



Scientific team

Physiology-RS Quizz 2

1. Which of the following factors increases the resistance of the airways?
 - A. Increasing lung volume above FRC.
 - B. Increased sympathetic stimulation of airway smooth muscle.
 - C. Going to high altitude.
 - D. Alveolar hypercapnia.
 - E. Nitric oxide.
 - F. Atropine.
2. A 30-year-old woman gives birth to a baby girl at only 29 weeks of gestation. Shortly following birth, the baby develops increasing difficulty with breathing and hypoxemia, and requires mechanical ventilation. The respiratory therapist notes that her airway resistance is normal but her compliance is lower than expected. Which of the following factors is likely responsible for respiratory failure in this case?
 - A. Decreased alveolar macrophage activity.
 - B. Decreased alveolar surfactant concentration.
 - C. Increased airway mucus production.
 - D. Alveolar hypoxia.
 - E. Increased airway smooth muscle contraction.
3. When a normal subject develops a spontaneous pneumothorax of his right lung, you would expect the following to occur:
 - A. Right lung contracts.
 - B. Chest wall on the right contracts.
 - C. Diaphragm on the right moves up.
 - D. Alveolar pressure in the right lung becomes sub-atmospheric.
 - E. Blood flow to the right lung increases.
4. In a 58-year-old woman with difficulty breathing, the TLC and FRC are lower than normal and FEV1/FVC is slightly higher than normal. These findings are most consistent with which of the following?
 - A. Decreased pulmonary blood flow.
 - B. Decreased strength of the chest wall muscles.
 - C. Increased airway resistance.
 - D. Increased chest wall elastic recoil.
 - E. Increased lung elastic recoil.
5. The diffusing capacity of the lung for carbon monoxide is increased by:
 - A. Emphysema, which causes loss of pulmonary capillaries.
 - B. Asbestosis, which causes thickening of the blood-gas barrier.
 - C. Pulmonary embolism, which cuts off the blood supply to part of the lung.
 - D. Exercise in a normal subject.
 - E. Severe anemia.



Scientific team

6. All of the following conditions will cause an increase in AaO₂ difference except:

- A. Hypoventilation.
- B. Anatomic shunt.
- C. Physiological shunt.
- D. Low ventilation perfusion.
- E. Thinking of respiratory membrane.

7. Which of the following gases has the highest diffusion coefficient?

- A. O₂.
- B. CO₂.
- C. CO.
- D. Nitrogen.
- E. Helium.

8. Concerning the diffusing capacity of the lung:

- A. It is best measured with carbon monoxide because this gas diffuses very slowly across the blood-gas barrier.
- B. Diffusion limitation of oxygen transfer during exercise is more likely to occur at sea level than at high altitude.
- C. Breathing oxygen reduces the measured diffusing capacity for carbon monoxide compared with air breathing.
- D. It is decreased by exercise.
- E. It is increased in pulmonary fibrosis, which thickens the blood-gas barrier.

9. The partial pressure of O₂ at the end of the pulmonary capillary is approximately:

- A. 160 mmHg.
- B. 150 mmHg.
- C. 105 mmHg.
- D. 45 mmHg.
- E. 40 mmHg.

ANSWERS:

- 1.D
- 2.B
- 3.A
- 4.E
- 5.D
- 6.A
- 7.B
- 8.C
- 9.C