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Abstracts will be considered for both poster and platform presentations

Neurotrauma (TBI, spinal cord injury, etc.)

Traumatic brain injury (TBI) is a major public health concern in the United States, affecting up to 1.7 million people every year. Neuropsychologists report that up to 40% of individuals undergoing evaluations for TBI may be malingering neurocognitive deficits. This indicates a need for more reliable tests for validating TBI while identifying malingerers. In this study, memory-related brain potentials were compared between moderate or severe TBI and malingered neurocognitive deficit (healthy age-matched) and reaction times of honest (n=12), malingered (n=15), and brain injured (n=14) individuals during an old-new memory recognition task. Scalp signals were recorded with a 32 channel scalp EEG cap. An event-related potential component P3 (indicative of cognitive ability) was analyzed using EEGLAB. Bilateral P3 fractional latencies of frontal scalp sites were compared between the three groups for both old and new tasks. Results show a significant difference in P3 fractional latencies during recognition of studied items in malingerers (averaged latencies = 396 ms) when compared to brain injured subjects (mean = 312 ms) in electrodes FZ, FP1, F3, and F4. A significant difference in P3 fractional latencies was also shown during recognition of studied items in malingerers when compared to honest subjects in frontal electrodes F3, and F4. There was no significant delay in any group for recognition of new items. These results, along with previous reported reaction time delay, indicate that additional processing time and frontal effort in the brain activity of malingered individuals are measurably different from those of honest and brain injured individuals. Future investigations will examine the relations of EEG delay and behavioral performance, and test an early ERP component (N2) related to frontal control and attention.