Project Title: Treatment of TBI-Induced Oculomotor Dysfunctions and Associated Reading Problems
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Background: Based on recent studies, two in VA hospitals in returning Warfighters, and one by researchers in our non-Warfighter mild traumatic brain injury (mTBI) population, oculomotor-based vision dysfunctions were found in 30-90% of this population, with “reading problems” being the primary vision symptom (~50%).
Objective/Hypothesis: The objective is to assess the effect of oculomotor-based vision rehabilitation in individuals with mTBI manifesting oculomotor-based reading disability and related symptoms.
Hypothesis: There remains considerable residual visual system neuroplasticity in the human adult with mTBI, specifically involving motor learning and visual attention. Hence, the oculomotor rehabilitation will improve reading ability.
Specific Aims: To perform specific targeted oculomotor-based vision rehabilitation (9 hours over 6 weeks) in the laboratory under computer control and automation in adults (ages 18-40 years) with mTBI having a well-defined, oculomotor-based reading disability. Various parameters related to reading will be assessed before and after the treatment.
Study Design: This will be an intervention study design. Thirty adults (ages 18-40 years) with well documented mTBI and oculomotor-based reading disability will receive a total of 9 hours of oculomotor-based vision rehabilitation. Various related objective and subjective parameters will be assessed before and after the intervention.
Relevance: The proposed study is relevant to two of the five critical areas. First, it is directly relevant to “Treatment for TBI associated visual dysfunction”. Second, it also addresses “Methods to test visual dysfunction in the presence of cognitive impairment”, as many of the proposed measures are objective in nature, are simple, and require minimal instruction set.