following concussion. Data was analyzed using a mixed-effects modeling approach.

**Setting:** Baseline and concussion follow-up testing took place in the BrainFit lab at the University of Toronto.

**Participants:** A convenience sample of 211 youth hockey players between 8 to 15 years of age from hockey teams in the GTA was recruited across a four-year period.

**Interventions:** Not applicable.

**Main Outcome Measure(s):** The Developmental Neuropsychological Assessment (NEPSY) was used to assess VF in both semantic and phonemic domains. The Rey Auditory Verbal Learning Test (RAVL) was used to assess VLM.

**Results:** Baseline analyses revealed significant age and gender effects on measures of VF and VLM. Multiple effects of concussion history on measures of VF and VLM were also found.

**Conclusions:** Age, gender and concussion history have effects on VF and VLM in youth athletes and these factors must be considered in the clinical management of concussion. Findings have functional implications for returning to daily activity as undetected neurocognitive impairments put youth hockey players at increased risk for re-injury and further possible deleterious outcomes.

**Key Words:** Verbal Fluency, Concussion, Verbal Learning, Youth, Athlete

**Disclosure(s):** None disclosed.

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**Poster 205**

**Cortical Thinning following Sports-Related mTBI: The Relationship between MRI Findings and Dual-Task Performance in Youth**

Michelle Keightley (Holland Bloorview Kids Rehabilitation Hospital), Katia J. Sinopoli, Jen-Kai Chen, Alain Ptito, Tim Taha, Greg Wells, Phillipe Fait

**Objective:** To compare measures of cortical thickness in youth with sport-related mild traumatic brain injury (mTBI) to measurements taken from a group of age and sex matched control subjects.

**Design:** Cross-sectional study.

**Setting:** Magnetic resonance imaging (MRI) was carried out at a major pediatric hospital located in the Greater Toronto Area.

**Participants:** Thirteen youths with mTBI and 13 age and sex matched control subjects. The mTBI group included participants who had sustained a mild brain injury while participating in sport, as diagnosed by a medical doctor, 3-6 months prior to study participation. Exclusion criteria included pre-existing neurological conditions prior to brain injury, psychiatric disorders, motor disturbances, and any MRI contraindications.

**Interventions:** All subjects were administered neuropsychological tests and submitted to an MRI session where T1-weighted whole brain scans were acquired on a Siemens 3T MRI scanner.

**Main Outcome Measure(s):** Behavioral: Performance (accuracy as measured by hits-false alarms and median reaction time (RT)) on both single and dual task versions of an n-back working memory paradigm and a motor task, as well as results from neuropsychological tests assessing general intellectual ability, visuospatial memory, inhibitory control and behavioral flexibility, fine motor skills and processing speed. Imaging: Whole brain cortical thickness values.

**Results:** Behaviorally, none of the participants exhibited impairment on any neuropsychological test and there were no significant differences between groups. Cortical thickness analysis revealed that, compared to controls, youths with mTBI had significantly thinner cortex in the left dorsolateral prefrontal cortex and in the right inferior parietal cortex. Regression analyses showed significant negative correlation between cortical thickness and median reaction time during the dual task condition in these areas, such that thinner cortex was associated with slower response speed.

**Conclusions:** Children with mTBI demonstrated thinner cortex compared to healthy controls in key areas involved in executive functions, and this reduced cortical thickness was associated with slower performance on a dual task condition. These results highlight the importance for early identification of children with mTBI who are at risk for persistent executive functioning problems, and the development of interventions to address these issues.

**Key Words:** Neuromaging, Brain Injuries, Magnetic Resonance Imaging, Memory, Short-Term

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**Poster 206**

**Does Anticholinergics Drugs Burden Relates To Global Neuro-disability Outcome Measures And Length Of Hospital Stay**

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**Objective:** Exploring statistical co-relation between global measures of disability, rehabilitation complexity, nursing need and length of stay with Anticholinergics prescriptions.

**Design:** Retrospective case note review.

**Setting:** In-patient Neuro-Rehabilitation centre of a UK University Hospital.

**Participants:** Consecutive 52 patients with acquired brain / spinal injury and neuropsychopathology.

**Interventions:** N/A

**Main Outcome Measure(s):** Northwick Park Dependency Score (NPDS), Rehabilitation complexity Scale (RCS), FIM-FAM (UK version 2.2), length of hospital stay (LOS) and Anti-cholinergic Burden Score (ACB).

**Results:** N=52, mean age =61 years.Statistical operation included regression of the effect of change in ACB between admission and discharge. Outcome is difference in RCS, NPDS and FIM-FAM between admission and discharge. Resulting change in outcome, mean and standard error: RCS(0.003,0.290), NPDS(1.281, 1.167), Cognitive FIM-FAM (0.145, 1.103), Motor FIM-FAM (1.293, 1.829).Results suggest a positive change in ACB results in a positive change in NPDS with no significant effect on FIM-FAM, either Motor or Cognitive, or on the RCS.

The change in ACB was also found to be negatively correlated to the length of hospital stay (+6.637, 3.886). Graphically the mean regression coefficient and standard error are shown below with red denoting potentially significant effects of ACB on the outcome. The FIM-FAM outcomes are denoted Cogn and Motor for the Cognitive and Motor scales respectively.

**Conclusions:** This is the first report exploring statistically significant correlation of ACB and neuro-disability measures and LOS amongst this patient cohort. Larger epidemiological data is needed to inform clinical practice.

**Key Words:** disability, Anticholinergic medications, length of stay, rehabilitation complexity

**Disclosure(s):** None disclosed.

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**Poster 207**

**Impact of Gender Role Conflict on Adjustment in Women With Traumatic Brain Injury**

Monique Renae Pappadis (TIRR Memorial Hermann Hospital and University of Houston), Angelie M. Sander, Patrick Leung, Danielle E. Parrish, Maxine Weinman Epstein

**Objective:** To understand the experience and impact of gender role conflict on adjustment in women with traumatic brain injury (TBI).

**Design:** Mixed methods cross-sectional study.

**Setting:** Community-based.

**Participants:** Purposive sampling of 28 adult women with mild to severe TBI living in the community at least 3 months post-discharge from a Level 1 trauma hospital or an inpatient rehabilitation hospital (Mean = 55.8 months post-injury).

**Interventions:** None.

**Main Outcome Measure(s):** Gender Role Conflict Scale (GRC); Sense of Self Scale (SoSS); Acceptance of TBI Scale (AD); Patient Health Questionnaire 9-item (PHQ-9); Generalized Anxiety Disorder 7-item (GAD-7);