Improvement in saccodometer readings after home oculomotor exercises in an asymptomatic patient with recent head injury

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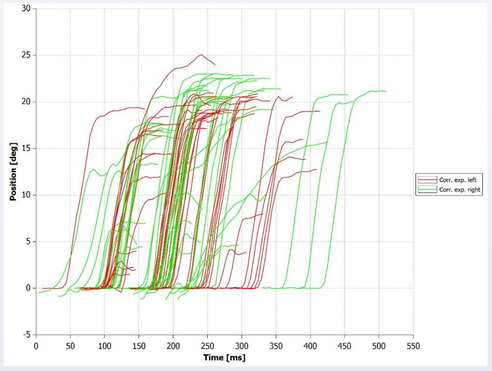
INTRODUCTION

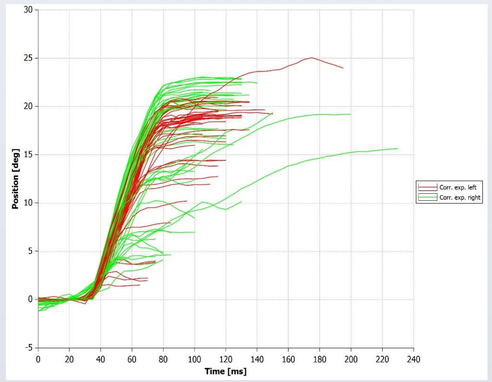
An 18-year-old male who had previously received care in our clinic for symptoms related to multiple concussion and post-concussion syndrome presented with a new concussion injury. He recently received a head trauma while riding a roller coaster. As a precaution, he presented for a neurological evaluation for baseline readings. He was asymptomatic at the time of initial presentation. Patient had a history of multiple concussions. This injury was the 5th concussion in the past 18 months. Previous concussion injuries produced headache, blurred vision, light sensitivity, and fatigue produced from cognitive tasks, such as reading and other school-related work, severe enough to produce extended school absences.

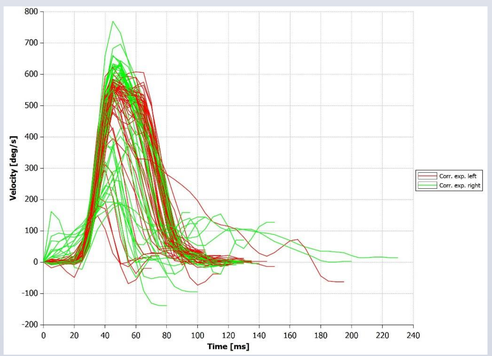
METHODS

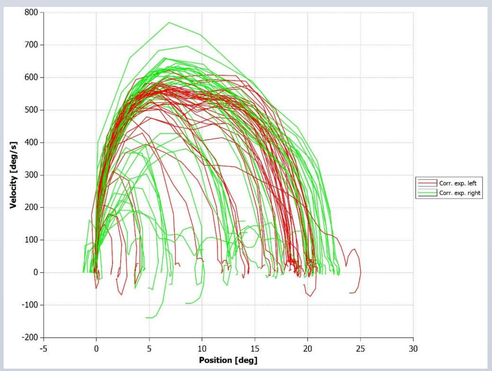
Initial saccodometry testing revealed a heteroscedastic distribution of 100 saccades in terms of latency, velocity and accuracy. Neurological exam revealed dysmetric finger to-nose testing, abnormal sway pattern in Romberg's test, and facial muscle activation with pupillary testing of reaction to light. The patient received in –clinic treatment on days 1, 10 and 17. Treatment included a multimodal neurorehabilitation program consisting of: 1) in-office treatment of gaze stabilization, spinal manipulation therapy (SMT) and extra-spinal manipulation, and 2) home-based computer guided oculomotor exercises which included saccade/pursuit combinations.

RESULTS: Initial

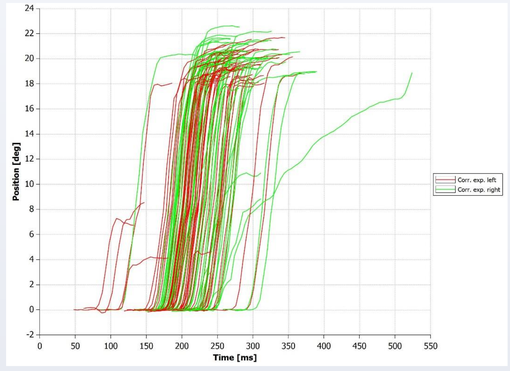


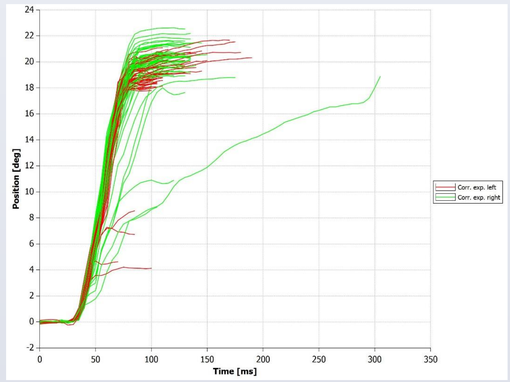


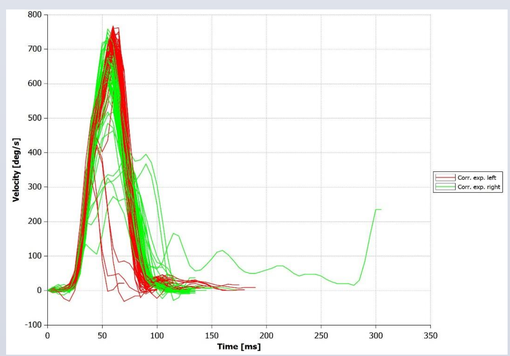


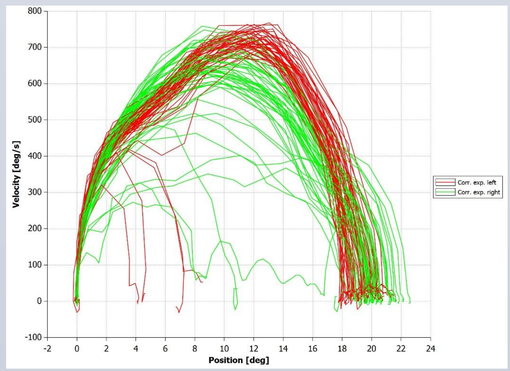


RESULTS: Day 17









DISCUSSION

During the 17 days between pre- and post-saccodometer testing, the patient completed the home oculomotor exercise program once per day the first three days and twice per day through day 17 which produced an improved homoscedastic distribution of 100 saccades. Exam on day 10 revealed normalization of all exam findings: Romberg's test normalized, finger-to-nose dysmetria resolved, and facial muscles no longer activated while testing pupillary reaction to light.

CONCLUSIONS

This author suggests further investigation into using saccodometry as a screening tool for concussion injury and utilizing ocular motor therapy at home for treatment of concussion related syndromes. A home eye exercise program along with a program of SMT is a viable approach to improving abnormality in saccodometer readings and other positive neurological findings common with traumatic brain injury. Metabolic capacity would normally be monitored during treatment rendered under the direct supervision of the treating physician. If a home exercise program is considered, this author suggests routine communication with the patient to avoid the situation of exceeding metabolic capacity.

For more information contact:

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