

SAMANTHA BYRUM#, MEAGAN ROUSE, JOE NOLAN, NATALIA OMELCHENKO, and STEPHANIE BRADLEY, Department: Health Sciences, West Liberty University, West Liberty, WV, 26074, Health Sciences, West Liberty University, West Liberty, WV, 26074. **Continued alarm sound was not associated with expression of eeg markers of mental fatigue.**

Mental fatigue is one of the main factors which leads to performance errors. Previous studies indicated that mental fatigue can be detected using EEG. Here, we attempted to see if comparable EEG changes can be observed after an exposure to a continuing alarm sound. Eleven university students (7 males, 4 females), with ages ranging between 18-25 years, participated as volunteer subjects. The participants had no medical, psychiatric, or head injury records, or any known problems with their hearing. The subjects remained seated during the session with their eyes closed. The EEG was recorded by using an iWorx EEG System with five reusable gold cap electrodes 4mm in diameter placed on the subject's forehead, over the right and left temporal lobes, and on the right and left parietal-occipital areas. A standard alarm sound with waves of high frequency (up to 6500Hz) was introduced to the subject for 70 seconds through noise cancelling headphones, using sound volume at or below 75 db. The frequencies and amplitudes of the alpha and beta waves were calculated using LabScribe3 software packages. After the movement artifacts and failures of electrode placement were dissected, the effect of fatigue on EEG markers was analyzed in 10 second increments, using 1-way ANOVA. The preliminary finding demonstrated great individual variability between the subjects, but did not reveal a significant effect of fatigue on the EEG markers. We postulated that fatigue has more prominent influences on theta waves which were not measured in this study. Applications of the findings are discussed.