. Does desynchronization of the alpha rhythm occur when the eyes are open? Explain.

12. Does the beta rhythm become more pronounced in the "eyes open" state?

13. Examine the delta and theta rhythms. Is there an increase, decrease, or no change in the delta and theta activity when the eyes are open? Explain your observations.

14. Could you see evidence of synchrony and/or alpha block in your EEG measurements? Explain.

Experiment 2

Table 3: Alpha wave characteristics under different conditions

Segment	Condition	stddev (μV)	RMS (μV)
Alpha			
Beta			
Delta			
Theta			

4. Under what conditions where the alpha wave amplitudes highest? Why?

5. How did the level of concentration (focused thinking) affect the data?

6. What kind of differences would you expect when measuring the amplitude of alpha and beta waves recorded from a subject tested alone in a darkened room and a subject tested in a lab full of students? Justify.