general population would report additional head injuries when provided with an objective definition similar to those previously used in male athletes.
Participants and Methods: Highly educated (M=16.7 years, SD=2.1 years) women between the ages of 30 and 50 (M=40.3, SD= 5.1) completed an online web-based survey. The survey probed for demographic information tied to participation in sports & related activities, individual history of head trauma, as well as a series of objective measures. Participants were first asked to provide a history of head trauma, in absence of an objective definition; they were then provided with an objective definition similar to what was previously documented to be effective in the literature, and then asked to provide a reassessment of sustained trauma.
Results: A Wilcoxen Signed Rank test indicated a significant change in number of reported head injuries, pre and post definition (z= 4.06, p<.0001). The number of head injuries reported increased for 42% of the population, for this portion of the sample the median increased fourfold. To better understand the differences between those who reported an increase, and those who didn't, researchers performed an examination of commonalities between those groups. A Chi-Square Test of Independence indicated a significant relationship (chi=7.03, p<.01) between participation in sports (recreational, organized) and change in reported head injuries: 21% of individuals without a sport history increased the number of reported head injuries, in contrast 58% of individuals with a sport history increased the number of head injuries reported.
Conclusions: Consistent with the literature in male athletes, providing a definition of a head injury significantly increased the number of reported head injuries in women, between 30 and 50 years of age. This finding indicates that providing a definition can improve reported concussion history within a more diverse population. This fourfold increase for 42% of our population could bear significant implications for those receiving clinical care. Further, given that the definition utilized was especially effective at correcting history of reported head injury in those who participated in sports, it's adoption within clinical communities evaluating athletic populations seems especially promising.

Categories: Concussion/Mild TBI (Adult)
Keyword 1: traumatic brain injury
Keyword 2: concussion/ mild traumatic brain injury
Keyword 3: diversity
Correspondence: Chris Fifty, University of New Hampshire, Chris_50@live.com

46 Resting State FC in the Default Mode Networks: A Prediction Model for Elevated Aggression from Connectivity Metrics and Neurocognitive Performance Across Multiple Stages of Recovery in mild TBI

Deva Reign, Samantha Jankowski, Natalie S. Dailey, William D.S. Killgore
University of Arizona, Tucson, Arizona, USA

Objective: Mild traumatic brain injury (mTBI) remains one of the most prevalent brain injuries, affecting approximately one-in-sixty Americans. Previous studies have shown an association between white matter integrity and aggression at chronic stages (either 6-months or 12 months post-mTBI) however, the association between white matter axonal damage, neuropsychological outcomes, and elevated aggression in multiple stages since time-since-injury (TSI) is unclear. We hypothesized that functional connectivity between the default mode network (DMN), a key brain network involved in cognitive, self-reflective, and emotional processes, and other cortical regions would predict elevated aggression and emotional disturbances across multiples stages of recovery in mild TBI.
Participants and Methods: Participants healthy controls (HC: n=35 total [15 male, 20 female], age M=24.40, SD=5.95; mTBI: n=121 total [43 male; 78 female], age M = 24.76, SD=7.48). Participants completed a cross-sectional study design at specific post-injury time points ranging from (2W, 1M,3M,6M,12M). Participants completed a comprehensive neuropsychological battery and a neuroimaging session, including resting state functional connectivity (FC). Here, we focus on the FC outcomes for the DMN. During the neuropsychological assessment, participants completed tests that measured learning and memory, speed of information processing, executive function, and attention. To predict neuropsychological performance from brain connectivity, we conducted a series of stepwise linear regression

https://doi.org/10.1017/S1355617723002503 Published online by Cambridge University Press

analyses with the 11 functional brain connections (extracted as Fisher's z-transformed correlations between regions) as predictors and each of the 13 neurocognitive factor scores separately.
Results: Consistent with our hypothesis, one predictor materialized as significant (R = .187, R2 = .035, F = 5.55, p = .020) for the Total Sample. Largely, positive connectivity between Right Inferior Frontal Gyrus and the PCC (seed) was associated with increased aggression in the Total Sample of all participants (β = .187, t = 2.36, p = .020). One predictor materialized as significant in Individuals the 2W group, (R = .719, R2 = .518, F = 8.58, p = .019). In general, greater negative (anticorrelated) connectivity between the Left Lateral Occipital Cortex (β = -.719, t = -2.93, p = .019) and the PCC (seed) and was associated with greater aggression at 2W, but no predictors emerged at 1M or 3M. Individuals in the 6M group showed one significant predictor (R = .675, R2 = .455, F = 16.71, p = .001). Specifically, greater positive connectivity between the Right Lateral Occipital Cortex (β = .675, t = 4.09, p = .001) and PCC (seed) was associated with greater aggression at 6M. No associations were evident at 12M.
Conclusions: Overall, these findings suggest functional connectivity between the posterior hub of the DMN and cortical regions within the occipital cortex was predictive of higher aggression in individuals with mTBI. However, the direction of this connectivity differed at 2W versus 6M, suggesting a complex process of recovery that may contribute differentially to aggression in patients with mTBI. As these regions are involved in self-consciousness and visual perception, this may point toward future avenues for aiding in functional recovery of emotional dysregulation in patients with persistent post-concussion syndrome.

Categories: Concussion/Mild TBI (Adult)
Keyword 1: neuroimaging: functional connectivity
Keyword 2: aggression
Keyword 3: traumatic brain injury
Correspondence: Deva Reign, University of Arizona, dreign@arizona.edu

47 Predicting Impulsivity Across Multiple Stages of Time-Since-Injury in mild TBI using Resting State Functional Connectivity

Deva Reign, Samantha Jankowski, Natalie S. Dailey, William D.S. Killgore
University of Arizona, Tucson, Arizona, USA

Objective: Mild traumatic brain injury (mTBI) remains one of the most silent recurrent head injuries reported in the United States. mTBI accounts for nearly 75 percent of all traumatic brain injuries in the American population. Brain injury is often associated with impulsivity, but the association between resting state functional connectivity (rsFC) and impulsivity at multiple stages since time-since-injury (TSI) is unclear. We hypothesized that rsFC within the default mode network (DMN) would predict impulsivity across multiples stages of recovery in mild TBI.
Participants and Methods: Participants healthy controls (HC: n=35 total [15 male, 20 female], age M=24.40, SD=5.95; mTBI: n=121 total [43 male; 78 female], age M=24.76, SD=7.48). Participants completed a cross-sectional study design at various post-injury time points ranging from (2W, 1M,3M,6M,12M). Participants a neuroimaging session and behavioral tasks including a psychomotor vigilance task. Impulsivity was assessed as a combination of false starts and impulsive responses on behavioral tasks. The neuroimaging session included a rsFC scan. To predict impulsivity from brain connectivity, we conducted a series of stepwise linear regression analyses with the 11 functional brain connections (extracted as Fisher's z-transformed correlations between regions) as predictors and each of the 13 neurocognitive factor scores separately. We focus here on the outcomes for the impulsivity factor.
Results: Results showed greater positive connectivity between the and Right Frontal Pole and the anterior cingulate cortex (ACC; seed) (β = .158, t = 1.98, p = .049) which was associated with greater impulsivity. Individuals in the 2W group demonstrated one significant predictor (R = .632, R2 = .399, F = 5.32, p = .050). Largely, there was greater positive connectivity between the Right Frontal Pole and the ACC (seed) and (β = .632, t = 2.31, p = .050) which was associated with higher impulsivity at the 2W time-since-injury. No predictors emerged for the 1M, 3M, or 6M conditions. However, individuals in the 12M group demonstrated two significant predictor connections (R = .497, R2 = .247, F =

https://doi.org/10.1017/S1355617723002503 Published online by Cambridge University Press