

## Worksheet Answer Key

# Concepts, Suffixes, and Prefixes of Medical Terminology

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Medical terminology is based mainly on Greek and Latin words.	✓	
2. A suffix establishes a medical word's basic meaning.		✓
3. A root modifies a prefix's meaning.		✓
4. The root cardi means "heart."	✓	
5. Neur/o is an example of a compound word.		✓
6. USA is an acronym.	✓	
7. The word cerebrospinal is a compound word.	✓	
8. In the word pharyngitis, the suffix is -itis.	✓	
9. Medical terminology varies greatly throughout the world.		✓
10. The adjective for coccyx is coccyical.		✓
11. A suffix is a word ending that modifies a root.	✓	
12. The suffix -ous means "pertaining to."	✓	
13. The plural of embolus is embols.		✓
14. In the word epileptiform, the suffix means "resembling."	✓	

	True	False
15. Vertebras is the correct plural form for bones of the spine.		✓
16. The singular form of omenta is omentum.	✓	
17. The suffix -logy refers to a field of study or a specialty.	✓	
18. Podiatry is the study and treatment of mental disorders.		✓
19. The word necrotic is an adjective.	✓	
20. Anematology is a medical specialty devoted to the study of blood.		✓
21. A prefix appears before a root.	✓	
22. The prefix in monocular means “one.”	✓	
23. The opposite of abduct is antiduct.		✓
24. The prefix in erythrocyte means “round.”		✓
25. Two monosaccharides form a disaccharide.	✓	
26. The opposite of poly- is oligo-.	✓	
27. Endoderm is superficial to ectoderm.		✓
28. The term hypoglycemia means “high blood sugar.”		✓
29. A megalocyte is larger than a microcyte.	✓	
30. A right-handed person is dextromanual.	✓	

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
31. The fundamental unit of each medical word is the _____.	root
32. A short word part added at the end of a root is a(n) _____.	suffix
33. A short word part added before a root is a(n) _____.	prefix
34. A root with a vowel added to aid in pronunciation is a(n) _____.	combining form
35. A compound word that means “pertaining to the heart and blood vessels” is ____.	cardiovascular
36. The vowel in the word pet is a(n) _____ vowel.	short
37. The first vowel in the word rise is a(n) _____ vowel.	long
38. Combine hem/o meaning “blood” and rhage meaning “bursting forth” to form a word that means “a bursting forth of blood”: _____.	hemorrhage
39. Combine the root psych meaning “mind” with -logy meaning “study of” to form a word that means “study of the mind”: _____.	psychology
40. abbreviation formed from the first letter of each word in a phrase is a(n) _____.	acronym
41. The root cardi with a vowel added to aid pronunciation forms cardi/o, which is termed a(n) _____.	combining form
42. The adjective of pharynx is _____.	pharyngeal
43. The -itis in pleuritis is the word part called a(n) _____.	suffix
44. The pn in the word pneumonia is pronounced like the letter _____.	n
45. The rh in the word rhinitis is pronounced like the letter _____.	r
46. The name given to a root combined with a vowel is _____.	combining form
47. A gastroduodenostomy is a communication between the stomach and duodenum. The part of the word gastroduodenostomy that means “communication” is the _____.	suffix
48. A word part added to the end of a root to modify its meaning is a(n) _____.	suffix
49. Most medical word parts come from Greek and _____.	Latin
50. organ of excretion (roots: ren/o, nephro) is the ____.	kidney
51. A letter inserted between the root and the next word part to aid in pronunciation is a(n) _____.	vowel
52. _____ means pertaining to the coccyx.	Coccygeal
53. A dropping, downward displacement is _____.	ptosis
54. A word ending that modifies a root is a(n) _____.	suffix

55. The suffix -logy means .	<i>study of</i>
56. A physician who specializes in study and treatment of the skin (dermatology) is a(n) _____.	<i>dermatologist</i>
57. The word that means “pertaining to a vein” (root: ven) is _____.	<i>venous</i>
58. The word that means “pertaining to saliva” is _____.	<i>salivary</i>
59. The adjective for neurosis is _____.	<i>neurotic</i>
60. The adjective for pelvis is _____.	<i>pelvic</i>
61. The adjective nuclear pertains to a(n) _____.	<i>nucleus</i>
62. The plural of diagnosis is _____.	<i>diagnoses</i>
63. The singular of vertebrae is _____.	<i>vertebra</i>
64. A specialist who studies and treats the feet is a(n) _____.	<i>podiatrist</i>
65. The word that means “pertaining to the heart” is _____.	<i>cardiac</i>
66. The adjective that means “pertaining to respiration” is _____.	<i>respiratory</i>
67. The plural of ganglion is _____.	<i>ganglia</i>
68. The suffix -sis means _____.	<i>condition of</i>
69. The singular of phalanges is _____.	<i>phalanx</i>
70. The plural of matrix is _____.	<i>matrices</i>
71. The singular form of foci is _____.	<i>focus</i>
72. The singular form of paralyses is _____.	<i>paralysis</i>
73. The suffix that means “pertaining to” in the word nervous is _____.	<i>ous</i>
74. A dark pigment that gives color to the hair and skin and protects the skin against the sun’s radiation is _____.	<i>melanin</i>
75. _____ is a bluish discoloration of the skin due to lack of oxygen.	<i>Cyanosis</i>
76. To separate tissues for anatomic study is to _____.	<i>dissect</i>
77. Introduction of blood or blood components into the bloodstream is _____.	<i>transfusion</i>
78. _____ means “having equal sides.”	<i>Equilateral</i>
79. _____ means “of uniform composition.”	<i>Homogeneous</i>
80. _____ means of “extremely small size—visible only with the aid of the microscope.”	<i>Microscopic</i>
81. Another name for the lumen of an organ or vessel is _____.	<i>central opening</i>

82. Development of a blood clot within a vessel is _____.	<i>thrombosis</i>
83. The care and treatment of children is _____.	<i>pediatrics</i>
84. The study of the nervous system is _____.	<i>neurology</i>
85. _____ means “pertaining to a nucleus.”	<i>Nuclear</i>
86. _____ means “pertaining to anatomy.”	<i>Anatomic</i>
87. _____ is the plural form of phalanx.	<i>Phalanges</i>
88. The process of determining the cause and nature of an illness is _____.	<i>diagnosis</i>
89. A word part that appears in front of a root is a(n) _____.	<i>prefix</i>
90. Trifocal glasses have _____ lenses.	<i>three</i>
91. The term cyanotic pertains to the color _____.	<i>blue</i>
92. A xanthoma is a growth that is named for the color _____.	<i>yellow</i>
93. Erythrocytes are named for the color _____.	<i>red</i>
94. The prefixes anti- and contra- mean _____.	<i>against</i>
95. The opposite of permeable is _____.	<i>impermeable</i>
96. The prefixes dia-, per-, and trans- mean _____.	<i>through</i>
97. The prefix in pandemic means _____.	<i>all</i>
98. The prefix syn- means _____.	<i>together</i>
99. The opposite of hyperglycemia is _____.	<i>hypoglycemia</i>
100. To move the arm away from the midline is to _____ it.	<i>abduct</i>
101. The prefix pre- means _____.	<i>before</i>
102. The prefix that means “few” or “scanty” is _____.	<i>oligo</i>
103. The opposite of dextrmanual is _____.	<i>sinistromanual</i>
104. A synonym for antenatal is _____.	<i>prenatal</i>
105. The prefixes macro-, mega-, and megalo- all mean _____.	<i>large</i>
106. The prefix pseudo- means _____.	<i>false</i>
107. A hemisphere is _____ of a sphere.	<i>one half</i>
108. A tricuspid structure has _____ parts.	<i>three</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
109. bedpan	<i>D</i>	A. word with a hard c
ren/o	<i>C</i>	B. prefix that means false
pseudo	<i>B</i>	C. combining form
carry	<i>A</i>	D. compound word
110. rage	<i>B</i>	A. word with a hard g
glue	<i>A</i>	B. word with a soft g
oace	<i>D</i>	C. word with a silent g
gnome	<i>C</i>	D. word with a soft c
111. FDA	<i>C</i>	A. referring to double
KAR-dē-ak	<i>D</i>	B. compound word
dipl/o	<i>A</i>	C. acronym
cardiovascular	<i>B</i>	D. phonetic pronunciation
112. prefix	<i>B</i>	A. fundamental word unit
suffix	<i>C</i>	B. comes before the root
root	<i>A</i>	C. comes after the root
diarrhea	<i>D</i>	D. its suffix means “to flow”
113. -sis	<i>D</i>	A. suffix that means “study,” “study of”
-ous	<i>B</i>	B. suffix that means “pertaining to” or “like”
-logy	<i>A</i>	C. suffix that means “specialist”
-ist	<i>C</i>	D. suffix that means “condition of”
114. dermatology	<i>C</i>	A. study of structure
insomnia	<i>D</i>	B. intestinal disorder
anatomy	<i>A</i>	C. study and treatment of the skin
dysentery	<i>B</i>	D. inability to sleep

Term	Answers	Definition
115. thrombus	<i>D</i>	A. blood clot in a vessel
ganglion	<i>C</i>	B. mass of nervous tissue
febrile	<i>B</i>	C. pertaining to fever
ovoid	<i>A</i>	D. resembling an egg
116. topical	<i>C</i>	A. things added
appendices	<i>A</i>	B. eggs
ova	<i>B</i>	C. pertaining to a surface
lymphoid	<i>D</i>	D. pertaining to the lymphatic system
117. hemisphere	<i>B</i>	A. against recommendations
contraindicated	<i>A</i>	B. one half of a globe
percutaneous	<i>D</i>	C. backward flow
regurgitation	<i>C</i>	D. through the skin
118. oligodontia	<i>A</i>	A. fewer than normal number of teeth
abduct	<i>C</i>	B. excessive breathing
hyperventilation	<i>B</i>	C. move away from the midline
hypoglycemia	<i>D</i>	D. low blood sugar
119. orthotic	<i>C</i>	A. having equal sides
preoperative	<i>D</i>	B. a newborn
equilateral	<i>A</i>	C. correcting deformities
neonate	<i>B</i>	D. before surgery
120. monocyte	<i>A</i>	A. cell with one nucleus
mesencephalon	<i>D</i>	B. having a constant temperature
tetralogy	<i>C</i>	C. a group of four
homothermic	<i>B</i>	D. midbra

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
121. KEM-ih-kal	<i>chemical</i>
122. FAN-tom	<i>phantom</i>
123. FO-be-ah	<i>phobia</i>
124. u-FOR-e-ah	<i>euphoria</i>
125. dis-FUNK-shun	<i>dysfunction</i>
126. ZIF-oyd	<i>xiphoid</i>
127. TO-sis	<i>ptosis</i>
128. RI-no-plas-te	<i>rhinoplasty</i>
129. AK-ro-nim	<i>acronym</i>
130. fah-RIN-je-al	<i>pharyngeal</i>
131. kok-SIJ-e-al	<i>coccygeal</i>
132. RU-mah-tizm	<i>rheumatism</i>
133. nu-MAT-ik	<i>pneumatic</i>
134. kar-de-OL-o-je	<i>cardiology</i>
135. nef-RI-tis	<i>nephritis</i>
136. tho-RAS-ik	<i>thoracic</i>
137. SER-vih-kal	<i>cervical</i>
138. re-no-GAS-trik	<i>renogastric</i>
139. dis-LEK-se-ah	<i>dyslexia</i>
140. FAR-mah-se	<i>pharmacy</i>
141. si-ah-NOT-ik	<i>cyanotic</i>
142. LU-ko-site	<i>leukocyte</i>
143. or-THOT-ik	<i>orthotic</i>
144. ho-mo-JE-ne-us	<i>homogeneous</i>
145. sim-bi-o-sis	<i>symbiosis</i>
146. tel-en-SEF-ah-lon	<i>telencephalon</i>
147. EKS-tract	<i>extract</i>
148. SIN-drome	<i>syndrome</i>
149. eks-OJ-eh-nus	<i>exogenous</i>
150. di-AL-ih-sis	<i>dialysis</i>

	Answers
151. prog-NO-sis	<i>prognosis</i>
152. KWAD-ru-ped	<i>quadruped</i>
153. zan-tho-DER-mah	<i>xanthoderma</i>
154. eh-rih-THE-mah	<i>erythema</i>
155. ol-ih-go-DON-she-ah	<i>oligodontia</i>
156. poy-kil-o-DER-mah	<i>poikiloderma</i>
157. mak-ro-SKOP-ik	<i>macroscopic</i>
158. u-nih-LAT-er-al	<i>unilateral</i>
159. ep-ih-THE-le-al	<i>epithelial</i>
160. ho-me-o-STA-sis	<i>homeostasis</i>
161. PAR-ah-sit-izm	<i>parasitism</i>
162. steh-NO-sis	<i>stenosis</i>
163. nu-ROL-o-je	<i>neurology</i>
164. op-TISH-an	<i>optician</i>
165. ah-NAT-o-me	<i>anatomy</i>
166. tek-NOL-o-je	<i>technology</i>
167. MEH-trik	<i>metric</i>
168. VE-nus	<i>venous</i>
169. MUS-ku-lar	<i>muscular</i>
170. feh-NOM-eh-non	<i>phenomenon</i>
171. pro-to-ZO-ah	<i>protozoa</i>
172. FUN-ji	<i>fungi</i>
173. fo-RAM-ih-nah	<i>foramina</i>
174. FI-broyd	<i>fibroid</i>
175. RU-mah-toyd	<i>rheumatoid</i>
176. di-ag-NO-sis	<i>diagnosis</i>
177. SKEL-eh-tal	<i>skeletal</i>
178. VER-teh-brah	<i>vertebra</i>
179. DIP-loyd	<i>diploid</i>



## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
181. Study of the heart	<i>cardi-o-logy</i>
182. Inflammation of the stomach	<i>gastr-itis</i>
183. Pertaining to the chest	<i>thorac-ic</i>
184. Loss of blood	<i>hem-o-r-rhage</i>
185. Inflammation of a nerve	<i>neur-itis</i>
186. Study of the kidney	<i>nephr-o-logy</i>
187. Passage of fluid stool	<i>dia-r-rhea</i>
188. Menstrual flow	<i>men-o-r-rhea</i>
189. Inflammation of the kidney	<i>nephr-itis</i>
190. Study of the stomach	<i>gastr-o-logy</i>

### Part 1 Word Bank

cardi	logy	perine
dia	men	r
gastr	nephr	rhage
hem	neur	rhea
ic	o	thora
itis		

Part 2	Answers
191. Pertaining to a yellow color	<i>xanth-ous</i>
192. A very small cell	<i>micro-cyte</i>
193. Irregular, mottled skin condition	<i>poikilo-derma</i>
194. A cell with an irregular shape	<i>poikilo-cyte</i>
195. A yellow skin condition	<i>xanth-o-derma</i>
196. Having two forms	<i>di-morph-ous</i>
197. White cell	<i>leuk-o-cyte</i>
198. To move away from	<i>ab-duct</i>
199. To move toward	<i>ad-duct</i>
200. Having no shape	<i>a-morph-ous</i>

Part 3	Answers
201. Like or resembling an egg	<i>ov-oid</i>
202. Study and treatment of the skin	<i>dermat-o-log-y</i>
203. Study of the mind	<i>psych-o-log-y</i>
204. A single egg cell	<i>ov-um</i>
205. One who studies the mind	<i>psych-o-log-ist</i>
206. Specialist in treatment of the skin	<i>dermat-o-log-ist</i>
207. Pertaining to psychology	<i>psych-o-log-ic</i>
208. Disorder involving the mind	<i>psych-o-sis</i>
209. Multiple egg cells	<i>ov-a</i>
210. Pertaining to dermatology	<i>dermat-o-log-ic</i>

### Part 2 Word Bank

a	di	o
ab	duct	ous
ad	leuk	poikilo
cyte	micro	xanth
derma	morph	

### Part 3 Word Bank

a	log	psych
dermat	o	sis
ic	oid	um
ist	ov	y

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

cardio	cardiovascular	hem	laryngo
lymphocyte	nephro	neur	pulm
ren	thoraco	urogenital	wheelchair

#### Part 1

#### Answers

- |                      |   |
|----------------------|---|
| 211. roots           | <i>neur, pulm, ren, hem</i>                               |
| 212. combining forms | <i>laryngo, thoraco, nephro, cardio</i>                   |
| 213. compound words  | <i>urogenital, wheelchair, cardiovascular, lymphocyte</i> |

### Part 2 Word Bank

a-	contra-	cyan/o-	dipl/o-
dis-	erythr/o-	leuk/o-	melan/o-
mon/o-	non-	poly-	tetra-

#### Part 2

#### Answers

- |                          |  |
|--------------------------|--|
| 214. Prefixes for number | <i>mon/o-, tetra-, poly-, dipl/o-</i>        |
| 215. Prefixes for color  | <i>leuk/o-, melan/o-, erythr/o-, cyan/o-</i> |
| 216. Negative prefixes   | <i>contra-, non-, a-, dis-</i>               |

### Part 3 Word Bank

-form	-ia	-ian	-ic
-ics	-ism	-ist	-logy
-oid	-ous	-sis	-y

#### Part 3

#### Answers

- |   |                                |
|---|--------------------------------|
| 217. suffixes for “condition of”          | <i>-sis, -y, -ia, -ism</i>     |
| 218. suffixes for “like” or “resembling”  | <i>-ic, -form, -ous, -oid</i>  |
| 219. suffixes for specialty or specialist | <i>-ics, -ist, -logy, -ian</i> |

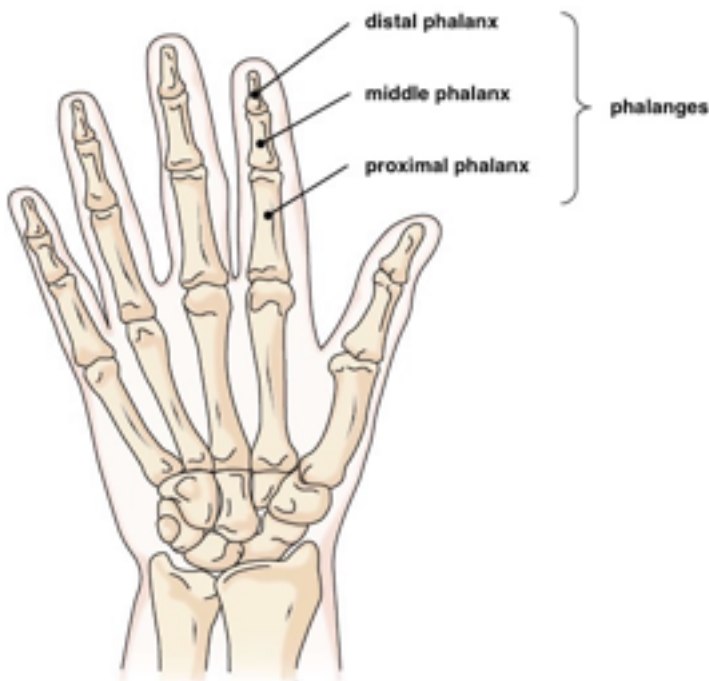
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

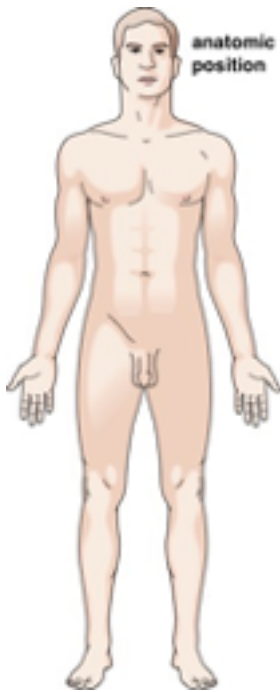
220. Labels: artery, lumen, vein



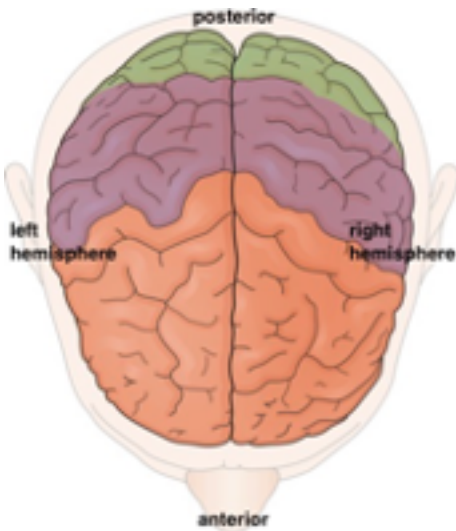
221. Labels: distal phalanx, middle phalanx, phalanges, proximal phalanx



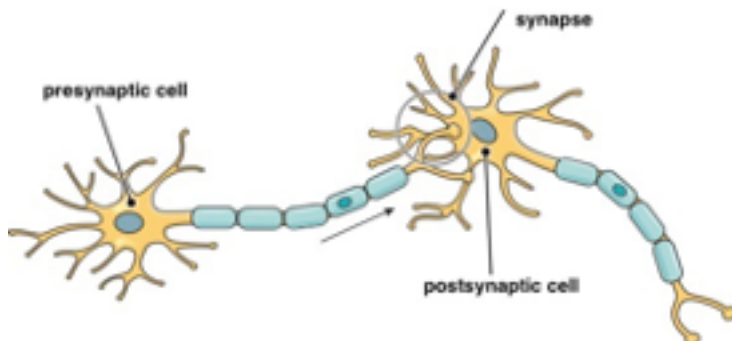
222. Label: What stance is shown in this figure?



223. Labels: anterior, left hemisphere, posterior, right hemisphere



224. Labels: postsynaptic cell, presynaptic cell, synapse



## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Osteoarthritis Consultation Note

**HISTORY OF PRESENT ILLNESS:** The patient has a history of chronic pain in the lumbosacral spine that has progressively gotten worse over the past 2 years. She was scheduled to have an MRI but never completed it because of claustrophobia. She also has pain in the hands and both shoulders, with significant morning stiffness. She has difficulty getting up from a sitting position. She reports pain in the knee with swelling of the left knee. She has moderate swelling of both ankles, which may be related more to her history of hypertension. She has just recently had an angiogram and is currently on a low dose of diuretic.

**PERTINENT PHYSICAL FINDINGS:** Hands have no evidence of synovitis. There are Heberden and Bouchard nodes, with changes of osteoarthritis. Wrist movement is normally maintained. There is tenderness of both shoulders with decreased range of mobility. There is also gluteal tenderness. Hip movement is decreased. There is bilateral crepitus of the knees with decreased range of mobility. The ankles have moderate swelling. The feet are normal.

**ASSESSMENT:** Osteoarthritis of the knees.

**PLAN:** We will start Celebrex 100 mg bid for pain. We will check for inflammation with a sedimentation rate, C-reactive proteins, rheumatoid factor, ANA, and uric acid levels. Will recommend physical therapy. Local injections are an option to consider in the future.

### Case Study 1: Osteoarthritis Consultation Note

	Answers
225. The itis in the word osteoarthritis is a(n) _____.	<i>suffix</i>
226. The word lumbosacral is formed from two roots. It is an example of a(n) _____.	<i>compound word</i>
227. MRI stands for magnetic resonance imaging. This term represents a(n) _____.	<i>acronym</i>
228. The rh in the word rheumatoid is pronounced as _____.	<i>r</i>
229. The bi in the word bilateral is a(n) _____.	<i>prefix</i>
230. The ch in the word chronic is pronounced as _____.	<i>k</i>
231. The root syn/o refers to synovial membrane. The root is written in its _____ form.	<i>combining</i>
232. The word synovitis means _____.	<i>inflammation of synovial membrane</i>
233. The suffix -gram means “a recording.” In the word angiogram, angi is a(n) _____.	<i>root</i>
234. The hyper in the word hypertension is a(n) _____.	<i>prefix</i>

## Case Study 2: Endocrinology Office Consultation

**HISTORY:** This is a 59-year-old woman who has been in good health. She had an incident where a thyroid nodule was discovered after referral to a general surgeon for a breast lump. At that time, thyroid ultrasound and fine-needle aspiration of a rather sizable cyst of the right lobe of the thyroid, as well as aspiration of a nodule on the left side, were carried out. The findings suggested hemorrhage, and the patient was seen in follow-up 6 months later. Since that time, she has noted no hoarseness, dysphagia, local tenderness, or other focal symptoms. She also has no symptoms suggestive of thyroid dysfunction, and her baseline thyroid function studies last September were noted to be normal. She does admit to loud snoring and some sleep difficulty, with occasional fatigue the following day. This has been commented upon by her husband as being particularly coarse and loud in nature.

**MEDICATIONS:** She is on no medications except for Estraderm twice weekly.

**FAMILY HISTORY:** She does have a history of thyroid goiter in mother and grandmother.

**PHYSICAL EXAMINATION:** This is a healthy-appearing woman. Blood pressure is 130/74. Height is 5 feet 4 inches. Weight is 155 pounds. Integument is normal. She is well tanned. Eyes reveal no ophthalmopathy. Examination of the neck reveals a 2-cm nodular area in the lower part of the neck, which moves with swallowing. Otherwise, there is no enlargement of the thyroid.

No lymphadenopathy or other abnormality is present. Chest is clear. She has no chest wall tenderness. Cardiac exam reveals a slow, regular rate and rhythm. Reflexes are normal.

**RADIOLOGY REPORT:** Review of the ultrasound shows several cysts, one of which is sizable and compatible with a hemorrhagic cyst, as well as the suggestion of two demarcated adenomas, one of which was aspirated last October. The left-sided nodule did show follicular cells, although it is not stated whether there are adequate numbers, that is, six separate cells present.

**IMPRESSION:** Probable nodular hyperplasia with rather well-demarcated thyroid nodules, not palpable on clinical exam, and hemorrhagic thyroid cyst that has not changed in the last 6 months.

**PLAN:** A free T<sub>4</sub> and TSH blood test, and it was recommended that a re-exam and ultrasound be done in approximately 6 months.

	Answers
235. The suffix in the word endocrinology means _____.	<i>study of</i>
236. A doctor specializing in the field of endocrinology is a(n) _____.	<i>endocrinologist</i>
237. The suffix in the word thyroid means _____.	<i>pertaining to</i>
238. The term adenomas is often used as the plural form of adenoma. The more accurate plural is _____.	<i>adenomata</i>
239. The patient history notes that she occasionally has some difficulty sleeping. In other words, she has _____.	<i>insomnia</i>
240. The suffix -ia in the word dysphagia means _____.	<i>condition of</i>
241. If the physical examination revealed heart problems, the patient would be referred to a(n) _____.	<i>cardiologist</i>
242. The adjective hemorrhagic is formed from the noun _____.	<i>hemorrhage</i>
243. The suffix -y in the terms lymphadenopathy and ophthalmopathy means _____.	<i>condition of</i>
244. The term focal refers to a focus, or center. The plural of focus is _____.	<i>foci</i>

### Case Study 3: Thyroid Cancer Surgery Discharge Summary

DISCHARGE DIAGNOSIS: Follicular thyroid cancer.

HOSPITAL COURSE: The patient came into the same-day surgery department on Friday, 4 days prior to this dictation. She underwent an uneventful left thyroid lobectomy, and intraoperatively, her frozen section diagnosis was follicular adenoma. She did well postoperatively and was subsequently prepared for discharge. However, the pathology demonstrated that she had a moderately well-differentiated follicular cancer. A completion thyroidectomy was then planned, and she was returned to the operating room. The contralateral lobe was then removed.

Parathyroid glands were well identified, as were the recurrent laryngeal nerves bilaterally, and the procedure was well tolerated.

Postoperatively, her calcium level was 7.9, with a preoperative calcium of 8.5. She had no Chvostek or Trousseau sign on postoperative examination and felt no irritability. She had some very mild hoarseness after the second operation but good phonation and was able to cough well. She was instructed on postoperative wound care, and it was discussed with her that she should have radioiodine ablation in several weeks when she becomes hypothyroid.

PLAN: Discharge her home on oral Vicodin for pain and have her return to the office later in the week. Additional plans for outpatient ablation will be forthcoming.

	Answers
245. The prefix and its meaning in uneventful are _____ and _____.	<i>un; not</i>
246. The patient's preoperative calcium level would be measured _____.	<i>before a surgery</i>
247. The prefix and its meaning in discharge are _____ and _____.	<i>dis; absence, removal, separation</i>
248. The word contralateral means _____.	<i>opposite side</i>
249. The prefix in the word postoperative means _____.	<i>after</i>
250. During a surgery, the recurrent laryngeal nerves are visualized bilaterally. This means that they are seen on _____.	<i>both sides</i>
251. The prefix and its meaning in the word ablation are _____ and _____.	<i>ab; away from</i>
252. The word hypothyroid refers to _____.	<i>decreased thyroid function</i>
253. The patient's discharge notes predict a good outcome for the patient. This prediction is a(n) _____.	<i>prognosis</i>
254. The patient's thyroid is surgically removed. Another word that means "to cut out" is _____.	<i>excise</i>



# Worksheet

## Body Structure

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. The term histology means “the study of tissues.”	✓	
2. Lipid is the main carbohydrate that provides energy to cells.		✓
3. ATP is produced by the cell’s mitochondria.	✓	
4. Genes control the formation of proteins.	✓	
5. Connective tissue is composed of muscle cells.		✓
6. Cells are organized into tissues, which are arranged into organs.	✓	
7. The integumentary system lines the digestive organs.		✓
8. Enzymes speed up chemical reactions.	✓	
9. The medulla makes up the outer region of an organ.		✓
10. The roots nucle/o and kary/o mean “nucleus.”	✓	
11. A coronal plane divides the body into superior and inferior parts.		✓
12. The diaphragm separates the abdominal cavity from the thoracic cavity.	✓	
13. The hypogastric region is inferior to the stomach.	✓	
14. The root dactyl/o refers to the arm.		✓

	True	False
15. In humans, the terms anterior and ventral refer to the same anatomic direction.	✓	
16. A sinus is a wall that divides two cavities.		✓
17. The root celi/o refers to the lower back.		✓
18. The intercostal muscles are between the ribs.	✓	
19. The dorsal cavity contains the brain and spinal cord.	✓	
20. Epithelial tissue covers body surfaces.	✓	

### Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
21. The large membrane that lines the abdominopelvic cavity is the _____.	<i>peritoneum</i>
22. The muscle that separates the thoracic cavity from the abdominal cavity is the _____.	<i>diaphragm</i>
23. The root celi/o pertains to the _____.	<i>abdomen</i>
24. The adjective cervical refers to the _____.	<i>neck</i>
25. The most superior and medial region of the abdomen is the _____ region.	<i>epigastric</i>
26. If the abdomen is divided into four parts, each part is called a(n) _____.	<i>quadrant</i>
27. The cranial cavity contains the _____.	<i>brain</i>
28. The term cephalic pertains to the _____.	<i>head</i>
29. A lateral structure is located toward the _____.	<i>side</i>
30. Another term for dorsal is _____.	<i>posterior</i>
31. The opposite of inferior is _____.	<i>superior</i>
32. The root brachi/o means _____.	<i>arm</i>
33. The adjective that means “above the kneecap” is _____.	<i>suprapatellar</i>
34. A central opening within a tube or hollow organ is called a(n) _____.	<i>lumen</i>
35. The nose is divided by the nasal _____.	<i>septum</i>
36. The opposite of distal is _____.	<i>proximal</i>

	Answers
37. The sum of all the physical and chemical activities that occur in the body make up _____.	<b>metabolism</b>
38. The material that fills the cell and holds the organelles is the _____.	<b>cytoplasm</b>
39. The control region of the cell is the _____.	<b>nucleus</b>
40. The catalysts needed for metabolic reactions are called _____.	<b>enzymes</b>
41. The process of body cell division is _____.	<b>mitosis</b>
42. The body's state of internal stability is called _____.	<b>homeostasis</b>
43. The basic structural and functional unit of the living organism is the _____.	<b>cell</b>
44. A threadlike body in the nucleus that contains the genes is a(n) _____.	<b>chromosome</b>
45. The simple sugar that circulates in the blood and provides energy is _____.	<b>glucose</b>
46. The thick fluid secreted by cells that lubricates and protects tissues is _____.	<b>mucus</b>
47. Cytogenesis is the formation of _____.	<b>cells</b>
48. The abbreviation for the cell's energy compound is _____.	<b>ATP</b>
49. Adipose tissue is designed to store _____.	<b>lipids; fat, fats</b>
50. The outer layer of the cell that is composed mostly of lipids and proteins is the _____.	<b>plasma membrane</b>
51. A group of cells that works together for a specific purpose is a(n) _____.	<b>tissue</b>
52. The inner region of an organ is called the _____.	<b>medulla</b>
53. The study of tissues is _____.	<b>histology</b>
54. The category of organic compounds that includes sugars and starches is _____.	<b>carbohydrates</b>
55. A category of organic compounds that includes structural materials, enzymes, and some hormones is _____.	<b>proteins</b>
56. A specialized structure in the cytoplasm of a cell is a(n) _____.	<b>organelle</b>
57. Cell division is known as _____.	<b>mitosis</b>
58. The simplest tissue that lines, covers, or supports an organ is a(n) _____.	<b>membrane</b>
59. The type of metabolism in which body substances are made and the building phase of metabolism is _____.	<b>anabolism</b>
60. A complex sugar compound stored in liver and muscles that is broken down into glucose when needed for energy is _____.	<b>glycogen</b>

	Answers
61. _____ means “of or relating to the head.”	<b>Cephalic</b>
62. The abdomen can be divided into four sections, or _____.	<b>quadrants</b>
63. _____ means “nearer to the point of attachment or to a given reference point.”	<b>Proximal</b>
64. _____ means “pertaining to the navel.”	<b>Umbilical</b>
65. _____ refers to “lying down,” specifically according to the part of the body resting on a flat surface.	<b>Decubitus position</b>
66. The muscle that separates the thoracic from the abdominal cavity is the _____.	<b>diaphragm</b>
67. The large serous membrane that lines the abdominopelvic cavity and covers the organs within it is the _____.	<b>peritoneum</b>
68. The forearm is technically known as the _____.	<b>antebrachium</b>
69. The stage that cells are in when they are not dividing is _____.	<b>interphase</b>
70. Simple epithelium has _____ of epithelial cells.	<b>one</b>
71. The _____ plane divides the body into superior and inferior parts.	<b>transverse OR horizontal</b>
72. The _____ regions of the abdomen are named for a bone of the pelvis.	<b>iliac</b>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
73. polymorphic	<i>C</i>	A. study of form
hyperplasia	<i>B</i>	B. overdevelopment
morphology	<i>A</i>	C. having many forms
atrophy	<i>D</i>	D. wasting of tissue
74. somatotropic	<i>C</i>	A. immature red blood cell
hydrophilic	<i>D</i>	B. formation of a nucleus
erythroblast	<i>A</i>	C. acting on the body
karyogenesis	<i>B</i>	D. attracting water
75. proteolytic	<i>B</i>	A. high blood sugar
hyperglycemia	<i>A</i>	B. destroying protein
phagocyte	<i>D</i>	C. the building phase of metabolism
anabolism	<i>C</i>	D. cell that takes in waste
76. parenchyma	<i>A</i>	A. the functional tissue of an organ
neoplasia	<i>D</i>	B. outer region of an organ
genesis	<i>C</i>	C. origin
cortex	<i>B</i>	D. new formation of tissue
77. adactyly	<i>D</i>	A. largeness of the feet
pedometer	<i>C</i>	B. fusion of the fingers or toes
syndactyly	<i>B</i>	C. instrument that measures footsteps
macropodia	<i>A</i>	D. absence of a finger or toe
78. epidermis	<i>C</i>	A. dividing wall
fundus	<i>B</i>	B. base of a hollow organ
meatus	<i>D</i>	C. outer layer of the skin
septum	<i>A</i>	D. a passage or opening

Term	Answers	Definition
79. sphincter	<i>D</i>	A. a cavity
sinus	<i>A</i>	B. under the tongue
decubitus	<i>C</i>	C. lying down
sublingual	<i>B</i>	D. a circular muscle
80. proximal	<i>B</i>	A. toward the bottom of the spine
caudal	<i>A</i>	B. nearer to the point of attachment
medial	<i>D</i>	C. face up
supine	<i>C</i>	D. toward the midline

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
81. ING-gwih-nal	<i>inguinal</i>
82. IL-e-ak	<i>iliac</i>
83. DI-ah-fram	<i>diaphragm</i>
84. SE-le-ak	<i>celiac</i>
85. lap-ah-ROT-o-me	<i>laparotomy</i>
86. DAK-til-o-spazm	<i>dactylospasm</i>
87. in-trah-U-ter-in	<i>intrauterine</i>
88. in-trah-OK-u-lar	<i>intraocular</i>
89. ep-ih-GAS-tre-um	<i>epigastrium</i>
90. LU-men	<i>lumen</i>
91. me-A-tus	<i>meatus</i>
92. SFINK-ter	<i>sphincter</i>
93. meg-ah-SEF-ah-le	<i>megacephaly</i>
94. ak-ro-si-ah-NO-sis	<i>acrocyanosis</i>
95. an-te-BRA-ke-al	<i>antebrachial</i>
96. bra-ke-o-seh-FAL-ik	<i>brachopcephalic</i>
97. ak-ro-ki-NE-se-ah	<i>acrokinesia</i>
98. hi-po-KON-dre-ak	<i>hypochondriac</i>
99. per-ih-to-NE-um	<i>peritoneum</i>

	Answers
100. SAJ-ih-tal	<i>sagittal</i>
101. KRO-mo-some	<i>chromosome</i>
102. EN-zime	<i>enzyme</i>
103. meh-TAH-bo-lizm	<i>metabolism</i>
104. mi-TO-sis	<i>mitosis</i>
105. MU-kus	<i>mucus</i>
106. NU-kle-us	<i>nucleus</i>
107. PRO-tene	<i>protein</i>
108. pah-RI-eh-tal	<i>parietal</i>
109. pah-REN-kih-mah	<i>parenchyma</i>
110. mik-SO-mah	<i>myxoma</i>
111. in-ter-STISH-al	<i>interstitial</i>
112. VIS-er-al	<i>visceral</i>
113. hi-PER-tro-fe	<i>hypertrophy</i>
114. ah-PLA-je-ah	<i>aplasia</i>
115. 5.DIS-tro-fe	<i>dystrophy</i>
116. di-SAK-ah-ride	<i>disaccharide</i>
117. kah-TAB-o-lizm	<i>catabolism</i>
118. si-TOL-o-je	<i>cytology</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
120. Formation of fat	<i>lip-o-genesis</i>
121. A fatty tumor	<i>lip-oma</i>
122. Cell that stores fat	<i>adip-o-cyte</i>
123. Resembling a fiber	<i>fibr-oid</i>
124. Resembling a network	<i>reticul-ar</i>
125. A cell that secretes fibers	<i>fibr-o-cyte</i>
126. Having several nuclei	<i>poly-nucle-ar</i>
127. Cell that contains a network	<i>reticul-o-cyte</i>
128. Attracting or absorbing fat	<i>lip-o-phil-ic</i>
129. Without a nucleus	<i>a-nucle-ar</i>

Part 2	Answers
130. Pertaining to the thorax and abdomen	<i>thorac-o-abdomin-al</i>
131. Within the abdomen	<i>intra-abdomin-al</i>
132. Around the abdomen	<i>peri-abdomin-al</i>
133. Within the head	<i>intra-cephal-ic</i>
134. Above the abdomen	<i>supra-abdomin-al</i>
135. Outside the chest	<i>extra-thorac-ic</i>
136. Absence of fingers	<i>a-dactyl-y</i>
137. Pertaining to the forearm	<i>ante-brachi-al</i>
138. Pertaining to the arm and head	<i>brachi-o-cephal-ic</i>
139. More than the normal number of fingers and toes	<i>poly-dactyl-y</i>

### Part 1 Word Bank

a	phil	o
genesis	ar	reticul
oma	nucle	fibr
adip	poly	oid
lip	cyte	

### Part 2 Word Bank

a	al	brachi
dactyl	ic	o
poly	thorac	cephal
abdomin	ante	peri
extra	intra	
supra	y	



## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

aden/o	amyl/o	cyt/o	fibr/o
gen	glyc/o	hydr/o	kary/o
phag/o	plas	prote/o	troph/o

#### Part 1

#### Answers

140. roots for cell activity *phag/o, gen, troph/o, plas*

141. roots for cells and tissues *kary/o, cyt/o, aden/o, fibr/o*

142. roots for body chemistry *glyc/o, hydr/o, prote/o, amyl/o*

### Part 2 Word Bank

anterior	epigastric	lateral	superficial
decubitus	hypochondriac	prone	supine
distal	iliac	recumbent	umbilical

#### Part 2

#### Answers

143. anatomic directions *superficial, distal, anterior, lateral*

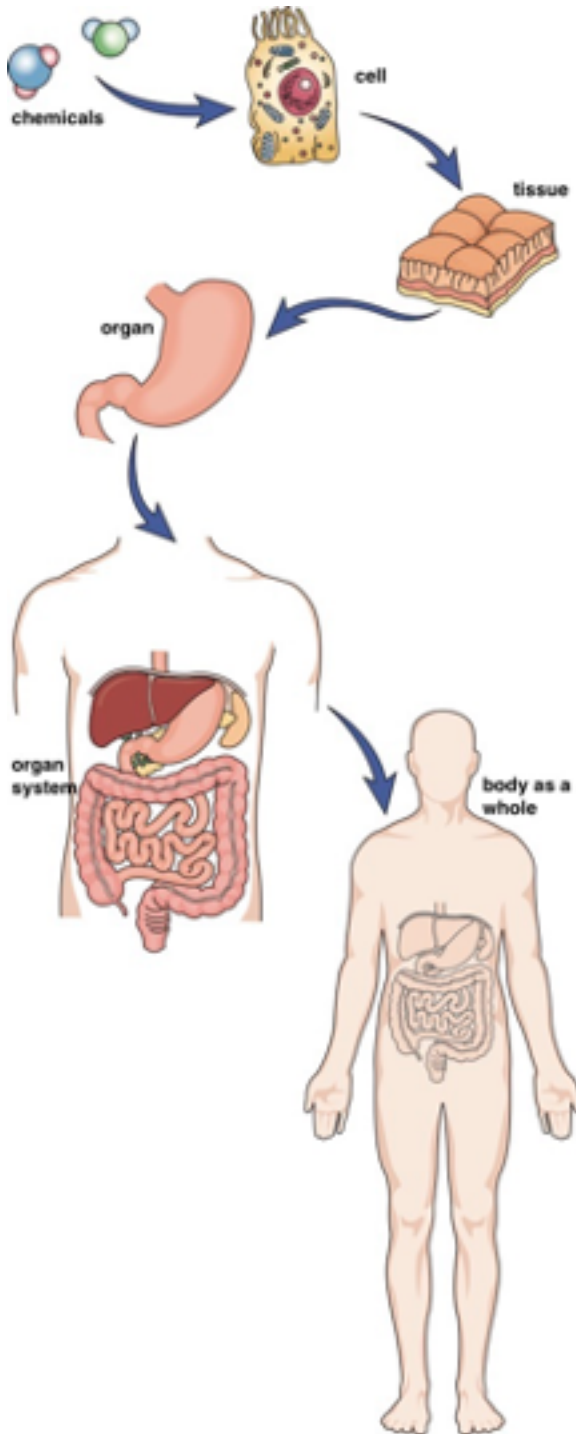
144. abdominal regions *epigastric, hypochondriac, iliac, umbilical*

145. body positions *decubitus, supine, prone, recumbent*

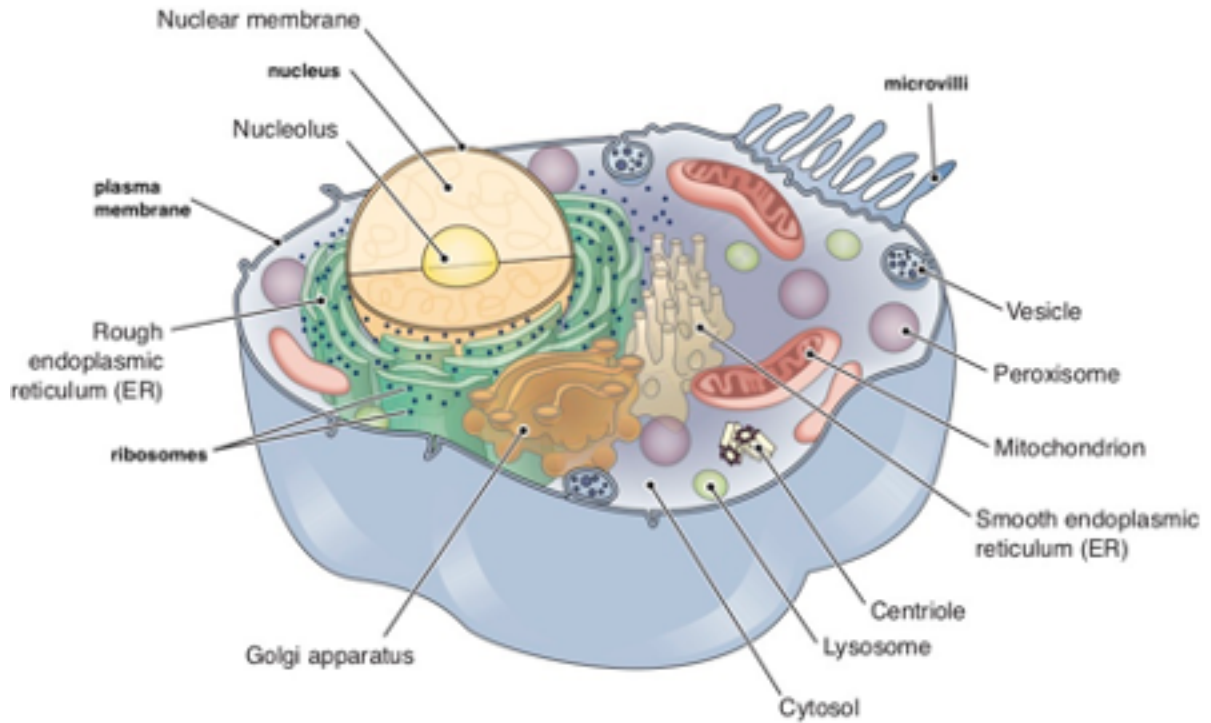
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

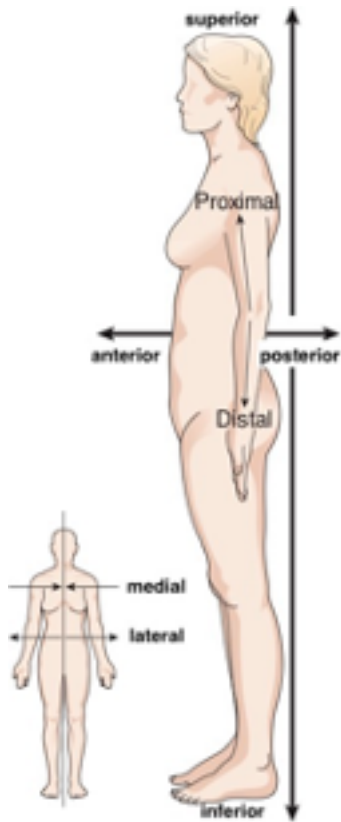
146. Labels: body as a whole, cell, chemicals, organ, organ system, tissue



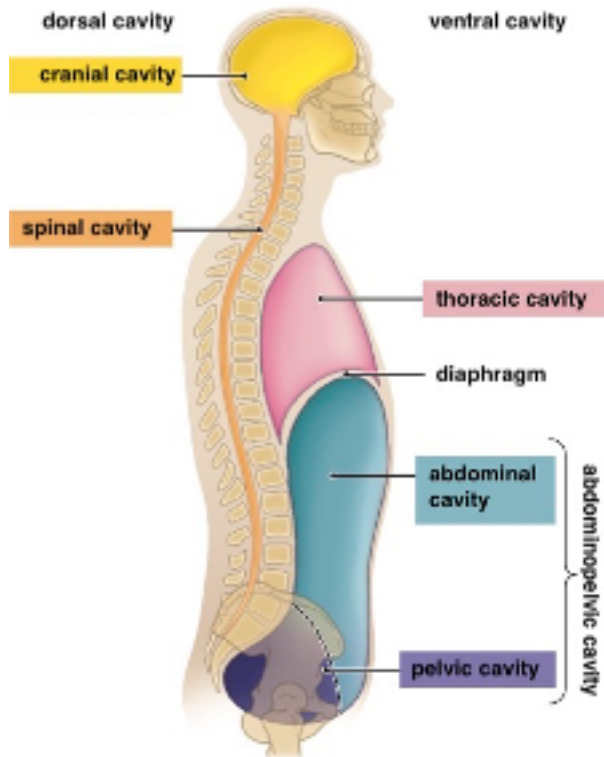
147. Labels: microvilli, nucleus, plasma membrane, ribosomes



148. Labels: anterior, inferior, lateral, medial, posterior, superior



149. Labels: abdominal cavity, abdominopelvic cavity, cranial cavity, diaphragm, dorsal cavity, pelvic cavity, spinal cavity, thoracic cavity, ventral cavity



## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Meningitis Discharge Summary

ADMITTING DIAGNOSIS: Meningitis, not otherwise specified. DISCHARGE DIAGNOSIS: Viral meningitis.

HISTORY OF PRESENT ILLNESS: The patient is a 3-year-old boy who presents with fever of 101, headache, photophobia, and vomiting. Two days prior to admission, he developed fever in the morning that progressed to a headache. On the following evening, he had decreased oral intake. He had never had any prior headaches. He denied neck stiffness, rashes, and mental status changes. He had positive mosquito bites, but no tick bites. He was seen at a local clinic and was found to have a positive rapid strep test. Otherwise, no sick contacts and no recent travel were reported. A lumbar puncture was performed in the emergency room, showing 159 white cells but no red cells. The cerebrospinal fluid showed protein of 24 and glucose of 81. CBC had a white blood cell count of 11.6, hemoglobin was 13, hematocrit 36, platelets 235 with 73 segs, 11 bands, and 12 lymphocytes.

PAST MEDICAL HISTORY: Asthma comes and goes with infectious triggers; diagnosed at 6 months. Pulmicort was taken this fall as well as albuterol, both via nebulizer. No hospitalizations or surgeries. Immunizations are up-to-date. Development is small for his age, but otherwise, he is on target developmentally.

BIRTH HISTORY: Full term. Delivered vaginally; no complications.

SOCIAL HISTORY: He lives with mother, father, and a 9-year-old sister. He has three cats at home.

FAMILY HISTORY: Asthma on his father's side. REVIEW OF SYSTEMS: As per history of present illness.

ADMITTING PHYSICAL EXAMINATION: Temperature 100.7, pulse 94, respiratory rate 24, blood pressure 106/52, weight 22.5 kg, height 119 cm. General appropriate, in no apparent distress, comfortable. Skin warm, dry, no rashes or lesions. HEENT showed head was mesocephalic, atraumatic. Pupils equal, round, reactive to light. Extraocular muscles are intact. Mucous membranes are moist and pink. Tympanic membranes are clear bilaterally. Neck has no lymphadenopathy; mildly increased stiffness with flexion. Chest is clear to auscultation bilaterally. Cardiac reveals a regular rate and rhythm, 2/6 systolic ejection murmur greatest at the left sternal border. Pulses are 2+ bilaterally. Abdomen is soft, nontender, and nondistended.

Normoactive bowel sounds. Genitalia normal; external genitalia circumcised. Musculoskeletal shows no joint stiffness and full range of motion in extremities. There is no lymphadenopathy. Neurologic exam is grossly intact with no focal deficits and no asymmetry.

HOSPITAL COURSE: On admission IV fluids were started. Tylenol was given for the headache as needed. Enterovirus PCR from CSF was sent. His headache and photophobia continued over the course of the first 24 hours. Temperature returned to normal. His oral intake was improving. Urine output was good. Enterovirus PCR came back positive. Culture showed no growth for 28 hours. Since he was doing well clinically, he was discharged home with his parents.

CONDITION AT DISCHARGE: Stable.

DISCHARGE MEDICATIONS: Tylenol as needed.

DISCHARGE ACTIVITY: As tolerated. DISCHARGE DIET: As before.

FOLLOW-UP: He is to schedule an appointment with his pediatrician within the week after discharge.

	<b>Answers</b>
150. A mesocephalic head is _____ an average size range.	<i>within</i>
151. The “head was atraumatic” means that the head _____.	<i>showed no signs of injury</i>
152. The patient is advised to see a pediatrician, a doctor who specializes in _____.	<i>the care and treatment of children</i>
153. The most correct definition of the word meningitis is _____.	<i>inflammation of the meninges</i>
154. The boy’s cerebrospinal fluid contained glucose. Glucose is a(n) _____.	<i>carbohydrate</i>
155. The boy’s cerebrospinal fluid contained blood cells. Blood is a type of _____.	<i>connective tissue</i>
156. The patient’s neurologic exam checked the function of a patient’s _____.	<i>nervous system</i>
157. The patient’s urine output was good. This suggests that his _____ system was functioning normally.	<i>urinary</i>
158. Examination of the patient’s digestive system revealed that it was functioning normally. The system could be described as being in a state of _____.	<i>homeostasis</i>

## Case Study 2: Exploratory Laparotomy and Splenectomy

PREOPERATIVE DIAGNOSIS: Blunt abdominal trauma.

POSTOPERATIVE DIAGNOSIS: Splenic laceration and hemoperitoneum.

PROCEDURE PERFORMED: Exploratory laparotomy and splenectomy.

### FINDINGS

1. Hemoperitoneum, about 1000 cc.
2. Splenic laceration, grade 3.

DESCRIPTION OF PROCEDURE: The patient was taken to the operating room where a Foley bladder catheter was placed using a sterile technique. The patient had two large-bore IVs inserted and was given high-rate boluses of fluids and blood. The abdomen and upper thighs were prepped from the nipples to the knees. The patient was sterilely draped. The anesthesiologist then put the patient to sleep, and the incision was made nearly simultaneously. The blood pressure did remain stable with the administration of blood.

The subcutaneous tissues were opened sharply to the fascia, which was also opened sharply. The peritoneum was grasped and carefully opened. The incision was opened along its length, which extended from the xiphoid to the infraumbilical region. A large amount of blood, mainly in the left hemiabdomen, was evacuated. Packs were placed in all four quadrants, starting with the left upper quadrant and then the right upper quadrant. There was a large gush of blood in the right upper quadrant, somewhat concerning for a liver injury. Once all four quadrants were packed with lap sponges and the patient remained stable, the packs were removed initially from the lower quadrants, revealing no injuries but adhesions and scarring around the cecum were noted. Then packs were removed from around the liver, and careful inspection of the right and left lobes of the liver revealed no injury.

The packs were gradually removed from the left upper quadrant, and it was found that the spleen was indeed lacerated in the lower half, fairly significantly. This was definitely the source of the bleeding. The peritoneal attachments were quickly divided bluntly. The hilum was isolated. The splenic vessels were divided between straight clamps, and the spleen was removed. Packs were held over the area until hemodynamic stability could again be confirmed. The blood vessels were then controlled with suture ligatures of 0 Vicryl. Short gastric vessels were also ligated. A pack was placed, and again the rest of the abdomen was explored. The adhesions in the right lower quadrant were divided so that the omentum could be freed up. Once this was done, the small bowel was run from the ligament of Treitz to the cecum, and no injury was noted. The entire colon was inspected, and again no injury was noted. The left upper quadrant was again inspected, and another 3-0 silk suture ligature was used to complete the hemostasis. Hemostasis was good. An NG tube was positioned and noted to be in good location. All of the packs were removed.

The fascia was closed with running 0 Vicryl suture. Given the large amount of lap sponges used, abdominal films were taken, which revealed no evidence of retained lap sponges. Subcutaneous tissues were irrigated, and the skin was closed with staples. The patient tolerated the procedure well and was transported to the ICU in good condition.

	Answers
159. A laparotomy is a(n) _____	<i>incision through the abdominal wall</i>
160. IV stands for intravenous. This medical term means _____	<i>within a vein</i>
161. A medical specialist responsible for administering sedatives and pain-blocking medications is called a(n) _____	<i>anesthesiologist</i>
162. The word infraumbilical means _____ the belly button.	<i>below</i>
163. The word hemiabdomen refers to _____	<i>half of the abdominal cavity</i>
164. The liver is located in the _____	<i>RUQ</i>
165. When surgeons are operating on a spleen, they are working in the _____ region of the abdominal cavity.	<i>left hypochondriac</i>
166. The liver and spleen are located in the _____ cavity.	<i>ventral</i>
167. The colon is an organ that belongs to the _____ system	<i>digestive</i>
168. The word subcutaneous means _____	<i>the skin</i>



# Worksheet Answer Key

## Disease and Treatment

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Pathogens are parasites.	✓	
2. The cause of a disease is its etiology.	✓	
3. Diabetes mellitus is a type of neoplasia.		✓
4. Bacilli are round-shaped bacteria.		✓
5. Adaptive immunity results from contact with disease organisms.	✓	
6. A benign tumor usually metastasizes and becomes malignant.		✓
7. The term tachycardia refers to an increased heart rate.	✓	
8. Xeroderma is moistness of the skin.		✓
9. Osteomalacia is a disease characterized by abnormal hardening of bone tissue.		✓
10. The suffix -rhage means “profuse flow.”	✓	
11. A stethoscope can be used to auscultate the heart and lungs.	✓	
12. A sphygmomanometer measures radiation.		✓
13. Radiography uses sound waves to image dense tissues like bone.		✓
14. Palliative treatment provides relief but is not intended as a cure.	✓	
15. The suffix -ectomy refers to the removal of a body part by cautery.		✓
16. A sign provides objective evidence of a disease.	✓	
17. Syncope is the medical term for fainting.	✓	

18. Staging is used to classify infectious diseases.		✓
19. Frostbite may result in cryalgnesia.	✓	
20. Neurotripsy refers to cutting a nerve.		✓
21. The FDA is responsible for ensuring that a drug is safe and effective.	✓	
22. A drug is a substance that alters body function.	✓	
23. A drug antagonist helps another drug work more efficiently.		✓
24. Anaphylaxis is a severe allergic reaction.	✓	
25. The chemical name for aspirin is acetylsalicylic acid.	✓	
26. OTC drugs can only be purchased with a prescription.		✓
27. An analgesic is used to treat edema.		✓
28. An antipyretic drug helps to raise body temperature.		✓
29. Anticoagulants prevent the formation of blood clots.	✓	
30. A suppository is ingested orally.		✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
31. Protrusion of an organ through an abnormal body opening is a(n) _____.	<i>hernia</i>
32. Toxin is the scientific name for a(n) _____.	<i>poison</i>
33. Cells of the immune system surround and engulf foreign organisms by the process of _____.	<i>phagocytosis</i>
34. Heat, pain, redness, and swelling are signs of _____.	<i>inflammation</i>
35. The general term for any abnormal and uncontrolled growth of tissue, such as a tumor, is a(n) _____.	<i>neoplasm</i>
36. A disease that is sudden and severe is described as _____.	<i>acute</i>
37. A metastatic neoplasm is described as _____.	<i>malignant</i>
38. The suffix -oma means _____.	<i>tumor</i>
39. The suffix -itis means _____.	<i>inflammation</i>
40. The general term for accumulation of fluid in the tissues is _____.	<i>edema</i>
41. The common cold is caused by a(n) _____.	<i>virus</i>
42. The root myc/o pertains to a mold or _____.	<i>fungus</i>
43. The suffix -rhexis means _____.	<i>rupture</i>
44. An abnormal passageway between two organs is a(n) _____.	<i>fistula</i>
45. A disease outbreak that affects many people in a given region is called a(n) _____.	<i>epidemic</i>
46. The cause of a disease is its _____.	<i>etiology</i>
47. The common name for a helminth is a(n) _____.	<i>worm</i>
48. Death of tissue is _____.	<i>necrosis</i>
49. The most common stain used in bacteriology is the _____ stain.	<i>Gram</i>
50. A word, sometimes used as a suffix, that means "separation," "dissolving," or "destruction" is _____.	<i>lysis</i>
51. The term for a type of neoplasm that does not spread is _____.	<i>benign</i>
52. The cause of a disease is its _____.	<i>etiology</i>
53. Hardening of tissue is known as _____.	<i>sclerosis</i>
54. _____ means "dropping," "downward displacement," or "prolapse."	<i>ptosis</i>
55. A rod-shaped bacterium is a(n) _____.	<i>bacillus</i>
56. A round bacterium that forms clusters is _____.	<i>staphylococcus</i>

57. Extremely small bacteria that grow in living cells but are susceptible to antibiotics are _____.	<i>rickettsia</i>
58. A malignant neoplasm composed of epithelial cells is a(n) _____.	<i>carcinoma</i>
59. Softening of a bone is a condition known as _____.	<i>osteomalacia</i>
60. Determination of the nature and cause of an illness is termed _____.	<i>diagnosis</i>
61. Removal of tissue for microscopic examination is called _____.	<i>biopsy</i>
62. Treatment with chemicals is termed _____.	<i>chemotherapy</i>
63. Obtaining images by use of x-rays is termed _____.	<i>radiography</i>
64. The root therm/o means _____.	<i>temperature</i>
65. A photograph is made by the action of _____.	<i>light</i>
66. A chronology is arranged according to _____.	<i>time</i>
67. A beam of intense light used for surgery and diagnosis is a(n) _____.	<i>laser</i>
68. Prediction of the course and outcome of a disease is a(n) _____.	<i>prognosis</i>
69. In diagnosis, temperature, pulse rate, respiration rate, and blood pressure together make up the _____.	<i>vital signs</i>
70. A simple instrument used to listen to body sounds is a(n) _____.	<i>stethoscope</i>
71. Tapping the body to evaluate tissue according to the sounds produced is called _____.	<i>percussion</i>
72. Pleural fusion is termed _____.	<i>pleurodesis</i>
73. The abbreviation Hx means _____.	<i>history</i>
74. The abbreviation WNL means _____.	<i>within normal limits</i>
75. An instrument used for listening to sounds produced within the body is a(n) _____.	<i>stethoscope</i>
76. Listening to body sounds with a stethoscope is called _____.	<i>auscultation</i>
77. Loss of the ability to feel pain, as by administration of a drug, is known as _____.	<i>anesthesia</i>
78. The term for the practice of treating a person as a whole entity is _____ practice.	<i>holistic</i>
79. A cut, as for surgery, or the act of cutting is _____.	<i>incision</i>
80. Prevention of disease is known as _____.	<i>prophylaxis</i>
81. A lasting effect of a disease is a(n) _____.	<i>sequela</i>
82. A temporary loss of consciousness because of inadequate blood flow to the brain, or fainting, is known as _____.	<i>syncope</i>
83. Profuse sweating is called _____.	<i>diaphoresis</i>
84. An OTC drug can be obtained without a(n) _____.	<i>prescription</i>

85. Combinations of drugs may have a greater effect than either drug acting alone. This phenomenon is called synergy or _____.	<b>potentiation</b>
86. The scientific term for a poison is _____.	<b>toxin</b>
87. An analgesic is a drug that relieves _____.	<b>pain</b>
88. With reference to drugs, the opposite of indicated is _____.	<b>contraindicated</b>
89. The study of drugs and drug actions is called _____.	<b>pharmacology</b>
90. A subcutaneous injection is given under the _____.	<b>skin</b>
91. Antiarrhythmics, beta blockers, and hypolipidemics are used to treat diseases of the _____.	<b>heart</b>
92. A sublingual drug is administered under the _____.	<b>tongue</b>
93. A transdermal drug is absorbed through the _____.	<b>skin</b>
94. Antineoplastic drugs are used to treat _____.	<b>cancer</b>
95. Chronic use of a drug can result in a decrease in its efficacy. This is called _____.	<b>tolerance</b>
96. How well a drug works is termed its _____.	<b>efficacy</b>
97. The abbreviation for prescription is _____.	<b>Rx</b>
98. Drugs are injected using a needle with a(n) _____.	<b>syringe</b>
99. A mixture in which one liquid is dispersed but not dissolved in another liquid is a(n) _____.	<b>emulsion</b>
100. A pleasant-tasting medicated tablet or disk to be dissolved in the mouth is a(n) _____.	<b>lozenge</b>
101. A drug used to reduce or eliminate sensation is known as a(n) ____.	<b>anesthetic</b>
102. A drug used to induce sleep or dull the senses and also used as an antianxiety agent is a(n) _____.	<b>hypnotic</b>
103. Another name for an herbal medicine is a(n) _____.	<b>phytomedicine</b>
104. _____ means beneath the skin.	<b>subcutaneous</b>
105. A(n) _____ is a preparation consisting of a substance dissolved in water.	<b>aqueous solution</b>
106. _____ is an herbal medicine used for stress reduction.	<b>ginseng</b>
107. A(n) _____ is a cellular organelle that helps to digest foreign material after phagocytosis.	<b>lysosome</b>
108. A bronchoscope is a type of _____.	<b>endoscope</b>
109. Eye drops are administered by _____.	<b>instillation</b>
110. The thin tube inserted for a PICC line is called a(n) _____.	<b>catheter</b>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
111. arteriosclerosis	<i>D</i>	A. rapid breathing
vasodilation	<i>B</i>	B. widening of a vessel
tachypnea	<i>A</i>	C. stone formation
lithiasis	<i>C</i>	D. hardening of an artery
112. osteomalacia	<i>C</i>	A. rupture of the liver
osteoclasts	<i>D</i>	B. enlargement of the liver
hepatorrhhexis	<i>A</i>	C. softening of a bone
hepatomegaly	<i>B</i>	D. breaking of a bone
113. myalgia	<i>D</i>	A. prolapse of the kidney
adenodynia	<i>C</i>	B. fissure of the chest
thoracoschisis	<i>B</i>	C. pain in a gland
nephroptosis	<i>A</i>	D. pain in a muscle
114. hemostasis	<i>C</i>	A. abnormal breathing
oncolysis	<i>B</i>	B. destruction of a tumor
dyspnea	<i>A</i>	C. stoppage of blood flow
pyrexia	<i>D</i>	D. fever
115. sphygmomanometer	<i>D</i>	A. listening to body sounds
colic	<i>B</i>	B. acute abdominal pain
auscultation	<i>A</i>	C. examination by touching
palpation	<i>C</i>	D. blood pressure apparatus
116. bruit	<i>C</i>	A. imaging technique using magnets and radio waves
sequela	<i>B</i>	B. a lasting effect of a disease
MRI	<i>D</i>	C. abnormal sound heard in auscultation
CT	<i>A</i>	D. imaging technique using computers and x-rays

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117. anaerobic	<i>B</i>	A. pertaining to color
chromatic	<i>A</i>	B. not requiring oxygen
gastropexy	<i>D</i>	C. puncture of a joint
arthrocentesis	<i>C</i>	D. surgical fixation of the stomach

---

118. cryalgnesia	<i>B</i>	A. puncture of the abdomen
echography	<i>C</i>	B. pain caused by cold
celiocentesis	<i>A</i>	C. imaging with sound waves
barotrauma	<i>D</i>	D. injury caused by pressure

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119. chemotherapy	<i>C</i>	A. acting on the mind
pharmacology	<i>B</i>	B. study of drugs
gonadotropic	<i>D</i>	C. treatment with drugs
psychotropic	<i>A</i>	D. acting on the sex glands

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120. syringe	<i>B</i>	A. agent that induces coughing
antiemetic	<i>C</i>	B. instrument used for injection
expectorant	<i>A</i>	C. relieving nausea
antitussive	<i>D</i>	D. cough suppressant

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121. emulsion	<i>C</i>	A. agency that regulates drug safety
vial	<i>D</i>	B. aspirin
FDA	<i>A</i>	C. a mixture of liquids
ASA	<i>B</i>	D. small glass container

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122. po	<i>C</i>	A. applied to the skin
qid	<i>B</i>	B. four times a day
qam	<i>D</i>	C. by mouth
topical	<i>A</i>	D. every morning

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## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
123. sist	<i>cyst</i>
124. eh-DE-mah	<i>edema</i>
125. e-te-OL-o-je	<i>etiology</i>
126. LE-zhun	<i>lesion</i>
127. mah-LIG-nant	<i>malignant</i>
128. meh-TAS-tah-sis	<i>metastasis</i>
129. neh-KRO-sis	<i>necrosis</i>
130. NE-o-plazm	<i>neoplasm</i>
131. fag-o-si-TO-sis	<i>phagocytosis</i>
132. SEP-sis	<i>sepsis</i>
133. TRAW-mah	<i>trauma</i>
134. tak-IP-ne-ah	<i>tachypnea</i>
135. dis-FA-je-ah	<i>dysphagia</i>
136. ze-RO-sis	<i>xerosis</i>
137. tho-rah-KOS-kih-sis	<i>thoracoschisis</i>
138. i-at-ro-JEN-ik	<i>iatrogenic</i>
139. an-es-THE-ze-ah	<i>anesthesia</i>
140. KRON-ik	<i>chronic</i>
141. kar-sih-NO-mah	<i>carcinoma</i>
142. be-NINE	<i>benign</i>
143. di-ag-NO-sis	<i>diagnosis</i>
144. ek-SIZH-un	<i>excision</i>
145. of-THAL-mo-skope	<i>ophthalmoscope</i>
146. PAL-e-ah-tiv	<i>palliative</i>
147. ra-de-OG-rah-fe	<i>radiography</i>
148. sfig-mo-mah-NOM-eh-ter	<i>sphygmomanometer</i>

	Answers
149. STETH-o-skope	<i>stethoscope</i>
150. ki-ro-PRAK-tik	<i>chiropractic</i>
151. os-te-OP-ah-the	<i>osteopathy</i>
152. SIN-kro-ne	<i>synchrony</i>
153. an-er-O-bik	<i>anaerobic</i>
154. si-ah-NO-sis	<i>cyanosis</i>
155. lap-ah-ROS-ko-pe	<i>laparoscopy</i>
156. mah-LAZE	<i>malaise</i>
157. di-ah-fo-RE-sis	<i>diaphoresis</i>
158. SIN-ko-pe	<i>syncope</i>
159. aws-kul-TA-shun	<i>auscultation</i>
160. BI-op-se	<i>biopsy</i>
161. KAW-ter-e	<i>cautery</i>
162. lith-o-TRIP-se	<i>lithotripsy</i>
163. fi-to-MED-ih-sin	<i>phytomedicine</i>
164. po-ten-she-A-shun	<i>potentiation</i>
165. SIN-er-je	<i>synergy</i>
166. ang-zi-o-LIT-ik	<i>anxiolytic</i>
167. hi-po-der-MOK-lih-sis	<i>hypodermoclysis</i>
168. ad-ren-ER-jik	<i>adrenergic</i>
169. an-al-JE-sik	<i>analgesic</i>
170. an-ti-ko-AG-u-lant	<i>anticoagulant</i>
171. an-te-eh-MET-ik	<i>antiemetic</i>
172. kor-tih-ko-STER-oyd	<i>corticosteroid</i>



	Answers
173. an-te-ah-RITH-mik	<i>antiarrhythmic</i>
174. di-u-RET-ik	<i>diuretic</i>
175. si-ko-TROP-ik	<i>psychotropic</i>
176. JIN-seng	<i>ginseng</i>
177. sub-ku-TA-ne-us	<i>subcutaneous</i>

	Answers
178. an-ah-fih-LAK-sis	<i>anaphylaxis</i>
179. an-TAG-o-nist	<i>antagonist</i>
180. kon-trah-in-dih-KA-shun	<i>contraindication</i>
181. EF-ih-kah-se	<i>efficacy</i>
182. ek-SPEK-to-rant	<i>expectorant</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
184. Inflammation of lung air passages	<i>bronch-itis</i>
185. Contraction and narrowing of lung air passages	<i>bronch-o-spasm</i>
186. Excessive secretion of mucus into lung air passages	<i>bronch--o-r-rhea</i>
187. Causing a tumor	<i>onc-o-gen-ic</i>
188. Agent that causes disease	<i>path-o-gen</i>
189. Study of tumors	<i>onc-o-logy</i>
190. Causing formation of pus	<i>py-o-gen-ic</i>
191. Discharge of pus	<i>py-o-r-rhea</i>
192. Destruction of a tumor	<i>onc-o-lysis</i>
193. Study of disease	<i>path-o-logy</i>

### Part 1 Word Bank

ad	gen	ist
logy	mal	o
path	py	rhea
bronch	ic	itis
lysis	necr	onc
plasia	r	spasm

Part 2	Answers
194. Fusion of a joint	<i>arthr-o-desis</i>
195. Endoscopic examination of a joint	<i>arthr-o-scopy</i>
196. Surgical repair of an abdominal wound	<i>celi-o-r-rhaphy</i>
197. Without color	<i>a-chromat-ic</i>
198. Puncture of a joint	<i>arthr-o-centesis</i>
199. Having excess color	<i>hyper-chromat-ic</i>
200. Puncture of the abdomen	<i>celi-o-centesis</i>
201. Endoscopic examination of the abdomen	<i>celi-o-scopy</i>
202. Plastic repair of a joint	<i>arthr-o-plasty</i>
203. Producing color	<i>chromat-o-gen-ic</i>

Part 3	Answers
204. Counteracts fever	<i>anti-pyret-ic</i>
205. Relieves symptoms of mental illness	<i>anti-psych-o-tic</i>
206. Injection into the space between the meninges and the spine	<i>epi-dur-al</i>
207. A hormone produced by the adrenal glands	<i>epi-nephr-ine</i>
208. Injection into a vein	<i>intra-ven-ous</i>
209. Injection into the skin	<i>intra-derm-al</i>
210. Injected into connective tissue under the skin	<i>hypo-derm-ic</i>
211. Drug that induces sleep	<i>hypn-o-tic</i>
212. Study of drugs	<i>pharmac-o-logy</i>
213. Drug that eliminates pain	<i>an-alges-ic</i>

### Part 2 Word Bank

a	desis	o
arthr	gen	plasty
celi	hyper	r
centesis	hypo	rhaphy
chromat	ic	scopy

### Part 3 Word Bank

al	psych	logy
ine	anti	ven
ous	hypn	epi
alges	pyret	nephr
infra	derm	ic
pharmac	hypo	o
an	tic	
intra	dur	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

acute	benign	cocci	path
algi	chlamydia	lith	scler
bacilli	chronic	neoplastic	spirochetes

#### Part 1

#### Answers

214. types of bacteria	<i>cocci, spirochetes, chlamydia, bacilli</i>
215. terms describing diseases	<i>chronic, benign, acute, neoplastic</i>
216. roots pertaining to disease	<i>path, scler, algi, lith</i>

### Part 2 Word Bank

auscultation	-meter	percussion	-scope
-centesis	-metry	-pexy	stethoscope
-graphy	palpation	-plasty	-stomy

#### Part 2

#### Answers

217. terms pertaining to diagnosis	<i>stethoscope, auscultation, percussion, palpation</i>
218. suffixes for examining, measuring	<i>-scope, -graphy, -meter, -metry</i>
219. suffixes related to surgery	<i>-plasty, -pexy, -centesis, -stomy</i>

### Part 3 Word Bank

aerosol	beta-blocker	elixir	nitrate
antiarrhythmic	bronchodilator	emulsion	mucolytic
antitussive	calcium channel blocker	expectorant	tincture

#### Part 2

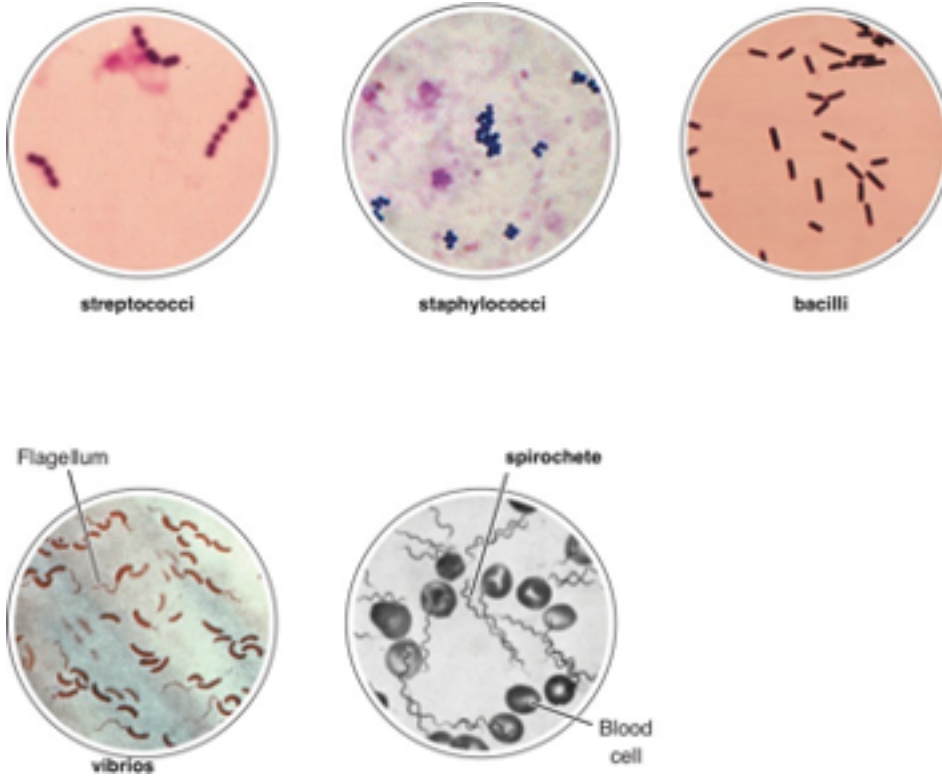
#### Answers

220. cardiac drugs	<i>beta-blocker, nitrate, antiarrhythmic, calcium channel blocker</i>
221. respiratory drugs	<i>expectorant, antitussive, mucolytic, bronchodilator</i>
222. drug preparations	<i>emulsion, tincture, elixir, aerosol</i>

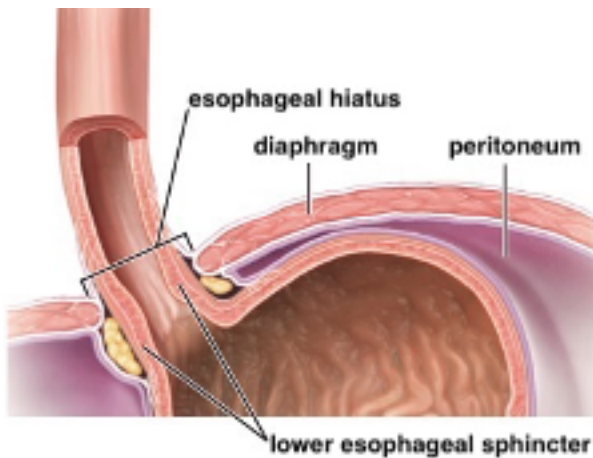
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

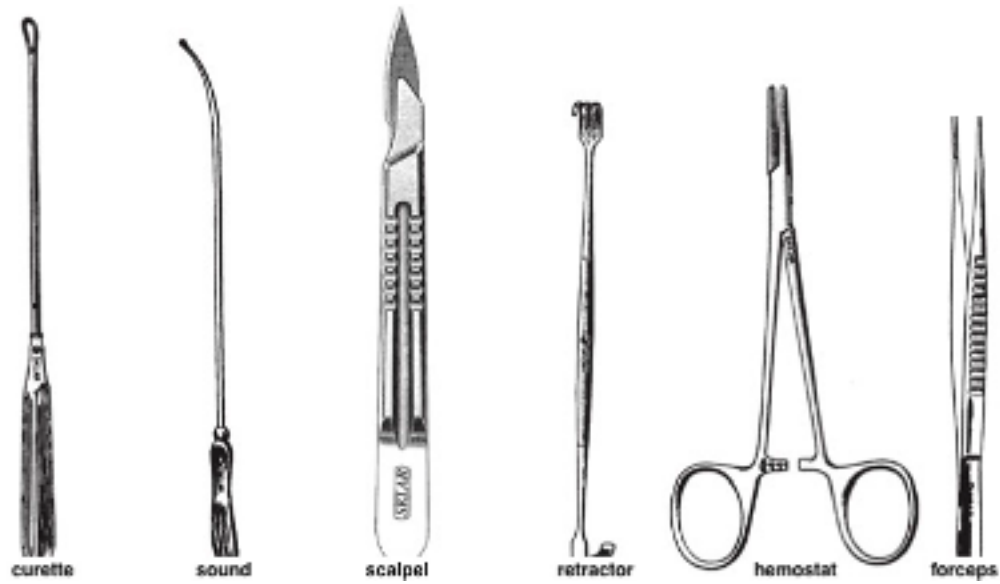
223. Labels: bacilli, spirochetes, staphylococci, streptococci, vibrios



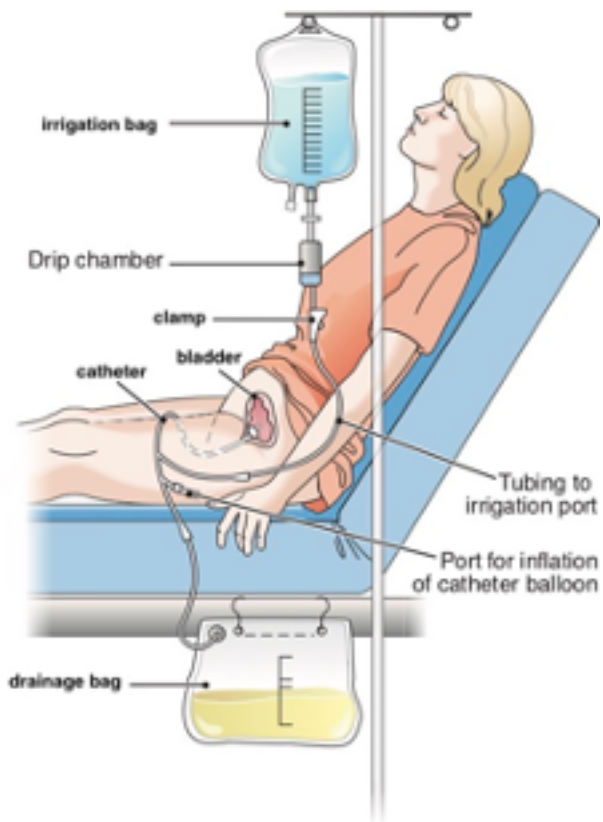
224. Labels: diaphragm, esophageal hiatus, lower esophageal sphincter, peritoneum



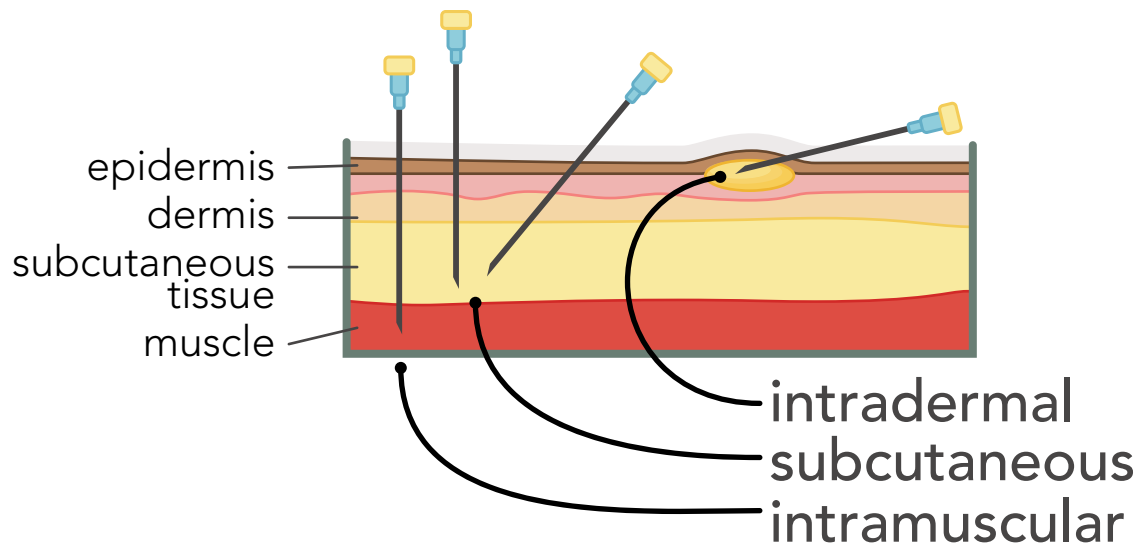
225. Labels: curette, forceps, hemostat, retractor, scalpel, sound



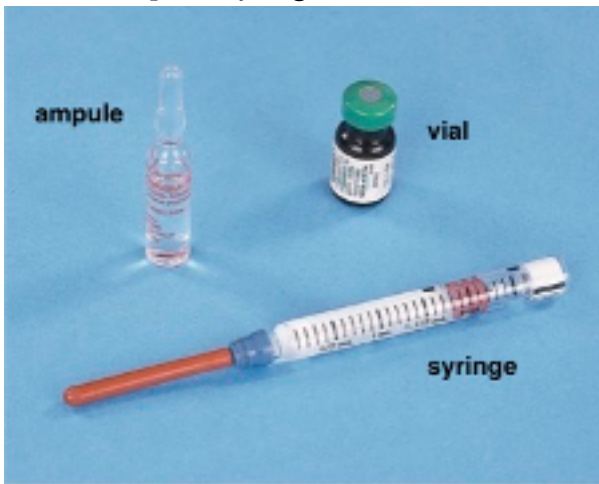
226. Labels: bladder, catheter, clamp, drainage bag, irrigation bag



227. Labels: muscle, skin, subcutaneous tissue



228. Labels: ampule, syringe, vial



## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Bacteremia Consultation

**HISTORY OF PRESENT ILLNESS:** This is an elderly gentleman, transferred from his nursing home for evaluation of positive blood cultures.

**PAST MEDICAL HISTORY:** The patient has a recent hospitalization for subdural hematoma that was managed conservatively. The patient has a prior history of hypertension, type 2 diabetes, significant obesity, benign prostatic hypertrophy with urinary outflow obstruction, history of diverticular disease, significant degenerative arthritis, chronic obstructive pulmonary disease, tobacco use, and chronic anemia. The patient also has a history of an exploratory laparotomy for a gunshot wound. The patient has chronic renal insufficiency but is not on dialysis at this time.

**FAMILY HISTORY:** Both parents with diabetes and coronary disease. One brother recently died of lung cancer.

**SOCIAL HISTORY:** The patient is widowed since 1985 and lived independently in his own apartment until recently. He has one son and one niece who assist with his care. The patient did smoke in the past, quitting several years ago. The patient denies history of heavy alcohol use. He worked in construction after leaving the military.

**ALLERGIES:** The patient has no known antibiotic allergies.

**REVIEW OF SYSTEMS:** The patient has some tenderness of his wrist. The patient states that he has constipation and abdominal distention. The patient reports dysuria and has a Foley catheter in place with some discomfort. The patient denies nausea, vomiting, or respiratory symptoms of cough or shortness of breath. No orthopnea or nocturnal dyspnea. No angina or other chest pain. The patient has degenerative arthritis. The patient has chronic dystrophic changes of skin but no ulcers or skin breakdown. The patient has poor dentition. The patient denies recent weight change. Review of systems, otherwise, is negative.

**PHYSICAL EXAMINATION:** The patient is an elderly, somewhat chronically debilitated gentleman in no acute distress, awake, nontoxic. The patient is somewhat vague on details and somewhat unreliable in history. Vitals signs: current temperature 98.4, blood pressure is 169/75 with a heart rate of 75 and respiratory rate of 22. HEENT with pupils equal and reactive to both light and accommodation, without overt icterus or conjunctivitis. Ears no pathology. Mouth no active oral lesions. The patient is missing teeth. No thrush, no adenopathy in cervical, jugular, axillary region. Neck with an 8-cm jugular venous distention, but no bruits. Lungs have good air entry bilaterally with few rales in both bases; no overt consolidation and no wheeze. Heart sounds S1 and S2 audible; there are no overt gallops, rubs, murmurs. Abdomen is soft, nontender; bowel sounds present. Liver normal size by percussion, 10-cm span. Spleen tip is not palpable. No renal angle tenderness, guarding, or rebound. The patient had mild abdominal distention. The patient does not have overt bladder distention. Foley catheter is in place. The patient has 1+ edema in his lower extremities with chronic dystrophic changes of skin and palpable pulses, but no critical ischemia. The patient moves upper and lower extremities symmetrically and has no overt cranial nerve abnormality. The patient has erythema, warmth, and swelling of his right wrist at the site of a prior IV, but no evidence of abscess or purulence. Good range of motion of wrist, elbow, knees, and ankles.

**LABORATORY DATA:** Labs drawn on admission: complete blood count and a comprehensive metabolic panel are pending. Chest x-ray pending.

## IMPRESSION AND PLAN

1. Bacteremia, most likely urinary tract infection. Blood cultures collected prior to discharge are positive for *Klebsiella pneumoniae*, susceptible to Zosyn, cefazolin, ceftriaxone, ceftazidime, and aztreonam, but resistant to ampicillin. Blood cultures to be repeated at this time to see if bacteremia persists.

2. The patient does have erythema and cellulitis of his wrist.

3. At this time the patient is afebrile, without sepsis.

4. Would request renal sonogram, specifically to evaluate for obstruction.

5. Will make dosage adjustments of medications when renal function is established.

6. At this time would favor stopping Zosyn, stop Levaquin, start ceftriaxone 2 g intravenously daily. If the patient remains afebrile and shows clinical improvement, would consider discharging on p.o. Levaquin 250 mg daily to complete a 14-day course.

The above findings were reviewed with Dr. Adams. Thank you for this consultation.

	Answers
229. The patient's family history indicates that his brother recently died of lung cancer. Cancer is a(n) ____ disorder.	<i>neoplastic</i>
230. The patient has a prior history of benign prostatic hypertrophy. This particular type of ____ will not spread.	<i>neoplasm</i>
231. The patient's physical examination indicated that he was not in acute distress. The opposite of acute is ____.	<i>chronic</i>
232. The patient presented with edema in his lower extremities. Another word for edema is ____.	<i>swelling</i>
233. The patient has redness, warmth, and swelling of his right wrist. These are classic signs of ____.	<i>inflammation</i>
234. There was no evidence of purulence in his right wrist, meaning there was no evidence of ____.	<i>suppuration</i>
235. Blood cultures collected prior to discharge were positive for the bacterium <i>Klebsiella pneumoniae</i> . Based on this information, the patient's disease is ____.	<i>infectious</i>
236. Prior to discharge, the patient was without sepsis. In other words, the patient did not have harmful microorganisms or their toxins in his ____.	<i>blood</i>
237. In addition to bacteremia, the patient is diagnosed with cellulitis. The word cellulitis means ____.	<i>spreading tissue inflammation</i>



## Case Study 2: Pneumocystis Pneumonia Assessment

REASON FOR CONSULTATION: Rule out Pneumocystis Pneumonia.

HISTORY OF PRESENT ILLNESS: This is a 53-year-old gentleman I am asked to evaluate for what appears to be Pneumocystis pneumonia and a new diagnosis of AIDS. I have reviewed the medical records and spoken to both the patient and his adopted son.

The patient indicates that about 3 weeks ago, he began experiencing a progressive dry, nonproductive cough, shortness of breath, dyspnea on exertion, and fevers. In addition, he has anorexia and approximately a 10-pound weight loss. Because of the progressive nature of his symptoms, he presented to his primary care physician, who thought he had an atypical infection. He was therefore given a 5-day course of Zithromax. Unfortunately, the patient did not show clinical improvement and reappeared 4 days later for reevaluation. His physician then obtained a chest x-ray, which demonstrated bilateral interstitial infiltrates, and for that reason, he was admitted. He was empirically placed on Levaquin and Rocephin and was seen by the specialist from pulmonary services. There were concerns about the possibility of HIV, and appropriate serology was obtained. Today the patient was informed that his HIV status was positive, and he was placed on Septra and steroids. In addition, he was continued with the Levaquin and Rocephin.

At present, the patient's primary complaints relate to his extreme shortness of breath, dyspnea on exertion, and dry and nonproductive cough. He is not aware of any new head and neck complaints, GI, or GU complaints. The patient is homosexual and has had multiple partners but has not been sexually active for about 4 years. He had checked his HIV status many years ago but not recently. He did not know the status of any of his partners. He resides in his own apartment. His only animal contact is with cats. He does not hunt, fish, camp, hike, or have any water exposures. He does not do any extensive gardening. His travels have included Vietnam in the 1970s, Brazil, and Australia, but nowhere in the Middle East, Egypt, or Africa. In the United States, he has been in central California, Texas, and New York, but not in the Mississippi Valley. With regard to tuberculosis (TB), he had never had an active disease, but he states his PPD was known to be positive for the last 20 years. He never recalled receiving INH prophylaxis. The other interesting aspect is that he is known to have both hepatitis B and C, although he has never received any therapy for these infections. He denies any intravenous (IV) drug abuse. He denies any history of syphilis, gonorrhea, or herpes. No previous hypertension, diabetes, cardiac, or kidney problems.

PAST MEDICAL HISTORY: Significant for hepatitis B and C, colonic polyps, and positive PPD.

PAST SURGICAL HISTORY: Significant for tonsillectomy, tympanoplasty, repair of the tendon on the right first toe.

MEDICATIONS: Include Levaquin, Rocephin, Septra, and steroids. ALLERGIES: None.

SOCIAL HISTORY: Smoked one pack per day x 45 years. Ethanol discontinued in 1985. He is a manager for a computer company.

REVIEW OF SYSTEMS: As above.

PHYSICAL EXAMINATION: Reveals acutely ill gentleman lying in bed who is in mild respiratory distress as soon as he starts talking. Vital signs reveal that initially his temperature was as high as 103 degrees, but today he is afebrile. Head was unrevealing. Eyes are benign. Sinuses are nontender. Oral cavity is without significant thrush. Neck is supple with no significant adenopathy. Back is benign with no costovertebral angle (CVA) tenderness. Chest demonstrates bilateral dry rales heard throughout. No pleural rub is heard. His heart was tachycardic, S1-S2 without significant rub. He does have a flow murmur of about 2/6. Bowel sounds are present. Abdomen is soft and nontender. No guarding or rebound. Liver and spleen are not palpable. Normal male genitalia without a Foley. Rectal exam deferred. Extremities without any unusual rash, lesions, or joint effusions. Neurologically he is awake, alert, and oriented x 3.

LABORATORY DATA: Potassium 3.4, glucose 191, BUN 10, creatinine 0.7, albumin 2.5, total bilirubin 1.2. SGOT of 90, SGPT 51, LDH 300, alkaline phosphatase 65. His white blood count is 1600, H&H 12.7 and 36.6. Platelets 66,000. Differential shows 87 polys, 7 bands, 5 lymphs. Chest x-ray shows

the diffuse interstitial changes consistent with Pneumocystis pneumonia. HIV is positive. Western blot pending.

ASSESSMENT: Rule out Pneumocystis pneumonia.

I respect your concerns and believe that Pneumocystis is the leading diagnosis. The fact that he did not show any response to Zithromax speaks against the atypical pneumonia. As such, I think it is unlikely that you are dealing with Legionella, Mycoplasma, or psittacosis. In light of the fact that he is now HIV positive, the 3-week history of fever, shortness of breath, dyspnea on exertion, dry cough, elevated LDH, and chest x-ray findings are all consistent with Pneumocystis. With that in mind, I certainly agree with using Septra at 15 mg/kg per day. In addition, I agree with steroids to reduce inflammation, but I believe that the dose can be reduced. Since I do not believe that we are dealing with a community-acquired pneumonia, I have discontinued the Levaquin and Rocephin. I did review with the patient and his son the nature of this infection, the magnitude of the illness, and the fact that mortality can reach 15 percent to 20 percent despite best efforts. In addition, Septra is not always well tolerated by patients, and it may lead to the formation of rashes or other complications. If he does fail Septra, he would need bronchoscopy to confirm the etiology. In light of all the above, we would expect to document that he has acquired immunodeficiency syndrome. I expect that his CD4 count is less than 200. We will not entertain antivirals until he has completely recovered from his pneumonia. This can be reviewed with him as an outpatient. Hepatitis B and C per primary care physician.

PLAN: Discontinue Rocephin and Levaquin. Change the Septra to 320 mg of trimethoprim IV q.8h. Decrease Solu-Medrol to 40 mg IV q.8h. Get an a.m. lymphocyte enumeration panel. HIV viral load by PCR. RPR. Hepatitis A total antibody. If the patient were to fail Septra, we would need bronchoscopy to establish a clear diagnosis.

	Answers
238. Dyspnea means _____.	<i>abnormal or painful breathing</i>
239. The prefix in atypical means _____.	<i>not</i>
240. Bilateral interstitial infiltrates appear _____.	<i>in both lungs</i>
241. The tuberculosis (TB) organism is identified with a(n) _____.	<i>acid-fast stain</i>
242. Hepatitis is inflammation of the _____.	<i>liver</i>
243. The term intravenous means _____.	<i>within a vein</i>
244. A colonic polyp is a(n) _____ in the colon.	<i>tumor</i>
245. An afebrile patient has _____.	<i>adenopathy</i>
246. Any disease of glands is a(n) _____.	<i>no fever</i>
247. Examination showed that the patient's back was benign. This means that _____.	<i>it showed no abnormalities or disorders</i>
248. A joint effusion is _____ in a joint.	<i>fluid</i>
249. A tachycardic heart shows a(n) _____ beat.	<i>rapid</i>
250. A disease's etiology is its _____.	<i>cause</i>

### Case Study 3: Operative Report

PREOPERATIVE DIAGNOSIS: Left temporal metastatic tumor.

POSTOPERATIVE DIAGNOSIS: Left temporal metastatic tumor by frozen section diagnosis of large cell adenocarcinoma, most probably from the lung.

#### PROCEDURES

1. Left temporal craniotomy for complete excision of the metastatic tumor.
2. Insertion of ICP monitor. ANESTHESIA: General endotracheal. ESTIMATED BLOOD LOSS: 25 cc.

CLINICAL SUMMARY: This 75-year-old woman presented with relative subacute dysphasia, agitation, and significant mental changes. Her H&P discovered a ring-enhancing lesion of the left medial temporal lobe. A very small possible lesion was also noted in the right parietal lobe. Furthermore, she was noted to have a lesion in the lung. Exact pathologic diagnosis of the lung lesion was not known. With the patient's significant speech problem and personality changes, it was decided to perform excision biopsy of the lesion for complete removal of the tumor.

Oncology consult also agreed that the excisional biopsy of the brain lesion will be more beneficial than taking a biopsy from the lung.

The indications, procedure, possible risks, complications, and alternatives to surgery were explained in detail to the patient's family, and they requested surgery.

DESCRIPTION OF PROCEDURE: The patient was taken to the CT scan suite and was anesthetized before the CT scan could be performed. After general endotracheal anesthesia had been accomplished a CT scan with contrast was taken. The patient was moved to the operating room and prepared for a craniotomy. Shaving, prepping, and draping of the left temporal region was performed in a sterile fashion, and an S-shaped incision was then marked centering at the site of the entry that had been noted to the anterior and temporal region. The incision line was

infiltrated with a dilute solution of epinephrine. The incision was taken down to the galeal layer, and self-retaining retractors were placed. The temporal muscle was incised, and self-retaining retractor was then deepened. One burr hole was made and the bone was then dissected from the underlying dura. The brain was noted to be quite swollen. The patient had been given 50 g mannitol and Lasix and cerebral relaxation was achieved. The brain tissue was retracted, and a solitary lesion that was well-encapsulated with cerebral edematous tissue was noted. The tumor was excised in total in one piece. After removing the tumor, hemostasis was secured with a cautery in the surrounding brain tissues.

After satisfactory hemostasis had been accomplished, the wound was irrigated with bacitracin solution, and the retractor was removed. A piece of Gelfoam was also placed in the tumor cavity, and closure was then performed by closing the dura with 4-0 Vicryl Surgilon sutures in a watertight fashion.

ICP monitor was placed through a separate stab incision to lay in the epidural space. The skin was approximated with skin staples; a sterile dressing was then placed, and the patient was taken to the recovery room in stable condition.

	Answers
251. A metastatic tumor is one that has _____.	<i>spread</i>
252. An adenocarcinoma is cancer of a(n) _____.	<i>gland</i>
253. Excision is _____.	<i>removal</i>
254. The patient underwent a craniotomy, which means cutting _____.	<i>the skull</i>
255. Examination of the patient revealed that she had a lesion of the left medial temporal lobe of the brain. A lesion is a distinct area of _____.	<i>damaged tissue</i>
256. A CT scan employs _____.	<i>computed tomography</i>
257. Pathology used a(n) _____ from the tumor to diagnose the patient with a left temporal metastatic adenocarcinoma, most probably from the lung. A(n) _____ is a determination of the nature and cause of a disease.	<i>sample; diagnosis</i>
258. Pathology needed a sample of tumor to make a diagnosis, so the surgeons performed a(n) _____.	<i>biopsy</i>
259. Hemostasis is _____.	<i>stoppage of blood flow</i>
260. The epidural space is _____ the dura mater.	<i>above</i>
261. The patient was placed on the operating table lying face up. This is called the _____ position.	<i>supine</i>
262. An incision is a(n) _____.	<i>cut</i>
263. The surgeons used several types of retractors throughout the operation. A retractor _____ tissue.	<i>holds back</i>
264. After removing the tumor, the surgeons stopped the patient's bleeding with electrocautery. The term electrocautery means _____.	<i>to destroy tissue using an electric current</i>
265. Near the end of the operation, the surgeons sutured the tissue that covers the brain. The verb to suture means to _____.	<i>stitch together</i>

## Case Study 4: Operative Report

PREOPERATIVE DIAGNOSIS: Incisional hernia

OPERATIVE PROCEDURE: Repair of incisional hernia with mesh.

The patient is a 56-year-old female, smoker, with past medical history of surgery for perforated diverticulitis with abscess and later closure of colostomy. She was evaluated in this office earlier in the week and was found to have an incisional hernia. There is a small hernial defect palpable at her umbilicus and a second one palpable at the superior aspect of the incisional scar. The patient was advised to undergo elective repair. The procedure, including risks, complications, and alternatives was discussed with the patient at length, and she agreed to have this done.

DESCRIPTION OF PROCEDURE: The patient was taken to the operating room and placed on the operating room table in the supine position. After having undergone spinal anesthesia, her abdomen was prepped with Betadine and draped in the usual sterile fashion. An incision was made through the patient's previous incisional scarring from just below the umbilicus. Dissection down to fascia revealed three small hernial defects. The first was at the umbilicus itself and appeared to be an umbilical hernia rather than a true incisional hernia in this area. A second defect at the superior aspect of the incision had a small bridge of fascia creating two smaller defects. The fascial margins were freed. The hernial defects were closed with sutures. A 6 x 3 inch piece of Marlex mesh was then placed over the fascial repair and secured to the midline and the edges using sutures. A small Jackson-Pratt drain was placed in the pocket created and exited via a separate stab incision and sutured in place. Hemostasis was affected with electrocautery.

Final check was made for hemostasis prior to closure.

The subcutaneous tissue was closed with suture, and the skin edges were closed with surgical clips. The patient tolerated the procedure well and was taken to the postanesthesia care unit in stable condition. Sponge, needle, and instrument counts were correct x 2.

ESTIMATED BLOOD LOSS: Nil SPECIMENS: None

	Answers
266. A hernia is protrusion through an abnormal _____.	<i>body opening</i>
267. The term for creation of an opening in the colon is _____.	<i>colostomy</i>
268. A(n) _____ abnormality can be felt.	<i>palpable</i>
269. Elective surgery can be delayed without _____.	<i>danger</i>
270. The patient's umbilicus is her _____.	<i>navel</i>
271. Fascia is a connective tissue membrane. Repair of fascia is a(n) _____.	<i>fasciorrhaphy</i>
272. A Jackson-Pratt was placed to allow escape of _____ from the wound.	<i>fluid</i>
273. The term for destruction of tissue with electrical current is _____.	<i>electrocautery</i>

## Case Study 5: Discharge Summary

**HISTORY OF PRESENT ILLNESS:** The patient is a 38-year-old white divorcee who was hospitalized into my services as a direct admission on September xx, 20xx in the later part of the day. Patient is quite confused, aggressive, irritable, not caring for the children or herself. It is important to know that the patient had been seen in our office last week on an emergency basis because of her extreme and bizarre behavior. IM Prolixin Decanoate was given to her after discovering that the patient had been quite noncompliant and forgetful about taking her medication for almost a week before the episode at the psychiatric center where she worked as a pharmacist. The patient's supervisor stated that the patient is not concentrating or focusing, had made mistakes, and had left work three times without approval.

This is one of several admissions that the patient had here and, therefore, I will not be describing aspects of the premorbid personality, divorce situation, children, noncompliance with medication, lack of insight, or occasional alcohol use on her part. There is no evidence of abnormal involuntary movement suggestive of tardive dyskinesia, despite the fact that the patient had been taking major tranquilizers. There are no neurological deficits affecting cranial nerves, motor system, or sensory system. Clearly the patient's ability to comprehend the magnitude of the problem was poor.

**ALLERGIES:** Allergic to penicillin, "Mellaril and atropine eye drops." **NOTE:** I am absolutely sure that she is not allergic to atropine as she had received atropine many times pre-ECT without any reaction. I am also not sure about reaction to Mellaril. The patient has not been able to describe the type of allergic reaction she experienced.

**RECENT STRESSORS:** None, other than noncompliance of the medication. Specifically, patient was supposed to refill Navane, which she did not do for at least a week.

**SIGNS AT THE TIME OF HOSPITALIZATION:** The patient is a 38-year-old white, single female of medium build. When seen initially, she appeared stable and neatly dressed and was not saying anything. As the interview progressed, she became quite agitated and restless. She stood up from the interview chair saying, "I just want to be left alone. I do not need to be here." Her eye contact was fairly good. Her general facial expression could be described as very anxious, distraught, and somewhat frustrated. At times she acted very frightened. Her affect was flat and inappropriate. Every so often she became very angry for no reason. She expressed her basic preoccupation by saying, "I am dominated by my mother; I want to go home." The fact is that she had only been dominated by her mother for a week, which began when she decompensated and had to frequently visit her mother. Prior to that, she was living in her own house.

The patient has been extremely irritable, distrustful, and paranoid toward mother and family. She has not been taking care of her children properly. Her mood could be described as irritable, anxious, angry, hostile, but not depressed, even though she occasionally broke down. Her appetite was fairly good. Her sleep was poor. Her concentration, attention span, insight, and ability to focus were very poor. Her orientation and memory was intact. There were no overt suicidal or homicidal ideations.

**PROGRESS IN THE HOSPITAL:** She received one-to-one, supportive, and insight-oriented psychotherapy on various issues that included importance of compliance, taking medication, and refraining from alcoholic beverages. After much discussion, the patient has agreed to take Prolixin Decanoate in the place of Navane, which was given to her on September xx, 20xx in the dose of 1 mL along with Ambien. Synthroid was continued. Considering the mild minor agitation and side effect of the Prolixin, she was given Cogentin 1 bid as of September xx, 20xx. Prolixin Decanoate was given in dose of 1.5 mL on October xx, 20xx. Depakote 125 tid was added as of September xx, 20xx. Once again, A privileges were resumed as of September xx, 20xx, B as of September xx, 20xx, and C as of September xx, 20xx.

Her participation through the program was less than adequate as she could not concentrate and focus, but she still participated in milieu and psychotherapy group. The patient's Depakote was increased to 125 bid qhs as of September xx, 20xx, and then 250 tid and hs as of September xx, 20xx, 250 tid and 500 hs as of September xx, 20xx. A day pass of 4 hours was granted, and a 4-day pass was granted later on, which went fairly well. In view of the above, the patient was discharged at a later date.

Her sleep and concentration had improved. Her need for IM medication or other medication was explained. Additionally, her need for close follow-up care and why she cannot work were explained and were found to be less than adequate at the time of discharge.

CONDITION ON DISCHARGE: Improving.

ABILITY TO MANAGE FUNDS AND FINANCES: Improving.

ABILITY TO USE GOOD JUDGMENT: Still impaired. PROGNOSIS: Guarded.

DIET: Low cholesterol.

FINAL DISCHARGE DIAGNOSES Axis I: 1. Schizoaffective disorder. 2. Nicotine dependence continues. 3. Alcohol abuse. Axis II: Personality disorder, not otherwise specified. Axis III: Mild hypercholesterolemia. Axis IV: Mild. Axis V: GAF of 45 currently and GAF of 55 in last year.

MEDICATIONS AT THE TIME OF DISCHARGE: Cogentin one bid daily, Synthroid 0.1 mg daily, Depakote 250 twice a day and 500 hs, Prolixin Decanoate 1.5 cc IM q4weeks. The next dose is due on October xx, 20xx. The patient was to have every 2-week CBC, liver profile, and ultimately the Depakote level.

FINAL MODE OF DISPOSITION AND FOLLOW-UP: The patient will be living in her own house, will be continued on medication, and will be sent to the writer's office for one-to-one psychotherapy and drug administration. Patient will get necessary blood work done, will not be going back to work, and will not be drinking alcoholic beverages.

	Answers
274. An IM drug is administered _____.	<i>into a muscle</i>
275. A premorbid personality was present _____ the occurrence of a disorder.	<i>before</i>
276. Dyskinesia involves _____ movements.	<i>abnormal</i>
277. To reduce agitation, the patient was given a(n) _____.	<i>sedative</i>
278. To treat anxiety, a patient would receive a(n) _____.	<i>anxiolytic</i>
279. The patient had mild hypercholesterolemia. Hypercholesterolemia refers to _____.	<i>elevated blood lipids</i>
280. A bid dose is given _____.	<i>twice a day</i>
281. A dose given tid and hs each day is given _____ times.	<i>four</i>

# Worksheet

## Integumentary System

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. The dermis is the outermost portion of the skin.		✓
2. Sebaceous glands secrete sweat.		✓
3. Cicatrization is scar formation.	✓	
4. Keratin is found in subcutaneous tissue.		✓
5. The medical term for baldness is alopecia.	✓	
6. Squamous cell and basal cell carcinomas involve epithelial tissue.	✓	
7. Shingles is caused by a fungal infection.		✓
8. Inflammation of the fingernail is called onychia.	✓	
9. Cutaneous tissue is found in the integumentary system.	✓	
10. A symptom of scleroderma is thinning of the skin.		✓



## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The uppermost portion of the skin is the _____.	<i>epidermis</i>
12. The layer of tissue beneath the skin is described as _____.	<i>subcutaneous</i>
13. The oily secretion that lubricates the skin is _____.	<i>sebum</i>
14. The main pigment in skin is _____.	<i>melanin</i>
15. The protein that makes up hair and nails is _____.	<i>keratin</i>
16. The study of the skin and skin diseases is _____.	<i>dermatology</i>
17. A tumor of melanocytes is called _____.	<i>melanoma</i>
18. Alopecia is a loss of _____.	<i>hair</i>
19. A fungal infection of the hair is termed _____.	<i>trichomycosis</i>
20. Itchiness can be relieved by using a(n) _____ agent.	<i>antipruritic</i>
21. The medical term for a mole or birthmark is _____.	<i>nevus</i>
22. The medical term for a wart is _____.	<i>verruca</i>
23. Sweat is produced by a(n) _____ gland.	<i>sudoriferous</i>
24. Skin, hair, and nails make up the _____ system.	<i>integumentary</i>
25. The root onych/o means _____.	<i>nail</i>
26. An agent that prevents or relieves itching is a(n) _____.	<i>antipruritic</i>
27. A gland that produces sebum is the _____.	<i>sebaceous gland</i>
28. The skin and its associated glands, hair, and nails make up the _____ system.	<i>integumentary</i>
29. The layer of tissue beneath the skin is the _____ tissue.	<i>subcutaneous</i>
30. _____ means producing or secreting sweat or pertaining to a sweat gland.	<i>sudoriferous</i>
31. The term _____ refers to study of the skin and diseases of the skin.	<i>dermatology</i>
32. The process of scar formation is known as _____ (hint: a scar is a cicatrix).	<i>cicatrization</i>
33. A chronic hereditary dermatitis with red lesions covered by silvery scales is known as _____.	<i>psoriasis</i>
34. Profuse sweating is called _____.	<i>diaphoresis</i>
35. The skin gland that vents directly to the surface of the body is the _____.	<i>sudoriferous gland OR sweat gland</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
36. hypohidrosis	<i>D</i>	A. fungal infection of a hair
keratosis	<i>B</i>	B. horny growth of skin
trichomycosis	<i>A</i>	C. inflammation around a nail
paronychia	<i>C</i>	D. deficiency of sweat production
37. stratum corneum	<i>B</i>	A. material that drains from a wound
pyoderma	<i>D</i>	B. uppermost layer of the epidermis
exudate	<i>A</i>	C. disruption of a wound
dehiscence	<i>C</i>	D. presence of pus in the skin
38. escharotomy	<i>B</i>	A. hardening of the skin
scleroderma	<i>A</i>	B. removal of a scab
psoriasis	<i>D</i>	C. a fluid-filled blister
vesicle	<i>C</i>	D. skin disease with redness and silvery scales
39. urticaria	<i>B</i>	A. excess flow of sebum
macule	<i>D</i>	B. hives
diaphoresis	<i>C</i>	C. profuse sweating
seborrhea	<i>A</i>	D. a flat colored spot

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
40. wele	<i>wheal</i>
41. es-kar-OT-o-me	<i>escharotomy</i>
42. e-vis-er-A-shun	<i>evisceration</i>
43. KE-loyd	<i>keloid</i>
44. PEM-fih-gus	<i>pemphigus</i>
45. pru-RI-tus	<i>pruritus</i>
46. so-RI-ah-sis	<i>psoriasis</i>
47. al-o-PE-she-ah	<i>alopecia</i>
48. eks-AN-them	<i>exanthem</i>
49. ku-TA-ne-us	<i>cutaneous</i>

	Answers
50. KER-ah-tin	<i>keratin</i>
51. SE-bum	<i>sebum</i>
52. sik-ah-trih-ZA-shun	<i>cicatrization</i>
53. de-HIS-ens	<i>dehiscence</i>
54. EK-ze-mah	<i>eczema</i>
55. se-BA-shus	<i>sebaceous</i>
56. sub-ku-TA-ne-us	<i>subcutaneous</i>
57. su-dor-IF-er-us	<i>sudoriferous</i>
58. in-teg-u-MEN-tah-re	<i>integumentary</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
60. Congenital disorder of dry scaly skin	<i>ichthy-o-sis</i>
61. Loosening or separation of the skin	<i>derm-o-lysis</i>
62. Instrument for cutting skin	<i>derm-a-tome</i>
63. Inflammation of a sweat gland	<i>hidr-aden-itis</i>
64. Resembling skin	<i>derm-oid</i>
65. Softening of a nail	<i>onych-o-malacia</i>
66. Like or resembling a hair	<i>trich-oid</i>
67. Production of foul-smelling sweat	<i>brom-hidr-o-sis</i>
68. Any disease of the skin	<i>derm-o-path-y</i>
69. Absence of sweating	<i>an-hidr-o-sis</i>

### Part 1 Word Bank

a	an	derm
ichthy	lysis	o
onych	sis	trich
aden	brom	hidr
itis	malacia	oid
path	tome	y

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

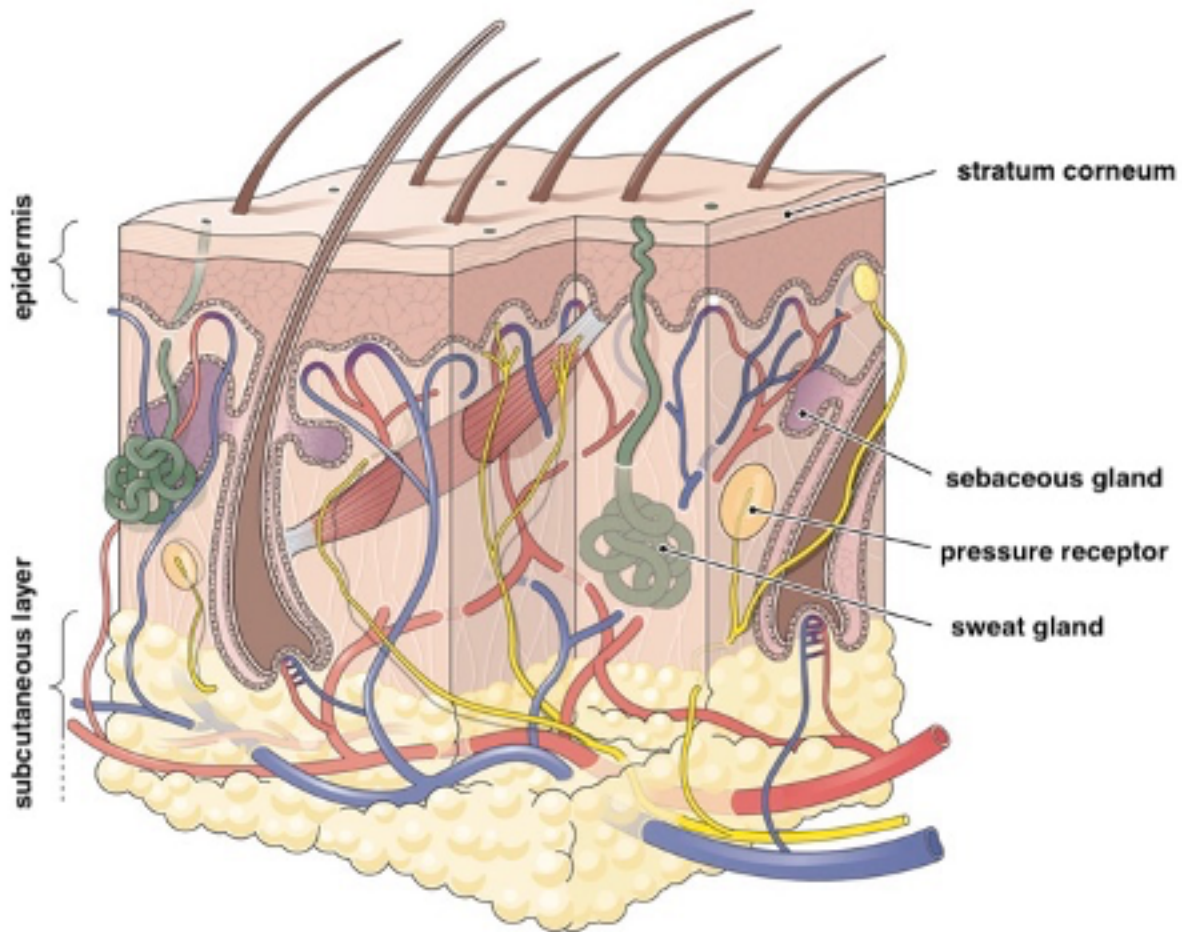
dermis	pemphigus	gland	gland
macule	psoriasis	stratum	vesicle
melanoma	scleroderma	basale	wheal
papule	sebaceous	sudoriferous	

Part 1	Answers
70. parts of the skin	<i>stratum basale, dermis, sebaceous gland, sudoriferous gland</i>
71. skin lesions	<i>wheal, papule, macule, vesicle</i>
72. skin disorders	<i>scleroderma, pemphigus, melanoma, psoriasis</i>

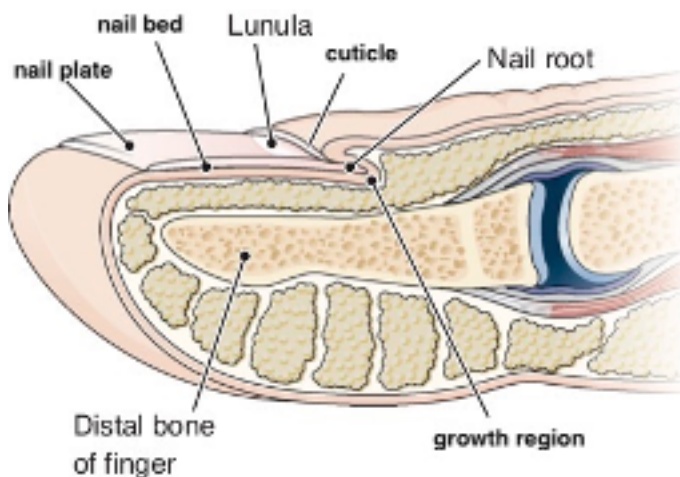
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

73. Labels: epidermis, pressure receptor, sebaceous gland, stratum corneum, subcutaneous layer, sweat gland

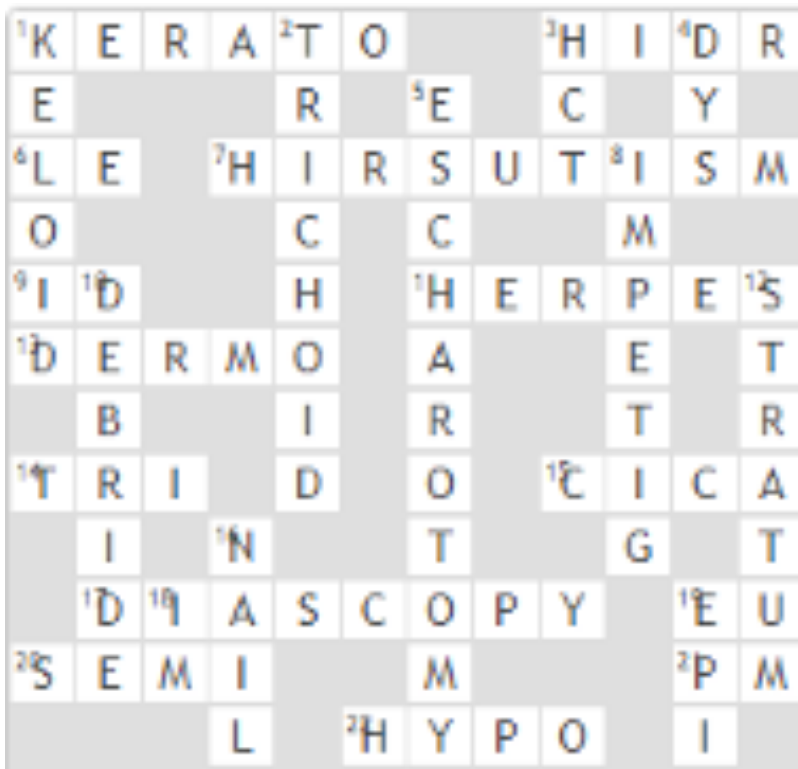


74. Labels: cuticle, growth region, nail bed, nail plate



## Crossword Puzzle

75.



### Across

- Horny layer of the skin: combining form
- Inflammation of a sweat gland: \_\_\_\_\_ adenitis
- Autoimmune disease that affects the skin: abbreviation
- Excess growth of hair
- Within the skin: abbreviation
- Viral disease that affects the skin
- Skin: combining form
- Three: prefix
- Scar: \_\_\_\_\_ trix
- Examination by pressing a glass plate against the skin
- True, good, easy: prefix
- Half: prefix starting with s
- Part of a medical history: \_\_\_\_\_ H abbreviation
- Under, below, decreased: prefix

### Down

- Raised, thickened scar
- Pertaining to a hair
- Measurement of packed red cells: abbreviation
- Abnormal, painful: prefix
- Removal of scab tissue
- Bacterial skin infection common in children: \_\_\_\_\_ o
- Remove dead tissue, as from a wound
- A layer, as of the skin
- Meaning of the root onych/o
- A route of injection: abbreviation
- On, over: prefix

## Case Study

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Consultation: Seborrheic Keratosis

**HISTORY OF PRESENT ILLNESS:** The patient is a 58-year-old male who comes in complaining of a mole localized on the right side of the parietal area of his head. He has had this problem for at least 1 year. He is concerned that this skin lesion is getting bigger over the past several months. Otherwise, he is asymptomatic.

**PAST MEDICAL HISTORY:** He has chronic posterior nasal drainage that causes chronic cough, mainly at nighttime. He also has chronic nasal congestion. He denies previous history of asthma. The patient denies any previous history of skin cancer.

**PAST SURGICAL HISTORY:** The patient is status post bilateral carpal tunnel operations on both hands.

**ALLERGIES:** The patient refers that he is allergic to penicillin and allergic to Bactrim. He states that whenever he takes these medications, he has an erythematous rash as well as hives.

**SOCIAL HISTORY:** The patient does not smoke cigarettes. He drinks approximately one to two 12-ounce beers per day. He does not do any regular exercise. He works as a bird biologist.

**FAMILY HISTORY:** Unremarkable. **REVIEW OF SYSTEMS:** Unremarkable.

**PHYSICAL EXAMINATION:** Vital signs: Temperature 97.6, heart rate 80, respiratory rate 20, blood pressure 120/70. Weight 196 pounds. General description: Middle-aged male with no respiratory distress. HEENT exam is unremarkable. Neck exam is unremarkable. Lungs clear to auscultation. Cardiovascular exam: S1, S2, regular rhythm. No S3, no S4, no murmurs.

Abdomen: Unremarkable. Extremities: No edema. Peripheral pulses are symmetric. Neurologic: The patient is alert and oriented to place, time, and person. There are no focal sensory motor deficits. Examination of the skin reveals a 0.5-cm papule localized on the right parietal area of the scalp. This lesion is round in shape with well-defined borders. Examination of the back reveals a 1-cm papule with well-defined borders localized in the left upper back with mild hyperpigmentation. There are two similar lesions surrounding the first lesion in the left upper back with similar characteristics. The patient has several hyperpigmented lesions in the upper back that are symmetric and with well-defined borders. These lesions are mainly macules, although there are some papules with well-defined borders.

### ASSESSMENT AND PLAN

- Seborrheic keratosis. The patient was reassured regarding the benign nature of these skin lesions. There is no evidence of malignancy at the moment. The patient's wife was also taught about the characteristics of seborrheic keratosis. The patient will perform a monthly skin lesion exam to rule out the possibility of skin cancer and melanoma. The patient's wife will perform the same evaluation of the skin on patient's back.
- Health maintenance. This will be addressed by this patient's primary care physician in his home state. The patient refers that he lives here just for a few months in a year. He will soon move home again.

### Answers

76. Carpal tunnel operations involve the \_\_\_\_\_.

*wrists*

77. "Lungs clear to auscultation" means that \_\_\_\_\_ were heard with a stethoscope.

*no abnormal sounds*

78. S1 and S2 refer to \_\_\_\_\_.

*heart sounds*



# Worksheet Key

## Skeletal System

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. The ribs are part of the axial skeleton.	✓	
2. Chondroblasts produce bone tissue.		✓
3. The end of a long bone is the epiphysis.	✓	
4. A suture is an immovable joint.	✓	
5. Joint inflammation is called arthrodiesis.		✓
6. An osteosarcoma is a neoplasm of bone.	✓	
7. Ankylosis refers to fixation of a joint.	✓	
8. A Colles fracture involves the ankle.		✓
9. Blood cells are myelogenous.	✓	
10. The root spondyl/o refers to a vertebra.	✓	

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The large, flared, upper bone of the pelvis is the ____.	<i>ilium</i>
12. The bone of the spinal column between the lumbar vertebrae and the coccyx is the ____.	<i>sacrum</i>
13. Bone is destroyed and taken back into the circulation by a process termed ____.	<i>resorption</i>
14. The shaft of a long bone is the ____.	<i>diaphysis</i>
15. The fibrous membrane that covers the outside of a bone is the ____.	<i>periosteum</i>
16. The scientific name for any joint is ____.	<i>articulation</i>
17. The material found within a freely movable joint is ____.	<i>synovial fluid</i>
18. A small sac near a joint that helps to cushion the joint is a(n) ____.	<i>bursa</i>
19. A band of connective tissue that attaches a bone to another bone is a(n) ____.	<i>ligament</i>
20. An endoscope for examining the interior of a joint is a(n) ____.	<i>arthroscope</i>
21. The second cervical vertebra is named the ____.	<i>axis</i>
22. A bone grows in length at its ____plate.	<i>epiphyseal</i>
23. Bone is produced by cells called ____.	<i>osteoblasts</i>
24. Joint inflammation is termed ____.	<i>arthritis</i>
25. Degeneration of the articulating portions of a vertebra is called ____.	<i>spondylolysis</i>
26. ____ is an agent used to prevent and treat osteoporosis that increases bone mass by decreasing bone turnover.	<i>bisphosphonate</i>
27. Aspiration of fluid from a joint by needle puncture is known as ____.	<i>arthrocentesis</i>

	Answers
28. The process of the ulna that forms the elbow is the _.	<i>olecranon</i>
29. The projection of the tibia or fibula on either side of the ankle is the _.	<i>malleolus</i>
30. The fibrous membrane that covers a bone's surface is the _.	<i>periosteum</i>
31. The large, blunt projection at the top of the femur is the _.	<i>trochanter</i>
32. The fluid contained in a freely movable (diarthrotic) joint is called _.	<i>synovial fluid</i>
33. A mature bone cell that nourishes and maintains bone tissue is known as a(an) _.	<i>osteocyte</i>
34. A chronic, progressive inflammatory disease involving the spinal joints and surrounding soft tissue is ankylosing _.	<i>spondylitis</i>
35. The ____ epiphysis is closer to the axial skeleton.	<i>proximal</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
36. osteopenia	<i>D</i>	A. softening of bone
rachischisis	<i>C</i>	B. enzyme needed for bone formation
alkaline phosphatase	<i>B</i>	C. fissure of the spine
osteomalacia	<i>A</i>	D. deficiency of bone tissue
37. ankylosis	<i>C</i>	A. a type of anti-inflammatory drug
arthroclasia	<i>B</i>	B. surgical breaking of a joint
DEXA	<i>D</i>	C. fusion of bones
NSAID	<i>A</i>	D. a bone density scan
38. goniometer	<i>D</i>	A. a cervical vertebra
talipes	<i>B</i>	B. deformity of the foot
atlas	<i>A</i>	C. a curved cartilage in a joint
meniscus	<i>C</i>	D. instrument used to measure angles
39. orthopedics	<i>D</i>	A. herniated disc
DIP	<i>B</i>	B. a joint in the hand
HNP	<i>A</i>	C. loss of bone mass
osteoporosis	<i>C</i>	D. medical specialty

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
40. os-te-o-PE-ne-ah	<i>osteopenia</i>
41. RU-mah-toyd	<i>rheumatoid</i>
42. sko-le-O-sis	<i>scoliosis</i>
43. spon-dih-lo-lis- THE-sis	<i>spondylolisthesis</i>
44. spon-dih-LOL-ih-sis	<i>spondylolysis</i>
45. ar-THROD-eh-sis	<i>arthrodesis</i>
46. fah-LAN-jeze	<i>phalanges</i>
47. meh-NIS-kus	<i>meniscus</i>
48. o-LEK-rah-non	<i>olecranon</i>
49. ah-kon-dro-PLA- zhah	<i>achondroplasia</i>

	Answers
50. ki-FO-sis	<i>kyphosis</i>
51. di-AF-ih-sis	<i>diaphysis</i>
52. gowt	<i>gout</i>
53. meh-TAF-ih-sis	<i>metaphysis</i>
54. IL-e-um	<i>ilium</i>
55. sin-O-ve-al	<i>synovial</i>
56. as-eh-TAB-u-lum	<i>acetabulum</i>
57. ang-kih-LO-sis	<i>ankylosis</i>
58. per-e-OS-te-um	<i>periosteum</i>
59. in-ter-VER-teh-bral	<i>intervertebral</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
60. Softening of cartilage	<i>chondr-o-malacia</i>
61. Softening of bone	<i>oste-o-malacia</i>
62. Inflammation of a vertebra	<i>spondyl-itis</i>
63. Cartilage cell	<i>chondr-o-cyte</i>
64. Pertaining to or resembling bone marrow	<i>myel-oid</i>
65. Pertaining to tissue around the bone	<i>peri-oste-al</i>
66. Separation of a vertebra	<i>spondyl-o-lysis</i>
67. Pertaining to or resembling cartilage	<i>chondr-oid</i>
68. Tumor of bone and cartilage	<i>oste-o-chondr-oma</i>
69. Inflammation of bone and bone marrow	<i>oste-o-myel-itis</i>

### Part 1 Word Bank

al	peri	oid
malacia	cyte	synov
oste	o	lysis
chondr	spondyl	oma
myel	itis	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

chondrosarcoma	epiphysis	lordosis	osteoporosis
cranium	femur	medullary	parts of a bone
diaphysis	humerus	cavity	

Part 1	Answers
70. bones of the skeleton	<i>femur, humerus, cranium, sacrum</i>
71. skeletal disorders	<i>osteoporosis, chondrosarcoma, spondylolysis, lordosis</i>
72. parts of a bone	<i>epiphysis, periosteum, diaphysis, medullary cavity</i>

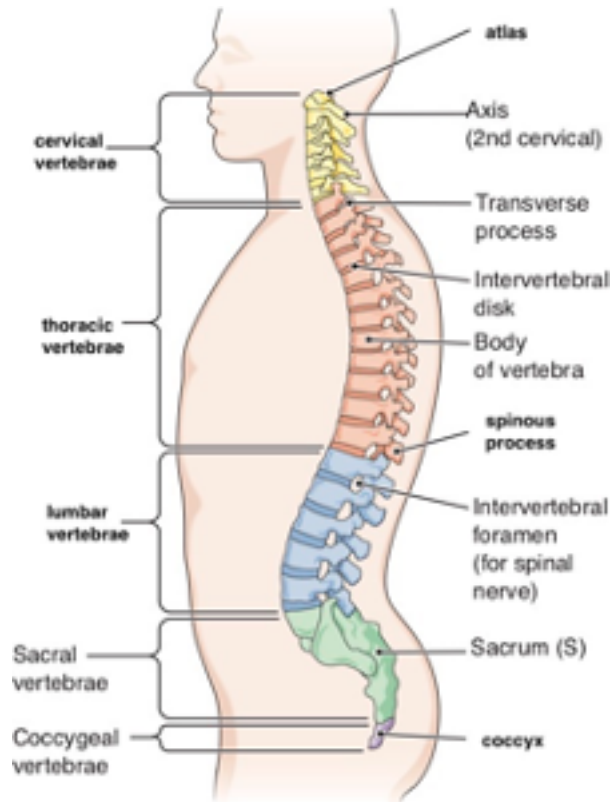
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

73. Labels: clavicle, femur, mandible, patella, radius, sternum



74. Labels: atlas, cervical vertebrae, coccyx, lumbar vertebrae, spinous process, thoracic vertebrae

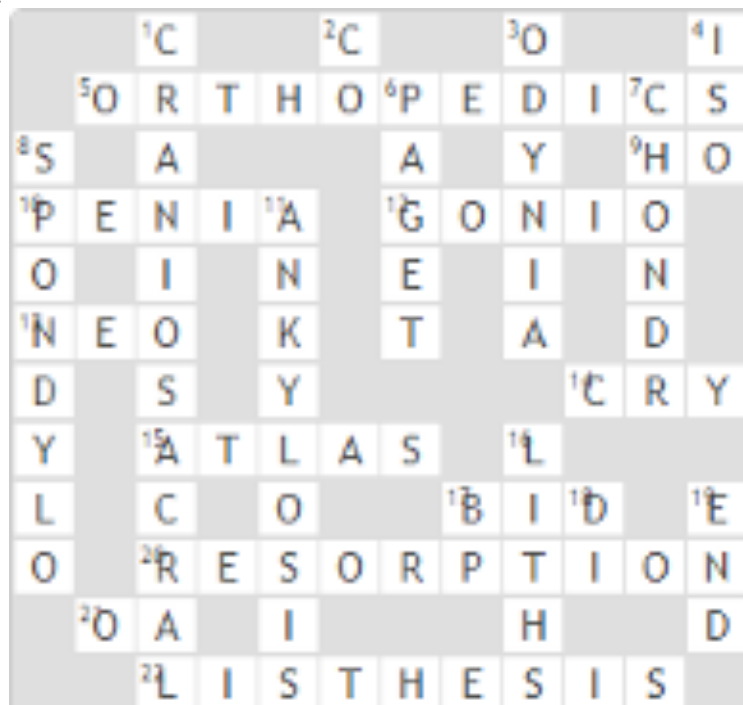




## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

75.



### Across

5. Study and treatment of the skeleton, muscles, and associated structures
9. Abbreviation used in taking medical histories
10. Deficiency of: suffix
12. Instrument for measuring joint angles: meter
13. New: prefix
14. Cold: root
15. First cervical vertebra
17. Twice per day: abbreviation
20. Breakdown and removal of bone
21. Type of arthritis also known as DJD: abbreviation
22. Slipping of a vertebra: spondylo

### Down

1. Pertaining to the cranium and sacrum
2. Last portion of the spinal column: abbreviation
3. Pain: suffix
4. Same, equal: prefix
6. A bone disease is named for him
7. Cartilage: combining form
8. Vertebra: combining form
11. Immobility of a joint
16. Stones: suffix
17. Blood pressure: abbreviation
18. Two, twice: prefix
19. Meaning of the prefix tel/o

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Consultation: Motor Vehicle Accident (MVA) Fractures

**HISTORY OF PRESENT ILLNESS:** The patient is a 56-year-old right-hand-dominant male, status post MVA, sustaining a left open supracondylar humerus fracture, treated with irrigation and debridement and open reduction and internal fixation with synthetic bone grafting done at that time. He also had a splenic injury and a left acetabular fracture. He was initially treated for his left humerus fracture. His postoperative course was complicated by a draining wound. He was transferred where he came under the care of Dr. Jones to fix his left acetabular fracture.

Follow-up x-rays of his humerus revealed that he had a nonunion/malunion with hardware failure and was referred here for further management. In the interim, he denies any fevers or chills. He denies any sweats or weight loss.

**ALLERGIES:** He has no known drug allergies.

**PAST SURGICAL HISTORY:** His past surgical history is significant for left acetabular fracture, ORIF.

**MEDICATIONS:** No medications.

**SOCIAL HISTORY:** He is an engineer. He does not use tobacco. He uses no ETOH. He likes fishing, swimming, and golf.

**PHYSICAL EXAMINATION:** On physical examination of his left elbow, there is a well-healed posterior incision. It is warm to touch compared to the right side. There is obvious deformity with swelling. He has intact sensation of the ulnar nerve distally, although he does have a positive Tinel sign in the ulnar nerve, which radiates down into his small finger. He has full digital range of motion. The motion of his elbow is 70 to 90 degrees with 10 degrees of pronation and 40 degrees of supination. His abductor digiti minimi and finger abductors are -4/5.

**STUDIES:** X-rays reviewed from an outside hospital show a malunion/nonunion of his left supracondylar humerus fracture with fracture collapse and hardware failure.

**ASSESSMENT:** Left supracondylar humerus fracture, nonunion/malunion with questionable infection.

**PLAN**

1. The patient was seen and examined by Dr. Smith as well as Dr. Jones.
2. We discussed in detail the management of this problem and the difficulty, as we feel that this fracture is possibly infected. The patient will get his medical records, including his operative note and previous injury x-rays. We will send him for an erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and complete blood count (CBC) with differential today. We did an aspiration, which was technically difficult due to the distorted anatomy. Therefore, we performed saline washings and sent aspirated washings off for culture and Gram stain.

We will follow up with him in 1 week with repeat x-rays of his left elbow: anteroposterior, lateral, and obliques, out of plaster. If cultures return negative, we will again aspirate it under fluoroscopic guidance. We will consider an indium-labeled white scan in that instance. We discussed the difficult nature of his problem and our plans, should this require him to possibly undergo a hardware removal with irrigation and extensive debridement and an antibiotic pouch placed in the area, with intraoperative cultures sent at that time. He will potentially need a total elbow arthroplasty in the future. However, we would not do this for at least 6 months following an extensive debridement and both laboratory and radiographic evidence that there was no active infection at the time of total elbow arthroplasty. This would probably be a minimum of 6 months from the debridement.

**Answers**

A right-hand-dominant person can be described as \_\_\_\_\_.

*dextrmanual*

A supracondylar humerus fracture is located \_\_\_\_\_.

*above a projection of the upper arm bone*

An acetabular fracture occurs in the \_\_\_\_\_ that holds the femur.

*bony socket*

ORIF refers to \_\_\_\_\_.

*surgical repair of a fracture*

ETOH in the patient's history refers to his \_\_\_\_\_.

*alcohol consumption*

The ulnar nerve is named for a(n) \_\_\_\_\_.

*forearm bone*

Pronation and supination refer to \_\_\_\_\_ of the hand.

*position*

Abductors move a part \_\_\_\_\_ the midline.

*away from*

A culture and Gram stain are tests for \_\_\_\_\_.

*bacteria*

Intraoperative procedures are done \_\_\_\_\_ surgery.

*during*

# Worksheet Key

## Muscular System

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Skeletal muscle is voluntary.	✓	
2. Ligaments attach skeletal muscle to bone.		✓
3. A neuromuscular junction is the point of contact between a motor neuron and a muscle cell.	✓	
4. Myoglobin is a type of protein found in muscle cells.	✓	
5. A muscle shortens during an isometric contraction.		✓
6. The latissimus dorsi is the main muscle of the thigh.		✓
7. Fasciitis is inflammation of a muscle sheath.	✓	
8. Inversion is the opposite of eversion.	✓	
9. An inotropic substance acts on bone marrow.		✓
10. Actin and myosin are the contractile proteins in muscle cells.	✓	

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The muscle that opposes an agonist in a given movement is the _____.	<i>antagonist</i>
12. The end of a muscle opposite the insertion is the _____.	<i>origin</i>
13. The connective tissue sheath that covers a muscle is called _____.	<i>fascia</i>
14. The neurotransmitter that stimulates skeletal muscle contraction is _____.	<i>acetylcholine</i>
15. One type of contractile protein in skeletal muscles is myosin. The other is _____.	<i>actin</i>
16. A band of connective tissue that attaches a muscle to a bone is a(n) _____.	<i>tendon</i>
17. Any disease of muscle is _____.	<i>myopathy</i>
18. Electrical study of muscles is _____.	<i>electromyography</i>
19. The opposite of supination is _____.	<i>pronation</i>
20. The medical term for tennis elbow is _____.	<i>epicondylitis</i>
21. Permanent muscle contraction is termed _____.	<i>contracture</i>
22. Lack of muscle coordination is termed _____.	<i>ataxia</i>
23. The oxygen storage molecule used by muscle is _____.	<i>myoglobin</i>
24. The sugar storage molecule used by muscle is _____.	<i>glycogen</i>
25. Spasmodic contraction of the neck is termed _____.	<i>torticollis</i>
26. An autoimmune disease characterized by progressive muscular weakness that affects the neuromuscular junction is _____.	<i>myasthenia</i>
27. A flat, white, sheetlike tendon that connects a muscle with the part that it moves is the _____.	<i>aponeurosis</i>

	Answers
28. A pigment similar to hemoglobin that stores oxygen in muscle cells is _____.	<i>myoglobin</i>
29. _____ means pertaining to a muscle action in which the muscle tenses but does not shorten (literally: “same measurement”).	<i>Isometric</i>
30. _____ is a neurotransmitter active at the neuromuscular junction.	<i>Acetylcholine</i>
31. _____ is a circular movement from a central point.	<i>Circumduction</i>
32. The muscle that forms the anterior part of the thigh is the _____.	<i>quadriceps</i>
33. A muscle that opposes an agonist is known as a(n) _____.	<i>antagonist</i>
34. A group of hereditary muscular disorders marked by progressive weakness and muscular atrophy is known as muscular _____.	<i>dystrophy</i>
35. The terminal vesicles of motor axons contain _____.	<i>neurotransmitter OR acetylcholine</i>
36. The biceps brachii muscle has _____ tendons of origin.	<i>two</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
37. fasciodesis	<i>D</i>	A. accumulation of fluid in muscles
myoedema	<i>A</i>	B. pain in a muscle
tetany	<i>C</i>	C. condition marked by muscular spasms and cramps
myalgia	<i>B</i>	D. binding of fascia to another structure
38. tenotomy	<i>B</i>	A. hereditary disease that causes muscle weakness
kinesthesia	<i>C</i>	B. incision of a tendon
muscular dystrophy	<i>A</i>	C. awareness of movement
myasthenia gravis	<i>D</i>	D. autoimmune disease that causes muscle weakness
39. ataxia	<i>D</i>	A. increasing the joint angle
torticollis	<i>C</i>	B. turning downward
pronation	<i>B</i>	C. spasmodic neck muscle contractions
extension	<i>A</i>	D. lack of muscle coordination
40. flexion	<i>D</i>	A. type of contraction in which a muscle shortens
isotonic	<i>A</i>	B. substance that stores energy in muscle cells
adduction	<i>C</i>	C. movement toward the midline of the body
creatine	<i>B</i>	D. decreasing the joint angle

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
41. e-lek-tro-mi-OG-rah-fe	<i>electromyography</i>
42. GLI-ko-jen	<i>glycogen</i>
43. kin-es-THE-ze-ah	<i>kinesthesia</i>
44. as-ter-IK-sis	<i>asterixis</i>
45. ath-eh-TO-sis	<i>athetosis</i>
46. fah-sik-u-LA-shun	<i>fasciculation</i>
47. rab-do-mi-OL-ih-sis	<i>rhabdomyolysis</i>
48. spas-TIS-ih-te	<i>spasticity</i>
49. TET-ah-nus	<i>tetanus</i>
50. tor-tih-KOL-is	<i>torticollis</i>
51. fi-bro-mi-AL-je-ah	<i>fibromyalgia</i>

	Answers
52. FAS-ih-kl	<i>fascicle</i>
53. ah-mi-o-TROF-ik	<i>amyotrophic</i>
54. MI-o-sin	<i>myosin</i>
55. ten-o-sin-o-VI-tis	<i>tenosynovitis</i>
56. FASH-e-ah	<i>fascia</i>
57. DIS-tro-fe	<i>dystrophy</i>
58. mi-as-THE-ne-ah	<i>myasthenia</i>
59. as-eh-til-KO-lene	<i>acetylcholine</i>
60. KRE-ah-tin	<i>creatine</i>
61. SIN-er-jist	<i>synergist</i>



## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
62. Pertaining to abnormal muscle tone	<i>dys-ton-ic</i>
63. Incision of connective tissue that covers muscle	<i>fasci-o-tomy</i>
64. Pertaining to a lack of muscle tone	<i>a-ton-ic</i>
65. Excess movement	<i>hyper-kine-sis</i>
66. Inflammation of the fascia	<i>fasci-itis</i>
67. Abnormality of movement	<i>dys-kine-sis</i>
68. Inflammation of muscle	<i>my-o-s-itis</i>
69. Acting on fibers	<i>in-o-trop-ic</i>
70. Inflammation of fibers	<i>in-o-s-itis</i>
71. Pertaining to a muscle and its sheath	<i>my-o-fasci-al</i>

### Part 1 Word Bank

a	dys	trop
in	kine	hyper
sis	ton	o
al	fasci	ic
itis	my	s
tomy		

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

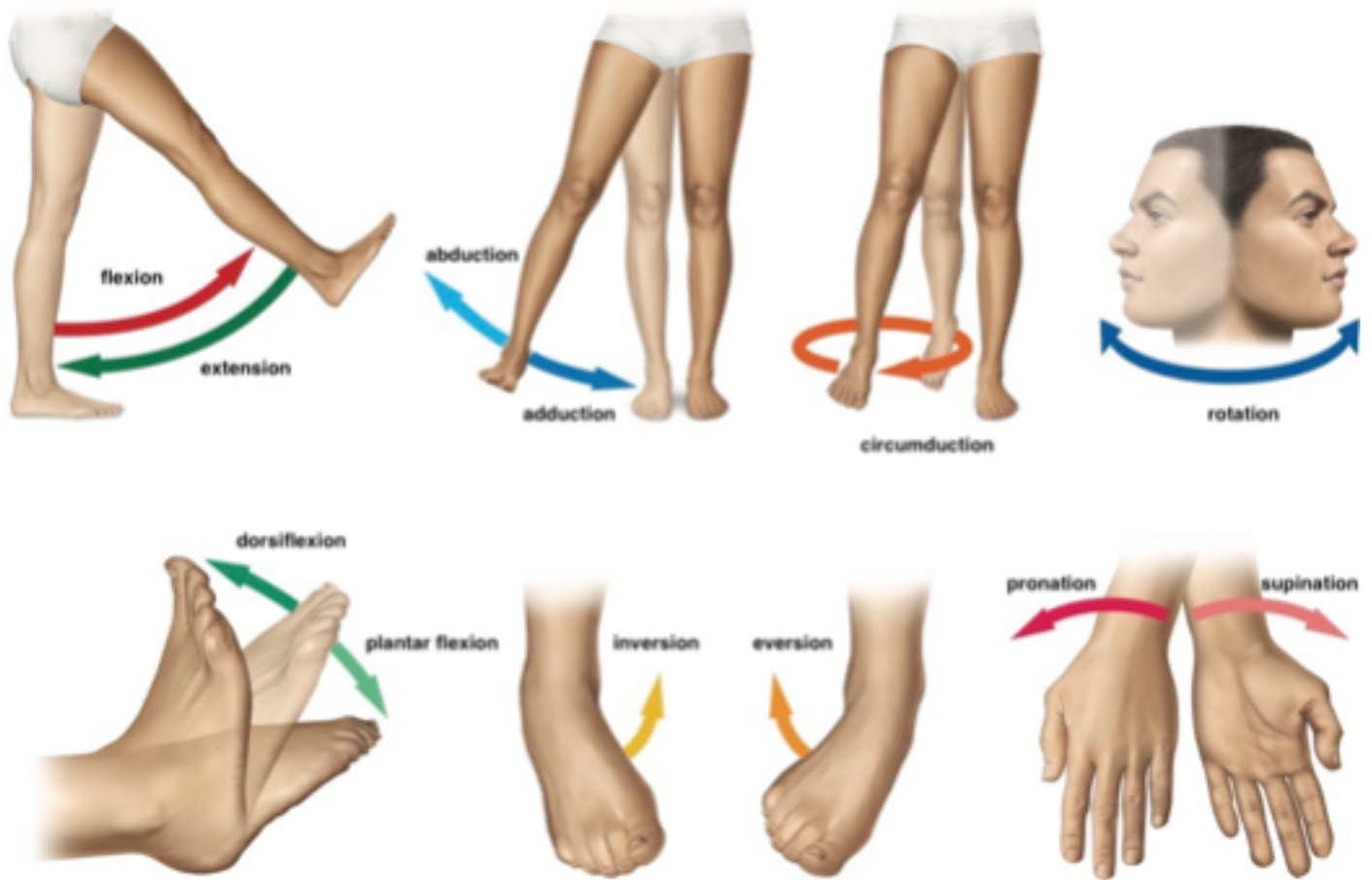
actin	dorsiflexion	flexion
adduction	fascia	myasthenia
circumduction	fibromyalgia	

Part 1	Answers
72. terms related to muscle	<i>actin, myosin, fascia, tendon</i>
73. types of movement	<i>dorsiflexion, adduction, circumduction, flexion</i>
74. muscular disorders	<i>fibromyalgia, polymyositis, tenosynovitis, myasthenia</i>

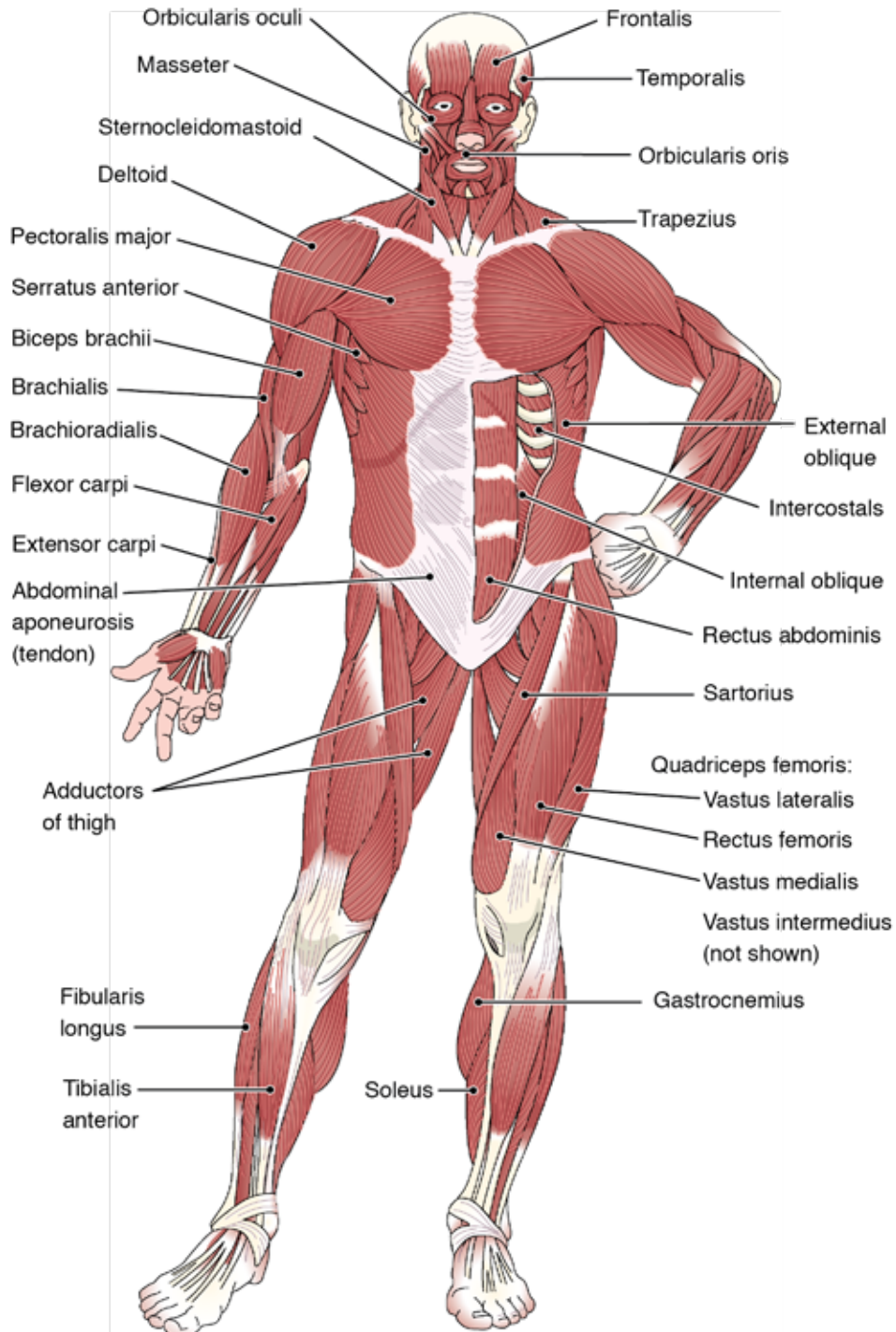
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

75. Labels: abduction/adduction, circumduction, dorsiflexion/plantar flexion, flexion/extension, pronation/supination, inversion/eversion



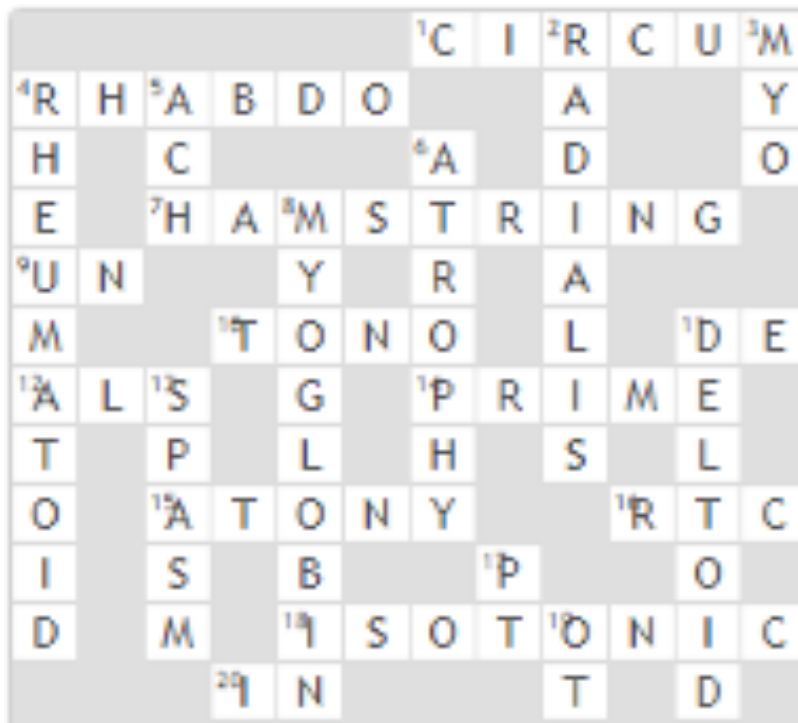
76. Labels: deltoid, intercostals, pectoralis major, rectus abdominus, rectus femoris, tibialis anterior



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

77.



### Across

- Around: prefix
- Rod, such as a muscle cell: combining form
- Muscle group at the back of the thigh
- Not: prefix
- Muscle tone: combining form
- Down, without, removal: prefix
- Disease caused by motor neuron degeneration, with weakness, atrophy, and spasticity: abbreviation
- Muscle that carries out a given movement, mover
- Lack of muscle tone
- A group of muscles in the shoulder: abbreviation
- Adjective for a type of muscle contraction
- Fiber: root

### Down

- Muscle of the forearm, brachio \_\_\_\_\_
- Muscle: combining form
- Like or resembling a systemic form of arthritis
- Neurotransmitter active in the muscular system: abbreviation
- Wasting of tissue
- Substance that stores oxygen in muscles
- Muscle that covers the shoulder
- Sudden involuntary muscle contraction
- Health profession concerned with physical rehabilitation and prevention of disability: abbreviation
- Health profession concerned with working to increase function and independence in daily life: abbreviation

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Shoulder Arthroscopy with Rotator Cuff Repair

#### TITLE OF OPERATION

1. Manipulation of the shoulder under general anesthesia for range of motion in the shoulder.
2. Arthroscopic examination of the right shoulder.
3. Arthroscopic synovectomy of the right shoulder.
4. Debridement of the undersurface of the rotator cuff muscle.
5. Debridement of the glenoid labrum.

#### PROCEDURE IN DETAIL

The patient was placed on the operating table in supine position. After satisfactory general endotracheal anesthesia was administered, the patient was placed in the left lateral position. Perioperative intravenous antibiotics were given. The arm and the right shoulder were prepped and draped in a sterile fashion. The arm was kept in a position of 40 degrees of abduction from the vertical axis of the body with 15 degrees of forward flexion, with the patient tilted posteriorly. The landmarks were made on the shoulder area, and a standard arthroscopic examination was performed using a posterior portal, an anterior portal, and lateral portals. The posterior portal was created about 1.5 cm distal and medial to the posterior lateral corner of the acromion. A small skin incision was made at that level, and the cannula was inserted into the shoulder joint against the bony surface of the glenoid cavity. The arthroscope was inserted, and the joint was visualized. There was a quite thick labrum present in the superior and superoanterior aspect of the labrum, but the anterior half of the labrum was torn in several jagged pieces. The biceps tendon also revealed some synovitis present on the superior aspect of the biceps, as well as the inferior aspect of the tendon. The arthroscope was then moved over along the passage of the biceps tendon until the bicipital groove in the humerus. The undersurface of the rotator cuff was visualized. There was erosion of the articular surface of the rotator cuff with a partial tear, and the tear was covered with fatty tissue.

The synovectomy was first performed. The arthroscope was then brought into the interval between the biceps tendon and the subscapularis. At this level, the arthroscope was removed from the sheath, and a Wissinger rod was inserted to pierce the anterior capsule and then up to the skin edge. A small skin incision was made and the rod was brought out of the skin wound. The arthroscopic synovector was hooked up to the arthroscopic cannula, and the arthroscopic synovector was used to complete the synovectomy of the shoulder joint, debridement of the rotator cuff, and removal of the fatty tissue; then beveling of the ruptured edges of rotator cuff was done. Debridement of the glenoid labrum and its anterior and inferior aspect was also performed. No degenerative changes were present in the glenohumeral joint. After this was performed, all of the joint cavity was cleaned out of loose bodies and tissue with the suction irrigation system.

The subacromial decompression was performed with a lateral portal created about 2 cm lateral to the lateral border of the acromion, and a blunt arthroscopic cannula was inserted through this portal into the subacromial space. The arthroscope was removed from the posterior portal and was redirected into the subacromial space, where it could visualize the arthroscopic cannula. The arthroscopic shavers were used to clean out the bursal tissue, as well as the superior surface of the rotator cuff. The acromioclavicular ligament was identified as a shiny structure from the anterior aspect of the acromion, and the ligament was taken off the acromion along with a bite of the acromion in anterior and lateral aspect. The subacromial space was then injected with 20 cc of 0.5 percent Marcaine solution mixed with 80 mg of Depo-Medrol. There was a small tear in the superior surface of the rotator cuff also, which was not a through-and-through tear; that tear was debrided.

All the portals were closed with 3-0 nylon sutures, and a sterile compression dressing was applied. The patient tolerated the procedure well and was transferred from the operating room to the recovery room in stable condition.

	Answers
78. A patient in the supine position is lying _____.	<i>face up</i>
79. Perioperative antibiotics are given _____ surgery.	<i>before and after</i>
80. Flexion is _____.	<i>bending</i>
81. The glenoid cavity articulates with the _____.	<i>humerus</i>
82. A cannula is a(n) _____.	<i>tube</i>
83. A synovectomy is the _____ of the _____.	<i>removal; membrane lining a joint cavity</i>
84. A term that means removal of damaged tissue is _____.	<i>debridement</i>
85. Bursal tissue is found in _____.	<i>a small sac near a joint</i>

# Worksheet Key

## Nervous System and Mental Health

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Neurons secrete neurotransmitters.	✓	
2. The CNS is composed of the brain and spinal cord.	✓	
3. Neuroglia make up the conducting tissue of the nervous system.		✓
4. Higher brain functions occur in the brainstem.		✓
5. The thalamus receives sensory information and directs it to the cerebrum.	✓	
6. The junction between two neurons is called a synapse.	✓	
7. A stroke is also called a CVA.	✓	
8. Inflammation of the meninges is called encephalitis.		✓
9. The suffix in paraplegia means “seizure.”		✓
10. The arachnoid mater is the middle layer of the meninges.	✓	



## Fill-in-the-Blank

Complete the sentence with the correct term(s).

11. The brain and spinal cord together make up the _____.	<b>meningitis</b> <i>central nervous system</i>
12. The sympathetic and parasympathetic systems together make up the _____.	<i>autonomic nervous system; visceral nervous system</i>
13. The scientific name for a nerve cell is _____.	<i>neuron</i>
14. The fiber that carries impulses away from the cell body is the _____.	<i>axon</i>
15. The fatty material that coats some axons and speeds conduction is _____.	<i>myelin</i>
16. The point of contact between two nerve cells is a(n) _____.	<i>synapse</i>
17. A chemical that carries energy from one neuron to another is called a(n) _____.	<i>neurotransmitter</i>
18. A simple response that requires few neurons is a(n) _____.	<i>reflex</i>
19. The number of pairs of cranial nerves is _____.	<i>twelve; 12</i>
20. The membranes around the brain and spinal cord are the _____.	<i>meninges</i>
21. The root myel/o means bone marrow and _____.	<i>spinal cord</i>
22. Weakening of a blood vessel wall is called a(n) _____.	<i>aneurysm</i>
23. Brain inflammation is termed _____.	<i>encephalitis</i>
24. The virus that causes shingles also causes _____.	<i>chickenpox; chicken pox; varicella</i>
25. A spinal nerve supplies an area of skin termed a(n) _____.	<i>dermatome</i>
26. The _____ fiber carries impulses away from the cell body.	<i>axon</i>
27. A(n) _____ neuron carries impulses away from the CNS.	<i>motor</i>
28. _____ is a whitish, fatty material that insulates and protects axons and speeds electric conduction.	<i>Myelin</i>

	Answers
29. Watery fluid that circulates in and around the brain and spinal cord as a protection is _____ fluid.	<i>cerebrospinal</i>
30. The part of the brain that contains the thalamus, hypothalamus, and pituitary gland is the _____.	<i>diencephalon</i>
31. The nerve that carries sensory impulses from the face and controls the chewing muscles is the _____ nerve.	<i>trigeminal</i>
32. The division of the nervous system that regulates involuntary activities is the _____ nervous system.	<i>autonomic</i>
33. A(n) _____ is an injury resulting from a violent blow or shock.	<i>concussion</i>
34. Inflammation of the meninges is known as _____.	<i>meningitis</i>
35. A series of violent, involuntary muscle contractions, either tonic or clonic, is a(n) _____.	<i>convulsion</i>
36. A false perception unrelated to reality or external stimuli is a(n) _____.	<i>hallucination</i>
37. An increased accumulation of CSF in or around the brain as a result of obstructed flow due to a tumor, inflammation, hemorrhage, or congenital abnormality is known as _____.	<i>hydrocephalus</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
38. meningocele	<i>C</i>	A. a raised convolution on the brain
gyrus	<i>A</i>	B. abnormal development of the spinal cord
myelodysplasia	<i>B</i>	C. hernia of the meninges
hydrocephalus	<i>D</i>	D. accumulation of fluid in the brain
39. ataxia	<i>C</i>	A. an emotional disorder
ictus	<i>D</i>	B. state of stupor
neurosis	<i>A</i>	C. lack of muscle coordination
narcosis	<i>B</i>	D. a sudden attack; a seizure
40. hypersomnolence	<i>D</i>	A. a scale used to evaluate LOC
paresis	<i>B</i>	B. partial paralysis
Glasgow	<i>A</i>	C. a stage of sleep
REM	<i>C</i>	D. excessive sleepiness
41. echolalia	<i>D</i>	A. extreme fear
phobia	<i>A</i>	B. part of the brainstem
mania	<i>C</i>	C. a state of elation
medulla	<i>B</i>	D. repetitive speech

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
42. MI-eh-lin	<i>myelin</i>
43. nu-ROG-le-ah	<i>neuroglia</i>
44. per-IF-er-al	<i>peripheral</i>
45. SUL-kus	<i>sulcus</i>
46. SIN-aps	<i>synapse</i>
47. de-MEN-she-ah	<i>dementia</i>
48. hem-e-pah-RE-sis	<i>hemiparesis</i>
49. AW-tizm	<i>autism</i>
50. par-ah-NOY-ah	<i>paranoia</i>
51. si-KO-sis	<i>psychosis</i>

	Answers
52. skiz-o-FRE-ne-ah	<i>schizophrenia</i>
53. men-IN-jeze	<i>meninges</i>
54. di-en-SEF-ah-lon	<i>diencephalon</i>
55. ah-RAK-noyd	<i>arachnoid</i>
56. GANG-le-on	<i>ganglion</i>
57. ser-eh-BEL-um	<i>cerebellum</i>
58. JI-rus	<i>gyrus</i>
59. SER-eh-brum	<i>cerebrum</i>
60. THAL-ah-mus	<i>thalamus</i>
61. VEN-trik-l	<i>ventricle</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
62. Weakness of one side of the body	<i>hemi-paresis</i>
63. Any disorder affecting the nervous system	<i>neur-o-pathy</i>
64. Any disorder of the brain	<i>encephal-o-pathy</i>
65. Radiography of the spinal cord	<i>myel-o-graphy</i>
66. Inflammation of the meninges	<i>mening-itis</i>
67. Any disease of the spinal nerve root	<i>radicul-o-pathy</i>
68. Radiography of the brain	<i>encephal-o-graphy</i>
69. Paralysis of all four limbs	<i>tetra-plegia</i>
70. Inflammation of the brain	<i>encephal-itis</i>
71. Paralysis of one side of the body	<i>hemi-plegia</i>

### Part 1 Word Bank

encephal	radicul	paresis
myel	hemi	mening
plegia	o	pathy
graphy	tetra	
neur	itis	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

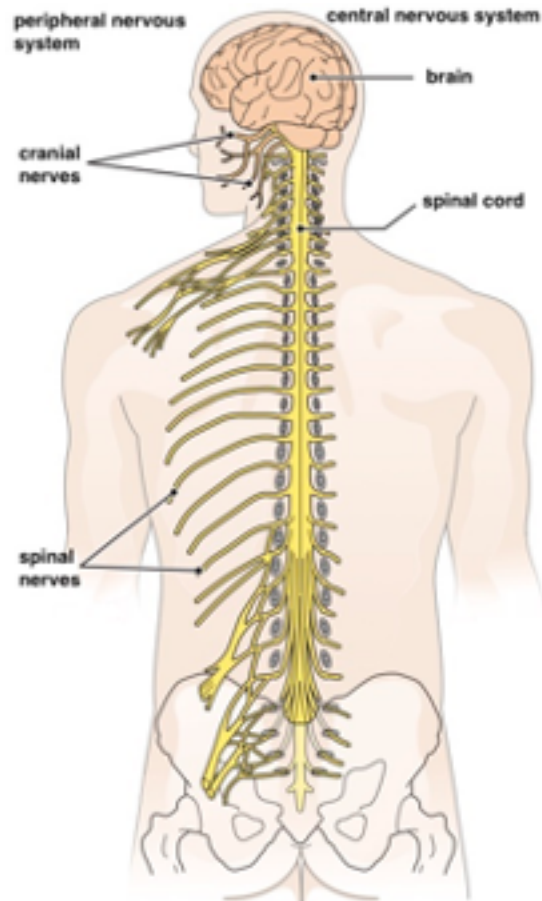
cerebellum	diencephalon	optic	trigeminal
cerebrum	epilepsy	Parkinsonism	vagus
concussion	meningioma	pons	vestibulocochlear

Part 1	Answers
72. parts of the brain	<i>cerebrum, diencephalon, pons, cerebellum</i>
73. cranial nerves	<i>vestibulocochlear, optic, vagus, trigeminal</i>
74. nervous system disorders	<i>concussion, meningioma, Parkinsonism, epilepsy</i>

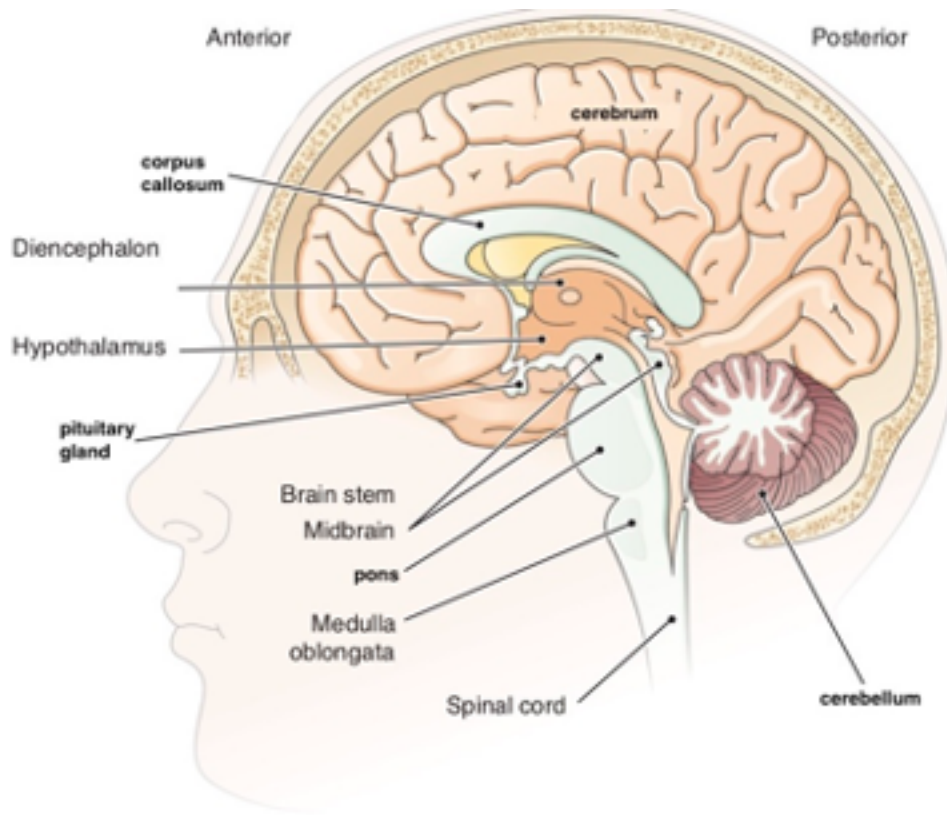
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

75. Labels: brain, central nervous system, cranial nerves, peripheral nervous system, spinal cord, spinal nerves



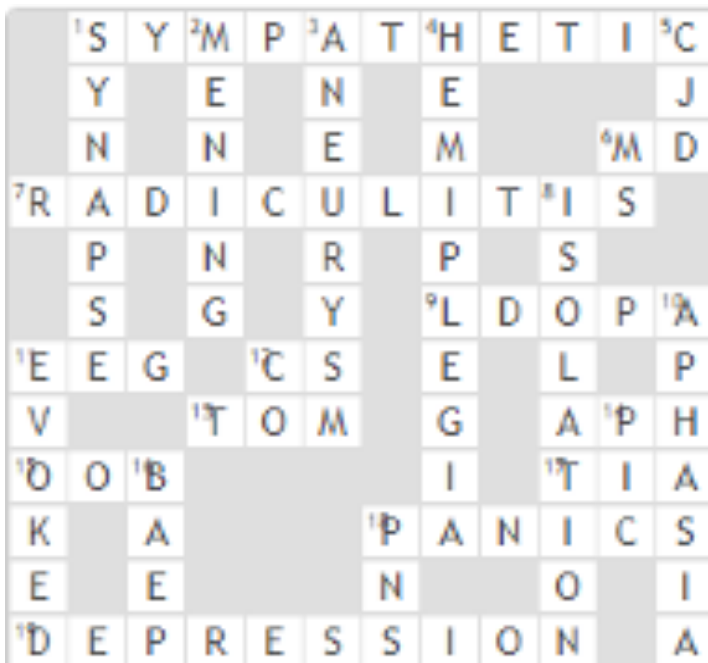
76. Labels: cerebellum, cerebrum, corpus callosum, pituitary gland, pons, thalamus



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

77.



### Across

- A division of the autonomic nervous system
- Dementia caused by multiple small strokes: abbreviation \_\_ I \_\_
- Inflammation of a spinal nerve root
- Drug used to treat Parkinson disease
- Electric study of the brain: abbreviation
- Fluid around the brain and spinal cord: abbreviation \_\_ \_ F
- Method for making 3-dimensional x-ray images: computed ography
- Order related to a patient's activity: abbreviation
- A sudden, brief interruption of blood flow to brain tissue: abbreviation
- Episodes associated with anxiety disorder
- Episode associated with bipolar disorder

### Down

- Junction between two neurons
- Membranes around the brain and spinal cord: root
- Localized dilation of a blood vessel
- Paralysis of one side of the body
- Slow-growing viral disease of the brain: abbreviation
- Disease causing progressive loss of myelin in neurons: abbreviation
- Feeling associated with depression and other behavioral disorders
- Loss or defect in speech communication
- Methods for study of the nervous system: potentials
- Type of catheter: abbreviation \_\_ \_ \_ C
- Method for studying the brain involving auditory stimulation: abbreviation
- All of the nervous system except the brain and spinal cord: abbreviation



## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Acute Seizures Discharge Summary

**CHIEF COMPLAINT:** Mental status changes and expressive aphasia.

**HISTORY OF PRESENT ILLNESS:** This is an elderly white female who presented to the hospital with expressive aphasia and mental status changes. She has a history of multiple hospitalizations in the past with the same complaint.

**PAST MEDICAL HISTORY:** Past medical history significant for the patient having similar episode with seizures, CVA, hypertension, CAD, CABG, CHF, atrial fibrillation, hypothyroidism, TIAs, respiratory arrest, UTI, right carotid endarterectomy, cholecystectomy, hysterectomy, CABG, and peripheral vascular disease.

**HOSPITAL COURSE:** On admission to the hospital, the patient had expressive aphasia. The whole time, she was alert and oriented x1. She could move all four extremities well. She was seen by the neurologist, who recommended that we discuss with her outpatient neurologist, who recommended to maintain her Dilantin 100 mg tid. She cannot tolerate more than 300 mg a day of Dilantin. Also recommended increasing the Lamictal to 200 mg bid. She tolerated the increase of the Lamictal with no problems. Her expressive aphasia improved while she was in the hospital. She continued to mentate well and was alert and oriented x1.

Also on admission, she was noted to have atrial fibrillation, RVR. She was seen by a cardiologist, who recommended increasing her sotalol and decreasing the metoprolol. Her heart rate came down. She was also continued on Coumadin while she was in the hospital.

She was running a low-grade temperature on admission. UA was positive for UTI, and she was put on Macrobid. Her fever subsided.

The EEG was positive for seizure disorder. Again, we felt that her expressive aphasia and mental status changes were probably secondary to acute seizures. She had no evidence of any tonic-clonic seizures. At this point, she is alert and essentially back to baseline.

The family wants to take her home. At this point in time, I think she could be home, because her daughter cares for her at home. The daughter is fully aware of her symptoms of seizures. Again, she is also made aware of the risks of falling and is to monitor her at home and to watch her closely.

**DISCHARGE DIAGNOSES:** Acute seizures, history of cerebrovascular accident, atrial fibrillation, rapid ventricular response, hypertension, coronary artery bypass graft, and urinary tract infection.

**DISCHARGE MEDICATIONS:** Take sotalol 80 mg twice a day, Macrobid 100 mg bid for seizures, metoprolol 50 mg once a day, Lamictal 100 mg 2 tablets twice a day for seizures, Dilantin 100 mg tid, Macrobid twice a day. She is also to continue her Lasix, Lipitor, Cozaar, Coumadin as before, and Synthroid and Trental.

**FOLLOW-UP CARE:** See the doctor in 1 week. Have a Coumadin check once a week.

	<b>Answers</b>
78. The patient's expressive aphasia affected her _____.	<b>speech</b>
79. Endarterectomy, cholecystectomy, and hysterectomy were surgeries of the patient's _____, _____, and _____.	<b>artery; gallbladder; uterus</b>
80. CAD, CABG, and CHF are all abbreviations related to the _____.	<b>heart</b>
81. The patient was recommended to take Lamictal at 200 mg bid. She would be taking _____ mg per day.	<b>400</b>
82. "UA was positive for UTI" pertains to the _____.	<b>urinary tract</b>
83. The patient receives Synthroid for her _____.	<b>hypothyroidism</b>

# Worksheet Key

## Special Senses: Ear and Eye

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Receptors for hearing are located in the vestibular apparatus.		✓
2. Proprioception is the awareness of body position.	✓	
3. The scientific name for the sense of taste is gustation.	✓	
4. The tympanic membrane is found between the middle and inner ear.		✓
5. Congenital loss of hearing is called presbycusis.		✓
6. The retina contains light receptors.	✓	
7. The fovea is the retina's point of highest visual acuity.	✓	
8. The lens must become flatter for viewing close objects.		✓
9. Lacrimal glands produce tears.	✓	
10. The stapes is in direct contact with the tympanic membrane.		✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. Any nerve ending or type of structure that responds to a stimulus is called a(n) _____.	<i>receptor</i>
12. The tactile sense is the sense of _____.	<i>touch</i>
13. Olfaction is the sense of _____.	<i>smell</i>
14. The technical name for the eardrum is the _____.	<i>tympanic membrane; tympanum</i>
15. The coiled portion of the inner ear that contains hearing receptors is the _____.	<i>cochlea</i>
16. The vestibular apparatus contains the receptors for the sense of _____.	<i>equilibrium</i>
17. The vestibulocochlear nerve is cranial nerve number _____.	<i>eight; 8; VIII</i>
18. The part of the eye that contains the light-sensitive cells, the rods and cones, is the _____.	<i>retina</i>
19. The technical name for the white of the eye is _____.	<i>sclera</i>
20. The bending of light rays as they pass through the eye is _____.	<i>refraction</i>
21. The medical term that means “sense of taste” is _____.	<i>gustation</i>
22. The malleus, incus, and stapes are ear _____.	<i>ossicles</i>
23. The point of highest visual acuity is the _____.	<i>fovea; fovea centralis</i>
24. Opacity of the lens of the eye is _____.	<i>cataract</i>
25. Ringing in the ear is termed _____.	<i>tinnitus</i>
26. _____ is the awareness of posture, movement, and changes in equilibrium, with receptors being located in muscles, tendons, and joints.	<i>Proprioception</i>
27. _____ is an eye disease caused by increased intraocular pressure that damages the optic disk and causes vision loss; it usually results from faulty fluid drainage from the eye’s anterior portion.	<i>glaucoma</i>
28. The sense of balance is known as _____.	<i>equilibrium</i>

	Answers
29. The membrane between the external auditory canal and the middle ear, also known as the eardrum, is the _____ membrane.	<i>tympanic</i>
30. _____ is the plastic repair of the stapes.	<i>Stapedoplasty</i>
31. The mucous membrane that lines the eyelids and covers the eyeball's anterior portion is known as the _____.	<i>conjunctiva</i>
32. _____ is the bending of light rays as they pass through the eye to focus on a specific point on the retina; it also refers to the determination and correction of ocular refractive errors.	<i>Refraction</i>
33. Degenerative changes in the retina often associated with diabetes mellitus are known as a(n) _____.	<i>retinopathy</i>
34. Sound waves leave the cochlea through the _____.	<i>round window</i>
35. _____ vision requires greater light refraction.	<i>Close</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
36. cerumen	<i>B</i>	A. an ossicle of the ear
incus	<i>A</i>	B. ear wax
cornea	<i>D</i>	C. membrane that lines the eyelid
conjunctiva	<i>C</i>	D. the anterior portion of the sclera
37. phacolysis	<i>D</i>	A. farsightedness
vertigo	<i>B</i>	B. illusion of movement
hyperopia	<i>A</i>	C. unequal vision in the two eyes
heteropsia	<i>C</i>	D. destruction of the lens
38. trachoma	<i>C</i>	A. a visual defect
Rinne	<i>D</i>	B. a bottom or base
astigmatism	<i>A</i>	C. a type of eye infection
fundus	<i>B</i>	D. name given to a hearing test
39. mydriasis	<i>D</i>	A. visual receptor cell
IOP	<i>C</i>	B. area that contains the fovea
rod	<i>A</i>	C. measured in testing for glaucoma
macula	<i>B</i>	D. dilation of the pupil

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
40. tim-PAN-ik	<i>tympanic</i>
41. ves-TIB-u-lar	<i>vestibular</i>
42. TIN-ih-tus	<i>tinnitus</i>
43. AK-we-us	<i>aqueous</i>
44. KOR-oyd	<i>choroid</i>
45. KOR-ne-ah	<i>cornea</i>
46. FO-ve-ah	<i>fovea</i>
47. PAL-peh-brah	<i>palpebra</i>
48. VIT-re-us	<i>vitreous</i>
49. glaw-KO-mah	<i>glaucoma</i>

	Answers
50. mi-O-pe-ah	<i>myopia</i>
51. seh-RU-men	<i>cerumen</i>
52. u-STA-shun	<i>eustachian</i>
53. ING-kus	<i>incus</i>
54. LAB-ih-rinth	<i>labyrinth</i>
55. e-kwih-LIB-re-um	<i>equilibrium</i>
56. KOK-le-ah	<i>cochlea</i>
57. STA-peze	<i>stapes</i>
58. MAL-e-us	<i>malleus</i>
59. pro-pre-o-SEP-shun	<i>proprioception</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
60. Hardening of the tympanic membrane	<b>myring-o-sclerosis</b>
61. Drooping of the eyelid	<b>blephar-o-ptosis</b>
62. Incision of the iris	<b>irid-o-tomy</b>
63. Thickening of the middle ear bones	<b>ot-o-sclerosis</b>
64. Plastic repair of the eyelid	<b>blephar-o-plasty</b>
65. Paralysis of the iris	<b>irid-o-plegia</b>
66. Incision of the eyelid	<b>blephar-o-tomy</b>
67. Pertaining to tears	<b>lacrim-al</b>
68. Incision of the tympanic membrane	<b>myring-o-tomy</b>
69. Measurement of the cornea	<b>kerat-o-metry</b>

### Part 1 Word Bank

al	metry	plegia
blephar	myring	ptosis
irid	o	sclerosis
kerat	ot	tomy
lacrim	plasty	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

cataract	lens	tinnitus	vestibule
cochlea	malleus	tympanic	vitreous
cornea	otosclerosis	membrane	body
glaucoma	retina		

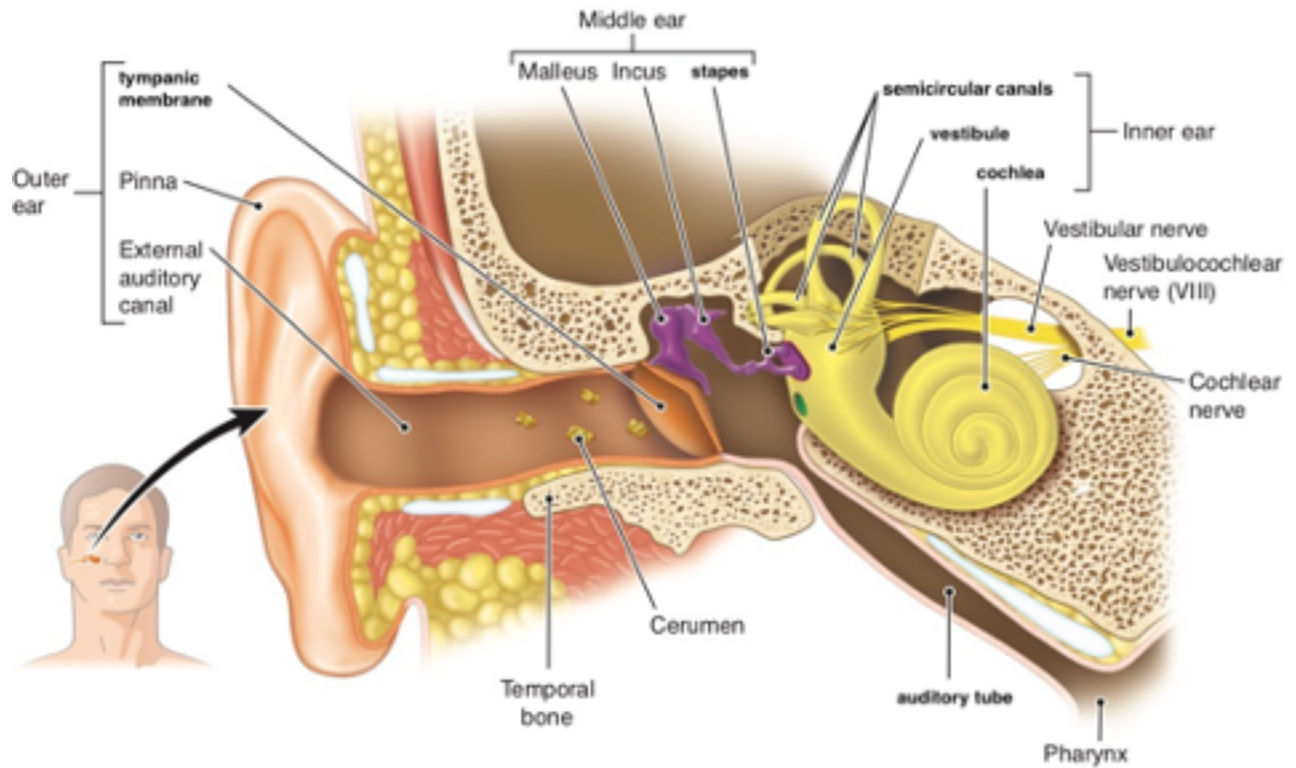
Part 1	Answers
70. parts of the ear	<b>malleus, tympanic membrane, cochlea, vestibule</b>
71. parts of the eye	<b>vitreous body, cornea, retina, lens</b>
72. disorders of the ear and eye	<b>otosclerosis, tinnitus, glaucoma, cataract</b>



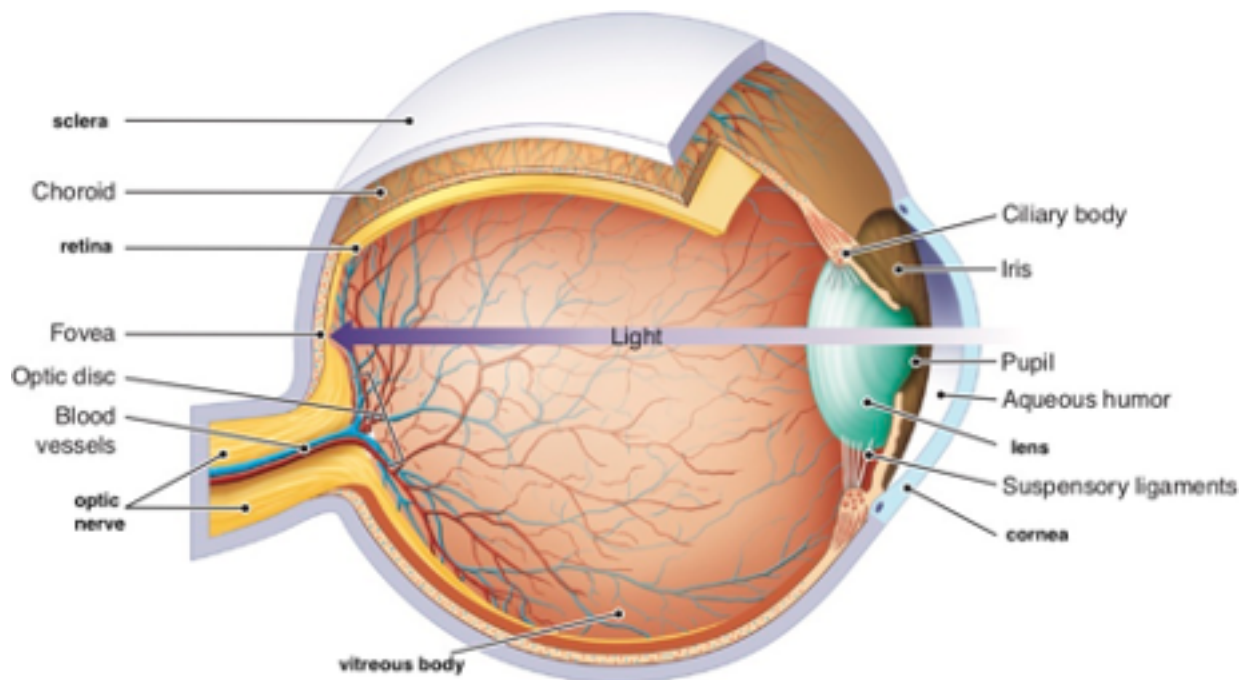
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

73. Labels: auditory tube, cochlea, semicircular canals, stapes, tympanic membrane, vestibule

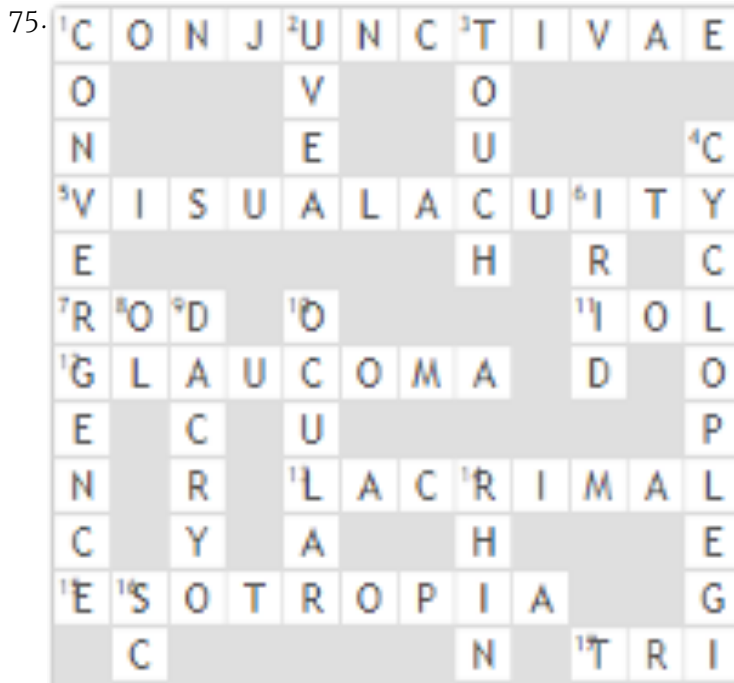


74. Labels: cornea, lens, optic nerve, retina, sclera, vitreous body



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.



### Across

- Membranes that line the eyelids and cover the fronts of the eyes
- Sharpness of vision
- A light-sensitive cell of the retina
- Lens implant: abbreviation
- Eye disorder caused by increased pressure
- Pertaining to tears
- Inward deviation of the eye
- Three: prefix

### Down

- Coordinated movement of the eyes toward fixation on the same point
- The middle layer of the eye
- The tactile sense
- Paralysis of the ciliary body: a
- Iris: root
- Medical specialty treating the ear and throat: abbreviation
- Tear, lacrimal apparatus: combining form
- Pertaining to the eye
- Nose: root
- Without correction: abbreviation

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Rhinoplasty

TITLE OF OPERATION: Aesthetic rhinoplasty.

PREOPERATIVE DIAGNOSIS: Congenital external nasal deformity. POSTOPERATIVE DIAGNOSIS: Congenital external nasal deformity.

INDICATION FOR OPERATION: The patient is a 26-year-old male who presented with concerns for nasal airway obstruction and discontent with the external appearance of his nose. He feels that his nose is excessively long, has excessive projection, has a visible dorsal hump, and bony and cartilage irregularities. Examination confirms the above-noted concerns with a widened nasal base and palpable and visible dorsal cartilage and nasal bones. The patient also had airway complaints, to be addressed with a turbinectomy and septoplasty.

Correction of the external deformity by open rhinoplasty with osteotomy, lowering of the dorsum, lowering of the cartilaginous dorsum, narrowing of the nasal bones, resection and narrowing of the nasal tip, and excision of caudal septum and nasal spine were discussed. The nature of the procedures and risks, including bleeding, hematoma, infection, poor wound healing, scarring, asymmetry, airway difficulties, palpable or visible nasal structures, and possible need for secondary procedures were all discussed. The patient understands and wishes to proceed as outlined.

PROCEDURE IN DETAIL: The patient initially underwent bilateral turbinectomy and septoplasty, which was dictated as a separate procedure. After this was completed, open rhinoplasty was carried out through a columellar chevron incision. The nose was copiously infiltrated with 1 percent lidocaine with epinephrine prior to incision. The chevron incision was incised and carried to bilateral rim incisions. The nasal skin was then degloved using sharp dissecting scissors. This was opened over the nose up to the root of the nose to allow full exposure. The irregular nasal bones were initially smoothed with a rasp. Excision of the dorsal nasal bone was then carried out using a straight guarded osteotome. Approximately 1 mm thickness of bone was removed. Medial osteotomies were then carried out with a guarded straight osteotome. Lateral osteotomies were then carried out through a lateral broach with a 2-mm osteotome. After osteotomy was completed from a low to high position, infracture of the nasal bones was carried out. This provided good narrowing of the nasal base.

The cartilaginous nasal dorsum was then smoothed and brought down, using direct shave excision with a #15 blade under direct vision. Portions of the upper lateral cartilage are also excised. When the dorsum was fully straightened, the upper lateral cartilage was resutured to the septum, using interrupted 6-0 PDS. The nasal fibrofatty tissue between the lower lateral cartilage was excised. The nasal tip was narrowed, using interrupted 6-0 PDS sutures. The alar domes were also sharpened with narrowing sutures of 6-0 PDS. Dissection was then carried down through the inferior columellar base. The caudal septum was identified, which protruded to the level and to the right of the medial crura. Approximately 3 mm of caudal septum was excised. Dissection was carried down to the anterior nasal spine, which was removed using a bone biter. The medial crura were allowed to drop down, and the nose was examined with the skin redraped. The position of the medial crura was identified with the skin redraped and providing a good nasal contour. The degree of overlap was marked, and a segment of the medial crura was excised bilaterally. The medial crura were reestablished using interrupted 6-0 PDS sutures to suture the upper elements to the lower and footplate elements of the medial crura. A small piece of septal cartilage was crushed and flattened using the cartilage crusher, and this was placed over the nasal dorsum. Contour was again checked and confirmed. Hemostasis was assured. The skin was redraped, and closure was carried out using interrupted 6-0 Prolene for the columellar and stab incisions.

Interrupted 5-0 plain gut sutures were used to close the rim incisions and the septal transfixion incision. Xeroform packs were removed, and nasal splints were placed. A second set of Xeroform packs was placed lateral to the nasal splints. The dorsum of the nose was taped, and a dorsal thermoplast splint was also placed. The procedure was well-tolerated. The posterior throat was suctioned, and a throat pack that had been placed at the beginning of the procedure was removed. The patient was awakened and extubated and discharged to the recovery room in stable condition.

	Answers
76. The word root rhin/o means _____.	<i>nose</i>
77. The term congenital means _____.	<i>present at birth</i>
78. Something that is palpable can be _____.	<i>felt</i>
79. The turbinate bones in the nose hold receptors for the sense of ____.	<i>olfaction</i>
80. A septum is a(n) _____.	<i>dividing wall</i>
81. An osteotome is used to cut _____.	<i>bone</i>
82. Hemostasis is _____.	<i>stoppage of bleeding</i>
83. A word that means “removal of a tube” is _____.	<i>extubation</i>

# Worksheet Key

## Endocrine System

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Endocrine glands secrete hormones.	✓	
2. The hypothalamus regulates pituitary gland function.	✓	
3. Damage to the pancreatic islets causes Cushing disease.		✓
4. Hormone receptors are found on or in target cells.	✓	
5. Thyroid atrophy causes goiter.		✓
6. Lack of insulin causes hypoglycemia.		✓
7. Oxytocin produces uterine contractions.	✓	
8. The most common endocrine disorder is hyperthyroidism.		✓
9. The anterior pituitary releases growth hormone.	✓	
10. Cortisol is produced by the adrenal medulla.		✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The regulatory substances secreted by the endocrine glands as a group are called _____.	<i>hormones</i>
12. The small gland under the brain that controls many other endocrine glands is the hypophysis, commonly called the _____.	<i>pituitary</i>
13. The activity of the thyroid gland can be evaluated by measuring blood levels of the element _____.	<i>iodine</i>
14. The main hormone produced by the adrenal medulla is adrenaline, the scientific name for which is _____.	<i>epinephrine</i>
15. The hormone released by the pancreas that lowers blood sugar is _____.	<i>insulin</i>
16. The medical specialty that concentrates on the endocrine glands and their hormones is called _____.	<i>endocrinology</i>
17. Enlargement of the thyroid gland is called _____.	<i>goiter</i>
18. The pituitary hormone ACTH acts specifically on the _____.	<i>adrenal cortex</i>
19. Hormones that act on the gonads as a group are called _____.	<i>gonadotropins</i>
20. The pituitary hormone TSH acts on the _____.	<i>thyroid</i>
21. Pituitary function is regulated by the _____ of the brain.	<i>hypothalamus</i>
22. A gland that regulates calcium balance is a(n) _____ gland.	<i>parathyroid</i>
23. A hormone manufactured from lipids is chemically called a(n) _____.	<i>steroid</i>
24. ACTH hypersecretion results in _____.	<i>Cushing</i>
25. Hyperglycemia, glycosuria, and ketoacidosis are signs of _____ disease.	<i>diabetes mellitus</i>
26. The hormone melatonin is secreted by the _____ gland.	<i>pineal</i>
27. The hormone from the anterior pituitary that stimulates milk secretion is PRL or _____.	<i>prolactin</i>
28. _____ is a condition resulting from overactivity of the thyroid gland. Symptoms include anxiety, irritability, weight loss, and sweating. An example is Graves disease.	<i>Thyrotoxicosis</i>
29. _____ is overgrowth of bone and soft tissue, especially in the hands, feet, and face, caused by excess growth hormone in an adult.	<i>acromegaly</i>
30. _____ is a condition caused by inadequate production of antidiuretic hormone, resulting in excessive excretion of dilute urine and extreme thirst.	<i>Diabetes insipidus</i>

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31. A hormone released from the pituitary gland that causes water reabsorption in the kidneys, thus concentrating the urine, is _____ hormone.	<i>antidiuretic</i>
32. _____ is a portion of the brain that controls the pituitary gland and is active in maintaining homeostasis.	<i>Hypothalamus</i>
33. _____ is a hormone made from lipids and includes the sex hormones.	<i>Steroid</i>
34. _____ is a hormone from the adrenal cortex that aids in metabolism of carbohydrates, proteins, and fats and that is active during stress.	<i>Hydrocortisone</i>
35. _____ is a pancreatic hormone that stimulates the liver to release glucose, thereby increasing blood sugar levels.	<i>glucagon</i>
36. Small endocrine glands on the posterior thyroid that act to increase blood calcium levels are the _____ glands.	<i>parathyroid</i>
37. A group of hormones produced throughout the body that have a variety of effects, including stimulation of uterine contractions and regulation of blood pressure, blood clotting, and inflammation are the _____.	<i>prostaglandins</i>
38. The renal portion of the term adrenal stands for _____.	<i>kidney</i>

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## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
39. insulin	<i>C</i>	A. increases blood sugar levels
thyroid	<i>B</i>	B. a gland that regulates metabolism
epinephrine	<i>D</i>	C. decreases blood sugar levels
glucagon	<i>A</i>	D. adrenal stress hormone
40. thymus	<i>C</i>	A. disorder caused by lack of ADH
diabetes insipidus	<i>A</i>	B. enlargement of the thyroid gland
goiter	<i>B</i>	C. a gland active in immunity
hypophysectomy	<i>D</i>	D. excision of the pituitary
41. acromegaly	<i>C</i>	A. activated by epinephrine
ketoacidosis	<i>B</i>	B. condition associated with diabetes mellitus
adrenergic	<i>A</i>	C. condition caused by excess growth hormone
RAIU	<i>D</i>	D. a measure of thyroid function
42. HbA1C	<i>B</i>	A. part of the brain that controls the pituitary
Hashimoto disease	<i>C</i>	B. test that measures glucose control
aldosterone	<i>D</i>	C. autoimmune thyroid disease
hypothalamus	<i>A</i>	D. causes the kidneys to conserve water



## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers		Answers
43. pih-TU-ih-tar-e	<i>pituitary</i>	53. fe-o-kro-mo-si-TO-mah	<i>pheochromocytoma</i>
44. STER-oyd	<i>steroid</i>	54. ah-DRE-nal	<i>adrenal</i>
45. ak-ro-MEG-ah-le	<i>acromegaly</i>	55. EN-do-krin	<i>endocrine</i>
46. di-ah-BE-teze	<i>diabetes</i>	56. hi-POF-ih-sis	<i>hypophysis</i>
47. ek-sof-THAL-mos	<i>exophthalmos</i>	57. hi-po-THAL-ah-mus	<i>hypothalamus</i>
48. GOY-ter	<i>goiter</i>	58. pan-kre-AT-ik	<i>pancreatic</i>
49. ke-to-as-ih-DO-sis	<i>ketoacidosis</i>	59. PIN-e-al	<i>pineal</i>
50. gli-ko-SU-re-ah	<i>glycosuria</i>	60. an-te-di-u-RET-ik	<i>antidiuretic</i>
51. SFE-noyd	<i>sphenoid</i>	61. meh-DUL-lah	<i>medulla</i>
52. kra-ne-o-far-in-je-O-mah	<i>craniopharyngioma</i>	62. pros-tah-GLAN-din	<i>prostaglandin</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
64. Any disease of the adrenal gland	<i>adren-o-pathy</i>
65. Pertaining to the body	<i>somat-ic</i>
66. Any disease of the thyroid gland	<i>thyr-o-pathy</i>
67. Tumor of the pancreatic islets	<i>insul-oma</i>
68. Activated by epinephrine	<i>adren-erg-ic</i>
69. Pertaining to the pancreatic islets	<i>insul-ar</i>
70. Enlargement of the thyroid	<i>thyr-o-megaly</i>
71. Acting on the thyroid	<i>thyr-o-trop-ic</i>
72. Acting on the body	<i>somat-o-trop-ic</i>
73. Acting on reproductive organs	<i>gonad-o-trop-ic</i>

### Part 1 Word Bank

adren	thyr	oma
insul	erg	ic
somat	o	pathy
ar	trop	
megaly	gonad	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

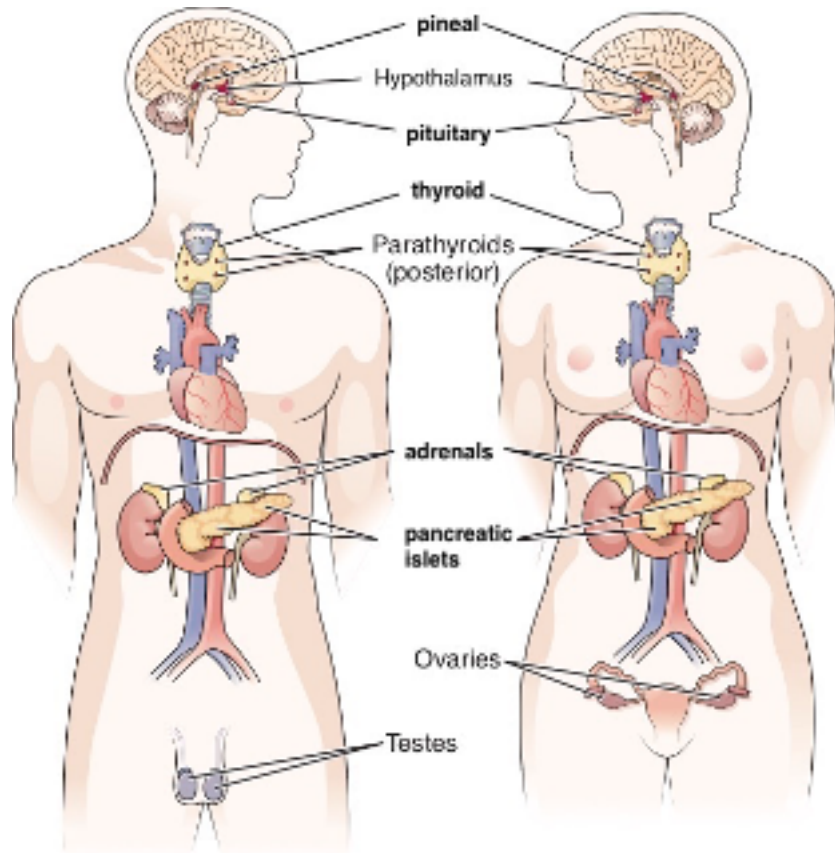
acromegaly	Cushing syndrome	pituitary	thymus
ADH	diabetes mellitus	PRL	thyroid
adrenal		tetany	thyroxine
cortisol			

Part 1	Answers
74. endocrine glands	<i>pituitary, adrenal, thyroid, thymus</i>
75. hormones	<i>PRL, cortisol, thyroxine, ADH</i>
76. results of hormonal imbalances	<i>acromegaly, diabetes mellitus, tetany, Cushing syndrome</i>

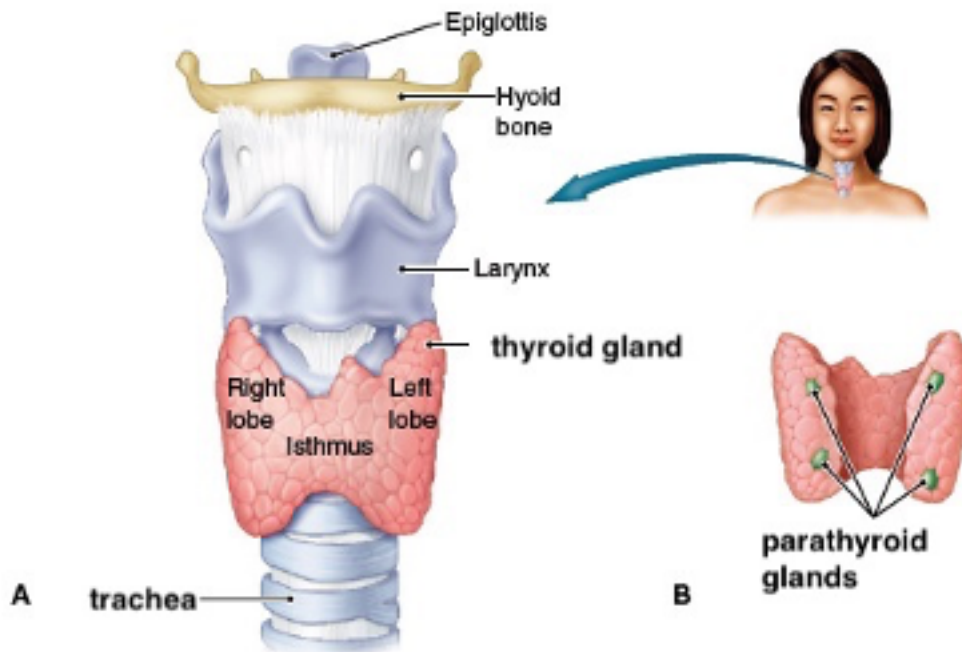
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

77. Labels: adrenals, pancreatic islets, pineal, pituitary, thyroid



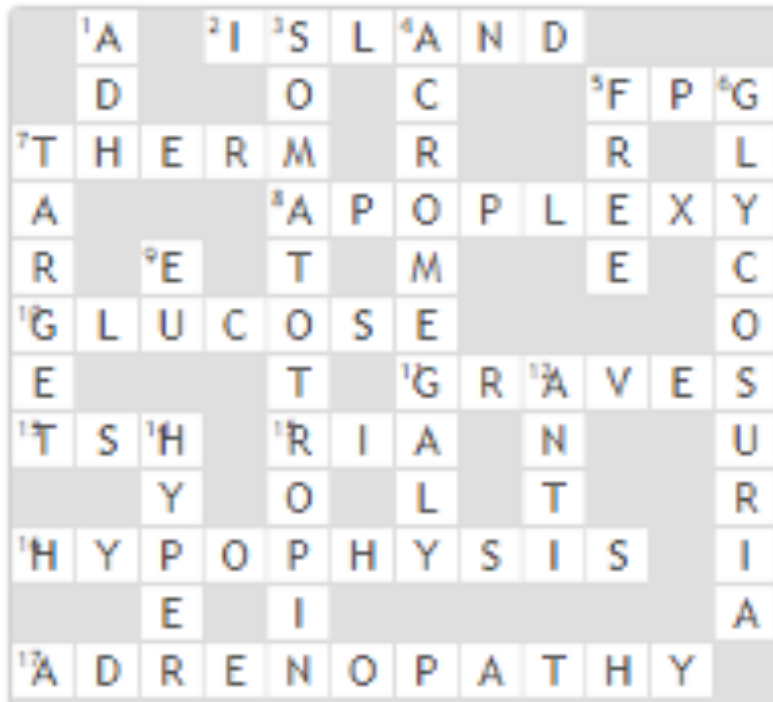
78. Labels: parathyroid glands, thyroid gland, trachea



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

79.



### Across

2. An islet is a small \_\_\_\_.
5. Measurement used to diagnose diabetes: abbreviation
7. Temperature: root
8. Sudden degeneration of the pituitary is pituitary \_\_\_\_.
10. Diabetes affects the metabolism of \_\_\_\_.
11. A form of hyperthyroidism is named for him.
13. Pituitary hormone that acts on the thyroid: abbreviation
15. Test for measuring hormones in the blood: abbreviation
16. Alternative name for the pituitary
17. Any disease of the adrenal gland

### Down

1. Pituitary hormone that controls water loss: abbreviation
3. Alternative name for growth hormone
4. Disorder caused by excess growth hormone in adults
5. A form of thyroid hormones in the blood
6. Excess sugar in the urine
7. The cells or tissues a hormone acts on
9. True, normal: prefix
12. Against: prefix
14. Over, abnormally high: prefix

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Endocrinology Office Consultation

**HISTORY:** This is a 59-year-old woman who has been in good health. She had an incident where a thyroid nodule was discovered after referral to a general surgeon for a breast lump. At that time, thyroid ultrasound and fine-needle aspiration of a rather sizable cyst of the right lobe of the thyroid, as well as aspiration of a nodule on the left side, were carried out. The findings suggested hemorrhage, and the patient was seen in follow-up 6 months later, and since that time, she has noted no hoarseness, dysphagia, local tenderness, or other focal symptoms. She also has no symptoms suggestive of thyroid dysfunction, and her baseline thyroid function studies last September were noted to be normal. She does admit to loud snoring and some sleep difficulty with occasional fatigue the following day. This has been commented upon by her husband as being particularly coarse and loud in nature.

**MEDICATIONS:** She is on no medications except for Estraderm twice weekly.

**FAMILY HISTORY:** She does have a history of thyroid goiter in mother and grandmother.

**PHYSICAL EXAMINATION:** This is a healthy-appearing woman. Blood pressure is 130/74. Height is 5 feet 4 inches. Weight is 155 pounds. Integument is normal. She is well tanned. Eyes reveal no ophthalmopathy. Examination of the neck reveals a 2-cm nodular area in the lower part of the neck, which moves with swallowing. Otherwise, there is no enlargement of the thyroid.

No lymphadenopathy or other abnormality. Chest is clear. She has no chest wall tenderness. Cardiac exam reveals a slow, regular rate and rhythm. Reflexes are normal.

**ULTRASOUND REPORT:** Review of the ultrasound shows several cysts, one of which is sizable and compatible with a hemorrhagic cyst, as well as the suggestion of two demarcated adenomas, one of which was aspirated last October. The left-sided nodule did show follicular cells, although it is not stated whether there are adequate numbers, that is, six separate cells present.

**IMPRESSION:** Probable nodular hyperplasia with rather well-demarcated thyroid nodules, not palpable on clinical exam, and hemorrhagic thyroid cyst that has not changed in the last 6 months.

**PLAN:** A free T<sub>4</sub> and TSH were obtained, and it was recommended that a re-exam and ultrasound be done in approximately 6 months.

	Answers
80. Dysphagia is difficulty _____.	<i>swallowing</i>
81. A focal symptom is ____.	<i>localized</i>
82. Thyroid tests in September were normal. The patient showed ____.	<i>euthyroidism</i>
83. An adenoma is a(n) ____.	<i>glandular neoplasm</i>
84. Nodules that are not palpable cannot _____.	<i>be felt</i>
85. Free T <sub>4</sub> and TSH come, respectively, from the _____ and _____.	<i>thyroid; pituitary</i>

## Worksheet Key

# Cardiovascular and Lymphatic Systems

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Lymph circulates in the cardiovascular system.		✓
2. Myocardium is composed of skeletal muscle tissue.		✓
3. The pericardium anchors the heart to the diaphragm.	✓	
4. The left ventricle pumps blood into the systemic circuit.	✓	
5. The tricuspid valve is located between the left atrium and left ventricle.		✓
6. An infarct is an area of necrosis.	✓	
7. The P wave represents depolarization of the ventricles.		✓
8. The SA node is the pacemaker of the heart.	✓	
9. The thoracic duct is the left lymphatic duct.	✓	
10. Lymph node inflammation is termed lymphangitis.		✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The thin lining of the heart chambers is the _____.	<i>endocardium</i>
12. The largest artery is the _____.	<i>aorta</i>
13. A lower chamber of the heart is a(n) _____.	<i>ventricle</i>
14. The pulmonary circuit carries blood to and from the _____.	<i>lungs</i>
15. An abnormal heart sound is a(n) _____.	<i>murmur</i>
16. The full scientific name for the pacemaker of the heart is _____.	<i>sinoatrial node</i>
17. The smallest vessels are the _____.	<i>capillaries</i>
18. The fluid that circulates in the lymphatic system is called _____.	<i>lymph</i>
19. A blood clot formed within a vessel is called a(n) _____.	<i>thrombus</i>
20. The common term for hypertension is _____.	<i>high blood pressure</i>
21. The root phleb/o pertains to a(n) _____.	<i>vein</i>
22. The root angi/o means _____.	<i>vessel</i>
23. Blood is carried toward the heart by vessels called _____.	<i>veins</i>
24. Inflammation of the lymph nodes is termed _____.	<i>lymphadenitis</i>
25. The medical term for fainting is _____.	<i>syncope</i>
26. The thin outermost layer of the heart wall is the _____.	<i>epicardium</i>
27. Localized narrowing of the aorta with restriction of blood flow is known as _____.	<i>coarctation</i>
28. A small mass in the upper part of the right atrium that initiates the impulse for each heartbeat, also known as the pacemaker, is the _____.	<i>sinoatrial node</i>
29. The contraction phase of the heartbeat cycle is called _____.	<i>systole</i>
30. A change in electrical charge from the resting state in nerves or muscles is known as _____.	<i>depolarization</i>

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31. The development of fatty, fibrous patches (plaques) in the lining of arteries, causing narrowing of the lumen and hardening of the vessel wall, is a condition called _____.	<b><i>atherosclerosis</i></b>
32. A(n) _____ is an obstruction of a blood vessel by a blood clot or other matter carried in the circulation.	<b><i>embolism</i></b>
33. A procedure that reopens a narrowed vessel and restores blood flow is known as _____. It is commonly accomplished by surgically removing plaque or inflating a balloon within the vessel.	<b><i>angioplasty</i></b>
34. A localized abnormal dilation of a blood vessel that results from weakness of the vessel wall is a(n) _____.	<b><i>aneurysm</i></b>
35. Any abnormality in the rate or rhythm of the heartbeat (literally “without rhythm”) is known as _____.	<b><i>arrhythmia</i></b>
36. Restoration of cardiac output and pulmonary ventilation after cardiac arrest using artificial respiration and chest compression or cardiac massage is called cardiopulmonary _____.	<b><i>resuscitation</i></b>
37. The point of origin for the electrical impulses that stimulate the heartbeat is the _____.	<b><i>sinoatrial node OR SA node</i></b>

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## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
38. cardiomyopathy	<i>C</i>	A. inflammation of the heart muscle
cardiomegaly	<i>D</i>	B. downward displacement of the aorta
myocarditis	<i>A</i>	C. any disease of the heart muscle
aortoptosis	<i>B</i>	D. enlargement of the heart
39. aortostenosis	<i>D</i>	A. rupture of an artery
phlebotomy	<i>C</i>	B. dilatation of a vein
phlebectasia	<i>B</i>	C. incision of a vein
arteriorrhexis	<i>A</i>	D. narrowing of the aorta
40. angiopathy	<i>B</i>	A. tumor of lymphatic vessels
lymphangioma	<i>A</i>	B. any disease of blood vessels
aneurysm	<i>D</i>	C. cerebrovascular accident
stroke	<i>C</i>	D. ballooning of a vessel
41. angina pectoris	<i>A</i>	A. a form of chest pain
heart attack	<i>C</i>	B. method used to study the heart
PTCA	<i>D</i>	C. myocardial infarction
ECG	<i>B</i>	D. coronary angioplasty

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
42. VEN-trik-l	<i>ventricle</i>
43. an-je-o-eh-DE-mah	<i>angioedema</i>
44. fleb-I-tis	<i>phlebitis</i>
45. AN-u-rizm	<i>aneurysm</i>
46. an-JI-nah	<i>angina</i>
47. ah-RITH-me-ah	<i>arrhythmia</i>
48. ath-er-o-skler-O-sis	<i>atherosclerosis</i>
49. brad-e-KAR-de-ah	<i>bradycardia</i>
50. HEM-o-royd	<i>hemorrhoid</i>
51. is-KE-me-ah	<i>ischemia</i>

	Answers
52. plak	<i>plaque</i>
53. tak-ih-KAR-de-ah	<i>tachycardia</i>
54. VAR-i-kose	<i>varicose</i>
55. lim-FAT-ik	<i>lymphatic</i>
56. lim-feh-DE-mah	<i>lymphedema</i>
57. si-no-A-tre-al	<i>sinoatrial</i>
58. pur-KIN-je	<i>Purkinje</i>
59. MI-tral	<i>mitral</i>
60. SIS-to-le	<i>systole</i>
61. di-AS-to-le	<i>diastole</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
63. Vasodilation of the veins	<i>phleb-ectasia</i>
64. Surgical incision of a ventricle	<i>ventricul-o-tomy</i>
65. Dropping of the heart	<i>cardi-o-ptosis</i>
66. Pertaining to the fibrous sac around the heart	<i>peri-cardi-al</i>
67. Pertaining to an atrium and ventricle	<i>atri-o-ventricul-ar</i>
68. Pertaining to the heart and blood vessels	<i>cardi-o-vascul-ar</i>
69. Surgical incision of the atrium	<i>atri-o-tomy</i>
70. Surgical incision of the spleen	<i>splen-o-tomy</i>
71. Dropping of the aorta	<i>aort-o-ptosis</i>
72. Inflammation of a vein	<i>phleb-itis</i>

### Part 1 Word Bank

a	aort	atri
ectasia	itis	peri
ptosis	tomy	ventricul
al	ar	cardi
ic	o	
splen	vascul	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

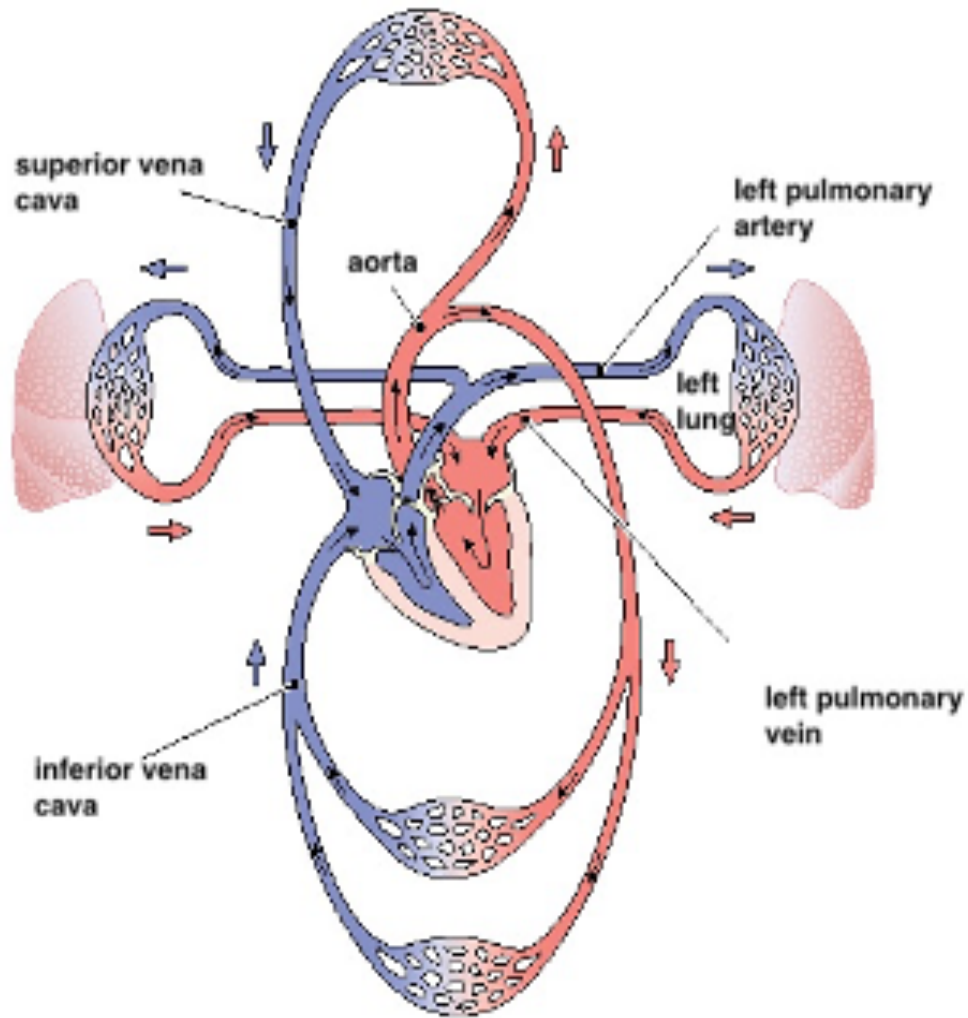
arrhythmia	brachiocephalic	myocardium	septum
arteriosclerosis	carotid	jugular	valve
atrium	fibrillation	myocardium	vena cava

Part 1	Answers
73. parts of the heart	<i>valve, atrium, myocardium, septum</i>
74. blood vessel names	<i>brachiocephalic, carotid, vena cava, jugular</i>
75. cardiovascular disorders	<i>arrhythmia, arteriosclerosis, infarct, fibrillation</i>

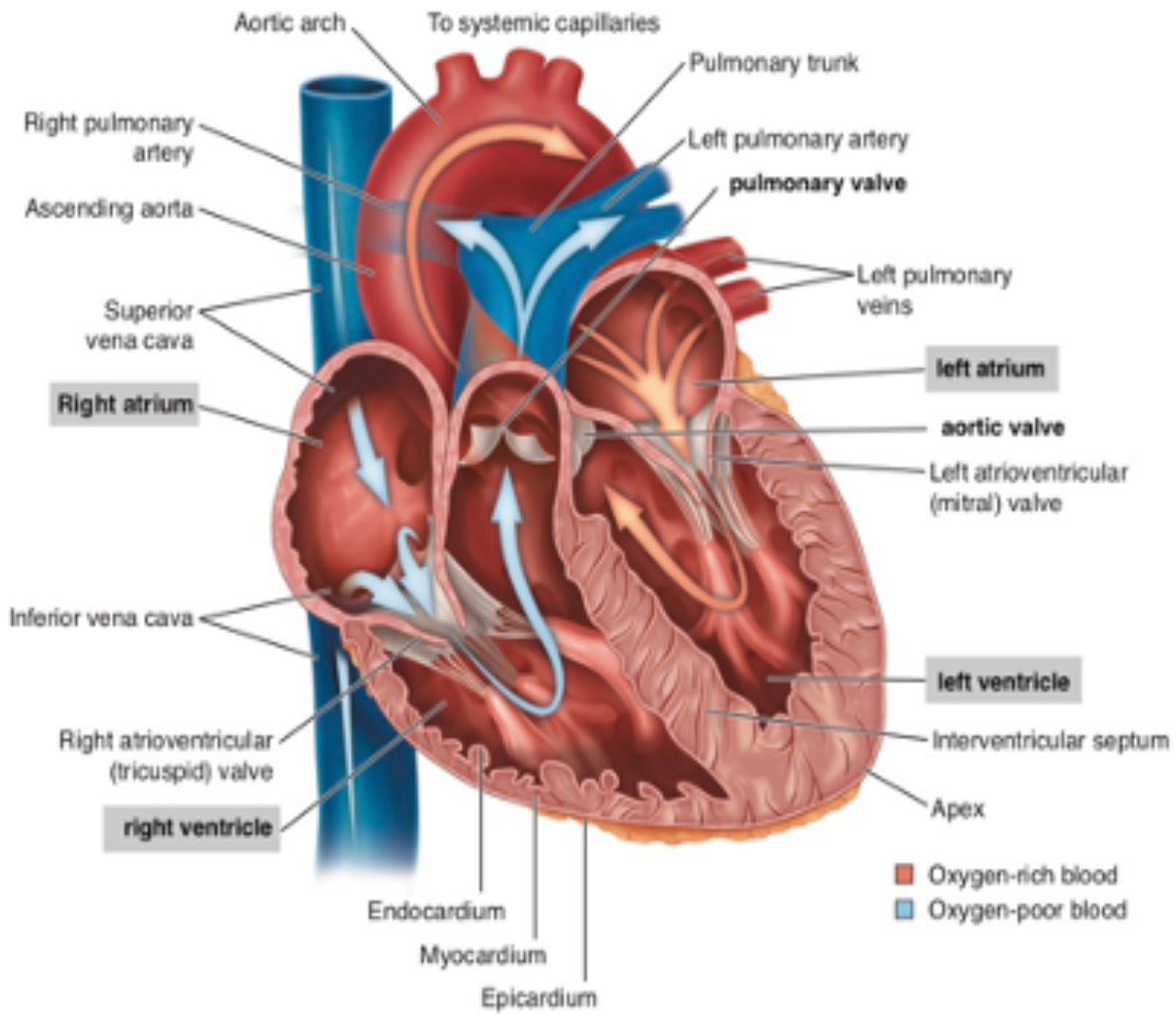
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

76. Labels: aorta, inferior vena cava, left lung, left pulmonary artery, left pulmonary vein, superior vena cava



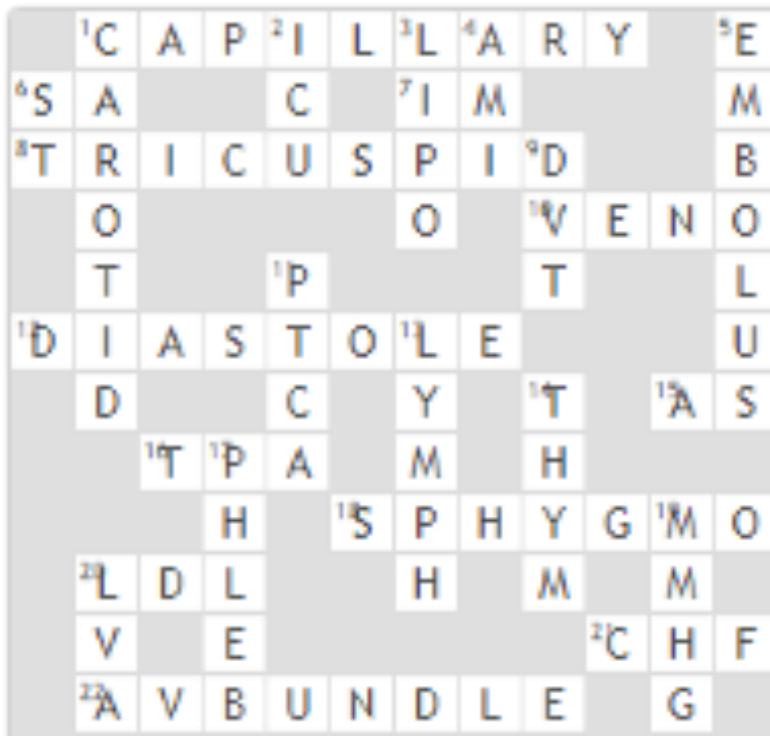
77. Labels: aortic valve, left atrium, left ventricle, pulmonary valve, right ventricle



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

78.



### Across

- A microscopic vessel
- Pacemaker of the heart: \_\_ \_ node
- A route for injection: abbreviation
- The right AV valve
- Vein: combining form
- Relaxation phase of the heart cycle
- Hardening of the arteries: abbreviation
- Substance used to dissolve blood clots: abbreviation
- Pulse: combining form, as in the name of blood pressure apparatus
- Form of lipoprotein: abbreviation
- Heart disease associated with edema: abbreviation
- Part of the heart's conduction system; it receives impulses from the AV node

### Down

- Main artery in the neck
- Hospital unit that cares for the critically ill: abbreviation
- Category of compounds that includes fats: combining form
- Heart attack: abbreviation
- Obstruction circulating in the bloodstream
- Segment of the ECG tracing after ventricular depolarization
- Thrombotic condition of the veins: abbreviation
- Procedure for dilating an obstructed vessel: abbreviation
- Fluid that circulates in the lymphatic system
- Lymphoid organ in the chest: root
- Vein: root
- Units in which blood pressure is measured: abbreviation
- Mechanical device to assist the heart: abbreviation  
\_\_ \_ \_ D

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Mitral Valve Replacement

Repair of left ventricular rupture, secondary to myocardial infarction.

**PROCEDURE IN DETAIL:** The neck, chest, abdomen, and legs were prepped with Betadine solution. Combination sterile dressings were placed in the usual sterile fashion. A #10 scalpel blade was used to make an incision from the sternal notch to the xiphoid. The presternal fascia and subcutaneous tissue were transected with electrocautery. The sternum was divided with a sternal saw. The chest was then exposed using the sternal retractor. Approximately 500 cc of gross blood was aspirated from the pericardium.

The patient was heparinized. After adequate activated coagulation time was achieved, the patient was placed on cardiopulmonary bypass and cooled to 38 degrees centigrade. The aorta was cross-clamped, and a cardioplegia solution was given. To achieve electromechanical arrest, 500 cc was given antegrade, and 500 cc was given retrograde into cannulas that had been placed into the aorta. The heart was also cooled with topical hypothermia using iced slush solution throughout the procedure. Snares were placed around the superior and inferior vena cava to complete full unloading of the right heart. The intraatrial septum was dissected, the left atrium was elevated, and atriotomy was performed through the left atrium. An atrial retractor was used to expose the entire left atrium. The mitral valve was difficult to expose due to the acuteness of the mitral regurgitation and the small size of the left atrium.

Eventually, the anterior and posterior leaflets were identified. Part of the posterior leaflet was completely ruptured from the papillary muscle with a large amount of papillary muscle still intact with the chordae. The leaflet was then debrided and the entire anterior and posterior leaflets were sewn. The valve was then sewn to the anulus and lowered into the position carefully. There appeared to be good coaptation of the leaflets. The atriotomy was closed and the left ventricle was allowed to fill with blood. Using gentle massage technique, the left ventricle was de-aired. The atriotomy was completely closed, and the patient was rewarmed. The snares around the vena cava were loosened. The cross-clamp was removed after the aorta was de-aired as well. A transesophageal echocardiogram was used to assess the valve. The valve appeared to be functioning adequately; a small amount of air was noticed in the left atrium and was removed. There appeared to be good contractility of the heart.

The patient was weaned from cardiopulmonary bypass slowly. After approximately 30 minutes of the cross-clamp being off, the patient was weaned from cardiopulmonary bypass with some inotropic support, including dopamine at 5 mcg/kg per minute and 0.05 epinephrine. The intraaortic balloon pump was placed on 1:1 augmentation, and the patient had adequate hemodynamics. Protamine was started. After the protamine was given, the cannulas were removed. The protamine was well-tolerated. There appeared to be no bleeding along the aortotomy site or the atriotomy site; however, there appeared to be some bright red bleeding along the base of the heart and along the apex of the heart, apparently an area where the left ventricle had ruptured and probably secondary to the myocardial infarction. Sutures were used to close this rupture.

Mediastinal and bilateral chest tubes were placed through separate stab wounds, and the sternum was reapproximated with six stainless steel wires. The subcutaneous tissue and the skin were closed with 2-0 Vicryl and skin staples. The patient tolerated the procedure well with no intraoperative complications.

	Answers
79. The patient underwent mitral valve replacement surgery. The mitral valve is located between _____ and _____.	<i>the left atrium; the left ventricle</i>
80. The patient's myocardial infarction was likely caused by _____.	<i>blockage of the coronary arteries</i>
81. After opening the chest, the surgeons performed a cardiopulmonary bypass. This procedure prevents blood from reaching the _____ and _____.	<i>heart; lungs</i>
82. During the surgery, ice was used to cool down the heart, making it _____.	<i>hypothermic</i>
83. During surgery, snares were placed around the superior and inferior vena cava. This prevented blood from entering the _____.	<i>right atrium</i>
84. The word atriotomy means _____.	<i>incision of the atrium</i>
85. The mitral valve _____ many cusps.	<i>2</i>
86. During the operation, the surgeons used an intraaortic balloon pump. This device was located _____.	<i>within the vessel</i>
87. Protamine was given to counteract the action of the heparin. Protamine's action is _____.	<i>antagonistic</i>
88. The prosthetic mitral valve was visualized with a transesophageal echocardiogram. This imaging technique uses _____.	<i>ultrasound</i>



# Worksheet Key

## Blood and Immunity

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Erythrocytes transport oxygen.	✓	
2. Plasma is about 90 percent albumin.		✓
3. Thrombocytes play an important role in hemostasis.	✓	
4. Increased erythropoietin synthesis results in decreased erythrocyte manufacture.		✓
5. Lymphocytes and monocytes are agranular.	✓	
6. T cells produce antibodies.		✓
7. Anemia is a deficiency in the amount of hemoglobin in the blood.	✓	
8. The medical term for “bruise” is ecchymosis.	✓	
9. The suffix -penia means “increase in.”		✓
10. Hypernatremia is an abnormally high concentration of potassium in the blood.		✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The liquid portion of the blood is the _____.	<i>plasma</i>
12. Some white cells engulf foreign matter by the process of ____.	<i>phagocytosis</i>
13. Another name for thrombocytes is _____.	<i>platelets</i>
14. The iron-containing pigment in red blood cells that binds oxygen is _____.	<i>containing</i>
15. A substance that separates into ions in solution is called a salt or _____.	<i>electrolyte</i>
16. Blood coagulation requires a threadlike protein called _____.	<i>fibrin</i>
17. The study of blood is called _____.	<i>hematology</i>
18. A sideroblast is a blood cell named for its content of _____.	<i>iron</i>
19. A decreased amount of hemoglobin in the blood is termed _____.	<i>anemia</i>
20. Any neoplasm of white blood cells is called _____.	<i>leukemia</i>
21. An increase in blood sodium concentration is termed _____.	<i>hypernatremia</i>
22. The suffix that means “deficiency of” is _____.	<i>-penia</i>
23. Erythrocyte production is regulated by the hormone _____.	<i>erythropoietin</i>
24. B cells differentiate into _____ when stimulated by antigens.	<i>plasma cells</i>
25. A hereditary inability to clot blood is a sign of the disorder _____.	<i>hemophilia</i>
26. A condition characterized by hemorrhages into the skin, mucous membranes, internal organs, and other tissues (from Greek word meaning “purple”) and caused by a deficiency of platelets is thrombocytopenic _____.	<i>purpura</i>
27. A collection of blood under the skin caused by leakage from small vessels is _____.	<i>ecchymosis</i>
28. The state of being protected against a disease is _____.	<i>immunity</i>
29. A granular leukocyte that stains with acidic dyes and is active in allergic reactions and defense against parasites is _____.	<i>eosinophil</i>
30. A phagocytic cell derived from a monocyte is a(n) _____.	<i>macrophage</i>
31. A(n) _____ is a substance that separates into charged particles (ions) in solution—a salt. This term is also applied to ions in body fluids.	<i>electrolyte</i>

32. _____ is the relative percentage of packed red cells in a given volume of blood.	<b>Hematocrit</b>
33. The iron-containing pigment in red blood cells that transports oxygen is _____.	<b>hemoglobin</b>
34. A protein produced in response to, and interacting specifically with, an antigen is a(n) _____.	<b>antibody</b>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
35. hemostasis	<b>B</b>	A. deficiency of cells
plasma cells	<b>C</b>	B. prevention of blood loss
T cell	<b>D</b>	C. cells that mature in the thymus
cytopenia	<b>A</b>	D. cells that produce antibodies
36. hemopoiesis	<b>D</b>	A. a clotting disorder
azotemia	<b>C</b>	B. an immature red cell
reticulocyte	<b>B</b>	C. presence of nitrogenous compounds in the blood
hemophilia	<b>A</b>	D. production of blood cells
37. anaphylaxis	<b>C</b>	A. a form of anemia
thalassemia	<b>A</b>	B. a form of leukemia
AML	<b>B</b>	C. a severe allergic reaction
DIC	<b>D</b>	D. a widespread clotting disorder
38. ABO	<b>C</b>	A. a drug that prevents clotting
thrombin	<b>B</b>	B. an enzyme needed in blood clotting
hematoma	<b>D</b>	C. a blood typing system
anticoagulant	<b>A</b>	D. a localized collection of blood

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
39. eh-RITH-ro-site	<i>erythrocyte</i>
40. eh-rith-ro-POY-eh-tin	<i>erythropoietin</i>
41. fi-BRIN-o-jen	<i>fibrinogen</i>
42. LIM-fo-site	<i>lymphocyte</i>
43. meg-ah-KAR-e-o-site	<i>megakaryocyte</i>
44. MAK-ro-faj	<i>macrophage</i>
45. NU-tro-fil	<i>neutrophil</i>
46. PLATE-let	<i>platelet</i>
47. ek-ih-MO-sis	<i>ecchymosis</i>
48. he-MOL-ih-sis	<i>hemolysis</i>

	Answers
49. he-mo-FIL-e-ah	<i>hemophilia</i>
50. pe-TE-ke-e	<i>petechiae</i>
51. PUR-pu-rah	<i>purpura</i>
52. ur-tih-KAR-e-ah	<i>urticaria</i>
53. pol-e-si-THE-me-ah	<i>polycythemia</i>
54. AD-eh-noyds	<i>adenoids</i>
55. ko-ag-u-LA-shun	<i>coagulation</i>
56. e-o-SIN-o-fil	<i>eosinophil</i>
57. AN-tih-jen	<i>antigen</i>
58. al-BU-min	<i>albumin</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
59. Decrease in number of red blood cells	<i>erythr-o-penia</i>
60. Decrease in number of white blood cells	<i>leuk-o-penia</i>
61. Localized collection of clotted blood	<i>hemat-oma</i>
62. White blood cell found in lymph nodes	<i>lymph-o-cyte</i>
63. Neoplastic disease of lymphoid tissue	<i>lymph-oma</i>
64. Platelet	<i>thromb-o-cyte</i>
65. Study of blood	<i>hemat-o-logy</i>
66. Condition of having a blood clot	<i>thromb-o-sis</i>
67. Presence of pus in the blood	<i>py-emia</i>
68. Production of red blood cells	<i>erythr-o-poiesis</i>

### Part 1 Word Bank

cyte	poiesis	oma
logy	erythr	sis
penia	o	leuk
emia	py	path
lymph	hemat	thromb

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

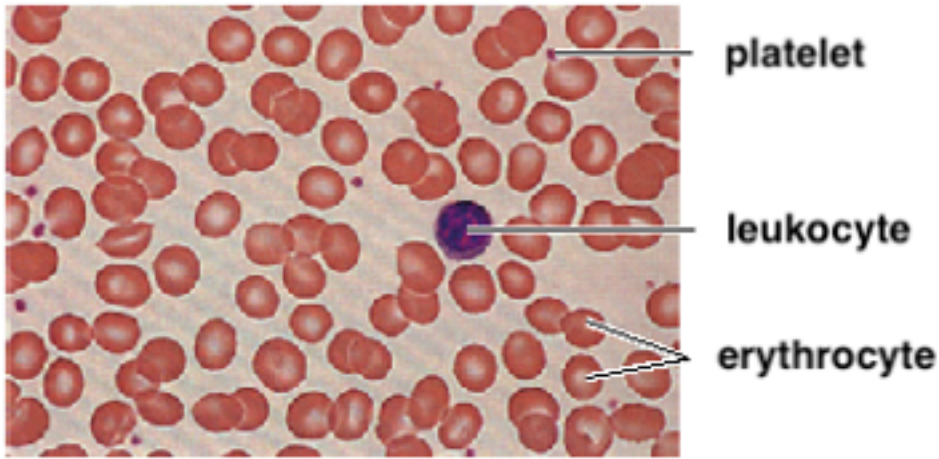
anaphylaxis	gamma	hemophilia	lymphocyte
anemia	globulin	hypersensitivity	neutrophil
antigen	hemolysis	leukemia	platelet
basophil			

Part 1	Answers
69. blood cells	<i>neutrophil, platelet, lymphocyte, basophil</i>
70. terms related to immunity	<i>antigen, gamma globulin, anaphylaxis, hypersensitivity</i>
71. blood disorders	<i>anemia, hemophilia, leukemia, hemolysis</i>

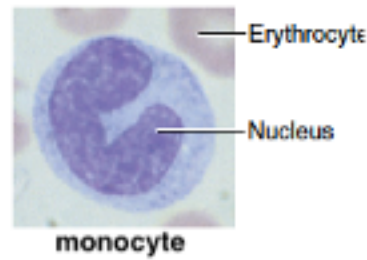
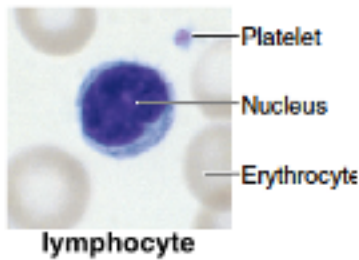
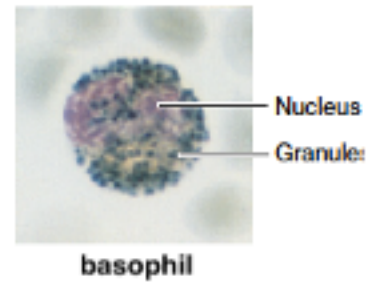
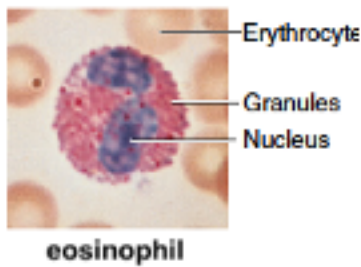
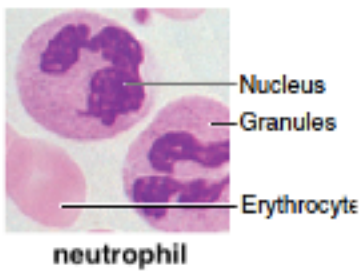
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

72. Labels: erythrocyte, leukocyte, platelet



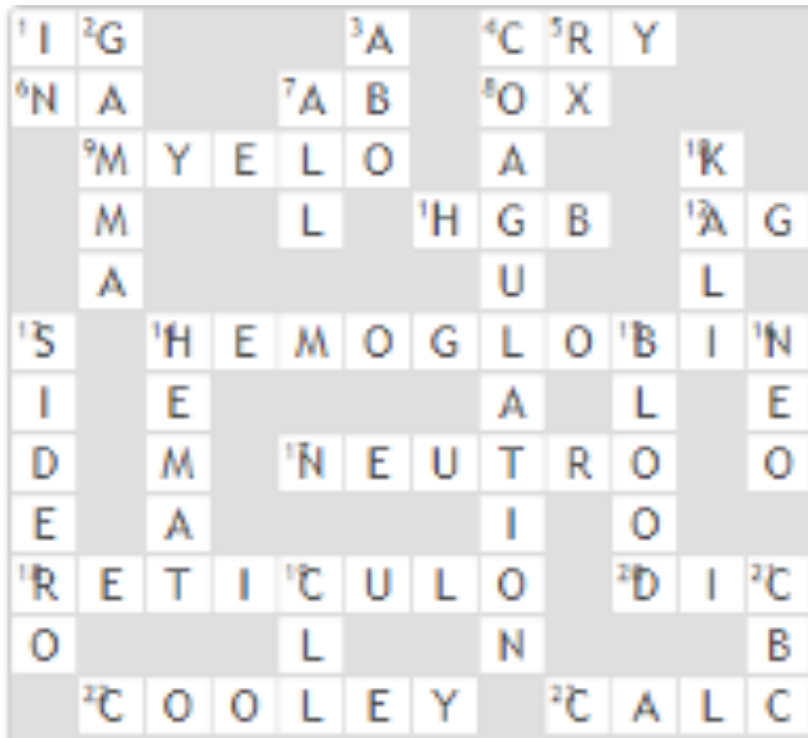
73. Labels: basophil, eosinophil, lymphocyte, monocyte, neutrophil



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

74.



### Across

- Alternative name for an antibody: abbreviation
- Cold: root
- Chemical symbol for sodium
- Antibody: abbreviation
- Oxygen: root
- Bone marrow: combining form
- Oxygen-carrying pigment of red cells: abbreviation
- Antigen: abbreviation
- The substance that is deficient in cases of anemia
- Most numerous type of white blood cell: combining form
- Immature form of red blood cell: combining form
- Type of widespread coagulation disorder: abbreviation
- Name used for a hereditary type of anemia
- A mineral found in the blood: root

### Down

- Prefix meaning "not"
- Fraction of the blood that contains antibodies: globulin
- Common blood type system
- Blood clotting
- Prescription: abbreviation
- An acute form of leukemia: abbreviation
- Potassium: combining form
- Iron: combining form
- Blood: root
- Fluid that brings oxygen and nutrients to the cells
- New: prefix
- Form of lymphocytic leukemia: abbreviation
- Comprehensive blood study: abbreviation

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Perforated Colon

**HISTORY:** Patient is a 58-year-old female admitted with acute abdominal pain with free air demonstrated.

**HOSPITAL COURSE:** The patient was admitted and taken to the operating room, where she was found to have perforated diverticulitis with abscess. She underwent an exploratory laparotomy and Hartman's procedure.

Postoperatively, her colostomy appeared to be viable. The only concern was a persistent postoperative leukocytosis that was as high as 18.2 after admission but was still above the normal range at 15.3 on the day of discharge. Hemoglobin was 11.7 at that time. She had been afebrile with otherwise stable vital signs.

**DISCHARGE MEDICATIONS:** Percocet 1 po q4h as needed for pain; amoxicillin, 250 mg tablets, 1 po tid

**FOLLOW-UP:** Patient has appointment to be seen in the office in 1 week and was instructed to call if she experienced any problems in the interim.

**MICROBIOLOGY REPORT:** Peritoneal fluid showed many WBC, rare gram-positive cocci and anaerobic gram-negative rods. Drain site showed methicillin-sensitive organisms. Stool culture was negative for Clostridium difficile toxin.

	Answers
75. A laparotomy is a surgical incision of the _____.	<i>abdomen</i>
76. Leukocytosis is _____.	<i>high white blood cell count</i>
77. Leukocytosis would indicate _____.	<i>infection</i>
78. An afebrile individual has _____.	<i>normal body temperature</i>
79. The patient took _____ amoxicillin tablets each day.	<i>3</i>
80. Peritoneal fluid is taken from the _____.	<i>abdomen</i>
81. An anaerobic organism can grow without _____.	<i>oxygen</i>



# Worksheet Answer Key

## Respiratory System

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Internal gas exchange occurs between the air in the lungs and blood.		✓
2. The phrenic nerve activates the diaphragm.	✓	
3. The medical term expectorate means “to swallow.”		✓
4. Inspiration and expiration are regulated by the brainstem.	✓	
5. Hyperventilation causes acidosis.		✓
6. Emphysema is a chronic obstructive pulmonary disease.	✓	
7. The medical term fremitus means “nosebleed.”		✓
8. Too much carbon dioxide in the tissues is called hypercapnia.	✓	
9. Fusion of the pleura to the chest wall is termed pneumodesis.		✓
10. Rhinoviruses are the major causes of the common cold.	✓	

## Fill-in-the-Blank

	Answers
Complete the sentence with the correct term(s).	
11. The gas that must be eliminated by the respiratory system is ____.	<i>carbon dioxide</i>
12. The membrane that covers the lungs is the ____.	<i>pleura</i>
13. The scientific name for the throat is ____.	<i>pharynx</i>
14. The tube between the throat and the bronchi is the ____.	<i>trachea</i>
15. The small cartilage at the top of the larynx is the ____.	<i>epiglottis</i>
16. The tiny air sacs in the lungs through which gases are exchanged are the ____.	<i>alveoli</i>
17. Oxygen in red blood cells is bound to the compound ____.	<i>hemoglobin</i>
18. The muscle under the lungs that flattens during inhalation is the ____.	<i>diaphragm</i>
19. The ease with which the lungs expand under pressure is termed ____.	<i>compliance</i>
20. Pulmonology is study of the ____.	<i>lungs</i>
21. The heart, trachea, and esophagus are located in the space called the ____.	<i>mediastinum</i>
22. The diaphragm contracts when stimulated by the ____ nerve.	<i>phrenic</i>
23. Hyperventilation raises blood pH, a condition called ____.	<i>alkalosis</i>
24. Dyspnea, wheezing, and bronchospasm are signs of the respiratory disease called ____.	<i>asthma</i>
25. The root rhin/o means ____.	<i>nose</i>
26. A hemorrhage from the nose; or nosebleed, is technically known as ____.	<i>epistaxis</i>
27. Chronic dilatation of a bronchus or bronchi is ____.	<i>bronchiectasis</i>
28. ____ is a breathing difficulty that is relieved by assuming an upright position.	<i>Orthopnea</i>
29. Inflammation of the pharynx is known as ____.	<i>pharyngitis</i>
30. ____ is the act of coughing up material from the respiratory tract, as well as the material thus released (sputum).	<i>Expectoration</i>
31. ____ is a measure of how easily the lungs expand under pressure.	<i>Compliance</i>
32. ____ is a substance that decreases surface tension within the alveoli and eases lung expansion.	<i>Surfactant</i>
33. A condition of increased carbon dioxide in the tissues is known as ____.	<i>hypercapnia</i>
34. The muscle that separates the thoracic from the abdominal cavity is the ____.	<i>diaphragm</i>
35. The ____ are small blood vessels that participate in external gas exchange.	<i>capillaries</i>
36. The tonsils are located in the ____.	<i>pharynx</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
37. dysphonia		A. low levels of oxygen in the blood
hypercapnia		B. increased carbon dioxide in the tissues
hypoxemia		C. dilatation of a bronchus
bronchiectasis		D. difficulty in speaking
38. bronchoscopy		A. inflammation of the pleura
pleurocentesis		B. surgical puncture of the pleural space
pneumothorax		C. endoscopic examination of a bronchus
pleurisy		D. accumulation of air in the pleural space
39. interpulmonary		A. lung irritation due to dust inhalation
pneumoconiosis		B. between the lungs
PCP		C. a form of COPD
emphysema		D. a form of pneumonia
40. cyanosis		A. shock lung
hemoptysis		B. lung collapse
atelectasis		C. abnormal color caused by hypoxia
ARDS		D. spitting of blood

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
41. HE-mo-glo-bin	<i>hemoglobin</i>
42. me-de-as-TI-num	<i>mediastinum</i>
43. PAL-ah-tine	<i>palatine</i>
44. FREN-ik	<i>phrenic</i>
45. PLUR-ah	<i>pleura</i>
46. TRA-ke-ah	<i>trachea</i>
47. ri-NI-tis	<i>rhinitis</i>
48. al-kah-LO-sis	<i>alkalosis</i>
49. AZ-mah	<i>asthma</i>
50. at-eh-LEK-tah-sis	<i>atelectasis</i>

	Answers
51. dif-THERE-e-ah	<i>diphtheria</i>
52. disp-NE-ah	<i>dyspnea</i>
53. he-MOP-tih-sis	<i>hemoptysis</i>
54. em-fih-SE-mah	<i>emphysema</i>
55. as-FIK-se-ah	<i>asphyxia</i>
56. al-VE-o-li	<i>alveoli</i>
57. DI-ah-fragm	<i>diaphragm</i>
58. sur-FAK-tant	<i>surfactant</i>
59. si-ah-NO-sis	<i>cyanosis</i>
60. per-TUS-is	<i>pertussis</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
62. Narrowing of a bronchus	<i>bronch-o-stenosis</i>
63. Spasmodic contraction of bronchial smooth muscle	<i>bronch-o-spasm</i>
64. Spasmodic contraction of pharyngeal muscle	<i>pharyng-o-spasm</i>
65. Incision of the trachea	<i>trache-o-tomy</i>
66. Inflammation of the throat	<i>pharyng-itis</i>
67. Easy, normal breathing	<i>eu-pnea</i>
68. Instrument for incising the trachea	<i>trache-o-tome</i>
69. Creation of an opening in the trachea	<i>trache-o-stomy</i>
70. Increased rate of breathing	<i>hyper-pnea</i>
71. Painful or difficult breathing	<i>dys-pnea</i>

### Part 1 Word Bank

bronch	stomy	scope
o	eu	tomy
stenosis	pnea	itis
dys	tome	spasm
pharyng	hyper	trache

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

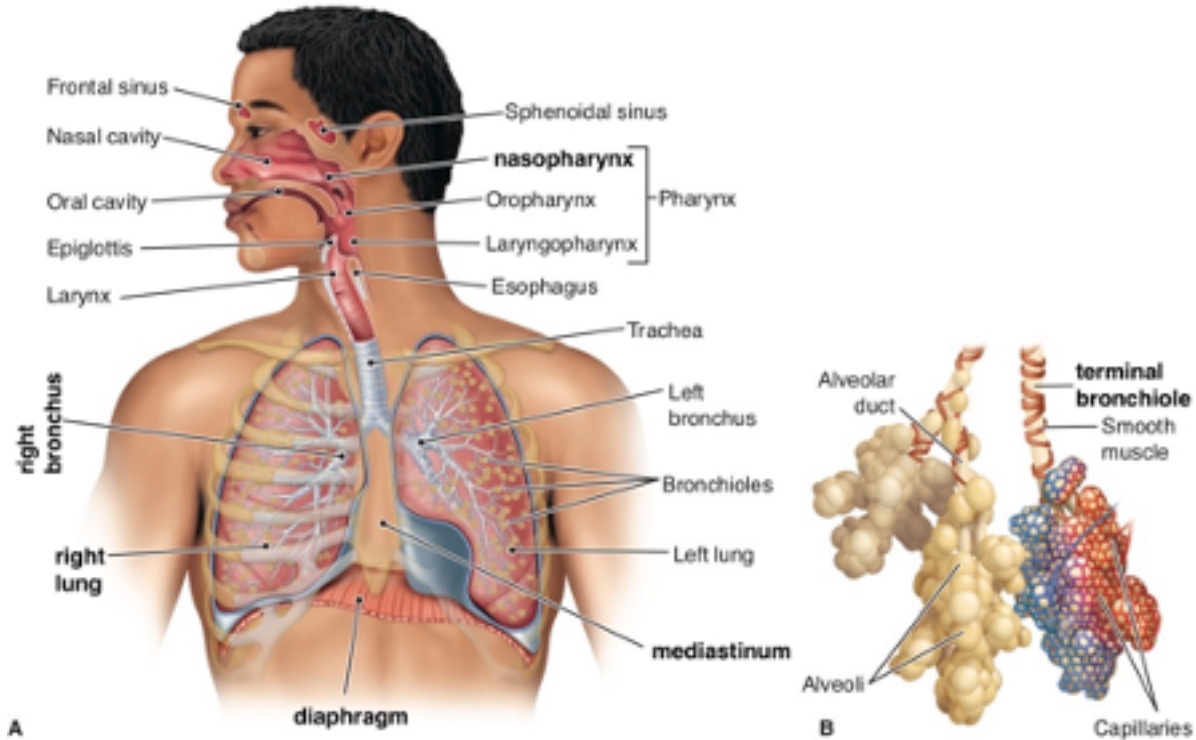
alveolus	pleura	pneumonia	pulse
lung scan	spirometry	trachea	tuberculosis
oximetry	gases bronchiole	common cold	influenza
arterial blood			

Part 1	Answers
72. parts of the respiratory system	<i>trachea, bronchiole, alveolus, pleura</i>
73. respiratory infections	<i>pneumonia, tuberculosis, influenza, common cold</i>
74. respiratory diagnosis	<i>pulse oximetry, spirometry, arterial blood gases, lung scan</i>

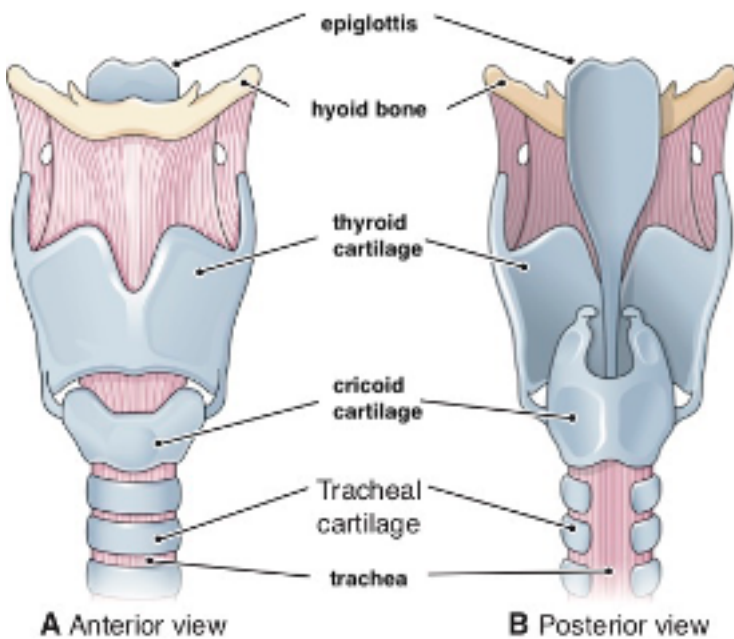
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

75. Labels: diaphragm, mediastinum, nasopharynx, right bronchus, right lung, terminal bronchiole



76. Labels: cricoid cartilage, epiglottis, hyoid bone, thyroid cartilage, trachea



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

77.

<sup>1</sup> I	N	<sup>2</sup> H		<sup>3</sup> E		<sup>4</sup> T		<sup>5</sup> D
N		<sup>6</sup> O	R	O	P	H	A	R
F		U		I		A		
<sup>7</sup> L	A	R	Y	N	G	O	S	C
U				L		H		Y
E		<sup>9</sup> P		O		<sup>18</sup> H	E	M
<sup>11</sup> N	E	O	N	A	T	E		T
Z		S		T		<sup>12</sup> T	<sup>13</sup> A	C
<sup>14</sup> A	<sup>15</sup> S	T	<sup>16</sup> H	M	A		N	O
	P		Y		<sup>17</sup> L	U	N	G
	I		P				I	A
	<sup>19</sup> R	H	O	N	C	H	I	
						<sup>10</sup> C	X	R

### Across

- Drug used to treat tuberculosis: abbreviation
- Portion of the throat behind the mouth
- Instrument used to examine the larynx
- Blood: combining form
- RDS may appear in a newborn, also called a(n)
- Rapid: prefix
- Respiratory disease involving constriction of the bronchial tubes
- An organ of respiration
- Abnormal chest sounds
- Chest radiograph: abbreviation

### Down

- Infectious disease of the respiratory tract
- The abbreviation qh means every
- Pertaining to the cartilage above the larynx
- The tube between the throat and the bronchi: root
- Diagnosis: abbreviation
- Accumulation of pus in the pleural space
- After, behind: prefix
- Vessel: root
- Breathing: root
- Under, below, decreased: prefix



## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

Baby girl G was delivered at full term to a 25-year-old mother with two other children. There was a prenatal diagnosis of polyhydramnios with left-side diaphragmatic hernia. The infant was intubated immediately following delivery. Because of poor blood oxygen saturation, she was placed on a ventilator. Despite medications she continued to deteriorate and showed acidosis with  $O_2$  consistently above 80 mmHg and  $O_2$  below 30 mmHg. An echocardiogram showed no structural defect, and a head ultrasound was normal.

At 2 hours, the infant was placed on extracorporeal membrane oxygenation (ECMO). With continued treatment, there was a small but sustained improvement in PFTs and improved cardiac function. Surgery was performed to repair the large diaphragmatic hernia on day 15. The patient's postoperative condition was stable.

On day 20, with no further improvement, a bronchoscopy was performed. Some improvement followed. After extensive discussion about the prognosis in this case with the family, physicians, and social workers, it was decided to wean the infant from ECMO on day 25. She was initially stable on a ventilator but deteriorated over the next 24 hours. The parents were with the infant when she died.

	Answers
78. A diaphragmatic hernia is a(n) _____ in the diaphragm.	<i>weakness</i>
79. A term that describes poor blood oxygen saturation is _____.	<i>hypoxemia</i>
80. Acidosis is _____.	<i>low pH of body fluids</i>
81. The abbreviation $O_2$ means _____.	<i>partial pressure of oxygen</i>
82. PFTs are _____.	<i>pulmonary function tests</i>
83. A bronchoscope is a type of _____.	<i>endoscope</i>

# Worksheet Key

## Digestive System

### True or False

Examine the following statements. Identify if the statement is true or false.	True	False
1. The esophagus connects the pharynx with the stomach.	✓	✓
2. The process of chewing is called mastication.	✓	✓
3. Nutrients are absorbed into the bloodstream by peristalsis.	✓	✓
4. The duodenum is the last part of the small intestine.	✓	✓
5. The colon and rectum are the most common sites for GI tract cancer.	✓	✓
6. Difficulty swallowing is termed dysphagia.	✓	✓
7. Another term for jaundice is ileus.	✓	✓
8. The root in the word edentulous means “gum.”	✓	✓
9. The glossopharyngeal nerve innervates the tongue and pharynx.	✓	✓
10. A sigmoidoscope is used to examine the small intestine.	✓	✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The secretion that moistens food in the mouth is _____.	<i>saliva</i>
12. The tube located between the throat and the stomach is the _____.	<i>esophagus</i>
13. The wavelike contraction that moves food through the digestive tract is called _____.	<i>peristalsis</i>
14. The first portion of the small intestine is the _____.	<i>duodenum</i>
15. The organ that produces bile is the _____.	<i>liver</i>
16. The organ that stores bile is the _____.	<i>gallbladder</i>
17. The common hepatic duct and the cystic duct merge to form the _____.	<i>common bile duct</i>
18. The organ that produces digestive enzymes and hormones that control sugar metabolism is the _____.	<i>pancreas</i>
19. The roots or/o and stomat/o pertain to the _____.	<i>mouth</i>
20. Surgical creation of an opening between the stomach and duodenum is called a(n) _____.	<i>gastroduodenostomy</i>
21. Digested fats enter the lymphatic system through a(n) _____.	<i>lacteal</i>
22. The fleshy mass hanging from the soft palate is the _____.	<i>uvula</i>
23. A ruptured appendix may cause inflammation of the abdominal cavity. This complication is called _____.	<i>peritonitis</i>
24. The inability to absorb gluten is a sign of _____ disease.	<i>celiac</i>
25. Vomiting of blood is termed _____.	<i>hematemesis</i>
26. A(n) _____ is a lymphatic capillary in a villus of the small intestine.	<i>lacteal</i>
27. The vessel that carries secretions from the accessory organs into the duodenum is the _____.	<i>common bile duct</i>
28. Inflammation of diverticula (small pouches) in the wall of the digestive tract, especially in the colon, is a condition known as _____.	<i>diverticulitis</i>
29. Suture of the palate is called _____.	<i>palatorrhaphy</i>
30. _____ is a mild gum infection.	<i>Gingivitis</i>
31. A stone in the gallbladder or a bile duct is known as a(n) _____.	<i>cholelith</i>
32. Use of a fiberoptic endoscope for direct visual examination of all regions of the colon is known as a(n) _____.	<i>colonoscopy</i>

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33. Jaundice is also known as _____.	<i>icterus</i>
34. A(n) _____ is a passage or communication between two vessels or organs and may be normal, pathologic, or created surgically.	<i>anastomosis</i>
35. A varicose vein in the rectum is commonly known as a(n) _____.	<i>hemorrhoid</i>
36. _____ is a condition of having gas or air in the GI tract.	<i>Flatulence</i>
37. The large serous membrane that lines the abdominopelvic cavity and covers the organs within it is called the _____.	<i>peritoneum</i>

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## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
38. sialogram	<i>C</i>	A. surgical fixation of the stomach
micrognathic	<i>D</i>	B. irrigation of the colon
coloclysis	<i>B</i>	C. radiograph of a salivary gland
gastropexy	<i>A</i>	D. having a small jaw
39. cholelithiasis	<i>C</i>	A. difficulty in swallowing
cholangitis	<i>B</i>	B. inflammation of a bile duct
hepatitis	<i>D</i>	C. condition of having gallstones
dysphagia	<i>A</i>	D. inflammation of the liver
40. diverticulitis	<i>D</i>	A. chronic liver disease
ascites	<i>C</i>	B. inflammation of the tongue
glossitis	<i>B</i>	C. accumulation of fluid in the abdominal cavity
cirrhosis	<i>A</i>	D. inflammation of pouches in the intestinal wall
41. polyp	<i>C</i>	A. varicose veins in the rectum
caries	<i>B</i>	B. tooth decay
hemorrhoids	<i>A</i>	C. a stalked tumor
palate	<i>D</i>	D. the roof of the mouth

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
42. IL-e-um	<i>ileum</i>
43. jeh-JU-num	<i>jejunum</i>
44. lak-TELE	<i>lacteal</i>
45. per-ih-STAL-sis	<i>peristalsis</i>
46. FAR-inks	<i>pharynx</i>
47. pi-LOR-us	<i>pylorus</i>
48. U-vu-lah	<i>uvula</i>
49. ah-SI-teze	<i>ascites</i>
50. KAR-eze	<i>caries</i>
51. sir-RO-sis	<i>cirrhosis</i>

	Answers
52. POL-ip	<i>polyp</i>
53. hi-A-tal	<i>hiatal</i>
54. JAWN-dis	<i>jaundice</i>
55. EM-eh-sis	<i>emesis</i>
56. kah-KEK-se-ah	<i>cachexia</i>
57. SE-kum	<i>cecum</i>
58. eh-SOF-ah-gus	<i>esophagus</i>
59. JIN-jih-vah	<i>gingiva</i>
60. LING-gwal	<i>lingual</i>
61. pal-ah-TOR-ah-fe	<i>palatorrhaphy</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
62. A stone in a salivary gland	<i>sial-o-lith</i>
63. A biliary stone	<i>chol-e-lith</i>
64. Inflammation of the gallbladder	<i>chol-e-cyst-itis</i>
65. Pain in the stomach	<i>gastr-algia</i>
66. Inflammation of the liver	<i>hepat-itis</i>
67. Beneath the gums	<i>sub-gingiv-al</i>
68. Pertaining to the intestine	<i>enter-ic</i>
69. Beneath the liver	<i>sub-hepat-ic</i>
70. Excision of the stomach	<i>gastr-ectomy</i>
71. Inflammation of the gums	<i>gingiv-itis</i>

### Part 1 Word Bank

al	enter	lith
algia	gastr	o
chol	gingiv	sial
cyst	hepat	sub
e	ic	
ectomy	itis	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

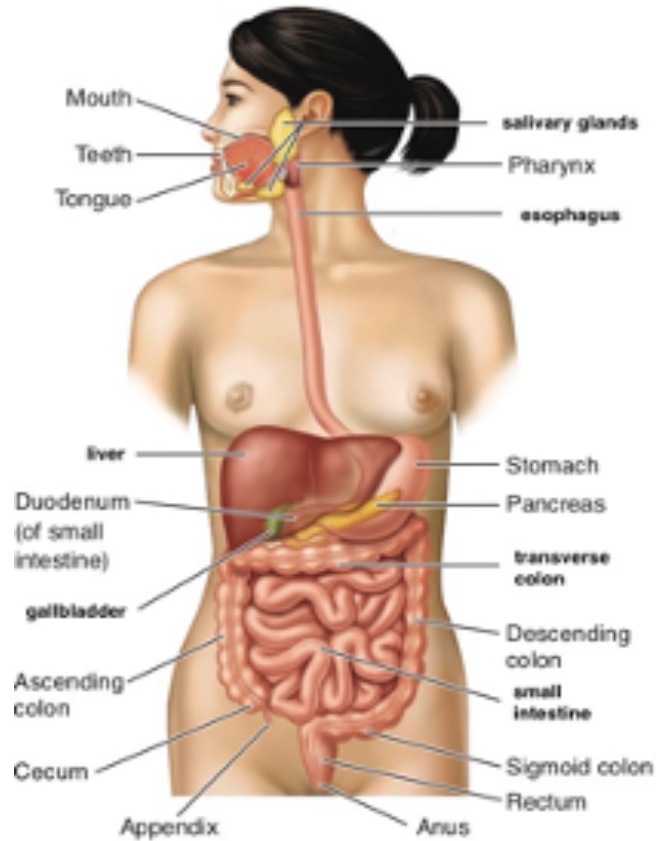
cholelithiasis	emesis	liver	salivary gland
cirrhosis	gallbladder	palate	tongue
diverticulosis	gingiva	pancreas	uvula

Part 1	Answers
72. accessory organs of digestion	<i>liver, gallbladder, pancreas, salivary gland</i>
73. parts of the mouth	<i>gingiva, palate, uvula, tongue</i>
74. digestive disorders	<i>diverticulosis, emesis, cholelithiasis, cirrhosis</i>

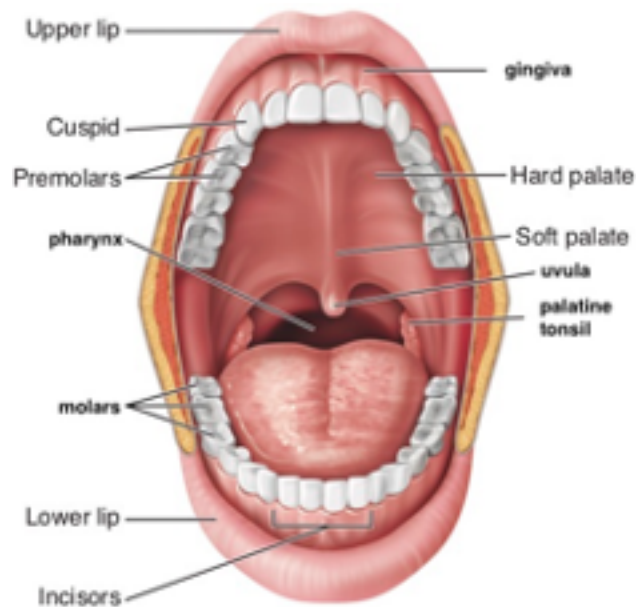
## Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

75. Labels: esophagus, gallbladder, liver, salivary glands, small intestine, transverse colon



76. Labels: gingiva, molars, palatine tonsil, pharynx, uvula

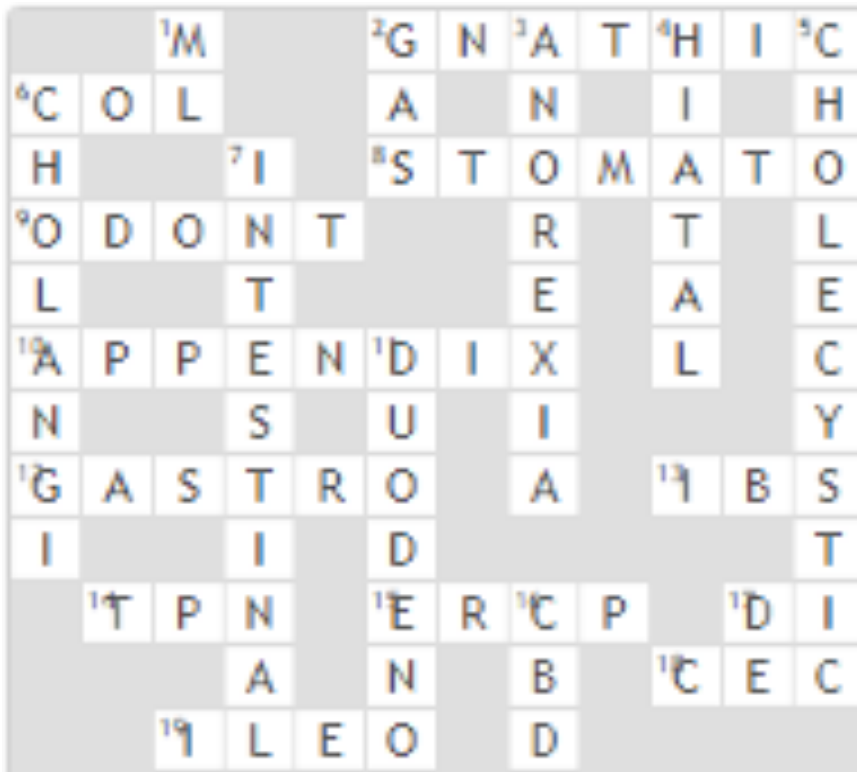




## Crossword Puzzle

Complete the crossword puzzle using the clues provide

77.



### Across

- Pertaining to the jaw
- Major portion of the large intestine: root
- Mouth: combining form
- Tooth: word root
- Small appendage to the cecum
- Stomach: combining form
- Inflammatory condition of the bowel (abbreviation)
- Parenteral hyperalimentation (abbreviation)
- Technique for viewing the accessory ducts (abbreviation)
- Two, twice: prefix
- Blind pouch at the beginning of the large intestine: word root
- Last portion of the small intestine: combining form

### Down

- 1/1000 of 1 liter (abbreviation)
- Results in flatulence
- Loss of appetite
- Pertaining to the opening in the diaphragm that the esophagus passes through
- Pertaining to the gallbladder
- Bile duct: word root
- Enteric
- First portion of the small intestine: combining form
- Duct that carries bile into the intestine (abbreviation)
- Down, without, removal: prefix

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Colonoscopy Operative Report

OPERATION: Colonoscopy.

ANESTHESIA: Premedication: Versed 5.5 mg slow IV push. INSTRUMENT: Pentax EC-3801L with the EPM-3300.

INDICATIONS: The patient is a 65-year-old woman who is currently being evaluated for rectal bleeding.

The patient has longstanding history of constipation with use of over-the-counter laxatives for many years. Beginning 2.5 years ago, she began having diarrhea with up to 12 bowel movements per day. She underwent colonoscopy in October 2006, at which time inflammatory changes were noted in the rectum up to the level of the splenic flexure. The endoscopic description sounds most consistent with left-sided ulcerative colitis, though the patient was told that she had Crohn's disease. She has been treated with sulfasalazine and at times with prednisone.

The patient had been on 1 g of sulfasalazine per day when seen by me in late October 2007. She was advised to increase to 2 g per day. With this, she has noted that she is not having diarrhea and instead again is having periods of time when she will be constipated and not have a stool for several days at a time. At other times, she will have significant urgency diarrhea and blood per rectum.

In recent weeks, constipation has been the major difficulty.

PHYSICAL EXAMINATION: Alert and oriented. Lungs are clear. Heart: Regular rate. No murmur or gallop.

OPERATIVE FINDINGS: The perianal area was unremarkable. On digital examination, the rectal mucosa was noted to have somewhat of a nodular, indurated sensation to it. The instrument was introduced. There were significant inflammatory changes in the rectum with linear ulcerations up to 1 cm in diameter and up to 3 to 4 cm in length throughout the rectum. There was minimal friability present despite the degree of ulceration and moderate exudate. These changes seemed to dissipate at the level of the rectosigmoid junction. At about 20 cm, there were scattered aphthous ulcerations. Once we reached 30 cm, the mucosa appeared to be entirely normal with a normal submucosal vascular pattern and no gross evidence of inflammatory change. The instrument was advanced through the remainder of the sigmoid, descending, transverse, and right colon. The instrument could be passed to just above the level of the ileocecal valve with a good view down into the cecum. We could not, however, negotiate the instrument into the ileocecal valve. There was no gross evidence of inflammation at this point.

Opposite the ileocecal valve, there was some slight erythema that was perhaps more suggestive of a small polyp, which was removed with hot biopsy forceps and sent for histologic evaluation.

Random biopsies were obtained with multibite forceps in the right colon and then in the descending colon and sigmoid colon. An additional series of biopsies was obtained in the rectum and sent for histologic evaluation.

IMPRESSION: Marked inflammatory changes in the rectum that endoscopically had the appearance consistent with Crohn's disease rather than ulcerative colitis.

PLAN:

1. Will increase the sulfasalazine to 3 g per day.
2. Because of the constipation, I will have the patient begin on lactulose 30 cc per day.
3. I will plan to see her in a few weeks' time to review the biopsy results with her and to see if additional therapeutic recommendations are needed.

	Answers
78. A standard colonoscopy is done with a(n) _____.	<i>endoscope</i>
79. The rectal mucosa is the rectum's _____.	<i>lining</i>
80. An aphthous ulcer is found in a(n) _____.	<i>mucous membrane</i>
81. The ileocecal valve is between the _____ and _____.	<i>small intestines; large intestines</i>
82. Erythema is _____.	<i>redness</i>
83. A histologic examination is the study of _____.	<i>tissue</i>

# Worksheet Key

## Urinary System

### True or False

Examine the following statements. Identify if the statement is true or false.	True	False
1. Urine is formed by nephrons.	✓	✓
2. Each kidney is connected to the urinary bladder by a urethra.	✓	✓
3. The kidneys are retroperitoneal.	✓	✓
4. Renin lowers blood pressure by inhibiting angiotensin.	✓	✓
5. Another term for urination is micturition.	✓	✓
6. Infection of the urinary bladder is termed pyelonephritis.	✓	✓
7. Nocturia means “micturition during the night.”	✓	✓
8. Blood filtration occurs through the glomerulus.	✓	✓
9. ADH causes the kidneys to put out more urine.	✓	✓
10. The passage of small amounts of urine is called polyuria.	✓	✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The inner region of an organ is called the _____.	<i>medulla</i>
12. The microscopic working units of the kidney are the _____.	<i>nephrons</i>
13. The tube that carries urine from the kidney to the bladder is the _____.	<i>ureter</i>
14. The cluster of capillaries that filters the blood is the _____.	<i>glomerulus</i>
15. Any disease of the kidney is termed a(n) _____.	<i>nephropathy</i>
16. A physician who specializes in study of the urinary system is a(n) _____.	<i>urologist</i>
17. Inflammation of the urethra is termed _____.	<i>urethritis</i>
18. A small mold of a kidney tubule is called a(n) _____.	<i>cast</i>
19. Excessive acidity of body fluids is termed _____.	<i>acidosis</i>
20. Excessive thirst is termed _____.	<i>polydipsia</i>
21. Dilatation of the renal pelvis is termed _____.	<i>pyelectasis</i>
22. With reference to the urinary system, the root vesic/o means _____.	<i>urinary bladder OR bladder</i>
23. Angiotensin is activated by the renal enzyme _____.	<i>renin</i>
24. The opposite of polyuria is _____.	<i>oliguria</i>
25. Urine's specific gravity can be measured using a(n) _____.	<i>urinometer</i>
26. The _____ carries blood into the kidney.	<i>renal artery</i>
27. The glomerular capsule is in the _____ kidney.	<i>cortex</i>
28. _____ is an inability to retain urine.	<i>Incontinence</i>
29. _____ is a collection of urine in the renal pelvis caused by obstruction that can result in distention and renal atrophy.	<i>Hydronephrosis</i>
30. The cluster of capillaries within the glomerular capsule is known as the _____.	<i>glomerulus</i>
31. The term _____ means nearer to the point of attachment or to a given reference point.	<i>proximal</i>

32. A(n) _____ is a triangular structure in the renal medulla composed of the nephrons' loops and collecting ducts.	<i>renal pyramid</i>
33. _____ is a nitrogenous by-product of muscle metabolism.	<i>Creatinine</i>
34. A hormone released from the pituitary gland that causes water reabsorption in the kidneys, thus concentrating the urine, is _____ hormone.	<i>antidiuretic</i>
35. A hormone secreted by the adrenal gland that regulates electrolyte excretion by the kidneys is _____.	<i>aldosterone</i>
36. A substance that increases blood pressure, is activated in the blood by renin, and is an enzyme produced by the kidneys is _____.	<i>angiotensin</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
37. nephromalacia	<i>D</i>	A. method for cleansing the blood
cystotomy	<i>B</i>	B. incision of the urinary bladder
hemodialysis	<i>A</i>	C. surgery to remove a stone
lithotomy	<i>C</i>	D. softening of the kidney
38. hydronephrosis	<i>C</i>	A. study of urine
hematuria	<i>B</i>	B. presence of blood in the urine
EPO	<i>D</i>	C. collection of urine in the renal pelvis
UA	<i>A</i>	D. hormone that stimulates erythrocyte production
39. anuria	<i>A</i>	A. lack of urine formation
uropoiesis	<i>C</i>	B. involuntary urination
nocturia	<i>D</i>	C. formation of urine
enuresis	<i>B</i>	D. excessive urination at night
40. calculus	<i>C</i>	A. a measure of the amount of fluid entering the nephron
GFR	<i>A</i>	B. a form of dialysis
CAPD	<i>B</i>	C. stone
natriuresis	<i>D</i>	D. excretion of sodium in the urine

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
41. bak-te-re-U-re-ah	<i>bacteriuria</i>
42. sis-TI-tis	<i>cystitis</i>
43. glo-mer-u-lo-nef-RI-tis	<i>glomerulonephritis</i>
44. kath-eh-ter-ih-ZA-shun	<i>catheterization</i>
45. he-mo-di-AL-ih-sis	<i>hemodialysis</i>
46. pi-eh-LOG-rah-fe	<i>pyelography</i>
47. sis-TEK-to-me	<i>cystectomy</i>
48. KON-du-it	<i>conduit</i>
49. al-DOS-ter-one	<i>aldosterone</i>
50. kre-AT-in-in	<i>creatinine</i>

	Answers
51. de-TRU-sor	<i>detrusor</i>
52. SIS-to-sele	<i>cystocele</i>
53. KA-lik	<i>calyx</i>
54. pol-e-DIP-se-ah	<i>polydipsia</i>
55. sis-to-meh-TROG-rah-fe	<i>cystometrography</i>
56. di-u-RE-sis	<i>diuresis</i>
57. eh-rith-ro-POY-eh-tin	<i>erythropoietin</i>
58. glo-MER-u-lus	<i>glomerulus</i>
59. NEF-ron	<i>nephron</i>
60. mik-tu-RISH-un	<i>micturition</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
61. Congenital absence of the urinary bladder	<i>a-cyst-ia</i>
62. Surgical fixation of the urinary bladder	<i>cyst-o-pexy</i>
63. Inflammation of the glomeruli and kidney	<i>glomerul-o-nephritis</i>
64. Inflammation of the renal pelvis and kidney	<i>pyel-o-nephritis</i>
65. Radiograph of the urinary tract	<i>ur-o-gram</i>
66. Surgical fixation of the urethra	<i>urethr-o-pexy</i>
67. Dilatation of the renal pelvis	<i>pyel-ectasis</i>
68. Inflammation of the urethra	<i>urethr-itis</i>
69. Presence of cells in the urine	<i>cyt-ur-ia</i>
70. Radiograph of the renal pelvis	<i>pyel-o-gram</i>

### Part 1 Word Bank

a	pyel	neph
gram	cyt	urethr
pexy	itis	glomerul
cyst	ur	o
ia	ectasis	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

calyx	hemodialysis	oliguria	renal pelvis
catheterization	lithotripsy	pyelonephritis	renal transplantation
cystitis	nephron	renal medulla	uremia

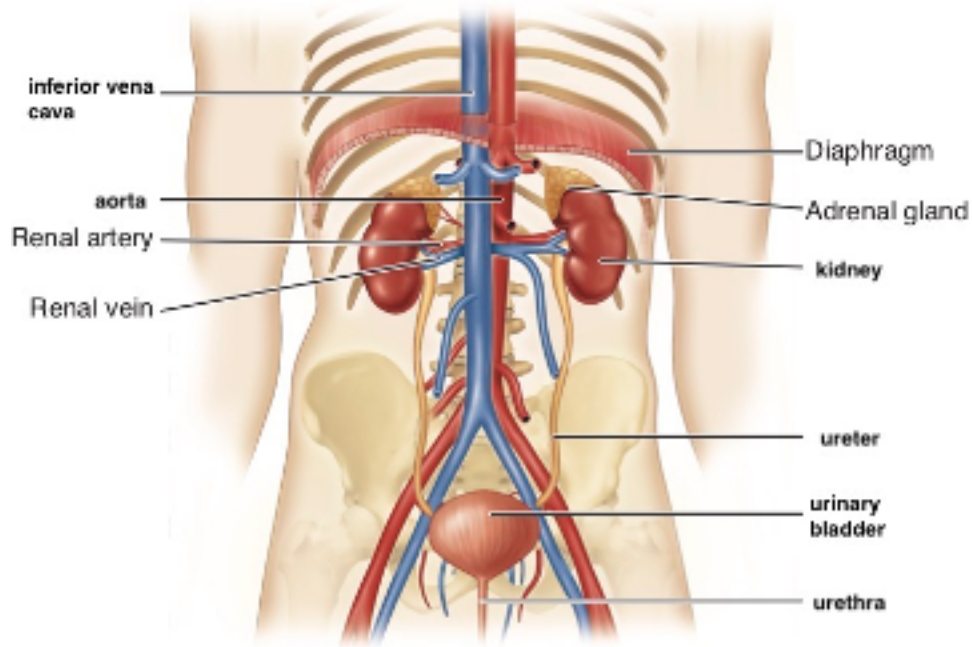
Part 1	Answers
71. parts of the kidney	<i>nephron, calyx, renal medulla, renal pelvis</i>
72. urinary disorders	<i>oliguria, cystitis, pyelonephritis, uremia</i>
73. treatment of urinary system	<i>lithotripsy, hemodialysis, catheterization, renal transplantation</i>



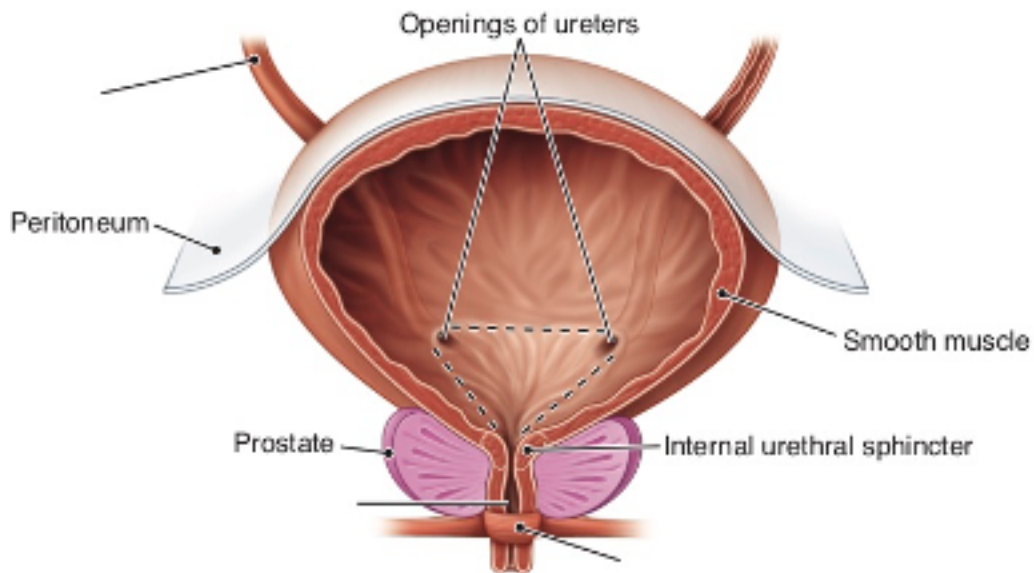
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

74. Labels: aorta, inferior vena cava, kidney, ureter, urethra, urinary bladder



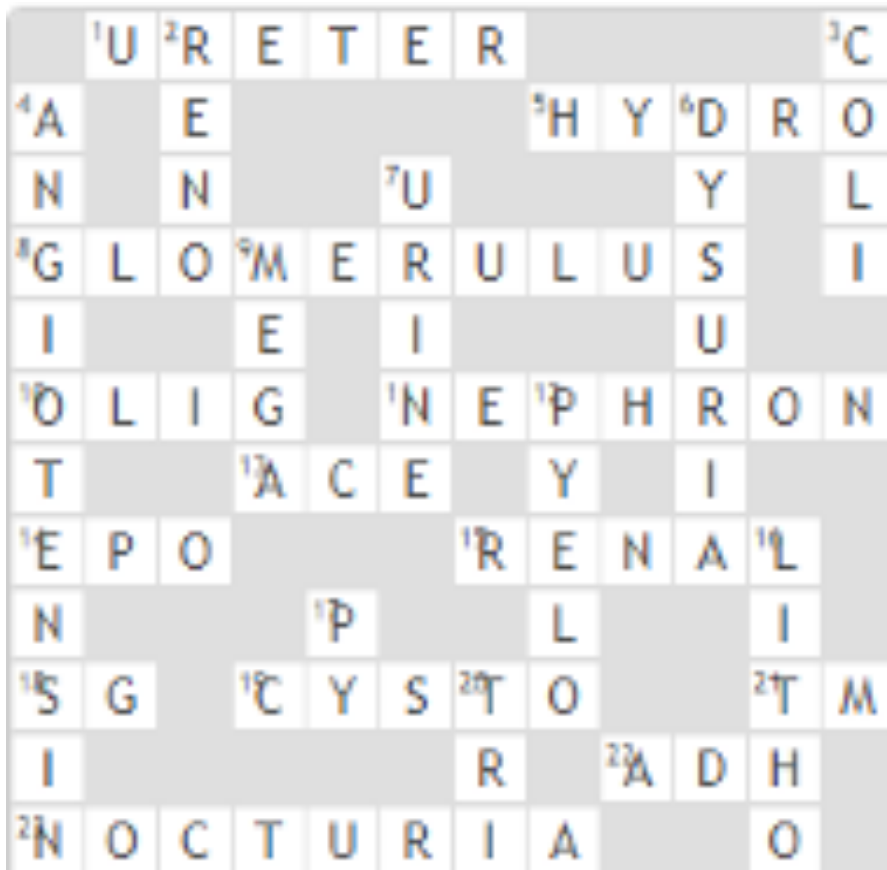
75. Labels: external urethral sphincter, trigone, ureter, urethra



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

76.



### Across

1. Tube that carries urine from the kidney to the bladder
5. Water; fluid: combining form
8. Cluster of capillaries in the glomerular capsule
10. Few; scant: prefix
11. Microscopic functional unit of the kidney
13. Drug that reduces blood pressure, \_\_\_inhibitor: abbreviation
14. Hormone that stimulates red-cell production: abbreviation
15. Pertaining to the kidney
18. Measure of the weight of a substance as compared to water: abbreviation
19. Urinary bladder: combining form
21. Maximum amount of a substance that can be reabsorbed: abbreviation
22. Pituitary hormone that regulates water reabsorption: abbreviation
23. Excessive urination at night

### Down

2. Kidney: combining form
3. Organism often involved in urinary tract infections, E.
4. Substance produced in response to renin that increases blood pressure
6. Painful or difficult urination
7. The fluid excreted by the kidneys
9. Large or abnormally large: prefix
12. Renal pelvis: combining form
16. Calculus (stone): combining form
17. Pus: root
20. Three: prefix

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Operative Report

OPERATION PERFORMED: Urodynamic evaluation.

DESCRIPTION OF PROCEDURE: The patient was placed in the urodynamic chair in the sitting position and prepped with Betadine. Surface perianal electrodes, transrectal balloon, and Bard triple-lumen catheter were placed in the standard fashion. A urodynamic examination was performed, which showed a maximum flow rate of only 6.1 mL per second, a maximum detrusor pressure of 100 cm of water, a small amount of initial residual urine due to the presence of an indwelling catheter, and a residual urine at maximum cystometric capacity of 150 cc. His maximum cystometric capacity was 300 cc with no evidence of sphincter dyssynergia. The day before, he had undergone a cystourethroscopy and retrograde pyeloureterogram and had been found to have evidence of outlet obstruction from prostatic hyperplasia.

These findings were described to both him and his wife. The catheter was left out for a trial. The wife states that the catheter had initially been placed based upon urinary incontinence and the frequent changing of clothing at home. I explained to her that based upon today's findings, he has evidence of outlet obstruction with hyperreflexia to the urinary bladder and residual urine, all of which can result in urinary incontinence. I have asked them to consider some alternatives such as alpha blockade, interstitial laser coagulopathy, and other possible therapies to reduce prostatic obstruction.

He is currently on aspirin. I suggested that they remain throughout the evening for voiding trials. He was placed on Bactrim double-strength tablets every 12 hours. He is to consider discontinuing the aspirin and having interstitial laser coagulopathy after 10 days.

	Answers
77. Perianal electrodes were placed _____ the anus.	<i>around</i>
78. A transrectal balloon is placed _____ the rectum.	<i>through</i>
79. Detrusor pressure refers to pressure of the _____.	<i>bladder muscle</i>
80. Cystometry measures functions of the _____.	<i>bladder</i>
81. A sphincter is a circular _____.	<i>muscle</i>
82. A term in the history that refers to “uncoordinated muscle action” is _____.	<i>dyssynergia</i>
83. A pyeloureterogram images the _____ and _____.	<i>renal pelvis; ureter</i>
84. The term retrograde refers to _____.	<i>backflow</i>
85. Prostatic hyperplasia is _____ of prostatic tissue.	<i>overgrowth</i>

# Worksheet Key

## Male Reproductive System

### True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. The main male sex hormone is androsone.		✓
2. Spermatozoa are generated by mitosis.		✓
3. After their manufacture, sperm cells are stored in the epididymis.	✓	
4. Circumcision is surgical removal of the prepuce.	✓	
5. LH stimulates testosterone production.	✓	
6. The root orchid/o means scrotum.		✓
7. BPH is malignant.		✓
8. Vasectomy involves cutting and sealing the ductus deferens.	✓	
9. A seminoma is a testicular tumor.	✓	
10. The male ureter transports both urine and semen.		✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The male gonad is the _____.	<i>testis</i>
12. The testes are held in a sac called the _____.	<i>scrotum</i>
13. The thick fluid that transports sperm cells is called _____.	<i>semen</i>
14. The gland below the bladder that contributes to the semen is the _____.	<i>prostate</i>
15. Diminished ability to produce offspring is termed _____.	<i>infertility</i>
16. The plural of spermatozoon is _____.	<i>spermatozoa</i>
17. The tube that transports both urine and semen in the male is the _____.	<i>urethra</i>
18. Protrusion of an organ through a weakness in a body wall is termed a(n) _____.	<i>hernia</i>
19. Before ejaculation, sperm cells are stored in the _____.	<i>epididymis</i>
20. Surgical removal of the prepuce is termed _____.	<i>circumcision</i>
21. The root osche/o means _____.	<i>scrotum</i>
22. The abbreviation for noncancerous growth of the prostate is _____.	<i>BPH OR bph</i>
23. Another term for erectile dysfunction is _____.	<i>impotence</i>
24. Incision of the epididymis is termed _____.	<i>epididymotomy</i>
25. Ejection of semen from the male urethra is called _____.	<i>ejaculation</i>
26. The penis is also known as a(n) _____.	<i>phallus</i>
27. _____ pertains to the channel through which the testis descends into the scrotum in the male.	<i>Inguinal</i>
28. _____ are mature male sex cells (root: sperm/i, spermat/o).	<i>Spermatozoa</i>
29. Surgical removal of the end of the prepuce (foreskin) is known as _____.	<i>circumcision</i>
30. _____ means “relating to a seminal vesicle.”	<i>Vesicular</i>
31. Failure of the testis to descend into the scrotum is known as _____.	<i>cryptorchidism</i>
32. Surgical repair of a hernia is called _____.	<i>herniorrhaphy</i>
33. Erectile dysfunction refers to _____.	<i>impotence</i>
34. The _____ is the tube that carries spermatozoa from the epididymis to the urethra.	<i>ductus deferens OR vas deferens</i>
35. The _____ canal is the channel through which the testis descends.	<i>inguinal</i>

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
36. oscheoma	<i>A</i>	A. tumor of the scrotum
vasostomy	<i>D</i>	B. introduction of semen into the female vagina
insemination	<i>B</i>	C. absence of a testis
anorchism	<i>C</i>	D. creation of an opening in the ductus deferens
37. spermatocele	<i>C</i>	A. enlargement of the prostate
STI	<i>D</i>	B. enlargement of the spermatic cord veins
BPH	<i>A</i>	C. epididymal cyst containing sperm cells
varicocele	<i>B</i>	D. infection spread through sexual contact
38. priapism	<i>C</i>	A. sexual climax
orgasm	<i>A</i>	B. sexual intercourse
coitus	<i>B</i>	C. prolonged, painful erection of the penis
phimosis	<i>D</i>	D. narrowing of the foreskin opening
39. HPV	<i>D</i>	A. virus that causes painful genital lesions
PSA	<i>C</i>	B. penis
HSV	<i>A</i>	C. substance used to screen for prostate cancer
phallus	<i>B</i>	D. causes benign genital warts

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
40. GAM-ete	<i>gamete</i>
41. in-ter-STISH-al	<i>interstitial</i>
42. mi-O-sis	<i>meiosis</i>
43. PRE-pus	<i>prepuce</i>
44. PROS-tate	<i>prostate</i>
45. PU-ber-te	<i>puberty</i>
46. SKRO-tum	<i>scrotum</i>
47. sper-mah-to-ZO-on	<i>spermatozoon</i>
48. krip-TOR-kid-izm	<i>cryptorchidism</i>
49. or-KI-tis	<i>orchitis</i>

	Answers
50. her-ne-OR-ah-fe	<i>herniorrhaphy</i>
51. jen-ih-TAL-e-ah	<i>genitalia</i>
52. FAL-us	<i>phallus</i>
53. fi-MO-sis	<i>phimosis</i>
54. ep-ih-DID-ih-mis	<i>epididymis</i>
55. KO-ih-tus	<i>coitus</i>
56. bul-bo-u-RE-thral	<i>bulbourethral</i>
57. ser-kum-SIH-zhun	<i>circumcision</i>
58. e-jak-u-LA-shun	<i>ejaculation</i>
59. ING-gwin-al	<i>inguinal</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
60. Plastic repair of the testis	<i>orchi-o-plasty</i>
61. Plastic repair of the scrotum	<i>osche-o-plasty</i>
62. Stone in the scrotum	<i>osche-o-lith</i>
63. Suture of the ductus deferens	<i>vas-o-r-rhapy</i>
64. Surgical fixation of an undescended testis	<i>orchi-o-pexy</i>
65. Excision of the ductus deferens	<i>vas-ectomy</i>
66. Pain in the testis	<i>orchi-algia</i>
67. Tumor of the scrotum	<i>osche-oma</i>
68. Pertaining to the scrotum	<i>osche-al</i>
69. Surgical creation of an opening in the vas deferens	<i>vas-o-stomy</i>

### Part 1 Word Bank

oma	ectomy	vas
r	osche	o
algia	stomy	plasty
orchi	lith	
rhapy	pexy	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

AIDS	epididymis	oligospermia	scrotum
cryptorchidism	gonorrhea	prepuce	syphilis
ductus deferens	herpes	prostatodynia	testopathy

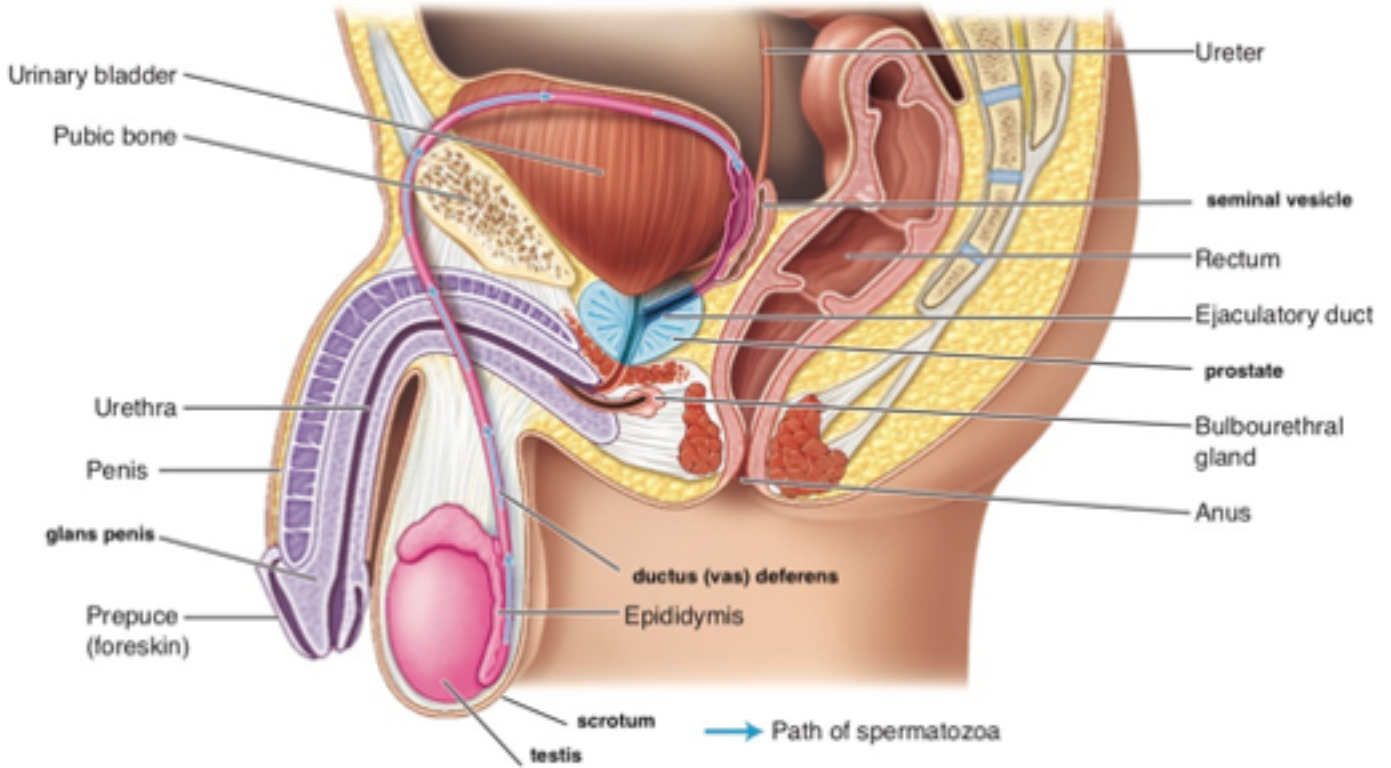
Part 1	Answers
70. parts of the male reproductive tract	<i>epididymis, scrotum, ductus deferens, prepuce</i>
71. disorders of the male reproductive tract	<i>cryptorchidism, prostatodynia, testopathy, oligospermia</i>
72. sexually transmitted infections	<i>gonorrhea, syphilis, herpes, AIDS</i>



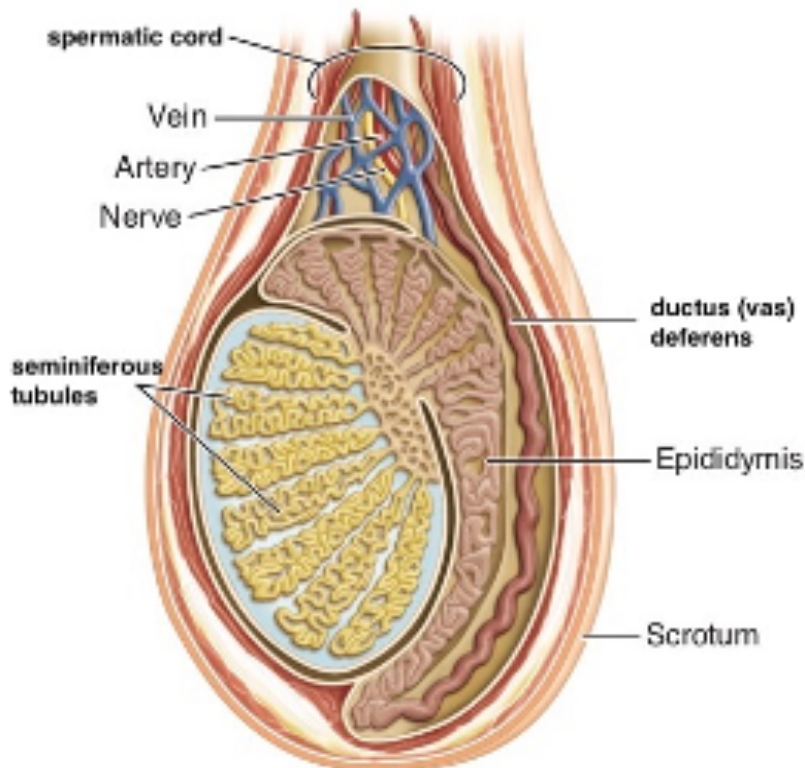
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

73. Labels: ductus (vas) deferens, glans penis, prostate, scrotum, seminal vesicle, testis



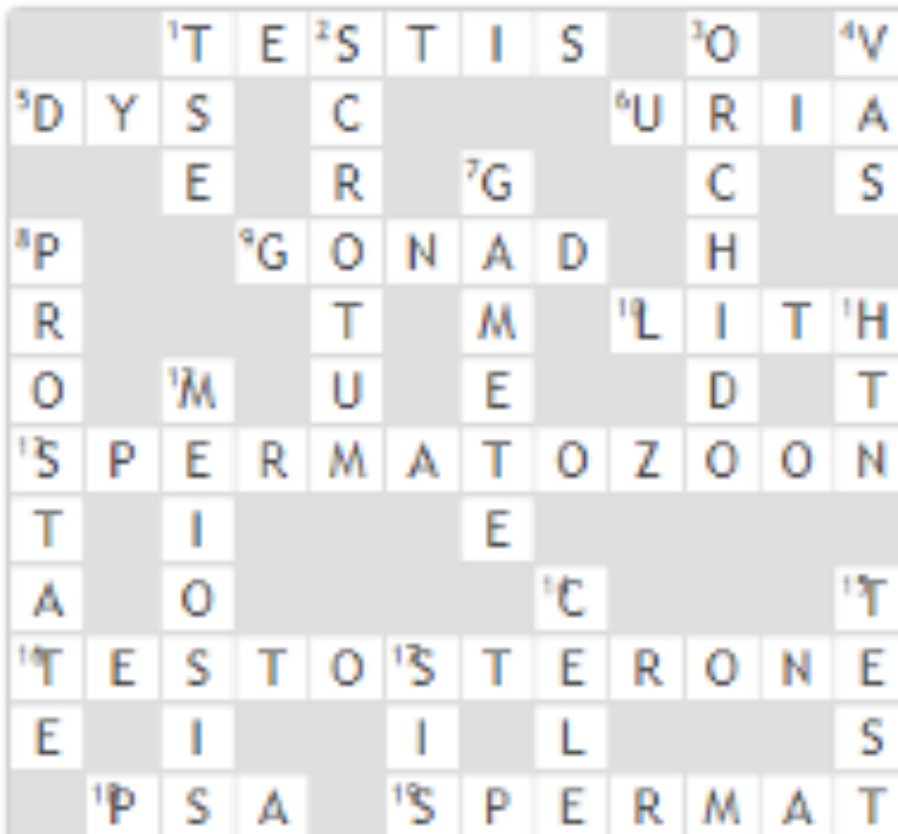
74. Labels: ductus (vas) deferens, seminiferous tubule, spermatic cord



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

75.



### Across

- The male gonad
- Abnormal, painful, difficult: prefix
- Pertaining to condition of urine: suffix
- A reproductive organ
- Stone or calculus: root
- Male gamete or sex cell
- Main male sex hormone
- Protein associated with prostate cancer: abbreviation
- Semen or spermatozoa: root

### Down

- Self-examination of the testis: abbreviation
- Sac that holds the testis
- Testis: combining form
- Ductus deferens: root
- A reproductive or germ cell
- Gland that contributes to semen
- High blood pressure: abbreviation
- Type of cell division that forms the gametes
- Hernia or localized dilation: suffix
- Male reproductive gland: root
- Condition of: suffix

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: Operative Report

PREOPERATIVE DIAGNOSES: Benign prostatic hyperplasia, bladder neck occlusion, recurrent urinary tract infection, status post transurethral resection of prostate.

POSTOPERATIVE DIAGNOSES: Benign prostatic hyperplasia, bladder neck occlusion, recurrent urinary tract infection, status post transurethral resection of prostate.

OPERATION: Transurethral resection and transurethral vaporization of the prostate. ANESTHESIA: Spinal.

PROCEDURE: After the patient was placed under satisfactory spinal anesthesia, he was put in the dorsal lithotomy position. The lower abdomen and external genitalia were then prepped and draped in the usual sterile manner with lithotomy drapes. The urethra was lubricated with K-Y jelly and dilated up to 30-French using van Buren sounds.

The resection was started by first taking down the median lobe and in the 5 to 7 o'clock position over the left lateral lobe and right lateral lobe. All bleeding points as noted were immediately electrocoagulated.

After adequate hemostasis was established in the prostatic bed, the Ellik evacuator was used to remove the prostatic chips from the bladder vault. Approximately 10 g of prostatic tissue was resected. With satisfactory electrofulguration, the resectoscope was removed. In its place a 22-French Foley catheter 30-cc balloon was inserted. The balloon was inflated to 55 cc. The catheter was irrigated. The return was blood-tinged. The catheter was connected to straight drainage. The patient was discharged from the cystoscopy suite to the recovery room in satisfactory condition.

#### Answers

76. In the dorsal lithotomy position, the patient is lying on their _____, with legs ____.	<i>back; apart and flexed</i>
77. The external genitalia are the external _____ organs.	<i>reproductive</i>
78. Electrocoagulation was used to achieve _____.	<i>hemostasis</i>
79. A median lobe is _____.	<i>central</i>
80. A resectoscope is an endoscope used to _____.	<i>excise tissue</i>
81. The cystoscopy suite is named for the _____.	<i>urinary bladder</i>

## Worksheet Key

# Female Reproductive System: Pregnancy and Birth

### True or False

Examine the following statements. Identify if the statement is true or false.s	True	False
1. An ovum travels through a uterine tube to reach the uterus.	✓	✓
2. Fertilization usually takes place in the uterus.	✓	✓
3. The root episi/o means “vulva.”	✓	✓
4. Estrogen triggers ovulation.	✓	✓
5. Menarche is the cessation of monthly menstrual cycles.	✓	✓
6. Inflammation of a uterine tube is called salpingitis.	✓	✓
7. The surgical removal of an ovary is called oophorectomy.	✓	✓
8. During development, the fetus is nourished by the myometrium.	✓	✓
9. The medical term for childbirth is gestation.	✓	✓
10. The root lact/o means “milk.”	✓	✓

## Fill-in-the-Blank

Complete the sentence with the correct term(s).	Answers
11. The female gonad is the _____.	ovary
12. The organ in which a fetus develops is the _____.	uterus
13. The release of an egg cell from the ovary is called _____.	ovulation
14. The use of artificial means to prevent conception is called _____.	contraception
15. The developing child after the second month and until birth is called a(n) _____.	fetus
16. The tissue that supplies the fetus with nutrients and oxygen during development is the _____.	placenta
17. The vessels that supply the fetus are contained in the _____.	umbilical cord
18. Secretion of milk from the breasts is called _____.	lactation
19. The region from the genital organs to the anus between the thighs is the _____.	perineum
20. A change in the genes or chromosomes of a cell is called a(n) _____.	mutation
21. The innermost layer of the uterus is the _____.	endometrium
22. The first menstrual period is called _____.	menarche
23. The vagina and cervix are examined using a(n) _____.	colposcope
24. Inflammation of the breast is termed _____.	mastitis
25. The hormone _____ shows the greatest rise during the secretory phase of the menstrual cycle.	progesterone
26. The umbilical vein carries blood high in _____.	oxygen
27. _____ is the study of the embryo.	Embryology
28. The union of an ovum and a spermatozoon is known as _____.	fertilization
29. _____ is a hormone that stimulates contractions of the uterus.	Oxytocin
30. _____ is the technical term for a pregnant woman.	Gravida
31. The cyclic discharge of blood and mucosal tissues from the lining of the nonpregnant uterus, also known as menses, is _____.	menstruation
32. _____ is the prevention of pregnancy.	Contraception
33. Endoscopic examination of the vagina is called _____.	colposcopy
34. Transabdominal puncture of the amniotic sac to remove amniotic fluid for testing is known as _____.	amniocentesis
35. A hormone secreted by the embryo early in pregnancy that maintains the corpus luteum so that it will continue to secrete hormones is human _____ gonadotropin.	chorionic

## Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
36. foramen ovale	<i>B</i>	A. prolapse of the uterus
oophoroma	<i>D</i>	B. part of fetal circulation
hydrosalpinx	<i>C</i>	C. collection of fluid in a uterine tube
metroptosis	<i>A</i>	D. tumor of an ovary
37. metrostenosis	<i>A</i>	A. narrowing of the uterus
episiotomy	<i>D</i>	B. normal labor
eutocia	<i>B</i>	C. dry labor
xerotocia	<i>C</i>	D. incision of the vulva
38. chorion	<i>B</i>	A. painful menstruation
dysmenorrhea	<i>A</i>	B. outermost layer of the embryo
PID	<i>C</i>	C. a fungal infection
candidiasis	<i>D</i>	D. infection of the pelvic cavity
39. D&C	<i>B</i>	A. the period of development in the uterus
atresia	<i>D</i>	B. removal of endometrial overgrowth
rubella	<i>C</i>	C. German measles
gestation	<i>A</i>	D. absence of a body opening

## Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
40. per-ih-NE-um	<i>perineum</i>
41. pro-JES-ter-one	<i>progesterone</i>
42. kan-dih-DI-ah-sis	<i>candidiasis</i>
43. DIS-men-o-re-ah	<i>dysmenorrhea</i>
44. li-o-mi-O-mah	<i>leiomyoma</i>
45. sal-pin-JI-tis	<i>salpingitis</i>
46. o-of-o-REK-to-me	<i>oophorectomy</i>
47. ko-LOS-trum	<i>colostrum</i>
48. jes-TA-shun	<i>gestation</i>
49. ok-se-TO-sin	<i>oxytocin</i>

	Answers
50. par-tu-RIH-shun	<i>parturition</i>
51. plah-SEN-tah	<i>placenta</i>
52. ah-TRE-ze-ah	<i>atresia</i>
53. am-ne-o-sen-TE-sis	<i>amniocentesis</i>
54. SER-viks	<i>cervix</i>
55. KLIT-o-ris	<i>clitoris</i>
56. en-do-ME-tre-um	<i>endometrium</i>
57. FIM-bre-e	<i>fimbriae</i>
58. men-AR-ke	<i>menarche</i>
59. fah-LO-pe-an	<i>fallopian</i>

## Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
60. Surgical removal of a uterine tube	<i>salping-ectomy</i>
61. Pain in the vagina	<i>colp-odynia</i>
62. Pain in the breast	<i>mast-odynia</i>
63. Inflammation of the breasts	<i>mast-itis</i>
64. Hernia of a uterine tube	<i>salping-o-cele</i>
65. Surgical removal of a breast	<i>mast-ectomy</i>
66. Absence of breasts	<i>a-mast-ia</i>
67. Hernia of the vagina	<i>colp-o-cele</i>
68. Inflammation of a uterine tube	<i>salping-itis</i>
69. Prolapse of the vagina	<i>colp-o-ptosis</i>

### Part 1 Word Bank

a	ia	odynia
cele	itis	ptosis
colp	mast	salping
ectomy	o	

## Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

### Part 1 Word Bank

abortion	estrogen	mastitis	progesterone
clitoris	FSH	ovary	uterus
eclampsia	LH	placenta	vagina
		previa	

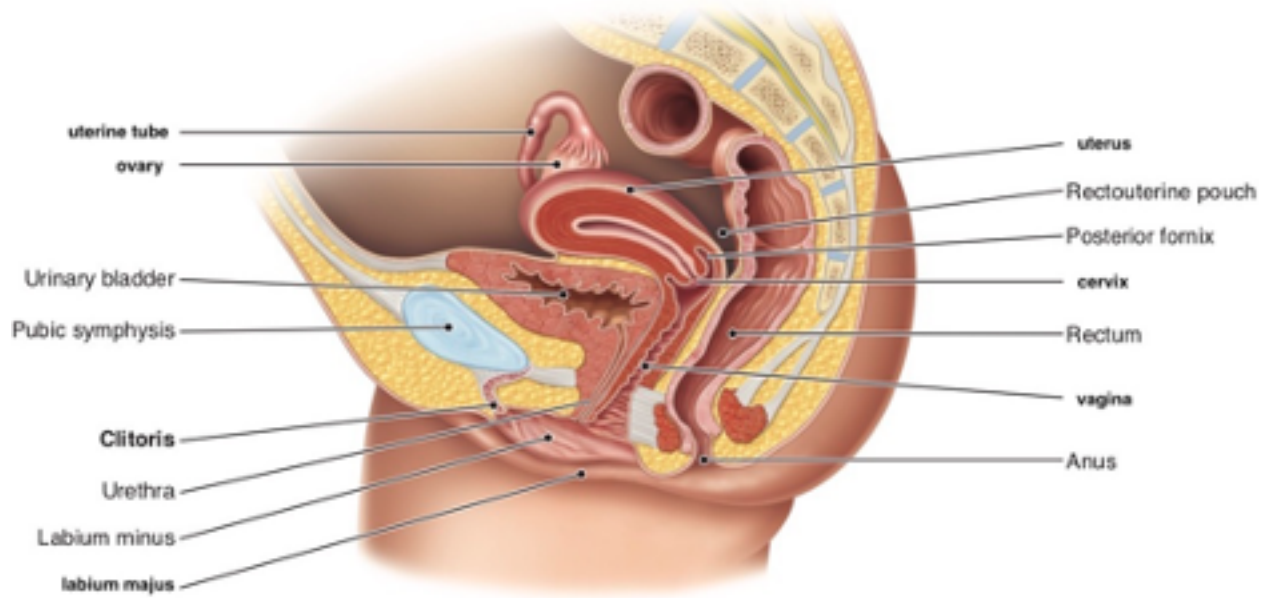
Part 1	Answers
70. reproductive hormones	<i>FSH, LH, estrogen, progesterone</i>
71. parts of female reproductive tract	<i>uterus, vagina, ovary, clitoris</i>
72. disorders of pregnancy	<i>abortion, eclampsia, mastitis, placenta previa</i>



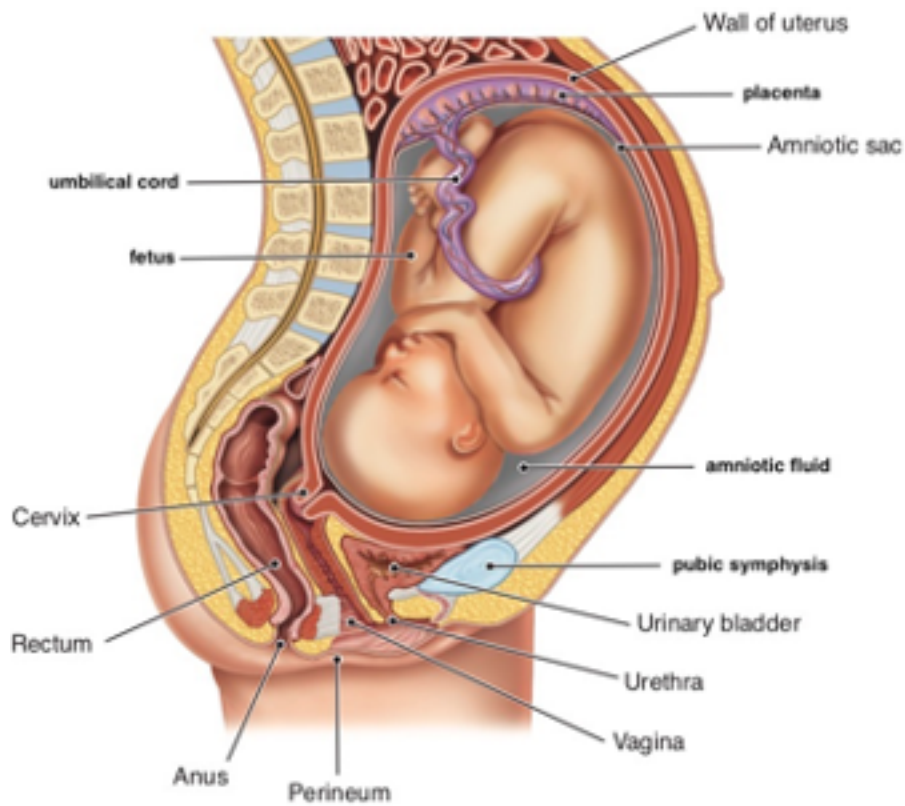
### Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

73. Labels: cervix, labium majus, ovary, uterine tube, uterus, vagina



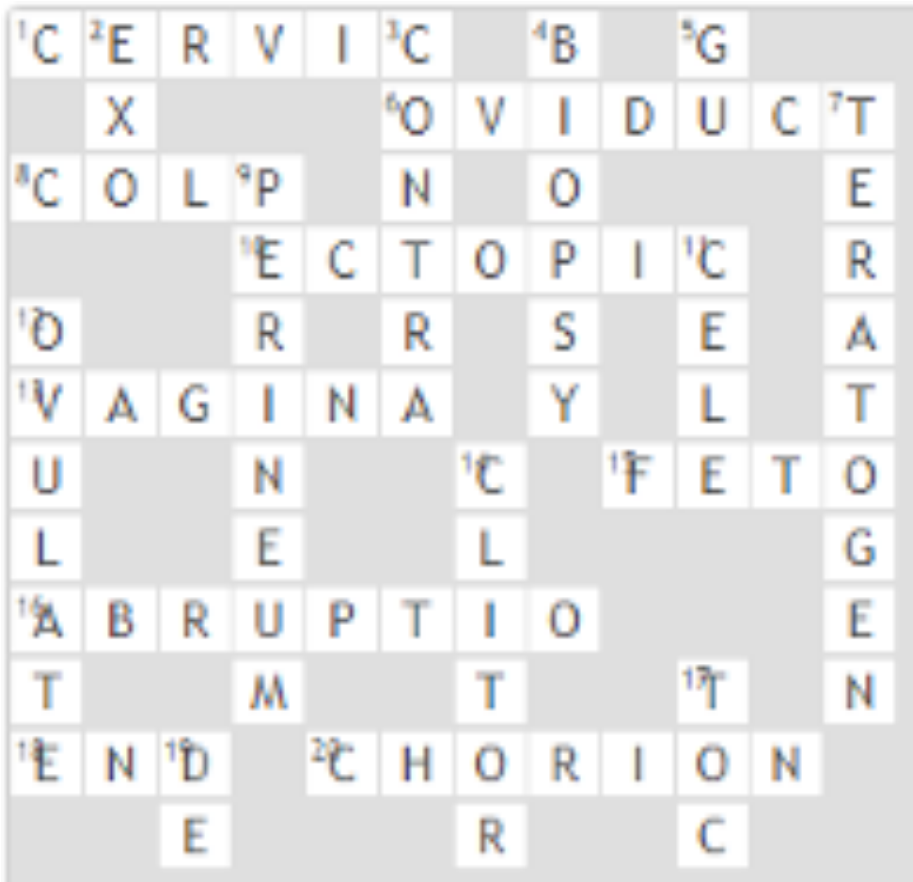
74. Labels: amniotic fluid, fetus, placenta, pubic symphysis, umbilical cord



## Crossword Puzzle

Complete the crossword puzzle using the clues provided.

75.



### Across

- Neck of the uterus: root
- Old name for uterine tube
- Vagina: root
- Outside the normal position
- Tube between the uterus and the external genitalia
- Developing infant in the uterus from the third month of gestation: combining form
- Premature separation of the placenta: \_\_\_\_\_ placenta
- In, within: prefix
- The outermost layer of the embryo; forms the inner portion of the placenta

### Down

- Outside, away from: prefix
- Against: prefix
- Removal of tissue for laboratory study
- The reproductive and urinary systems together: abbreviation
- Substance or agent that causes birth abnormalities
- The region between the thighs, including the genitalia
- Hernia, localized dilation; suffix
- To release an ovum from the ovary
- Erectile tissue in the female: root
- Labor: root
- Down, without, removal: prefix

## Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

### Case Study 1: History and Physical

PREOPERATIVE DIAGNOSIS: Ruptured tubal ectopic pregnancy.

HISTORY OF PRESENT SITUATION: The patient is a 20-year-old nulliparous patient who is unsure of her last menstrual period. She presented to the emergency room last evening, was evaluated, and had a positive pregnancy test. She was felt to have a urinary tract infection, was given something for discomfort, and sent home. She did indeed sleep, however, she woke up with abdominal discomfort and returned to the emergency room. The patient's reevaluation includes the above-mentioned positive pregnancy test and a preliminary diagnosis of a ruptured ectopic pregnancy. She denied any previous surgery and basically has a negative review of systems. She was using nothing for contraception.

PHYSICAL EXAMINATION

GENERAL: The patient does appear pale, although her hemoglobin done just recently is 12.9 with hematocrit of 38.2.

VITAL SIGNS: Stable in the emergency room. Recorded blood pressure of 92/77, pulse 79, and respirations 12.

HEENT: Grossly normal.

LUNGS: Clear. There are no adventitious sounds.

HEART: Regular sinus rhythm; no murmurs, heaves, or thrills.

ABDOMEN: Seems somewhat soft; however, it is extremely tender throughout both lower quadrants with guarding and marked rebound tenderness throughout. An attempted bimanual examination was futile secondary to patient's marked guarding and discomfort.

IMPRESSION: Ruptured ectopic pregnancy. I discussed this at length with the patient and her boyfriend. I discussed the use of a laparotomy as opposed to a laparoscopy, being that the ultrasound shows a ruptured tubal pregnancy, and she does have marked perineal signs. I did tell her that is possible we could find an unruptured ectopic; however, I feel we should not use laparoscopy at this time to avoid any delay getting to the source of the problem. We discussed the risk of infection, bleeding, anesthesia, and bowel, bladder, or ureter injury. I did discuss the decreased probability of her getting pregnant; however, I certainly told her that many people do have an ectopic pregnancy and have children afterward. She is extremely well-informed. I will proceed with the laparotomy as mentioned above.

### Answers

76. In the recorded blood pressure of 92/77, the systolic pressure is \_\_\_\_\_.

92

77. A regular sinus rhythm originates in the \_\_\_\_\_.

SA node

78. Using a laparotomy instead of laparoscopy means using a(n) \_\_\_\_\_ instead of a(n) \_\_\_\_\_.

abdominal incision;  
endoscopic procedure