



7B

Vestibular/Ocular-Motor Screening (VOMS) for Concussion

Vestibular/Ocular Motor Test:	Not Tested	Headache 0-10	Dizziness 0-10	Nausea 0-10	Fogginess 0-10	Comments
BASELINE SYMPTOMS:	N/A					
Smooth Pursuits						
Saccades – Horizontal						
Saccades – Vertical						
Convergence (Near Point)						(Near Point in cm): Measure 1: _____ Measure 2: _____ Measure 3: _____
VOR – Horizontal						
VOR – Vertical						
Visual Motion Sensitivity Test						

Instructions:

Interpretation: This test is designed for use with subjects ages 9-40. When used with athletes outside this age range, interpretation may vary. Abnormal findings or provocation of symptoms with any test may indicate dysfunction – and should trigger a referral to the appropriate health care professional for more detailed assessment and management.

Equipment: Tape measure (cm); Metronome; Target w/ 14 point font print.

Baseline Symptoms – Record: Headache, Dizziness, Nausea & Fogginess on 0-10 scale prior to beginning screening

- Smooth Pursuits** - Test the ability to follow a slowly moving target. The athlete and the athletic trainer are seated. The athletic trainer holds a fingertip at a distance of 3 ft. from the athlete. The athlete is instructed to maintain focus on the target as the athletic trainer moves the target smoothly in the horizontal direction 1.5 ft. to the right and 1.5 ft. to the left of midline. One repetition is complete when the target moves back and forth to the starting position, and 2 repetitions are performed. The target should be moved at a rate requiring approximately 2 seconds to go fully from left to right and 2 seconds to go fully from right to left. The test is repeated with the athletic trainer moving the target smoothly and slowly in the vertical direction 1.5 ft. above and 1.5 ft. below midline for 2 complete repetitions up and down. Again, the



target should be moved at a rate requiring approximately 2 seconds to move the eyes fully upward and 2 seconds to move fully downward. Record: Headache, Dizziness, Nausea & Fogginess ratings after the test. (Figure 1)

- **Saccades** – Test the ability of the eyes to move quickly between targets. The athlete and the athletic trainer are seated.
 - **Horizontal Saccades:** The athletic trainer holds two single points (fingertips) horizontally at a distance of 3 ft. from the athlete, and 1.5 ft. to the right and 1.5 ft. to the left of midline so that the athlete must gaze 30 degrees to left and 30 degrees to the right. Instruct the athlete to move their eyes as quickly as possible from point to point. One repetition is complete when the eyes move back and forth to the starting position, and 10 repetitions are performed. Record: Headache, Dizziness, Nausea & Fogginess ratings after the test. (Figure 2)
 - **Vertical Saccades:** Repeat the test with 2 points held vertically at a distance of 3 ft. from the athlete, and 1.5 feet above and 1.5 feet below midline so that the athlete must gaze 30 degrees upward and 30 degrees downward. Instruct the athlete to move their eyes as quickly as possible from point to point. One repetition is complete when the eyes move up and down to the starting position, and 10 repetitions are performed. Record: Headache, Dizziness, Nausea & Fogginess ratings after the test. (Figure 3)
- **Convergence** – Measure the ability to view a near target without double vision. The athlete is seated and wearing corrective lenses (if needed). The athletic trainer is seated in front of the athlete and observes their eye movement during this test. The athlete focuses on a small target (approximately 14 point font size) at arm's length and slowly brings it toward the tip of their nose. The athlete is instructed to stop moving the target when they see two distinct images or when the athletic trainer observes an outward deviation of one eye. Blurring of the image is ignored. The distance in cm. between target and the tip of nose is measured and recorded. This is repeated a total of 3 times with measures recorded each time. Record: Headache, Dizziness, Nausea & Fogginess ratings after the test. Abnormal: Near Point of convergence ≥ 6 cm from the tip of the nose. (Figure 4)
- **Vestibular-Ocular Reflex (VOR) Test** – Assess the ability to stabilize vision as the head moves. The athlete and the athletic trainer are seated. The athletic trainer holds a target of approximately 14 point font size in front of the athlete in midline at a distance of 3 ft.
 - **Horizontal VOR Test:** The athlete is asked to rotate their head horizontally while maintaining focus on the target. The head is moved at an amplitude of 20 degrees to each side and a metronome is used to ensure the speed of rotation is maintained at 180 beats/minute (one beat in each direction). One repetition is complete when the head moves back and forth to the starting position, and 10 repetitions are



performed. Record: Headache, Dizziness, Nausea and Foggiess ratings 10 sec after the test is completed. (Figure 5)

- **Vertical VOR Test:** The test is repeated with the athlete moving their head vertically. The head is moved in an amplitude of 20 degrees up and 20 degrees down and a metronome is used to ensure the speed of movement is maintained at 180 beats/minute (one beat in each direction). One repetition is complete when the head moves up and down to the starting position, and 10 repetitions are performed. Record: Headache, Dizziness, Nausea and Foggiess ratings after the test. (Figure 6)
- **Visual Motion Sensitivity (VMS) Test –** Test visual motion sensitivity and the ability to inhibit vestibular-induced eye movements using vision. The athlete stands with feet shoulder width apart, facing a busy area of the athletic training clinic. The athletic trainer stands next to and slightly behind the athlete, so that the athlete is guarded but the movement can be performed freely. The athlete holds arm outstretched and focuses on their thumb. Maintaining focus on their thumb, the athlete rotates, together as a unit, their head, eyes and trunk at an amplitude of 80 degrees to the right and 80 degrees to the left. A metronome is used to ensure the speed of rotation is maintained at 50 beats/min (one beat in each direction). One repetition is complete when the trunk rotates back and forth to the starting position, and 5 repetitions are performed. Record: Headache, Dizziness, Nausea & Foggiess ratings after the test. (Figure 7)