**Orthostatic Vital Signs**

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| --- | --- | --- |
|  | **Supine** | **Standing (after 1 minute)** |
| Blood Pressure (mmHg) |  |  |
| Heart Rate (bpm) |  |  |
| Symptoms1 | 🞏 No 🞏 YesIf yes: Description? | 🞏 No 🞏 YesIf yes: Description? |
| Results | 🞏 Normal 🞏 Abnormal |
| Test results are deemed clinically significant if they include at least one of the following ANDsymptomatic: (1) systolic BP drop of ≥ 20mmHg or (2) diastolic BP drop of ≥ 10mmHg. |

**Cranial Nerve Exam**

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| --- |
| 🞏 Performed 🞏 Not performed |
| **Nerve** | **Test** | **Results** |
| I – Olfactory | With eyes closed, have the patient plug one nostril and smell distinctive scent (e.g. coffee grounds), repeat on other side. | 🞏 Normal 🞏 Abnormal |
| V – Trigeminal | With eyes closed, touch the patient on the forehead, cheek and jaw while asking if the sensation is the same bilaterally. | 🞏 Normal 🞏 Abnormal |
| VII – Facial | Ask the patient to smile, puff out the cheeks, wrinkle the forehead, and close the eyes tightly. | 🞏 Normal 🞏 Abnormal |
| IX – Glossopharyngeal | Ask the patient to open the mouth and say “ahhh.” | 🞏 Normal 🞏 Abnormal |
| X – Vagus | Ask the patient to swallow. | 🞏 Normal 🞏 Abnormal |
| XI – Accessory | Push down lightly on the patient’s shoulders while the patient shrugs. | 🞏 Normal 🞏 Abnormal |
| XII - Hypoglossal | Ask the patient to stick out the tongue. | 🞏 Normal 🞏 Abnormal |

**Oculomotor/Ophthalmologic Evaluation**

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| --- | --- | --- |
| **Test** | **Results** | **Symptoms** |
| Fundoscopy | 🞏 Performed🞏 Not performed | 🞏 NormalOther: |
| Pupil Reactivity (CN II) | 🞏 Normal 🞏 Abnormal |  |
| Visual Tracking (CN III, IV, VI) | 🞏 Normal 🞏 Abnormal |  |
| Smooth Pursuits(10 repetitions and then stop, horizontal and vertical) | 🞏 Normal🞏 Abnormal Horizontal🞏 Abnormal Vertical  | 🞏 Nystagmus2 (sign)🞏 Saccadic movement (sign)🞏 Dizziness/nausea (symptom)🞏 Worse headache (symptom)🞏 Other:  |
| Repetitive Saccades3(30 repetitions horizontal, 30 repetitions vertical)  | 🞏 Normal🞏 Abnormal Horizontal🞏 Abnormal Vertical | 🞏 Nystagmus2 (sign)🞏 Saccadic movement (sign)🞏 Dizziness/nausea (symptom)🞏 Worse headache (symptom)🞏 Other:  |
| VOR (CN VIII) 3(10 repetitions horizontal, 10 repetitions vertical) | 🞏 Normal🞏 Abnormal Horizontal🞏 Abnormal Vertical | 🞏 Does not maintain fixation (sign)🞏 Dizziness/nausea (symptom)🞏 Worse headache (symptom)🞏 Other: |
| **Near-Point Convergence and Accommodation4** |
| **Trial** | **Convergence****(diplopia)** | **Convergence Recovery (single image)** | **Accommodation – Right (blurry)** | **Accommodation – Left (blurry)** |
| 1 | cm | cm | cm | cm |
| 2 | cm | cm | cm | cm |
| Best | cm | cm | cm | cm  |

**Neck and Sub-Occipital Region Exam**

|  |  |  |
| --- | --- | --- |
| **Palpitation6** | **Signs and Symptoms** | **Location** |
| Spasm | 🞏 Normal 🞏 Abnormal |  |
| Tenderness  | 🞏 Normal 🞏 Abnormal |  |
| **Cervical Range of Motion** | **Result** |
| Flexion (50°) | 🞏 Normal 🞏 Abnormal |
| Extension (60°) | 🞏 Normal 🞏 Abnormal |
| Right Lateral Flexion (40-45°) | 🞏 Normal 🞏 Abnormal |
| Left Lateral Flexion (40-45°) | 🞏 Normal 🞏 Abnormal |
| Right Rotation (80°) | 🞏 Normal 🞏 Abnormal |
| Left Rotation (80°) | 🞏 Normal 🞏 Abnormal |

**Postural Control and Motor Coordination**

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| --- | --- | --- | --- |
| **Test** | **Description** | **Result** | **Signs/Symptoms** |
| Tandem Gait Eyes Open (forward and backward) | Patient walks 5 steps forward and backward heel to toe while looking straight ahead.  | 🞏 Normal 🞏 Abnormal | 🞏 Fall/unstable (sign)🞏 Over step (sign)🞏 Dizziness/nausea (symptom)🞏 Other:  |
| Tandem Gait Eyes Closed (forward and backward) | Patient walks 5 steps forward and backward heel to toe with eyes closed.  | 🞏 Normal 🞏 Abnormal | 🞏 Fall/unstable (sign)🞏 Over step (sign)🞏 Dizziness/nausea (symptom)🞏 Other:  |
| Tandem Stance | Patient stops walking and stands for 20 seconds in a heel to toe stance with hands on the hips and eyes closed.  | 🞏 Normal 🞏 Abnormal | 🞏 Fall/unstable (sign)🞏 Dizziness/nausea (symptom)🞏 Other: |

|  |  |
| --- | --- |
| **Total Abnormal Signs** |  |
| 1Typical symptoms include dizziness and lightheadedness.2A few beats of fatigable nystagmus at end gaze is normal. Sustained is abnormal. 3Abnormality is abnormal response *OR* symptom provocation.4 Prescription glasses are allowed. Measure with an Accommodation Rule. |

**Directions of Physical Exam**

**Vital signs:** A manual or automated blood pressure cuff is used to measure heart rate (HR) and blood pressure (BP). The first measurement is taken with the patient lying supine on the examination table for at least 2 minutes. The patient is then asked to stand up without support and with both feet firmly on the ground and a second measurement is taken after standing for 1 minute. The patient is asked if any dizziness or lightheadedness is experienced upon standing or by one minute. The test is considered to be clinically significant if symptoms are present plusany of the following: systolic BP drop of ≥ 20 mmHg or diastolic BP drop of ≥ 10 mmHg.

**Cranial Nerve tests:** CN I-XII are tested using standard cranial nerve testing procedures. This should be done at the initial visit but can be omitted on the subsequent visits if no abnormality is seen.

**Fundoscopy:** Performed using a standard ophthalmoscope.

**Pupil reactivity:** In a dimmed room, using a penlight or similar light source, shine light on one of the patient’s pupils and observe the changes in the ipsilateral pupil. Remove the light source and wait until the pupil returns to dilated position. Now shine the light on pupil while observing the contralateral pupil. Normal response is for the ipsilateral and contralateral pupil to constrict. Repeat on other eye.

**Visual Tracking:** Stand at an arm’s length from the patient. Ask the patient to follow your finger with his/her eyes while keeping the head steady. Using your finger, trace an imaginary "H" or rhomboid shape, making sure that your finger moves far enough out and up/down so that you're able to see all appropriate eye movements. In the end, slowly bring your finger up to the patient’s nose to check convergence/accommodation response. Patient should be able to track easily and smoothly.

**Smooth Pursuits:** The patient is asked to visually track an object moving slowly in the horizontal direction with the head stationary. Target movement should be limited to 30 degrees from neutral to avoid eliciting end-gaze nystagmus. Abnormal is sustained beats of nystagmus, staccatic (or jerking) eye motion, loss of conjugate vision, corrective (catch-up or back-up) saccades, loss of visual fixation *OR* symptom provocation (dizziness, nausea or headache). Repeat in vertical visual plane.

**Repetitive saccades:** The examiner holds both index fingers three feet apart from each other at half an arm length’s distance from the patient. The patient is instructed to move the eyes side to side in rapid succession in the horizontal visual plane, rapidly switching focus between the examiner’s two index fingers. This is repeated in the vertical plane by having the patient move the eyes vertically in rapid succession between the examiner’s two index fingers, three feet apart, located in the midline of the vertical field. Abnormal responses include delayed initiation of eye movement, slow velocity, or inaccurate movements such as over/undershooting with greater than 1 re-fixation saccade. These eye movements in the healthy population can sometimes elicit eye strain but do not provoke symptoms of increased headache or dizziness. Abnormal movements *OR* abnormalsymptom provocation of increased headache or dizziness is considered to be an abnormal response. Patients are considered to have healthy function when they can do 30 side-to-side motions with normal velocity and accuracy without eliciting symptoms of headache, dizziness or nausea.

**Vestibulo-ocular reflex (VOR) or Gaze Stability Test:** The patient is asked to focus on the examiner’s thumb located directly in the frontal-central field of vison, approximately 30 cm from the forehead. The patient then rotates the head as rapidly as possible for at least 10 complete turns while maintaining visual fixation on the finger. The eye movements are observed. Any staccatic eye movements, inability to maintain visual fixation (i.e., beating back to the center) *OR* symptom provocation of headache, dizziness, or lightheadedness is abnormal.

**Near Point of Convergence (NPC) and Accommodation:** Convergence (binocular) is measured using an Astron ACR/21 Accommodation ruler (Gulden Ophthalmics, Elkins Park, PA, see Figure 2) with a standard single 20/30 card as the visual target. Two measurements are taken by placing the ruler at the forehead just above the subject’s nose. Starting at the furthest distance away from the nose, the target is slowly moved toward the patient’s nose. The distance to convergence (measured to the nearest half centimeter) is recorded when either the patient reports image doubling (not blurring of vision) on the card or when the clinician notices binocular loss of convergence. It is best to have the patient blink at the first report of diplopia and then identify when diplopia occurs as the target is moved forward after the blink. An optional test is to assess Convergence Recovery as the target is moved back away from the subject when vision is reported to be single again. For some patients, NPC is normal but recovery is prolonged. The best of the two measurements is considered and ≥ 10 cm is considered to be abnormal for both NPC and recovery. Accommodation (monocular) is also measured to the nearest half centimeter using the same rule and standard card and is acquired over two trials for each eye. The patient is instructed to cover one eye. Starting at the furthest distance away from the nose, the target is moved slowly toward the patient’s nose. As with NPC, it is best to have the patient blink at the first report of blurred vision and then identify when blurring occurs as the target is moved forward after the blink. Accommodation testing is discontinued when the patient reports blurring (not doubling) of the image. ≥ 12 cm is considered to be abnormal.

**Neck and Sub-occipital Region Exam:** The patient is asked to demonstrate range of motion of the neck. Flexion, hyper-extension, lateral flexion, and rotation of the neck are tested and recorded as normal if they demonstrate full range of motion in the tested plane. While the patient is lying in the supine position, palpate the musculature of the neck. Begin from the base of the neck starting at the trapezius muscles, up the para-cervical muscles to the nuchal ridges, and then along the occipital ridges. Then palpate the cervical spine itself from the occipital protuberance to the prominence of the T1 vertebra. Tenderness is documented according to the subjective reporting of pain by the patient and spasm according to objective palpation by the examiner.

**Tandem Gait with Eyes Open and Closed, and Tandem Stance:** The patient is asked to walk in a straight line for 5 steps, heel to toe, with hands at the side, while looking straight ahead on a fixed point on the wall. The patient then walks backwards, toe to heel, along the same line while looking straight ahead. The patient then performs the tandem gait again but with their eyes closed. The patient then performs a tandem stance with hands on their hips and one foot planted directly in front of the other and attempts to hold it for 20 seconds with eyes closed. Inability to walk the line, stumbling, or stepping out of line while walking forward, backward or during tandem stance is abnormal.