



3

Examination Techniques and Equipment

LEARNING OBJECTIVES

After studying Chapter 3 in the textbook and completing this section of the workbook, students should be able to:

1. Apply standard precautions for infection control to the examination process.
2. Correctly obtain baseline data (vital signs, height, and weight) and describe the meaning of the findings.
3. Identify various types of equipment used for physical examination.
4. Describe the purpose of various types of equipment used for physical examination.
5. Demonstrate the correct use of various types of equipment used for physical examination.
6. Identify various techniques applied during a physical examination.
7. Describe the purpose of various techniques used during a physical examination.
8. Demonstrate correct application of the various techniques used during physical examination.

TEXTBOOK REVIEW

Chapter 3 Examination Techniques and Equipment (pages 49–81)

CONTENT REVIEW QUESTIONS

Multiple Choice

Circle the correct answer for each of the following questions.

1. Which of the following infection control guidelines is currently recommended by the Centers for Disease Control and Prevention (CDC)?
 - a. universal precautions
 - b. body substance isolation
 - c. standard precautions
 - d. illness-based precautions

2. A patient presents with multiple raised lesions on her skin. Which instrument should be used to examine these lesions?
 - a. calipers
 - b. ruler
 - c. tympanometer
 - d. transilluminator
3. In an outpatient setting such as a clinic, how should infection control practice differ from that in the acute-care setting?
 - a. The use of transmission-based precautions is not applicable in an outpatient setting.
 - b. Infection control is limited to protecting the outpatient health care provider.
 - c. The spread of infection to other patients is not a concern in the outpatient setting.
 - d. Infection control practice is applicable in all health care settings.
4. How does an examiner determine the correct size of a blood pressure cuff on an adult? The cuff should:
 - a. be 2 1/2 to 3 times the length of the arm.
 - b. be able to wrap around the arm once.
 - c. cover 25% of the upper arm.
 - d. be 40% of the circumference of the arm.
5. How is a blood pressure reading affected if an adult cuff is used on a small child?
 - a. Blood pressure readings will be lower.
 - b. Blood pressure readings will be higher.
 - c. Results will demonstrate a false high systolic reading and a false low diastolic reading.
 - d. Blood pressure readings are not affected; cuff size is merely a matter of comfort.
6. The examiner notices an obvious odor to the patient when they first meet. Which examination technique is being applied?
 - a. inspection
 - b. palpation
 - c. percussion
 - d. auscultation
7. Focused visual attention obtains data from:
 - a. inspection.
 - b. palpation.
 - c. percussion.
 - d. auscultation.
8. Which technique is applied throughout the entire examination and interview process?
 - a. inspection
 - b. palpation
 - c. percussion
 - d. auscultation
9. As a component of palpation, which surface is most sensitive to vibration?
 - a. fingertips
 - b. heel of the hand
 - c. dorsal surface of the hand
 - d. ulnar surface of the hand

10. How deep do the hands press while performing deep palpation?
 - a. 1 cm
 - b. 2 cm
 - c. 4 cm
 - d. 8 cm
11. Intensity, related to percussion tones, refers to:
 - a. how loud the tone is.
 - b. the location of the tone.
 - c. the musical quality of the tone.
 - d. the length of duration the tone is heard.
12. Indirect finger percussion involves striking the middle finger of the nondominant hand with:
 - a. the fist.
 - b. a percussion hammer.
 - c. the tip of the middle finger of the dominant hand.
 - d. a stethoscope.
13. A patient has a urinary tract infection. The examiner wishes to assess tenderness over the kidney. Which examination technique is appropriate?
 - a. light finger palpation over the kidney
 - b. firm fist percussion over the kidney
 - c. deep abdominal palpation of the kidney
 - d. auscultation for kidney bruit
14. The examiner has detected a superficial mass in the skin. What part of the hand is best to use to palpate this?
 - a. fingertips
 - b. heel of the hand
 - c. dorsal surface of the hand
 - d. ulnar surface of the hand
15. Ideally, auscultation should be carried out last, *except* when examining the:
 - a. lungs.
 - b. heart.
 - c. abdomen.
 - d. kidney.
16. Which of the following techniques is *incorrect* and affects the accuracy of auscultation?
 - a. placing the stethoscope firmly on the surface to be auscultated
 - b. auscultating through clothing
 - c. isolating one sound at a time during auscultation
 - d. listening for sound characteristics
17. When measuring the length of an infant, the measurement should extend from:
 - a. forehead to feet.
 - b. crown to tip of toes in prone position.
 - c. head to toes in upright position.
 - d. crown to heel in supine position.
18. The tubing of a stethoscope should be less than 18 inches long to prevent:
 - a. transmission of external noise.
 - b. tangling of the tubing in the examiner's clothing or pockets.
 - c. distortion of sounds during auscultation.
 - d. magnification of the transmitted sounds.

19. Which of the following is true regarding correct use of a stethoscope? The:
 - a. bell is pressed lightly against the skin to detect low-frequency sounds.
 - b. bell is pressed firmly against the skin to hear low-frequency sounds.
 - c. diaphragm is pressed firmly against the skin to hear low-frequency sounds.
 - d. diaphragm is pressed lightly against the skin to hear high-frequency sounds.
20. The examiner must be sure that the earpieces of the stethoscope are placed so that the alignment fits the contour of the ear canal. In which direction should they be placed? Pointing:
 - a. upward
 - b. downward
 - c. forward
 - d. backward
21. In which of the following situations is use of a Doppler indicated?
 - a. measurement of body temperature in a hypothermic patient
 - b. auscultation of the abdomen in a patient with hypoactive or absent bowel sounds
 - c. measurement of blood pressure in a patient with hypertension
 - d. auscultation of a nonpalpable pulse in a patient with peripheral vascular disease
22. The red numbers on a lens selector dial of an ophthalmoscope indicate:
 - a. that a large amount of light will enter the eye being examined.
 - b. that a small amount of light will enter the eye being examined.
 - c. positive magnification.
 - d. negative magnification.
23. While performing an internal eye examination, the examiner observes a fundal lesion. What feature on the ophthalmoscope permits the examiner to estimate the size and location of the lesion?
 - a. grid light
 - b. slit light
 - c. red-free filter
 - d. small light
24. An ophthalmoscope has positive and negative magnification in order to:
 - a. compensate for myopia or hyperopia in the examiner's or the patient's eyes.
 - b. allow for magnification of both the anterior eye and the posterior eye.
 - c. compensate for the degree of dilation of the patient's eyes.
 - d. allow for visualization of the eye in patients with normal vision, as well as those with glaucoma.
25. In which of the following situations is the pneumatic attachment of an otoscope indicated?
 - a. removal of excessive ear wax from an adult or child
 - b. inflation of the ear canal in an adult with a collapsed canal for improved viewing
 - c. assessment of pressure behind the tympanic membrane of a child
 - d. evaluation of the cone of light reflex in an adult or child
26. The difference between a tuning fork for auditory screening and one for vibratory sensation is the:
 - a. sound frequency generated.
 - b. strike force placed by the examiner on the forks.
 - c. length of the tuning forks.
 - d. auditory screening fork is electric; the vibratory fork is not.
27. Very young children may feel threatened by the use of a reflex hammer during examination. What could the examiner use in place of a reflex hammer that would be less threatening?
 - a. tuning fork
 - b. tongue blade
 - c. end of stethoscope
 - d. examiner's finger

28. According to the Centers for Disease Control, the health care provider should apply infection control measures to which group of patients?
 - a. patients with a known infectious disease
 - b. patients with a possible infectious disease
 - c. patients who appear ill
 - d. all patients regardless of their infectious status

29. In which of the following situations is transillumination an appropriate examination technique?
 - a. assessment of vesicles on the skin
 - b. detection of fluid within the sinuses
 - c. measurement of bone density in the skull
 - d. determination of a mass in the abdomen

30. Which of the following instruments is used in conjunction with a simple nasal speculum to visualize the lower and middle turbinates of the nose?
 - a. otoscope
 - b. penlight
 - c. ophthalmoscope
 - d. goniometer

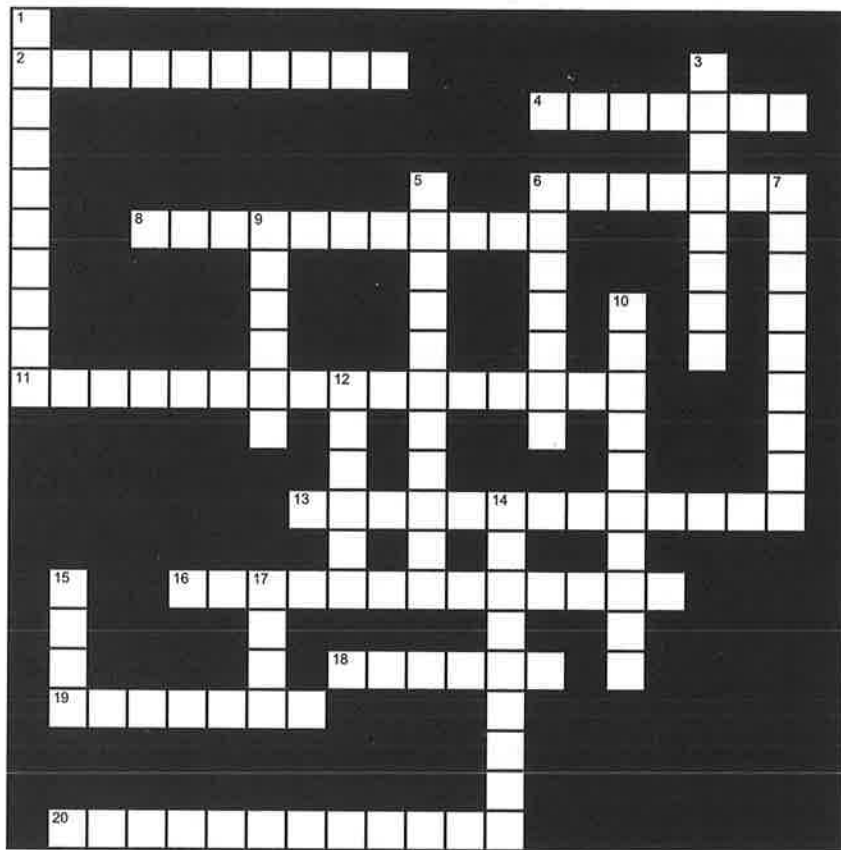
Terminology Review

Matching

Match each term to its corresponding description or function. Use each term once.

Description or Function	Term
31. _____ Used to assess sensation to the plantar surface of the foot	a. Strabismoscope
32. _____ Used to determine the degree of flexion or extension of a joint	b. Aperture setting
33. _____ Instrument with a brush and sharp needle in the base and head	c. Tympanometer
34. _____ Speculum with a bottom blade slightly longer than the top blade	d. Bell of stethoscope
35. _____ Differentiates tissue, fluid, and air within a body cavity	e. Diaphragm of stethoscope
36. _____ Instrument that uses a one-way mirror to detect subtle eye movements	f. Doppler
37. _____ Used to test visual acuity for non-English-speaking patients	g. Goniometer
38. _____ Used to assess function of inner ear	h. Graves' speculum
39. _____ Detects high-pitched sounds	i. Axillary infrared thermometer
40. _____ Used to screen patients at risk for macular degeneration	j. Amsler grid
41. _____ Amplifies sounds by use of ultrasonic waves	k. Episcopes
42. _____ Used to inspect the surface of pigmented skin lesions	l. Pederson speculum
43. _____ Used to test visual acuity for literate English-speaking patients	m. Neurologic hammer
44. _____ Adjusts or changes light variations of ophthalmoscope for examination	n. Monofilament
45. _____ Device that correlates with core body temperature of newborn	o. Snellen chart
46. _____ Black light used to detect fungal infections or corneal abrasion	p. "E" chart
47. _____ Detects low-frequency sounds	q. Transilluminator
48. _____ Used for women with small vaginal openings	r. Wood's lamp

Crossword Puzzle



Across

- 2. Gathering information through sight and smell
- 4. Type of ultrasonic stethoscope
- 6. Magnification power of a lens
- 8. Often a critical diagnostic indicator in infection
- 11. Instrument used to measure blood pressure
- 13. Peripheral measurement of cardiovascular function
- 16. Condition that may be triggered by tactile contact or reaction to cold exam table or stirrups
- 18. Pulse most often used to assess heart rate
- 19. Loudest of percussion tones
- 20. Gathering information through sound

Down

- 1. Baseline indicators of health status
- 3. Type of scale used to weigh infants
- 5. Instrument used to auscultate
- 6. Determines the degree of percussion tone
- 7. Sound waves heard as percussion tones
- 9. Used as a hammer to produce sounds in percussion
- 10. Gathering information through production of vibrations
- 12. Grid used to assess for macular degeneration
- 14. Gathering information through touch
- 15. Used to percuss internal organs to elicit tenderness
- 17. The "fifth vital sign"

CONCEPTS APPLICATION**Activity 1**

List three times when hand washing is indicated in association with an examination.

- 1.
- 2.
- 3.

Activity 2

Complete the following table by providing the expected examination findings.

<i>Area Percussed</i>	<i>Percussion Tone Expected</i>
a. Stomach	
b. Sternum	
c. Lung of patient with emphysema	
d. Liver	
e. Lung of patient with pneumonia	
f. Lung of normal patient	
g. Abdomen with large tumor	

CRITICAL THINKING

1. Mrs. Johnson is a 72-year-old female brought to the clinic by her daughter. She has an abdominal fistula draining foul, purulent fluid. She also has bowel and urinary incontinence. What infection control measures should be implemented for Mrs. Johnson?

2. Explain (a) when a nonantimicrobial soap can be used and (b) when an antimicrobial soap is indicated to wash one's hands.

3. Charles Helms comes to the diabetic clinic. He has not been to the clinic in a very long time and tells you he has some problems with his feet. "They just don't feel right," he says.
 - a. What type of questions are appropriate to ask Mr. Helms regarding this symptom?

 - b. Based on the patient's statement, "They just don't feel right," what are the areas of concern, and how can this be assessed during an examination?