

Neurological Evaluations within the Brain Injury and Mechanisms of Action of Hyperbaric Oxygen (HBO₂) for Persistent Post-Concussive Symptoms after Mild Traumatic Brain Injury (mTBI) Study (BIMA)

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BIMA NEUROLOGICAL OUTCOMES

Neurological Exam

- Assessment of the following: mental status, cranial nerves, motor, deep tendon reflexes, gait, cerebellar function, visual acuity, and sensory domains

Berg Balance Scale

- 14-item scale measuring impairment in balance by assessing performance of functional tasks

Romberg Test

- Ability to maintain a standing posture with feet side by side

Dynamic Visual Acuity

- Ability to perceive objects accurately while actively moving head

NEUROLOGICAL OUTCOMES

Sharpened Romberg Test

- Coordination and balance while standing heel to toe with one foot in front of the other foot



BASELINE CHARACTERISTICS

Exam	Outcome	
Tremor	11%	
Abnormal facial sensation	15%	
Abnormal tandem gait	13%	
Berg Balance Scale score < 55 (Range)	14%	(50-56)
Abnormal Romberg Test (at least 1 of 2 trials)	10%	
Sharpened Romberg Test (< 30 sec. on best trial)	49%	
Mean (std) 6-minute walk distance (feet)	1718	(344)
Mean (std) sustained grip strength (lbs)	75.1	(19.8)

BASELINE EVALUATIONS

Exam	Outcome
Brief Smell Identification Test Score ≤ 9 (Range)	17% (2-12)
Vision loss on Dynamic Visual Acuity Testing OU	
At least one line (5 letters)	14%
At least two lines (10 letters)	3%
Abnormal Near Point Convergence (NPC)	79%
Abnormal NPC (cm) Mean (Range)	24.4 (9-80)

DISCUSSION

- Abnormalities across a range of testing
- Convergence insufficiency and Sharpened Romberg Test appear to have the most sensitivity to identify abnormalities in this population