Box 5 (section 2): Assessment

a. Medications
b. Postural Hypotension
c. **Gait, balance, mobility and muscle strength**
   a. TUG and Chair Stand
   b. **Evaluate Pain related mobility decreases**
d. Visual Acuity
e. Other Neurological Impairments
f. Heart rate and rhythm
g. Bone Health; nutritional review
h. Feet and Footwear
i. Environmental Hazards
j. Depression
Box 5 – 2c.
Gait, balance, mobility and muscle strength

- Romberg
- Get Up and Go
- Timed Up and Go
- 30 second Chair Stand Test

Question?
- Which, if any, of these do you feel are useful in clinical practice?
Romberg's Test

is NOT a test of cerebellar function

- It is a test of the proprioception receptors and pathways function.
Romberg’s Test

- What is Being Tested in the Romberg Test?
  With the eyes open, three sensory systems provide input to the cerebellum to maintain truncal stability. These are vision, proprioception, and vestibular sense.

Proprioception- The brain's awareness of a joint's or limb's position in relation to the rest of the body

Vestibular Sense- Equilibrium
If there is a mild lesion in the Vestibular or Proprioception systems, one is usually able to compensate with the eyes open. With the eyes closed, however, visual input is removed and instability can be brought out.

Increased swaying with eyes closed would indicate postural position sense is affected, posterior column disease or a peripheral neuropathy.
When you do the Romberg maneuver, you need to stand close to the patient and be ready to catch them in case they fall.
Romberg Test

Instructions:

- Stand with feet together, arms to the side, and eyes open.
- Observe for substantial postural sway or break in position.
- Instruct to: close eyes and maintain that position with closed eyes.
Romberg Test Scoring

- Romberg Sign - Present or Absent
  - Present - if the sway is considerable and/or the patient breaks position.
  - Absent - perform task with no sway or minimal sway without breaking position.

  (note - patients unable to stand with feet together while eyes are open are untestable)

- Absent - perform task with no sway or minimal sway without breaking position.
Get Up and Go Test

The "Get Up and Go" test was developed by Mathias, Nayak, and Issacs in 1986.

- A general physical performance test used to assess mobility, balance and locomotor performance in elderly people with balance disturbances. More specifically, it assesses the ability to perform sequential motor tasks relative to walking and turning.
GET UP AND GO TEST

- A simple & practical performance measure of gait & balance

- Standardizes most of the “basic mobility” tasks

- Subject is observed while he rises from a chair, walks 3 meters & returns to the chair
PROCEDURE

- Place a straight-back chair 3 meters from and facing the wall (preferably one that does not have a seat which slants back)

1. Ask senior to rise from chair, without using arms for support & stand still for a moment
2. Walk towards the wall
3. Turn without touching the wall & walk back to the chair & sit down
Get Up and Go

Observe rising from chair—watch the speed of rising, do they need assistance or a boost, watch their shoulders to see if they lean forward on rising. Are you worried they might fall?
Get Up and Go

- **Standing** - what is their stance?, do they lean to one side?, do they sway?, do they have any balance problems?, are you worried they might fall?

- Check for postural abnormalities

- Do they complain of pain standing still?
Get Up and Go

- **Walking**: watch the height and width of their steps, are their steps irregular?, can they maintain their balance while walking?, are you worried they might fall? Look for asymmetric arm swing, abnormal arm and hand postures, and instability of the trunk. Hesitancy might suggest Parkinson's.

- Decreased step height might suggest CNS disease, multiple Sensory deficits, Fear of Falling, Parkinson's, NPH, Habit. Path deviation might suggest Cerebellar disease, multiple Sensory deficits, sensory or motor Ataxia.
Get Up and Go

- **Turning** - watch the speed of turning, steadiness, and number of foot placements needed to complete the turn.

- Are you worried they might fall? Unsteadiness may suggest Parkinson's, multiple Sensory deficits, Cerebellar disease, Hemiparesis, loss of Visual Field, Ataxia
Get Up and Go

- **Sitting Down**: watch if descent is smooth, is the speed of descent normal, do they lean forward to sit?, do they need to hold onto the chair?, are you worried they may fall?

- Misjudgment of distance or falling into chair could alert to decreased Vision, proximal Myopathy or Ataxia
<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Normal</th>
<th>Mild Abnormalities</th>
<th>Mod/Severely Abnormal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising from chair</td>
<td>No slowness (&lt; 4sec) or hesitancy</td>
<td>Uses assist to begin rising</td>
<td>Uses assist throughout rising, leans forward</td>
</tr>
<tr>
<td>Standing</td>
<td>No signs of instability</td>
<td>Wide stance, irregular posture</td>
<td>Severe trunk sway (5-10 degrees), reaches out hand to balance, staggers</td>
</tr>
<tr>
<td>Turning</td>
<td>No hesitation, takes 2-3 foot placements to turn</td>
<td>Slowness, hesitation, 4-5 foot placements to turn</td>
<td>More than 6 foot placements to turn or cannot safely execute turn, staggers</td>
</tr>
<tr>
<td>Sitting down</td>
<td>Smooth decent, does not use chair for support</td>
<td>Slow descent, hesitates or pauses during descent</td>
<td>Uses chair to sit, does not control descent, nearly misses chair</td>
</tr>
</tbody>
</table>
Scoring of Get up and Go

- It can be scored qualitatively
- **Normal** or **Abnormal**
- Or on a scale from 1 - 5
  1 (normal )
  2 (slightly abnormal)
  3 (mildly abnormal)
  4 (moderately abnormal)
  5 (severely abnormal)
TUG  Timed Up and Go Test

- The TUG was published by Podsiadlo and Richardson in 1991 to address the issues of poor inter-rater reliability observed with intermediate scores in the "Get Up and Go". The TUG incorporates time as the measuring component to assess general balance and function.
TUG  Timed Up and GO Test

- Uses standard chair with armrests (46 cm seat height and 63-65 cm armrest height)
- Tape Measure and marker for distance
- 3 m path free of obstruction
- Stop watch
- One practice trial is permitted
- Senior wears their regular footwear and uses their regular walking aids. No physical assistance is given.
TUG Directions

- Begin with subject sitting correctly in the chair, back resting against the back of the chair.

- “On the word GO you will stand up, walk to the line on the floor, turn around and walk back to the chair. Walk at your regular pace”
Time

- There is no time limit- may stop and rest but not sit down

- Healthy elderly usually complete the task in 10 seconds or less

- Very frail or weak elderly with poor mobility may take 2 minutes or more
TUG scoring

Steffen, Hacker and Mollinger (2002) reported that on average, healthy individuals between the ages of 60-80 years complete the TUG in 10 seconds or less.

Standardized cut-off scores to predict risk of falling - In one study, a cut-off score of $\geq 13.5$ seconds was shown to predict falling in community-dwelling frail elders (Shumway-Cook et al., 2000).
The 30-second Chair Stand Test

- **Purpose:** To assess leg strength and endurance.
- **Equipment:**
  - A chair with a straight back without arm rests (seat 17” high)
  - A stopwatch
- **Instructions to the patient:**
  1. Sit in the middle of the chair.
  2. Place your hands on the opposite shoulder crossed at the wrists.
  3. Keep your feet flat on the floor.
  4. Keep your back straight.
  5. On “Go”, rise to a full standing position and then sit back down again.
  6. Repeat this for 30 seconds.
- On “Go”, begin timing.
- Count the number of times the patient comes to a full standing position in 30 seconds.
- If the patient is over halfway to a standing position when 30 seconds have elapsed, count it as a stand.
- Record the number of times the patient stands in 30 seconds.
- A below average rating indicates a high risk for falls.
  - See Algorithm sheet for interpretation