<table>
<thead>
<tr>
<th>I</th>
<th>On</th>
<th>Olfactory</th>
<th>Some</th>
<th>Sensory</th>
<th>Sense of smell</th>
<th>Have pt hold one nostril closed and pass a familiar smelling item under the nostril (coffee, orange, peppermint, vanilla)</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Occasion</td>
<td>Optic</td>
<td>Say</td>
<td>Sensory</td>
<td>Sense of vision</td>
<td>Block one eye at a time and have pt read something. If can’t read, then hold up fingers and ask how many fingers you’re showing.</td>
</tr>
<tr>
<td>III</td>
<td>Our</td>
<td>Oculomotor</td>
<td>Marry</td>
<td>Motor</td>
<td>Moves 4 of muscles of eye, raises eyelid, papillary constriction and lens accommodation</td>
<td>Costricting pupils with a light. Opening eyelid, moving eye superiorly, medially and diagonally.. (with 4, 6...make big movements with hand and have them follow it with their eyes only)</td>
</tr>
<tr>
<td>IV</td>
<td>Trusty</td>
<td>Trochlear</td>
<td>Money</td>
<td>Motor</td>
<td>Superior oblique eye muscles</td>
<td>Move eye down and laterally (with 3, 6)</td>
</tr>
<tr>
<td>V</td>
<td>Truck</td>
<td>Trigeminal</td>
<td>But</td>
<td>Sensory, Motor</td>
<td>Sensation over face and muscles of mastication</td>
<td>Touch cornea lightly with cotton wisp, check for blink. Chewing, jaw opening and clenching. Touch three areas on the face with light cotton (near temple, at cheek and next to mouth)</td>
</tr>
<tr>
<td>VI</td>
<td>Acts</td>
<td>Abducens</td>
<td>My</td>
<td>Motor</td>
<td>Moves eye laterally</td>
<td>Moving eye laterally (with 3, 4)</td>
</tr>
<tr>
<td>VII</td>
<td>Funny</td>
<td>Facial</td>
<td>Brother</td>
<td>Sensory, Motor</td>
<td>Controls the muscles of facial expression, and taste to the anterior two-thirds of the tongue</td>
<td>Closing eyes, closing mouth, moving lips and other muscles of facial expression (have pt smile); salivation and lacrimation.</td>
</tr>
<tr>
<td>VIII</td>
<td>Amazingly</td>
<td>Acoustic</td>
<td>Believes it’s</td>
<td>Sensory, Motor</td>
<td>Hearing and equilibrium</td>
<td>Whisper a word in the pt’s ear from 1-2 feet away. A better method is to use tuning fork.</td>
</tr>
<tr>
<td>IX</td>
<td>Good</td>
<td>Glassopharyngeal</td>
<td>Bad</td>
<td>Sensory, Motor</td>
<td>Sense from pharynx and taste on posterior 1/3 of tongue; Swallowing, parotid salivary gland</td>
<td>Swallowing, gag sensation, secretion of saliva. Tasting on posterior tongue (place sugar, salt, etc…on tongue)</td>
</tr>
<tr>
<td>X</td>
<td>Vehicle</td>
<td>Vagus</td>
<td>Business to</td>
<td>Sensory, Motor</td>
<td>Proprioception from pharynx, larynx. Pharyngeal and laryngeal muscles.</td>
<td>Speaking and swallowing (test motor fxn of palate, pharynx, larynx). Have pt say “L, N, T”, have them swallow, have them say “aaaaah” and watch for uvula going up.</td>
</tr>
<tr>
<td>XI</td>
<td>Any</td>
<td>Accessory</td>
<td>Marry</td>
<td>Motor</td>
<td>Pharyngeal, laryngeal and soft palate muscles, trapezius and sternocleidomastoid.</td>
<td>Put hands on shoulders and have the pt shrug against your hands. Can also put hand on cheek and have them turn head against your hand.</td>
</tr>
<tr>
<td>XII</td>
<td>How</td>
<td>Hypoglossal</td>
<td>Money</td>
<td>Motor</td>
<td>Intrinsic and extrinsic muscles of tongue.</td>
<td>Have pt stick out tongue, it should be medial. Have pt push tongue into each cheek...if they can only do one side, this is bad news.</td>
</tr>
</tbody>
</table>
### Glasow Coma Scale

**Best eye opening** (spontaneous, to speech, to pain, none)

**Best verbal response** (oriented, confused, inappropriate words, incomprehensible words, no sounds with painful stimuli)

**Best motor response** (Obeys commands, localizes pain, flexion withdrawal, decorticate, decerebrate, none)

15 points possible

### FOUR Score Scale

**Eye Response:**
- Eyelids open or opened, tracking or blinking to command: 4
- Eyelids open but not tracking: 3
- Eyelids closed but opens to loud voice: 2
- Eyelids closed but open to pain: 1
- Eyelids remain closed with pain: 0

**Motor Response:**
- Thumbs up, first or peace sign to command: 4
- Localizes to pain: 3
- Flexion response to pain: 2
- Extensor posturing: 1
- No response to pain or generalized myoclonus status epilepticus: 0

**Brainstem Reflexes**
- Pupil and corneal reflexes present: 4
- One pupil wide and fixed: 3
- Pupil or corneal reflexes absent: 2
- Pupil and corneal reflexes absent: 1

**Respiration**
- Not intubated, regular breathing pattern: 4
- Not intubated, Cheyne-Stokes breathing pattern: 3
- Not intubated, irregular breathing pattern: 2
- Breaths above ventilator rate: 1
- Breaths at ventilator rate or apnea: 0

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### Assessment Criteria for Brain Death

**General:** Date, time, blood pressure (SBP < 90 mmHg), and body temp (above 32 degrees)

**Responsiveness/movement:** No responsiveness to noxious stimuli, no movement, spinal reflexes such as Babinski are not indicative of brainstem function.

**Evidence of absence of brainstem fxn:** Absent papillary light reflex; absent corneal, gag, cough reflexes; absent oculocephalic reflex (Doll’s Eyes); absent oculovestibular reflex (ice water in ear, eyes should track toward ear); apnea test.

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### Balance Tests (Cerebellar Function)

**Romberg Test:** Have patient balance with eyes closed. Make sure you hold your arms out so you can catch them if they teeter.

**Heel to Toe Walking:** Self explanatory (not sure if it’s eyes closed or not)

**Rapid Alternating Movements:** Have pt turn hands palm-side up and palm-side down really really fast.

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### Additional Checks and Reflexes

**Chvostek’s Sign:** This is a spasm of the facial muscle elicited by tapping the facial nerve in the region of the parotid gland. If positive this is a sign of hypocalcemia.

**Babinski:** Move finer along lateral side of foot and across the top….normal in babies but abnormal otherwise. The toes flare and flex.

**Patellar:** Use hammer. Hv pt clench hands if it is difficult to elicit a response.

**Pronator Drift:** Have pt hold arms up with palms upward. Close eyes. If one arm drifts down and pronates, this is a positive sign for pronator drift (and stroke!)

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### Cushing’s Triad

Hypertension, irregular respirations and bradycardia.

This is a sign of increased intracranial pressure which is never a good thing.
**Thought Process/Mental Status**

**Orientation:** person, place, time. Person is the last thing to go.

**Abstract Thinking:** understanding idioms such as “that person is out to lunch.”

**Ability to Solve Problems/Concentrate:** give pt some easy math problems (use paper and pencil).

**Memory** (immediate, recent and remote): Say 3 unrelated words and have the pt repeat them; Ask pt what they had for the dinner or breakfast; Ask pt when they graduated from high school.

**Judgment:** If this room were on fire, what would you do?

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**Level of Consciousness**

**Fully Awake:** self explanatory

**Alert:**

**Lethargic:** still oriented, but have to call their name to get their attention.

**Stuporous (Semi-Comatose):** Patient responds when you shake them and yell louder.

**Comatose:** Not waking up.

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**Methods to Elicit Response**

**Central Methods:** Trapezius squeeze, supraorbital pressure, sternal rub, mandibular pressure.

**Peripheral Methods:** Pencil across nail beds, achilles tendon squeeze.

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**Responses to Painful Stimuli**

**Normal:** Pt shouts, pulls away

**Flexion:** Decorticate posturing indicates lesions of deep hemispheric areas of pons (could be one side only)

**Extension:** Decerebrate posturing indicates lesions between pons and mid-brain

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**Muscle Tone**

**Normal:** Self explanatory

**Flaccid:** If you take the pt’s arm and pick it up and let it drop...it drops. No tone at all!

**Rigidity:** Not a contracture. You can straighten it.

**Spasticity:** Twitching. This is a sign that the pt is recovering some muscle tone.

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**Sensory Function Tests**

**Light touch sensation:** Touch pt lightly in various places.

**Sharp versus dull:** Paperclip point vs. dull end.

**Stereognosis (object recognition):** Place a familiar object in the pt’s hand and have them identify it.

**Temperature recognition:** Warm and cold test tubes.

**Sense of position (proprioception):** Move fingers up/dwn

**Graphesthesia:** Draw a letter or number on pt’s skin.

**Two-point discrimination:** Gets harder to discriminate as the two points get closer together.

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**Neurovascular Checks of Extremities**

**Hand/Motor**

- **Radial Nerve:** Pt hyperextends thumb or wrist (hitchhiker thumb)
- **Medial Nerve:** Pt opposes thumb and little finger, flexes wrist
- **Ulnar Nerve:** Pt abducts all fingers

**Hand/Sensory**

- **Radial Nerve:** Prick web space between thumb and index finger
- **Medial Nerve:** Prick distal surface of the index finger
- **Ulnar Nerve:** Prick distal end of small finger

**Lwr Extmty/M**

- **Peroneal Nerve:** Dorsiflex ankle; extend toes
- **Tibial Nerve:** Plantar flex ankle and flex toes

**Lower Extmty/S**

- **Peroneal Nerve:** Prick lateral surface of great toe and medial surface of second toe
- **Tibial Nerve:** Prick medial and lateral surfaces of sole of foot.