

Anatomy and Physiology II
Mix and match terms

1. Acidosis - Low pH < 7.0, excess hydrogen ions, high acid concentration.
2. Aldosterone - Hormone, adrenal cortex, Angiotensin II process triggers it, Causes the kidneys to reabsorb Na⁺, and the resulting potential gradient causes water to be reabsorbed by osmosis.
3. Alkalosis - High pH > 7.0, excess OH⁻ ions, basic concentration.
4. Altitude sickness - headache due to low oxygen levels in the brain.
5. Alveolar ducts - The branch tubes from the bronchioli that run to the alveoli.
6. Alveolar macrophages - These cells phagocytize dust particles and other fine debris in alveolar air spaces.
7. Alveolar ventilation rate - The volume of air per minute that reaches the alveoli. (tidal volume - anatomic dead air space) * respiration rate.
8. Alveoli - Small air sacks in the lungs
9. Anatomic dead air space - The air that remains in the passage ways to the alveoli and does not participate in the air exchange.
10. Anion - An ion which has gained one or more electrons, negative charge.
11. Antidiuretic hormone (ADH) - pituitary gland, causes the kidneys to reabsorb water from the filtrate, blood plasma levels rise, blood pressure rises.
12. Aortic bodies - In the arch of the aorta, senses carbon dioxide and hydrogen ion concentration and increases the breathing rate if either is high. Also senses low oxygen levels and increases the breathing rate (rare).
13. Apnea - A temporary cessation of breathing
14. Apneustic area - In the pons, transmits stimulatory messages to activate and prolong inhalation.
15. Asthma - Disease which causes contraction of the smooth muscle in the bronchioles, excessive mucus production in the

lungs and possibly pulmonary edema.

16. Atrial natriuretic peptide - Produced in the atrium when the right ventricle is stretched, increases fluid loss into the filtrate, suppresses the secretion of ADH, aldosterone and renin.

17. Baroreceptors - Pressure sensors, located in the bronchi and bronchioles of the lungs, signal the inspiratory area of the medulla oblongata and the apneustic area of the pons via the vagus nerve to prevent over inspiration of the lungs. (Hering-Breuer reflex).

18. Bends - Oxygen and other gasses are absorbed at high pressure (deep under the sea), then the body moves to a much lower pressure (sea level) and those gasses bubble out of the blood (due to expansion).

19. Bisphosphoglycerate - (BPG aka diphosphoglycerate DPG) Decreases hemoglobin's affinity for oxygen, formed when red blood cells break down glucose for energy in glycolysis.

20. Bowman's capsule - Collects the filtrate from the glomerulus.

21. Boyle's law - The pressure of a gas in a closed container is inversely proportional to its volume.

22. Bronchiolus - The smaller branch tubes of the bronchus

23. Bronchitis - Inflammation of the bronchial tubes and excessive mucus production in the bronchi

24. Bronchus - The main tubes into the lungs

25. Calcitonin - hormone, from the parathyroid, released when the blood calcium levels are high, osteocytes ossify bone, osteoclast activities are inhibited.

26. Carbamino hemoglobin - Hemoglobin that has bonded a carbon dioxide group to it.

27. Carbon monoxide - CO, hemoglobin has a much greater affinity for CO than for oxygen. If you are in a high CO environment most of your hemoglobin will become bonded to CO and will not debond easily, you may suffocate.

28. Carotid bodies - In the left and right carotid arteries, sense high carbon dioxide and/or hydrogen ion concentrations and increases the respiration rate. Also will increase the respiration rate if the oxygen level drops too low (rare).

29. Cation - Ion that has lost one or more electrons from its neutral state (positive charge).

30. Collecting duct - Runs from the distal convoluted tubule to the ureter, runs through the medulla of the kidney.
31. Compliance - The ease with which the lungs and the thoracic walls can be expanded. High = lungs fill easily, low = lungs are difficult to fill.
32. Cortex - The outer edge of an organ.
33. Cystic fibrosis - Genetic disease that affects the protein carriers that move chloride ions across the cell membranes of epithelial cells. Causes glands to excrete excessive amounts of salts, causing thick mucus to form in the lungs which is difficult for the body to remove. Also causes cirrhosis of the liver and other metabolic problems in the body.
34. Dalton's law - The partial pressure of a gas in a mixture of gasses is the percentage of that gas in the mixture times the total pressure of the entire mixture.
35. Diabetes insipidus - A condition in which inadequate amounts of antidiuretic hormone (ADH) is secreted by the pituitary gland. Results in the excretion of dilute urine because of inadequate water reabsorption in the distal convoluted tubule and the collection ducts.
36. Dialysis - The process of artificially filtering a persons blood through a machine that attempts to simulate the filtration process. The machine does not regulate the compounds found in the blood as well as a properly functioning kidney does.
37. Distal convoluted tubule - The last part of the tubule, located in the cortex of the kidney.
38. Diuretic - Any drug that increases the rate of urination (increases the water sent out the filtrate).
39. Dyspnea - Difficulty breathing
40. Electrolytes - Ions in solution
41. Emphysema - A chronic disease usually caused by inhaling smoke or dust over long periods of time. Causes connective tissue in the walls of the alveoli and alveolar ducts, reducing the surface area for gas exchange. Persons chest may become barrel shaped.
42. Epiglottis - Moves back and forth to block off the trachea or esophagus, makes sure food goes down the esophagus and air down the trachea.

43. Esophagus - The tube from the larynx to the stomach.
44. Expiration - Breathing out
45. Expiratory reserve volume - The amount of air that you can remove from your lungs beyond the tidal volume.
46. Extrinsic (allergic) asthma - Asthma due to allergic reactions (pollens, molds, dust, or other allergens).
47. Fetal hemoglobin - Hemoglobin in fetus (last 7 months) and newborns (first 6 months), has higher affinity for oxygen than normal hemoglobin so the baby's blood can take oxygen from the mother's blood.
48. Glomerulus - A ball of capillaries located in the Bowman's capsule. Materials are filtered out of the blood through the walls of these capillaries.
49. Gout - A hereditary metabolic disorder that causes acute arthritis in joints. The arthritis is caused by excessive urea in the blood which precipitates out into the joints as urates of sodium.
50. Hemoglobin - The protein in red blood cells which carries oxygen (among other compounds). Can carry up to four oxygen molecules at a time.
51. Henry's law - The concentration of gas dissolved in a liquid is equal to the partial pressure of the gas over the liquid times the solubility coefficient of the gas.
52. Hypercalcemia - High blood calcium, can increase the force of heart contractions and make a person feel lethargic. Caused by improper kidney function.
53. Hyperchloremia - High blood Cl^- . Can cause renal failure by stopping the renin secretion and can also cause blood acidosis by increasing the reabsorption of hydrogen ions due to the potential gradient caused by the excessive Cl^- .
54. Hyperkalemia - High blood K^+ levels. Can be caused by improper kidney function or excessive K^+ intake and can reduce the force of heart contractions or cause heart fibrillation. Can also cause cramps and diarrhea.
55. Hypermagnesemia - High blood magnesium levels, can be caused by taking too many magnesium based antacids, renal failure, Addison's disease, diabetic acidosis or dehydration. Causes low blood pressure, muscle weakness, nausea and rarely paralysis.
56. Hyponatremia - High blood sodium levels, can be caused by

water loss, water deprivation or high sodium intake. Causes excessive water retention and related high blood pressure. May also increase a persons thirst.

57. Hyperphosphatemia - High blood phosphates, can be caused by a lack of secretion of phosphates in the kidneys, renal failure or increased phosphates from cell destruction. Causes tachycardia, muscle tetany in skeletal muscles, may also cause calcium phosphates to precipitate out in the tissue or joints.

58. Hypocalcemia - Low blood calcium, caused by calcium loss, low calcium intake or high blood phosphate levels. Causes cramps, skeletal muscle tenany, convulsions and osteoporosis

59. Hypochloremia - Low blood Cl^- , caused by dehydration, vomiting or diuretics. Causes muscle spasms and alkalosis.

60. Hypokalemia - Low blood K^+ , caused by vomiting, diarrhea, diuretics or improper kidney function. Causes increase in Q-T interval, flattened T wave, flaccid paralysis, and can cause cramps.

61. Hyponatremia - Low blood Na^+ , caused by excessive perspiration, vomiting, diarrhea or diuretics. Causes muscle weakness or tachycardia due to reduced blood volume/low blood pressure.

62. Hypomagnesemia - Low blood magnesium, caused by low absorption of magnesium, alcoholism, malnutrition, excessive lactation or diabetes mellitus. Causes skeletal muscle tetany, heart arrhythmias, muscle weakness, or convulsions.

63. Hypophosphatemia - Low blood phosphates, caused by urinary losses or decreased absorption in the gut. Can cause seizures or comas.

64. Inspiration - Breathing in

65. Inspiratory reserve volume - The amount of air that you can take into your lungs above the tidal volume.

66. Intrinsic (idiopathic) asthma - Asthma which occurs due to infections, stress, or emotional triggers.

67. Juxtaglomerular apparatus - located on the distal convoluted tubule, senses the Cl^- level, when low causes produces the enzyme renin.

68. Kidney - Organs which filter blood and then reabsorb some things from the filtrate.

69. Kidney stones - small (unless they are yours) stones most

commonly made of calcium oxylate mixed with calcium phosphate. Usually found in a tubule or the collecting duct, causes extreme pain when the move down the ureter. Cause is not completely known, but diets high in calcium and concentrated urine are believed to contribute to their formation. Can sometimes be broken apart by ultrasound (lithotripsy), in most severe cases need surgery for removal.

70. Laryngitis - Inflammation of the larynx which usually results in hoarseness or loss of ability to speak.

71. Larynx - Voice box, has the vocal cords.

72. Loop of Henle - The loop of the tubule, goes into the medulla of the kidney and back up.

73. Medulla - Middle of any organ

74. Medullary rhythmicity area - Main area that controls rhythmic activities including the breathing.

75. Metabolic acidosis - The blood pH drops due to low levels of bicarbonate ion in the blood (HCO_3^- below 22 mEq/l). Can be caused by diarrhea or renal disfunction (bases out the bottom).

76. Metabolic alkalosis - The blood pH rises due to high levels of blood bicarbonate ion in the blood (HCO_3^- above 26 mEq/l). Caused by vomiting (acids out the top), or other non-respiratory loss of acids.

77. Minute respiratory rate - Total amount of air you breath in a minute (tidal volume x respiration rate)

78. Mouth - Allows for speech, used for eating

79. Myoglobin - Similar to hemoglobin in muscle tissue, stores oxygen. Only one oxygen per myoglobin.

80. Nephron - The functional units of the kidneys that filter the blood and reabsorb materials from the filtrate.

81. Nose - warms and humidifies the air as it moves through, removes dust particles from the air.

82. Oxyhemoglobin - Heme groups that are carrying oxygen.

83. Paranasal sinuses - Cavities lined with mucus membranes that connect to the nasal passages. Also act as resonating chambers for speech.

84. Parathyroid hormone - PTH, produced in the parathyroid when blood calcium levels are low. Inhibits osteocytes and causes

osteoclast activity to increase. Also causes calcium absorption in the gut to increase and in the kidneys.

85. Parietal pleura - The layer of the pleura that lines the thoracic cavity.

86. Partial pressure - The partial pressure of a gas in a mixture of gasses is the percentage of the gas in the mixture times the total pressure of all the gasses (Dalton's law).

87. Pharynx - The common passageway to the esophagus and trachea.

88. Pleural cavity - The space between the two layers of pleura in the thoracic cavity, filled with lubricating fluid to reduce friction.

89. Pleural effusion - The accumulation of fluid between the pleura layers.

90. Pleurisy - Inflammation of the pleural membranes. Causes pain due to friction between the two pleura layers.

91. Pneumonia - A viral, bacterial or fungal disease of the lungs that results in the accumulation of fluid in the alveoli and inflammation of the alveoli.

92. Pneumotaxic area - In the pons, transmits inhibitory impulses to keep the lungs from overfilling.

93. Proximal convoluted tubule - The first part of the tubule, most of the reabsorption and secretion of materials out of/into the filtrate occurs here.

94. Pulmonary arteries - Take unoxygenated blood from the heart to the lungs.

95. Pulmonary edema - Accumulation of fluids in the lungs.

96. Pulmonary veins - Take oxygenated blood from the lungs to the heart.

97. Residual volume - The amount of air left in the alveoli and the airways of the lungs when a person has expelled as much air as is possible.

98. Respiration - The process of gas exchange in the body.

99. Respiratory acidosis - Inadequate movement of CO₂ out of the blood, causing the blood pH to drop below 7.35 mm Hg. Usually caused by a reduced breathing rate, pulmonary edema, or emphysema.

100. Respiratory alkalosis - Low blood CO₂ caused by respiratory problems which cause the blood pH to rise above 7.45 mm Hg. Most commonly caused by hyperventilation.

101. Respiratory center - In the medulla oblongata, has chemosensitive area which senses carbon dioxide and hydrogen ion concentrations and increases the breathing rate if either is high.

102. Respiratory distress syndrome - Occurs when newborn babies don't produce enough surfactant and their lungs collapse due to surface tension.

103. Stretch receptors - Receptors in the bronchi and bronchioles that send signals via the vagus nerve to the inspiratory area of the medulla oblongata and the apneustic area of the pons to keep the lungs from being overfilled.

104. Sudden infant death syndrome (SIDS) - Occurs in young children, when they stop breathing in their sleep. Unknown reasons that cause it.

105. Surfactant - lipoprotein secreted by type II alveolar cells which reduces the attraction of the walls of the alveolar.

106. Trachea - The tube from the larynx to the lungs.

107. Tachypnea - Rapid respirations

108. Tidal volume - The amount of air that moves in/out of the lungs during normal inspiration/expiration.

109. Tubule - Carries the filtrate to the ureter.

110. Type I alveolar cells - (squamous pulmonary epithelial cells). Simple squamous cells that form the lining of the alveoli

111. Type II alveolar cells - (sepal cells). Rounded or cuboidal cells that secrete the alveolar fluid which keeps the alveoli moist and secrete surfactant

112. Ureter - Carries waste from kidneys to the urinary bladder.

113. Urethra - Carries the urine from the bladder to the outside of the body.

114. Urinary bladder - stores the waste.

115. Urinary sphincter - closes off the bladder

116. Uvula - A small fleshy projection that hangs in the back of the throat, blocks off the opening to the nasal passages when

you swallow.

117. Vasa recta - Blood vessel which runs along side the loop of henle in the opposite direction. Provides the mechanism for counter current multiplication as the salts are reabsorbed into the blood (if necessary) and then that blood can pull in water from the filtrate via osmosis.

118. Visceral pleura - The layer of the pleura that covers the lungs, inner layer of pleura.

119. Vital capacity - The maximum usable capacity of the lungs. Sum of the tidal volume, inspiratory reserve and expiratory reserve.

120. Vocal cords - Cords in the larynx which vibrate when air is moved across them to produce sounds.