

Long-term changes in social adaptive abilities following early mild traumatic brain injury

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Introduction: Social problems may be among the most debilitating consequences of TBI (Yeates et al., 2007). We previously reported that early mild TBI (mTBI, sustained before the age of 6 years) disrupts the expected developmental progression of children's social adaptive abilities over 18 months post-injury (Dégeilh et al., 2018), suggesting that young children may experience a slowing in the acquisition of social adaptive abilities compared to their typically developing peers. The present study aimed to explore whether this slowing in the acquisition of social adaptive abilities persists in the long-term.

Method: Parents of 81 children with mTBI (38 girls) and 60 with orthopedic injuries (OI; 34 girls) sustained between 1.5 and 5 years completed the social skills sub-scale of the Adaptive Behavior Assessment Scale-II at baseline (retrospective assessment of pre-injury functioning) and at 6, 18, 30, and 60 months post-injury. Growth curve analysis (Mirman, 2014) was performed to explore group effects on the time course of social adaptive abilities captured with a third-order (cubic) natural polynomial.

Results: There was no effect of group at pre-injury (estimates: OI=100.9, mTBI=101.4; $p=.83$), but there was a marginal or significant effect of group on all time terms (Estimates - OI: time=0.08, time²=-0.03, time³=0.003; Estimates - mTBI: time=-0.03 [$p=.058$], time²=0.01 [$p=.048$], time³=-0.0002 [$p=.048$]). For OI, social adaptive abilities increased by 0.40 point per month from 0 to 18 months post-injury and then progressively decreased by -0.08 point per month until 60 months post-injury. For mTBI, social adaptive abilities remained at the pre-injury level for the first 6 months, then slowly increased by 0.15 point per month until 30 months post-injury, and finally decreased by -0.14 point per month until 60 months post-injury.

Conclusions: These findings suggest that early mTBI may disrupt the expected developmental progression of children's social adaptive behavior. The developmental profile of social abilities in children with mTBI appears to follow the same overall pattern as other children of the same age, but with a delayed onset after a 6-month period of stagnation and a slower improvement rate.