

SOUTHERN ILLINOIS UNIVERSITY SCHOOL OF MEDICINE

DOCTORING

SCREENING HEAD TO TOE PHYSICAL EXAMINATION 2010 – 2011

The following checklist will be used for evaluating your physical examination skills at Southern Illinois University School of Medicine (SIUSOM). The Chicago Basic Clinical Skills Consortium initially developed this checklist. The consortium was comprised of faculty members from University of Illinois at Chicago, University of Chicago, Loyola Medical School, Rush Medical College, Chicago Medical School, Northwestern Medical School, and Indiana University Northwest Medical School. Faculty at SIUSOM have made appropriate revisions based on their teaching of the physical exam.

CHECKLIST ITEMS: This checklist is compatible with the physical exam techniques described in the Bates text. The Bates textbook is the foundation on which the Step 2 – Clinical Skills Exam is based. In preparation for learning the Screening Head to Toe Examination, students should use this checklist and the Bates text as the primary references. An instructional DVD is also available as a secondary reference, which will be made available to each student. Do not assume however, that the video is the only resource needed, as there are a few maneuvers that were inadvertently omitted in the production process.

THE ORDER OF THE CHECKLIST: You are *not* required to perform the examination in the same order that appears on this checklist (unless the checklist item so states; wash hands before starting examination, auscultation prior to palpation, etc.) The checklist order listed here is one physician's opinion of how the examination should be performed. Should you decide to modify the order, keep in mind that it is important to move the patient from a sitting position to a supine position to a standing position as few times as possible.

ACCEPTABLE TECHNIQUES: Within the curriculum, you will learn many acceptable methods of performing various physical examination maneuvers. However, the standard for the Screening Head to Toe Examination uses the techniques listed in this checklist. Using one standard is the only way to insure a standardized examination for all students, and also assures us that students know at least one correct way to perform each and every maneuver.

Terminology for this exam

Bilaterally – both sides of body

Symmetry – each side of a plane of the body

Head to Toe Physical Examination 2010-2011

STUDENT CHECKLIST

Please note that references to gender in the checklist items are represented by she/her/herself, but that he/him/himself is also implied.

1. **Wash hands before starting examination. Note:** If you do not do so, the patient will ask you to wash your hands. However, you will not receive credit for this item.

VITAL SIGNS

2. **Measure blood pressure accurately in each arm.**
3. **Hold up each arm outstretched and perpendicular to heart** while measuring blood pressure.
4. **Place cuff snugly in correct anatomical location. Note:** Credit will not be given if any part of the gown is tucked into the cuff. This must be done completely on skin.
5. **Palpate radial pulse (thumb side of wrist) for at least 15 seconds. Note:** Credit is only given if pulse is taken for a full 15 seconds. Only one side needs to be assessed.
6. **Measure the respiratory rate for at least 15 seconds. Note:** Credit is only given if rate is measured for a full 15 seconds. Student may place hand on upper part of torso and count respirations or may just observe.

HEAD AND SINUSES

7. **Examine the Skull, Hair and Scalp.**
Step # 1: Inspect the skull for its general size, shape and contours.
Step # 2: Note the hair texture and quantity.
Step # 3: Examine the scalp for skin lesions. Have patient bend her head slightly forward. Inspect the skin by parting the hair in several places with your fingers. Note scaliness, lumps, or other skin lesions.
Step # 4: Palpate the scalp. Use the palmar aspects of the fingertips. Feel front to back with short sweeping motions. Note lumps or tender areas.
8. **Frontal Sinus** - Palpate or percuss for tenderness above each eye.
9. **Maxillary Sinus** - Palpate or percuss for tenderness below each eye.

LYMPH NODES AND THYROID

***Note:** Lymph nodes should be assessed bilaterally

10. All lymph nodes must be palpated on skin.
11. **Preauricular nodes** - palpate in front of ears.
12. **Posterior auricular nodes** - palpate behind ears.
13. **Occipital nodes** - palpate at the base of the skull.
14. **Anterior cervical nodes** - palpate anterior to and over the sternocleidomastoid muscle.
15. **Posterior cervical nodes** - palpate posterior to and under the sternocleidomastoid muscle.
16. **Supraclavicular nodes** - palpate above the collarbone - must be done on skin for credit.
17. **Tonsillar lymph nodes** - palpate at angle of jaw.
18. **Submandibular lymph nodes** - palpate between tonsillar and submental nodes.
19. **Submental lymph nodes** - palpate directly under the chin.
20. **Prior to palpating the thyroid, observe the thyroid gland by asking patient to swallow.** This will give examiner a visual cue as to where the patient's thyroid is located.
21. **Thyroid gland** - palpate first without swallowing and then with swallowing.
Recommended Technique: Examiner stands behind patient. However, this may be done while standing in front of the patient, as well. **Note:** Be prepared to offer the patient a cup of water in case the patient is having difficulty swallowing.

EYES

22. **Test visual acuity in each eye separately with a pocket visual screening chart** by holding the chart **approximately** 14" from patient's face. It is acceptable for patient to hold the card. **Note:** If patient wears glasses, patient should be allowed to keep them on during this exam.
23. **Test visual fields** (four quadrants for each eye by confrontation, each eye separately).

***Note:** Make sure your fingers are outside of the patient's field of vision before you begin this test. Check with the patient as you test each quadrant to be sure that your fingers cannot be seen at the onset.

Step # 1: Stand approximately **12"** from patient. **Instruct the patient to look at your eyes or nose.**

Step # 2: Ask patient to close her right eye. You should then close your left eye.

Step # 3: Extend your *right* arm, **outside of the patient's and your own field of vision**. Ask patient if she can see your hand/fingers. If patient says "yes," adjust your hand until **neither you nor the patient** can see your hand/fingers.

Step # 4: Wiggle your fingers while bringing arm in slowly at the diagonals. Ask patient to inform you when your fingers are visible.

Step # 5: With patient's right eye still closed and your left eye still closed, extend your *left* arm (repeat what was done in step # 3) and wiggle your fingers while bringing arm in slowly at the diagonals. Again, ask patient to inform you as to when your fingers are visible.

Step # 6: Ask patient to close her left eye. You should then close your right eye. Extend your *left* arm and wiggle your fingers while bringing arm in slowly at the diagonals. Ask patient to inform you when your fingers are visible.

Step # 7: With patient's left eye still closed and your right eye still closed, extend your *right* arm and wiggle your fingers while bringing arm in slowly at the diagonals. Again, ask patient to inform you as to when your fingers are visible. **Both eyes (4 diagonals or quadrants) must be tested for credit. The order of the exam can vary; however, all steps must be completed to receive full credit.**

24. **Check for convergence** by holding your finger in front of patient's face and moving your finger in towards patient's nose. You should start at arm's length and go about 6" from nose.
25. **Test cranial nerves III, IV, and VI** by asking patient to hold her head completely still and follow only your finger, looking rightward and leftward, up and out, up and in, down and out, and down and in. If necessary, you may gently hold the patient's head in the proper midline position. **You must test the 6 cardinal positions for credit.**
26. **Test cranial nerve VII motor function** (upper division) by asking patient to force her eyelid closed against resistance. **Note:** Another method that is accepted is asking the patient to close her eyes as student tries to force the eyelids open.
27. **Test cranial nerve VII motor function** (lower division) by asking patient to show the teeth.

28. **Observe pupillary responses:** Both eyes must be examined for credit.
Note: The Direct Response is tested as you shine penlight into patient's eye while the patient looks into the distance. You will first look at that eye for a direct response to the light. Remove light from eye and let pupil return to normal. Then shine penlight in that same eye, while observing pupil of the opposite eye. The Indirect Response to light (consensual) is tested by looking at the eye not exposed to the direct light.
29. **Inspect each eye separately for the condition of the lid, cornea and conjunctiva.**
Step #1: Ask patient to pull down lower eyelids and look up while you examine the eyes.
Step #2: Ask patient to pull up on upper eyelids and look down while you examine the eyes. It is okay for you, as the examiner, to pull up and down on the eyelids. By having the patient perform these moves you can prevent infection.
30. Dim lights prior to performing ophthalmic exam.
31. **Hold ophthalmoscope at proper distance** to visualize the posterior structures of the eye.
32. **Hold ophthalmoscope with right hand** to look through scope with your right eye when inspecting patient's right eye.
33. **Hold ophthalmoscope with left hand** to look through scope with your left eye when inspecting patient's left eye.

EARS

34. **Test auditory acuity** by whispering into each ear at a distance of two feet (an alternative method is to create a sound by rubbing your thumb and fingers together at a distance of about 10 cm from each ear, separately). Examiner's fingers should not be seen by patient.
35. **Inspect the external ear** thoroughly, looking in front, and then pull ear forward to look behind the ear.
36. **Examine each internal ear with otoscope** by pulling up on patient's ear and inserting the speculum and carefully examining the internal ear.

- 37. Perform the Rinne Test** - Using the 512 Hz tuning fork.
Step # 1: To create a sound, hold the tuning fork by its base. Strike it gently on the heel of your hand or with the reflex hammer.
Step # 2: Place the tuning fork on the mastoid process (the bony ridge behind the ear) and ask patient to tell you if she can hear (not feel) the sound of the tuning fork. If she can, hold it there until she signals that the sound has faded away.
Step # 3: At that point, move the fork as near to the external ear canal as possible, sweeping away overlying hair, if necessary. Hold one tine of the fork close to her ear. Ask if she can again hear the tuning fork.
- 38. Perform the Weber Test** - Using the 512 Hz tuning fork.
Step # 1: Activate the fork.
Step # 2: Press the base of the fork firmly on the apex of the skull in the midline. If she cannot hear the fork, press the base on the middle of the forehead.
Step # 3: Ask where she hears it. Normally, it is heard in the midline. Abnormally, it lateralizes to one side, either toward the side of conductive loss or away from the side of sensorineural loss.

NOSE

- 39. Inspect inside of nose (each nostril) with the otoscope.**

MOUTH AND THROAT

- 40. Inspect the lips, gums, tongue and teeth with the help of a tongue blade and light.** You must pull patient's cheeks out with the tongue blade and inspect the teeth and gums on both sides of the mouth. You may ask patient to pull lips up and down to inspect front teeth and gums.
- 41. Inspect the posterior pharynx.** Use a penlight and a tongue depressor. This facilitates the inspection of the posterior pharynx.
- 42. Test cranial nerve X by instructing patient to say "ah."**
- 43. Test cranial nerve XII** by asking patient to protrude the tongue and move it from side to side as you observe.
- 44. Test cranial nerve V motor function.**
Step#1: Place your hands on both sides of patient's face by the masseter muscles.
Step #2: Ask patient to bite down while palpating the contraction of the masseter muscles.
- 45. Demonstrate "Sharp and Dull" to patient, while the patient is watching,** using the broken end of a Q-tip for the sharp and Q-tip end for dull.
- 46. Test cranial nerve V sensory function.** Ask patient to close eyes. (Test sharp in each of the 3 divisions bilaterally **and symmetrically**. Test dull bilaterally in at least one of the three divisions.)

47. **Test cranial nerve XI: Check the strength of the sternocleidomastoids.**
Have patient turn her head to each side against your hand. Observe the contraction of the opposite sternomastoid and note the force of the movement against your hand.
48. **Test cranial nerve XI: Check strength of Upper Trapezius.**
Step #1: Place your hands on the patient's shoulders.
Step #2: Have patient attempt to shrug her shoulders upward against your resistance.

LUNGS AND THORAX - Note: All percussion and auscultation must be done on skin.

49. **Inspect thorax/chest.**
50. **Percuss the posterior lung fields bilaterally and symmetrically,** over the upper, middle and lower lung fields, comparing the left side and the right side at each of the three levels.
51. **Auscultate the posterior lung fields bilaterally and symmetrically,** comparing right and left - three levels. Before auscultating, instruct patient to breathe deeply through an open mouth.
52. **Percuss the anterior lung fields (at least one level) on the upper chest, bilaterally and symmetrically.**
53. **Auscultate the anterior lung fields (upper lobes), bilaterally and symmetrically.** Before auscultating, instruct patient to breathe deeply through an open mouth.
54. **Auscultate the lateral lung fields (right middle lobe and lingula) bilaterally and symmetrically.** Before auscultation, instruct patient to breathe deeply through an open mouth.

BREAST EXAM - Part 1

55. **With the patient in the sitting position,** ask patient to lower the gown so that both breasts are visible. Inspect the appearance of the skin, size and dimpling of the breasts, and contour of the breasts.
56. **Instruct patient to raise arms outstretched above the head** and examine each breast for dimpling, contour changes, and skin discoloration.
57. **Instruct patient to hold hands against hips,** press inward, and instruct patient to lean forward. Inspect again for dimpling.

58. Palpate the axillary nodes in the following four areas:

- 1) anterior axillary fold;
- 2) posterior axillary fold;
- 3) along the proximal humerus; and
- 4) deep in the axillary vault. (This should be done with patient's arm relaxed.)

***Note:** This examination should be performed on bare skin, not over the gown.

ASK PATIENT TO TAKE THE SUPINE POSITION ON THE EXAMINATION TABLE

BREAST EXAM - Part 2

59. Instruct patient to lie down supine. Instruct patient to raise the ipsilateral arm above the head.

60. Use the middle three digits of your dominant hand to palpate the breast starting at the top of the breast on the side of the sternum. Repeat on the opposite breast.

***Note:** You must use 3 types of pressure while palpating, starting with a light pressure, then a medium pressure, then a firm pressure on each area covered. Fingers must never lose contact with the skin of the breast.

***Recommended Technique:** The “strip” technique - with your fingers never losing contact with the breast, descend from top to bottom and bottom to top in vertical lines until all regions (including the nipple as part of the breast tissue) have been palpated.

HEART - Note: All palpation and auscultation must be done on skin.

61. Elevate the trunk, head and neck 30 – 45 degrees so that the jugular venous pulse is visible. If no jugular venous pulse is visible, place the exam table in the flat position and check again for a visible right jugular vein. **Note: Only one pulse on one side of the neck needs to be examined.**

***Note:** For cardiac palpation, patient should be supine, **with exam table flat or elevated to 30-45 degrees.**

62. Palpation is a pressure not a circular motion (items 63 - 66).

***Note:** Regarding the term “palpation” when used during the cardiac examination: This palpation is designed to assess for pulses, thrills, etc. You are not feeling for masses. Therefore, your fingers should not move in a circular motion but rather should remain motionless in the appropriate anatomical location.

63. Palpate the aortic area (2nd intercostal space on the right), using only the pads of the fingers, not the fingertips.

64. **Palpate the pulmonic area** (2nd and 3rd intercostal spaces on the left), using only the pads of the fingers, not the fingertips.
65. **Palpate the tricuspid area** (4th and 5th intercostal spaces at the left sternal edge), using only the pads of the fingers, not the fingertips.
66. **Palpate the mitral (cardiac apex) area** (5th intercostal space, midclavicular line) using only the pads of the fingers, not the fingertips.
67. **Palpate the Point of Maximal Impulse (PMI)** using the palm of the right hand. Place it across the patient's left chest so that it covers the area over the heart. The heel should rest along the sternal border with the extended fingers lying below the left nipple. PMI is normally located in the left 5th ICS in the MCL.

CARDIAC AUSCULTATION:

***Note:** Although one may also perform cardiac auscultation with the patient sitting upright, the required position for the screening HTT exam is SUPINE with head of bed flat or elevated to 30-45 degrees.

68. **Patient in supine position.**
69. **Auscultate the aortic area** using the diaphragm of the stethoscope.
70. **Auscultate the pulmonic area** using the diaphragm of the stethoscope.
71. **Auscultate the tricuspid area** using the diaphragm of the stethoscope.
72. **Auscultate the mitral (cardiac apex) area** using the diaphragm of the stethoscope.
73. **Auscultate the aortic area** using the bell of the stethoscope.
74. **Auscultate the pulmonic area** using the bell of the stethoscope.
75. **Auscultate the tricuspid area** using the bell of the stethoscope.
76. **Auscultate the mitral (apical) area** using the bell of the stethoscope.

PULSES - Note: All pulses must be done on skin

77. **Auscultate each carotid artery.** Instruct patient to hold breath before auscultation. Can be done with patient in sitting or supine position.
78. **Palpate the carotid pulses** (just medial to and below the angle of the jaw), one at a time, bilaterally. Can be done with patient in sitting or supine position.
79. **Auscultate the abdominal aorta. Must be performed in supine position.**

80. **Auscultate the renal arteries, bilaterally. Must be performed in supine position.**
81. **Palpate femoral pulses, bilaterally. Must be performed in supine position.**
82. **Palpate the popliteal pulses**, one at a time, bilaterally. Can be done with patient in sitting or supine position.

****Recommended method for popliteal pulses:** Have patient supine or seated. Using both hands to support the weight of the leg, palpate the pulse.

83. **Palpate the posterior tibial pulses bilaterally** (at the ankle behind the medial malleolus). These can be assessed simultaneously.
84. **Palpate the dorsalis pedis pulses bilaterally** (located on top of foot, midway between the toes and the ankle, along the tendon line). These can be assessed simultaneously.
85. **Test for peripheral edema:** Check each shin for pitting edema by pressing on the lower anterior tibia, medial malleolus, or dorsum of foot for **approximately 3 seconds**.
Note: Must examine both legs. Must be done on skin.

ABDOMEN - Note: All auscultation, percussion and palpation must be done on skin.

86. **Adjust the examination table to be flat.** Position patient in supine position. Stand on the patient's right side. All auscultation, percussion and palpation must be done on skin.
87. **Inspect abdomen.** Expose (uncover) abdomen to its full boundaries.
88. **Auscultate prior to manipulation or palpation.**
89. **Auscultate each of the four quadrants of the abdomen.**
90. **Percuss each of the four quadrants of the abdomen.**
91. **Percuss the liver span** from just below right nipple line to just below right rib cage, listening for the sound to change.
92. **Palpate the liver edge.** Place your hand in the proper location. Ask patient to inhale as you attempt to push up and under right rib cage. Then, ask patient to exhale and continue to push up and under liver edge, without causing pain to patient.
93. **Palpate the spleen.** With your left hand, reach over and around the patient to support and press forward the lower left rib cage. With your right hand below the costal margin, press in towards the spleen and ask patient to take a deep breath as you push up and in, at the bottom of the left rib cage. This can be done either supine or with the patient lying on her right side.

94. **Palpate the left upper quadrant using two pressures** (gently then firmly).
95. **Palpate the right upper quadrant using two pressures** (gently then firmly).
96. **Palpate the right lower quadrant using two pressures** (gently then firmly).
97. **Palpate the left lower quadrant using two pressures** (gently then firmly).

MUSCULOSKELETAL

98. **Inspect and palpate both hands** (palm and dorsum).
 99. **Assess finger extension** by asking patient to spread the fingers of both hands.
 100. **Assess finger flexion** by asking patient to make a fist with both hands.
 101. **Screen range of motion for both wrists.** May be done actively or passively.
Step # 1: Have patient flex and extend each wrist while you observe.
Step # 2: Observe radial and ulnar deviation (**medial and lateral wrist movement**).
 102. **Inspect and palpate both wrists** for redness and swelling.
 103. **Screen range of motion of both elbows.** May be done actively or passively.
Step # 1: Have patient extend her arms in pronation and then supination. Observe movement of elbow.
Step # 2: Have patient flex and extend each elbow. Observe movement of elbow.
 104. **Inspect and palpate both elbows.** Inspect the olecranon areas for bursal or joint swelling, and over the ulnar ridge for nodules.
 105. **Inspect and palpate both shoulders.** Note any swelling, deformity, atrophy, fasciculation or abnormal positioning. Palpate the top of the shoulder at the acromioclavicular (AC) joint, lateral shoulder over the greater tubercle of the humerus and anterior shoulder over the coracoid process.
- *Note:** Standing behind patient while assessing shoulder movements is important for you to observe symmetry.
106. **Shoulder flexion:** Stand behind patient and have patient's gown completely untied and open in the back. Observe shoulder flexion by asking patient to bring the arms forward and then raise them overhead.
 107. **Shoulder internal rotation:** Stand behind patient and have patient's gown completely untied and open in the back. Instruct the patient to place both hands behind the back as high up on the back as possible while you observe from behind.

108. Shoulder external rotation: Stand behind patient and have patient's gown completely untied and open in the back. Instruct patient to clasp both hands behind the neck and to pull the elbows back while you observe from behind.

109. Inspect and palpate both knees: **With the patient sitting or supine.**

Step # 1: Note any muscle atrophy, especially of the quadriceps.

Step # 2: Examine the fossae above (medial and lateral) and below the knee.

They should all be visible.

Step # 3: Note the shape and size of the patella.

Step # 4: Note any skin lesions, such as psoriasis.

110. Screen range of motion of knees bilaterally: **With the patient sitting or supine.**

With hand on knee, flex each knee, then extend and raise each knee.

As it rises, view the joint, front and back for swelling.

111. Assess hip flexion, bilaterally: (*See note below) **With patient supine.**

*Recommended technique: Grasping the heel and moving the thigh up toward the thorax, as far as it will go.

***Note:** Do not combine items #110 and #111; must perform each item separately for credit.

112. External and internal hip rotation. **With patient supine.** * Recommended

technique: Return the thigh to a position perpendicular to the exam table while holding the shin parallel to the exam table. Now, move the ankle medially to assess hip external rotation. Move the ankle laterally to assess hip internal rotation. Return the leg to the table. Repeat these examinations on the other leg.

***Note:** You may assess hip flexion and external/internal hip rotation on one side then move to the other side.

113. Inspect and palpate both ankles:

When inspecting the ankles, check for swelling or redness in the gastroc-soleus complex and in all surfaces of the ankle joint. Pay close attention to any swelling around the malleoli.

114. Screen range of motion of both ankles:

Step # 1: Observe plantar and dorsal flexion in both ankles.

Step # 2: Observe inversion and eversion in both ankles.

115. Inspect the mid foot and toes (including between the toes) of both feet.

116. Inspect the plantar surface of both feet.

117. Assess neck flexion by instructing patient to place the chin on the chest.

118. Assess neck extension by asking patient to look up at the ceiling.

119. **Assess right and left rotation of the neck** by asking patient to place the chin on each shoulder.
120. **Assess lateral bending of the neck** by asking patient to incline each ear toward each shoulder.

ASK PATIENT TO STAND

121. **Observe the alignment of the knees, heels and feet:** Patient must stand. Position yourself behind patient. Have patient's gown completely untied and open in the back. Carefully observe the alignment of the patient's knees, heels and feet.

***Note:** For items 122, 123 and 124, inform the patient that you are going to place your hands on her hips, over the gown, to guard the patient from losing her balance and falling and also as a way to keep the gown from falling off the patient as you perform the maneuvers.

122. **Assess thoracolumbar lateral bending** by asking patient to bend torso to the right and to the left. Stand behind patient and have patient's gown completely untied and open in the back.
123. **Assess lumbar flexion** by asking patient to bend forward at the waist and to attempt to touch the toes. Stand behind patient and have patient's gown completely untied and open in the back.
124. **Assess lumbar extension** by asking patient to bend backwards. Stand behind patient and have patient's gown completely untied and open in the back.
125. **Costovertebral Angle Tenderness/Kidney Punch Tenderness:** (May be done sitting or standing) Perform fist percussion of the costovertebral angles by gently punching on the right & left side of patient's back, just below the rib cage. Ask patient if she feels pain.

NEUROLOGICAL

126. **Romberg Test:**
Step #1: Instruct patient to stand with her arms down at her sides and with her feet completely together with eyes open. Watch for obvious unsteadiness. If she remains steady, continue with the test.
Step #2: Ask her to close her eyes and then reassure the patient that you will not let her fall. Stand close; ready to stabilize her if she begins to fall.
Step # 3: Observe the patient for signs of swaying for at least 15 seconds.
Note: Credit is only given if test is conducted for a full 15 seconds.
127. **Ask patient to walk away from you while you observe the gait.**
128. **Ask patient to walk towards or away from you on her toes and observe.**
129. **Ask patient to walk towards or away from you on heels and observe.**

130. **Ask patient to walk heel-to-toe (tandem gait) and observe.**

131. **Pronator Drift Test:**

Step # 1: Ask patient to close her eyes and hold arms out in front of her, palms up.

Step # 2: Observe for at least 15 seconds for signs of one of the arms dropping below the other.

Note: Credit is only given if test is conducted for a full 15 seconds.

ASK PATIENT TO HAVE A SEAT ON THE EXAMINATION TABLE

132. **Test patient's grip strength bilaterally** by asking patient to squeeze your index finger as you try to pull it out of patient's grip.

133. **Test the deltoid muscle strength bilaterally** by pushing downward on the patient's abducted arms.

134. **Test the biceps muscle strength bilaterally, separately, and symmetrically** by positioning patient's elbow to a 90-degree bend, palm up. Then brace one palm on the biceps, grasp the wrist and pull.

135. **Test the triceps muscle strength bilaterally, separately, and symmetrically** by positioning patient's elbow to a 90-degree bend, palm up. Then brace one hand on triceps, grasp wrist and push.

136. **Test the hip flexor muscle strength bilaterally, separately, and symmetrically** by having patient either seated on table with legs dangling, or supine. Resist flexion by having patient raise each knee or leg as you push down on thigh.

137. **Test the lower leg muscle strength bilaterally, separately, and symmetrically** by asking the patient to push away your hand (placed on the ankle); then ask patient to pull towards herself. **Note:** Student should position the knee to a 90 degree bend. Resist flexion by pulling up on lower leg. Resist extension by pushing down on lower leg.

***Note:** Per Bates, when assessing reflexes always compare one side with the other before moving to the next deep tendon reflex.

138. **Test the biceps reflex bilaterally.**

Step # 1: With the elbow slightly flexed and forearm resting in the patient's lap, palm down, palpate the biceps tendon with your thumb and press in to produce moderate tension.

Step # 2: Stretch the tendon by striking your thumbnail. You will find up to 3 motions. Note speed and intensity of each response.

- 139. Test the brachioradialis reflex bilaterally.**
Step # 1: Let patient's arm rest in her lap, elbow bent, forearm halfway between supination and pronation.
Step # 2: Palpate the radial styloid (at the wrist by the base of the thumb) and move 2 inches proximally.
Step # 3: Palpate the tendon over the radius.
Step # 4: Stretch the tendon by striking your finger (or thumb) **or strike the tendon directly**. Watch for flexion and supination of the forearm.
- 140. Test the triceps reflex bilaterally.**
Step # 1: **With patient's arm in her lap or supporting upper arm**, instruct patient to let the arm go limp.
Step # 2: Palpate the triceps tendon just above the olecranon. If you have trouble finding the tendon, press on the tendon as she extends her arm against your resistance. The tendon will tighten and bulge.
Step # 3: Strike the tendon directly, without an interposed finger. (Stay clear of the ulnar groove, just medial to the tendon.) Watch for extension of the forearm or contraction of the muscle.
- 141. Test the patellar reflex bilaterally.**
Step # 1: Position the patient with her legs dangling freely. Then move to one side so that you do not get kicked.
Step # 2: Locate the tendon just inferior to the patella.
Step # 3: Tap briskly and observe extension of the knee or contraction of the quadriceps muscle.
- 142. Test the Achilles (ankle) reflex bilaterally.**
Step # 1: With the legs still dangling, grasp the foot by the ball, and slightly dorsiflex it.
Step # 2: Strike the tendon briskly. Watch for the intensity of the plantar flexion and how quickly it relaxes afterward.
- 143. Test the Plantar reflex bilaterally.**
Step # 1: Use the wooden end of a tongue depressor or the handle of the reflex hammer or the **wooden end of a cotton tip applicator**. **DO NOT USE ANY SHARP OBJECT DURING THIS EXAM.**
Step # 2: Hold patient's ankle or heel and **gently** stroke the plantar surface. Begin by the heel on the lateral side. Continue upward to the ball, and then curve medially over the ball to the large toe. **Note:** This test should not be painful for the patient. Inform the patient that it may tickle a little or feel slightly uncomfortable.
- 144. Test finger-to-nose coordination bilaterally** by positioning your finger to allow the patient to fully extend her arm to reach your finger. Have patient touch her finger to your finger, then to her nose, alternating back and forth several times. Student should move her finger several times, in different directions, so patient must accurately alter directions.
- 145. Test both sharp and dull on hand or a finger bilaterally**. Instruct patient to close her eyes prior to test.

146. **Test both sharp and dull on foot or a toe bilaterally** with patient's eyes still closed.
147. **Test both sharp and dull on the trunk** at dermatome T4 (breast region) and dermatome T10 (umbilical region) with patient's eyes closed.
148. **Position Sense Demonstration:**
Step # 1: Grasp the large toe or finger by the sides.
Step # 2: To avoid confusion, demonstrate to the patient, while patient is watching, what is meant by up and down motion of the large toe or finger. The joint must be completely relaxed.
149. **Position Sense Test: Must be done bilaterally.**
Step # 1: Ask patient to close the eyes, grasp large toe/finger by the sides and then move the large toe/finger in an up or down direction.
Step # 2: Ask patient to tell you "up" or "down" after each motion.
Step # 3: Position sense must be checked on all 4 extremities.
150. **Vibratory Sense Demonstration:** Use a low pitched 128 Hz tuning fork.
Step #1: Demonstrate to patient, while patient is watching you.
Step # 2: Hold tuning fork near its base and activate it by tapping it on heel of your hand or by striking it with reflex hammer. Always press it to a bony prominence.
Step # 3: Ask patient if she can feel the "vibration."
151. **Vibratory Sense Test: Must be done bilaterally.**
Step # 1: Ask patient to close eyes or to look away.
Step # 2: Test the vibration sense on each foot (or one toe bilaterally) and hand (or one finger bilaterally) using the 128 Hz tuning fork.
Step # 3: Ask patient if she feels a "vibration."
Step # 4: Vibratory sense must be checked on all 4 extremities.