Neurobehavioral symptomatology predicts response times during target detection but not the P300: a multi-method study of mild traumatic brain injury

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Abstract

World-wide, millions experience mild traumatic brain injury (mTBI) annually, which may lead to persistent neurobehavioral symptoms (NBS). Studies on non-linguistic processing post-mTBI have had mixed results, but few have considered NBS.The relationship between NBS, mTBI and non-linguistic performance was investigated using a novel ERP target detection task. P300 latency and amplitude, response time (RTs) and accuracy were measured from community-dwelling adults with (+mTBI n=18; Female 12) and without mTBI (-mTBI n=21; Female 11). The Neurobehavioral Symptom Inventory (NSI) measured self-reported NBS. We expected +mTBI to show increased P300 latencies and RTs and reduced P300 amplitudes compared to -mTBI. NBS scores predicted target RTs, $R2 = 0.125$, $F(1, 37) = 5.296$, $p = 0.027$, $\beta = 0.354$, with no observed difference between +mTBI and -mTBI on RTs, P300 amplitude or latency. Our findings suggest that researchers and clinicians should consider NBS when assessing cognitive function.

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