**TBI Diagnostic Imaging
Dates of Treatment: 1/26/2023 No. of Visits: 1 MD**

 On January 26, 2023, Mr. Drammeh presented to TBI Diagnostic Imaging for neurological examination and treatment following her car accident-related injuries by Dr. Mark Piker, MD. Mr. Drammeh complained of headaches, dizziness, and cognitive dysfunction. Dr. Piker conducted a thorough neurological examination. His findings were the following:

* Mr. Drammeh has significant deficiencies in balance consistent with changes that may occur following a concussion and can continue during persistent concussive symptoms.
* Mr. Drammeh had difficulty maintaining right eye open throughout the examination causing poor calibration of the unit. Difficulty maintaining gaze is indicative at this point is indicative of significant difficulty with oculomotor function.
* Mr. Drammeh has decreased fixation stability and impaired oculomotor control in horizontal/vertical smooth pursuit. These findings are consistent with those seen following a concussion and may continue into persistent concussion syndrome.
* Qualitative EEG (WAVi) shows cumulative brain reaction voltage of 6.4μV during P300 test, falling outside the general population’s brain reaction voltage of 9-22μV during the same testing procedure. Low brain voltage reaction has been correlated with higher concussion symptomatology (Ike 2022). Neurocognitive assessments utilizing trail making tests show increased time to complete task, consistent with neurocognitive impairment. Ability to perform trail making test has been shown to be impaired following mTBI (Perianez 2007). Qualitative balance analysis using Balance Tracking Systems™ shows significant balance disturbances as measured by changes in center of pressure (COP) during the modified central test for the sensory integration of balance (mCTSIB). Increased COP displacement is a known indicator of balance decline following concussion (Goble 2016). Qualitative analysis of eye movements utilizing RightEye systems found aberrant movements in circular smooth pursuits, horizontal/vertical smooth pursuits, and gaze fixation, and saccadic latency. Larger spatial position variability and lead time errors, seen here in smooth pursuits and gaze fixation, have been correlated to higher post-concussion symptomology following head injury (Maruta, 2018).

Dr. Piker’s causal statement for Mr. Drammeh’s condition was the following:

* Mr. Drammeh has significant difficulty with balance and precision eye movements, with marked decrease in brain reaction voltage compared to the normal population. Cumulative challenges in balance, precision eye movements, with decreased brain reaction voltage, post-traumatic headache, cognitive dysfunction, or disturbances to mood/increased anxiety following closed head injury are more commonly than not attributable to persistent concussive syndromes (Lumba-Brown 2020). Based on the history taken and the information available to us at the time. of the exam, it is our opinion that Mr. Drammeh has suffered a mild traumatic brain injury, also termed concussion, as a direct result of the 01/25/2021 collision. Future head injuries may cause further challenges even at a lesser force than initial head injury, and recovery time is generally longer (Taylor, 2013). Continued head injuries place Mr. Drammeh at a higher risk of chronic traumatic encephalopathy and cerebral swelling. Care should be undertaken to ensure that Mr. Drammeh can avoid head injuries in the future. We reserve the right to update our opinions should any additional information come available for review.

Dr. Piker diagnosed Mr. Drammeh with the following:

* Concussion without loss of consciousness
* Personality/Behavior Change due to known physiological event (Concussion)
* Post Traumatic Headache (unspecified)
* Post-Concussion Syndrome
* Deficient smooth pursuit eye movements
* Other irregular eye movements
* Photophobia
* Abnormality of gait and mobility – unsteadiness
* Other Signs/Symptoms of Cognitive Dysfunction
* Executive Functioning/Frontal Lobe Deficit
* Emotional Lability
* Fatigue
* Traumatic Injury with Mild Cognitive Impairment
* Attention and Concentration Deficit

Dr. Piker prescribed a treatment plan that consisted of:

* Vestibular therapy
* Eye movement therapy
* Therapy recommended 1-2 hours per day for 2-3 sessions per week for 4-6 weeks for a total of 12 days
* Retesting to follow intensive treatment phase
* Refer to a Naturopath for evaluation and supplemental support
* Continued medical care as directed

 Upon discharge from the diagnostic imaging center, Dr. Piker also prescribed future testing of the vestibular system, retesting following recommended rehabilitation, and a neurocognitive evaluation.