

DO NOT TOUCH THE MICROSCOPES OR ANATOMICAL SPECIMENS

Station 1.

1. During spirometry (measurement of gas coming in and out of the lungs), IRV, or inspiratory reserve volume, is measured at which point?
 - A. End of maximum expiration
 - B. End of maximum inspiration
 - C. End of normal inspiration
 - D. End of normal expiration

2. At functional residual capacity (FRC), the lung tries to contract outwards and the chest wall tries to contract inwards
 - A. True
 - B. False

3. If a patient has a total lung capacity of 5900 mL, an RV of 1500 mL, and a ERV of 1225 mL, what would his IC be?
 - A. 2725
 - B. 4400
 - C. 4675
 - D. 3175

4. What is a typical tidal volume for a healthy male?
 - A. 500ml
 - B. 350 ml
 - C. 400 ml
 - D. 1000 ml

5. Which of the following is an acute response of the respiratory system to exercise?
 - A. Increase in tidal volume
 - B. Increase in ventilation frequency
 - C. Increase in maximum oxygen consumption
 - D. Both a and b
 - E. All of the above

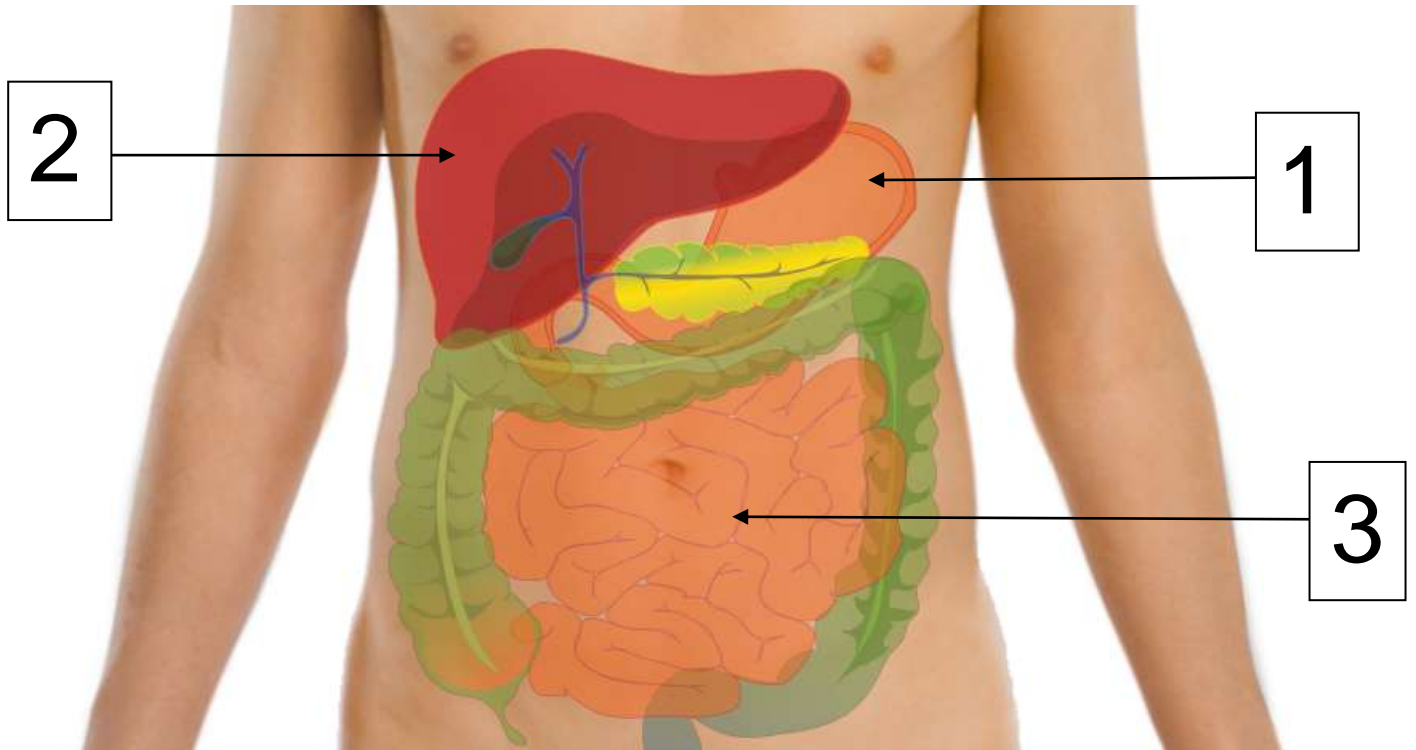
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Station 2.

6. Fill in the blanks by referring to the labeled organs in the figure.
Parietal cells can be found in the organ labeled _____ and produce _____.
- A. 1 HCl
 - B. 2 bile
 - C. 3 amylase
 - D. 4 gastric lipase
7. The folds within the submucosa of the small intestine are known as _____ and are a _____ structure.
- A. Plicae circularis permanent
 - B. Plicae circularis temporary
 - C. Rugae temporary
 - D. Plicae semilunaris permanent
8. The gut tube is typically composed of 4 layers: which of the following is not one of them?
- A. Mucosa
 - B. Mucoperiostium
 - C. Muscularis externa
 - D. Submucosa
 - E. Adventitia
9. Which papillae contain taste buds?
- A. Filiform
 - B. Fungiform
 - C. Vallate
 - D. A and B
 - E. B and C
 - F. A and C
 - G. A, B, and C

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Station 2.



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Station 3.

For questions 10 through 15, match the disorder with the letter for the description provided in the list below.

- 10. Emphysema
- 11. Cystic Fibrosis
- 12. Pneumocystis Pneumonia
- 13. Asthma
- 14. Pulmonary embolism
- 15. Adenocarcinoma

- A. An occlusion of the blood vessels in the lungs due to a blood clot
- B. Chloride channel defect resulting in overproduction of viscous mucous
- C. Cancer of the lungs generally associated with non-smokers
- D. Infection of the lungs by a yeast-like fungus
- E. Acute bronchoconstriction of the lungs during times of exertion or stress
- F. Long term inflammation in the lungs and progressive obstruction of airways

16. The lung specimen at this station is from an individual who most likely suffered from which condition from the list below?

- A. Pulmonary embolism
- B. Cystic Fibrosis
- C. Pneumocystis Pneumonia
- D. Asthma
- E. Emphysema

17. Is this a left or a right lung?

18. Give the name for the labeled fissures

A. _____

B. _____

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Station 4.

19. Which muscles are involved in deep or forced inspiration?
- A. diaphragm and external intercostals
 - B. diaphragm and abdominal muscles
 - C. scalenes and sternocleidomastoids
 - D. trapezius and semispinalis capitis
 - E. answers A and D.
20. Hyperventilation can lead to _____ as a result of _____.
- A. Hypoxia a lack of sufficient oxygen
 - B. Vasoconstriction reduced carbon dioxide
 - C. Vasodilation a lack of sufficient oxygen
 - D. Vasoconstriction excess oxygen
 - E. None of the above
 - F. Answers A and B
21. Resistance to laminar flow can be calculated with the driving pressure and the flow rate. What is the name for law that is used for this calculation?
- A. Laplace's Law
 - B. Poiseuille's Law
 - C. Dalton's Law
 - D. Fick's Law
22. Which of the following irregular breathing patterns is associated with a rhythmic cycle of breathing with periods of apnea (note: a normal rate is 12-20 breaths per minute)?
- A. Cogwheel respiration
 - B. Cheyne-Stokes respiration
 - C. Kussamaul's respiration
 - D. Biot respiration

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Station 5.

23. Which of the physical factors does not have an influence on ventilation?
- A. Respiratory resistance
 - B. Lung compliance
 - C. Lung elasticity
 - D. Respiratory Compensation
24. At altitude the rate of diffusion of oxygen across the pulmonary and tissue capillaries is decreased resulting in a drastic decrease in hemoglobin saturation during exercise. Which one of the following would account for this decrease?
- A. Decrease in the partial pressure of oxygen in the ambient air
 - B. Decrease in the oxygen equilibrium of the capillaries to the alveoli
 - C. Increase in the oxygen equilibrium of the capillaries to the alveoli
 - D. Increase in the partial pressure of oxygen in the ambient air
 - E. None of the above
25. Which of the following would be an acute response of the respiratory system to exercise?
- A. Increase in maximum oxygen consumption
 - B. Increase in muscular strength and endurance
 - C. Increase in gas exchange at the alveolar and capillary levels
 - D. Both A and C
 - E. All of the above
26. A chronic adaptation of the respiratory system to exercise would be which of the following?
- A. Decrease in body fat percentage
 - B. Increase in muscular strength and endurance
 - C. Increase in maximum oxygen consumption
 - D. Increase in gas exchange at the alveolar and capillary levels
 - E. None of the above

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Station 6.

For questions 27 through 31, give the letter on the label for each structure.

27. Transverse Colon

28. Pancreas

29. Epiglottis

30. Pyloric sphincter

31. Appendix

32. What is the function of the structure labeled A?

- A. Endocrine
- B. Exocrine
- C. Both
- D. Neither

33. What is the function of the organ labeled B?

- A. Move feces
- B. Secrete zymogens
- C. Absorb proteins, lipids and carbohydrates

34. What is the function of the structure labeled C?

- A. Produce speech
- B. Close off the nasopharynx while swallowing
- C. Close off larynx while swallowing

35. What can be found in large concentrations in the structure labeled D?

- A. Bile
- B. Water soluble vitamins and lipids
- C. Insulin
- D. Immune cells

36. The muscle found in the structure labeled E contains striations.

- A. True
- B. False

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Station 7.

37. Which of the following is not one of the muscular layers of the stomach?

- A. Circular
- B. Longitudinal
- C. Horizontal
- D. Oblique
- E. All are muscular layers of the stomach

For questions 38 through 44 match the organ with its epithelial lining using the letters in the list below.

38. Esophagus

39. Stomach

40. Small intestine

41. Nasal vestibule

42. Nasal Cavity

43. Trachea

44. Alveoli

- A. Simple squamous
- B. Stratified squamous keratinized
- C. Simple columnar
- D. Stratified squamous non-keratinized
- E. Pseudostratified ciliated columnar

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Station 8.

45. Select the answer that lists the respiratory features in the correct order that air travels during inspiration.
- A. Main bronchus, respiratory bronchiole, conducting bronchiole, lobar bronchus
 - B. Main bronchus, conducting bronchiole, respiratory bronchiole, lobar bronchus
 - C. Main bronchus, lobar bronchus, respiratory bronchiole, conducting bronchiole
 - D. Main bronchus, lobar bronchus, conducting bronchiole, respiratory bronchiole
46. Surfactant acts to reduce surface tension and keep alveoli open. Which cell type secretes this substance?
- A. Goblet cell
 - B. Pneumocyte
 - C. Clara cell
 - D. Alveolar cell
47. Our sense of smell is a result of which of the following?
- A. G-protein receptors in olfactory nerve
 - B. Sodium channels producing action potentials in epithelial sensors
 - C. Odorant receptors on the floor of the nasal cavity
 - D. Our brains interpreting flavors that we taste
48. Gas exchange in the lungs is a function of _____ and occurs at _____.
- | | |
|-------------------------------|-------------|
| A. Respiratory rate | capillaries |
| B. Partial pressure of gasses | capillaries |
| C. Respiratory rate | arterioles |
| D. Partial pressure of gasses | venules |

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Station 9.

49. Pain on the right side of the body may indicate all of the following except which of the following.
- A. Appendicitis
 - B. Liver disease
 - C. Kidney stone
 - D. Splenomegaly
50. Liver disease results in a condition known as “jaundice” which is a yellow tint the patient’s skin turns and is a result of the liver failing to perform which function correctly.
- A. Filter keratin out of the blood
 - B. Reuptake bilirubin out of the blood stream
 - C. Store excess bile from the gallbladder
 - D. Releasing its digestive enzymes appropriately
51. Identify the organ at this station.
- A. Enlarged spleen
 - B. Enlarged liver
 - C. Enlarged pancreas
 - D. Enlarged heart
52. Damage to the organ in question 51 would make the patient more susceptible to which condition?
- A. Infection or sepsis
 - B. Dietary deficiencies
 - C. Hypothermia
 - D. Blood glucose irregularities

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Station 10.

53. According to studies, hypoglycemia (low blood glucose levels) is a common finding in humans at a high altitude. This hypoglycemia will cause a decrease in a human's ability to exercise at high altitude. Which of the following pertaining to the Alimentary Canal could be a cause/s of this state of hypoglycemia?
- A. Increased rate of cellular glucose utilization
 - B. increased glycogen stores breakdown in the liver
 - C. impaired glucose absorption in the small intestine
 - D. Both B and C
 - E. All of the above
54. Which of the following is/are an acute response of the digestive system to exercise?
- A. Increase in the secretion of digestive enzymes
 - B. Increase in GI motility
 - C. Decrease in GI motility
 - D. Both A and C
 - E. Both A and B
55. Which of the following are changes that occur in the digestive system when a human goes from a sedentary state to exercising?
- A. Decrease in blood flow to the GI Tract
 - B. Decrease in the secretion of digestive enzymes
 - C. Decrease in GI motility
 - D. Both A and C
 - E. All of the above
56. One of the functions of the liver is to store glycogen and these glycogen stores can be used by the muscles during exercise once the glycogen stores of the muscle are all used up.
- A. True
 - B. False

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Station 11.

57. Hirschsprungs disease is a disorder where the parasympathetic nerves do not function in the distal portion of the large intestine. Based on this fact what might be the resulting symptoms seen in Hirschsprungs disease?
- A. Weight loss due to dietary insufficiency
 - B. Anemia due to dietary insufficiency
 - C. Increased gastrointestinal motility
 - D. Decreased gastrointestinal motility
58. Digestion takes place in a long tube-like canal called the alimentary canal, or the digestive tract. Food travels through these organs in the following order:
- A. Mouth, stomach, small intestine, large intestine, and rectum
 - B. Mouth, esophagus, stomach, large intestine, small intestine and rectum
 - C. Mouth, stomach, esophagus, small intestine, large intestine, and rectum
 - D. Mouth, stomach, large intestine, small intestine, and rectum
59. Which of the following is/are an acute response of the respiratory system to exercise at a high altitude?
- A. Increased resting and submaximal heart rate
 - B. Increased resting and submaximal ventilation
 - C. Increased blood pressure
 - D. Both A and B
 - E. All of the above
60. One of the functions of the liver is to produce more glucose for the muscles during exercise if the glycogen stores of both the muscles and liver run out. The first place the liver looks to make these glucose molecules is from fatty acid stores in the body.
- A. True
 - B. False