50) If carbon dioxide levels rise in the lungs, then the hydrogen ion levels in the blood?
a. Will drop because additional bicarbonate ions are formed (via carbonic anhydrase), and this is a base that eliminates hydrogen ions.
b. Will rise because carbon dioxide binds to bicarbonate ions.
c. Will rise because the formation of bicarbonate ions also creates hydrogen ions.
d. Will drop because more carbon dioxide will be dissolved in the blood rather than forming carbonic acid.
e. Will remain constant.

Answer C

13) Which of the following is NOT describing the pulmonary circulation?
a. If you reduce the capillaries pressure below the alveolar pressure; the capillaries would be compressed
b. The pressure of the extra alveolar vessels affected by the tension of the lung parenchyma
c. Pulmonary vascular resistance is affected by upstream and downstream pressure
d. Increase the arterial or venous pressure one at a time would increase the pulmonary vascular resistance because of capillary recruitment and distension
e. Increase or decrease the lung volume would increase the pulmonary vascular resistance so we tend to breath at minimum pulmonary vascular resistance

Answer: D → Pulmonary Vascular resistance doesn't increase with the increase of Venous or Arterial Pressure

Extra notes: PVR could be affected by:
- Pulmonary hypertension
- Obstructive and Restrictive lung diseases
- Left sided HF + Pulmonary edema

59) CO2, choose the wrong statement?
a. About 10% of the CO2 in our blood is simply dissolves in plasma
b. The carbonic anhydrase of the RBC combine C02 and H2O to form H2CO3
c. Increase in pCO2 causes a left shift to Hb-02 dissociation curve meaning additional O2 can suppl the tissue
d. About 20% of CO2 is transported as carbamino hemoglobin
e. Respiratory acidosis may occur when there is retention of C02

Answer: C ("shift to the Right")

5) The Alveolar - arterial oxygen (A—a P02) gradient?

a. Is normally about 5 kPa (39.5 mmHg) in a young person
b. Is increased by hypoventilation
c. is usually increased by either right-to-left shunts or ventilation-perfusion mismatching.
d. Oxygen therapy can significantly improve oxygen saturation of the blood emerging from regions with a low ventilation-perfusion ratio
e. Is within normal range in case of pulmonary infarction

6) One of the following matched pairs is NOT TRUE?

a. External intercostals and diaphragm- Quit Inspiration
b. Intrapleural pressure minus 7mmHg- Forced inspiration
c. Sternocloidmastoid and scalenes- Quit Expiration

5) C ⟹ طون بده متى يكون الفرق بين كمية الـ O_2 بالـ alveoli و الـ Arteries يكون الأعلى ؟ وفي حالة الـ Right to left بيدخل Venous deoxygenated blood على الـ Arterial blood وبالتالي بصير $Alveolar\ PO_2 > APO_2$ بكثير

6) C

8) Regarding ventilation / perfusion (V/Q) relationships, which statement is INCORRECT?

a. V/Q ratio is greatest at the lung apex
b. V/Q ratio is about one at level of third rib when upright
c. Ventilation decreases proportionately more than perfusion from base to apex
d. V/Q ratio for whole lung at rest is about 0.8
e. Exercise increases the V/Q ratio

Answer: C → Perfusion decreases more

14) Respiratory peripheral chemoreceptors ?
a. Carotid bodies respond to P02, PC02, and pH .
b. Peripheral chemoreceptor response to arterial PCOZ is more important than central chemoreceptor response.
c. Aortic bodies are located within the aortic valve ring.
d. Drop in PO2 &lt: 100 mmHg causes increase in firing rate.
e. Carotid bodies respond to venous P02.

Answer : A

47) Hering-breuer inflation reflex?
a. Generated by pulmonary irritant receptors located in bronchioles and bronchi.
b. signals from these receptors travel via the vagus nerve to the respiratory center.
c. Causes stimulation of inspiration.
d. Active during normal quiet breathing.
e. stimulated by alveolar inflammation, pulmonary congestion and lung deflation.

Answer : B

- irritant → sneezing
- causes expiration
- Active when > 1,5 L
- stimulated with lung inflation

30) By comparing the dynamic pulmonary fluid exchange with peripheral one?
a. Pulmonary capillary pressure is equal with capillary pressure in the peripheral tissues that is about 17mmHg
b. Interstitial lung fluid pressure is slightly negative than that in peripheral tissues
c. Pulmonary capillaries are more permeable to protein so colloidal osmotic pressure is about 14mmHg with less than half this value in peripheral tissues
d. The alveolar walls are extremely thin, which allows dumping of fluid from the interstitial spaces into the alveoli
e. The excess fluid is carried away through the lymphatics and absorbed by capillaries in pulmonary circulation

Answer : B

35) Which of the following is NOT TRUE regarding a patient has a pneumonia with PO2 =75mmHg and O2 sat=88% and PCO2=55mmHg?

a. Right shift oxyheamoglobin dissociation curve
b. Oxygen delivery to body tissue is very good
c. Acidosis
d. Very emergency case and need immediate ventilation
e. Although the patient is hypoxic the body tissue is not

بالأول عطول E بس شخصياً بشوف B أصح.

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38) Regarding control of ventilation ?

a. The inspiratory area is in the lower pons ✗
b. Normal respiration will not occur without the pneumotaxic center ✓
c. Central chemoreceptors respond less rapidly to changes in plasma pCO2 than the peripheral chemoreceptors ✓
d. Peripheral chemoreceptors respond to P02 changes only. ✗
e. The apneustic center allows rapid transition between inspiration and expiration. ✗

Answer : B

77) To Increase the thoracic cavity and keep Intrapleural pressure negative, all the followings are correct EXCEPT?

a. Elasticity of the lung
b. Surface tension
c. Elasticity of the chest wall
d. Lymphatic drainage
e. Gravity

Answer : E

66) The binding of O2 to haemoglobin in humans is favoured by?

a. The carbamino reaction
b. High altitude adaptation
c. High pH
d. High C02 concentration
e. High BPG concentration

Answer : C

68) With regard to control of ventilation?

a. Impulse from pneumotaxic center may reduce inspiratory phase
b. Apneustic center is in the medulla
c. The pontine respiratory center is responsible for intrinsic respiratory rhythm
d. The expiratory area is active during normal breathing
e. Firing of the carotid body chemoreceptor respond most to changes in pCO2.

Answer : A

72) In a person with ventilation-perfusion mismatching?

a. Regions with ventilation-perfusion ratios of 0.3 are dead-space effect regions
b. Regions with low ventilation-perfusion ratios are the main cause of hypoxia in a patient withsevere pneumonia
c. Regions with low ventilation-perfusion ratios causes arterial hypercapnea and hypoxemia.
d. ARDS is an example of dead space effect.
e. Oxygen therapy can not improve hypoxemia in dead-space effect regions.

Answer : C

- Dead space يعتبر V/Q 0,3
- السبب الرئيسي لل Hypoxia هو ال inflamation
- ARDS بوضح inflamation
-

45) The peripheral chemoreceptors?

a. Are located in the pulmonary artery and aortic arch
b. Are responsible for 80% of the ventilatory response to increased Pco2
c. Respond to changes in arterial pH
d. Contain type II cells which detect hypoxia
e. Have low blood flow

Answer: C

52) Ventilation & perfusion relationships vary in the upright lung?

a. ventilation is greater at apex than base
b. perfusion is greater at apex than base
c. V/Q approaches unity at apex
d. V/Q is more than 3 times greater at apex than base
e. V/Q is greater at base of lung than apex

Answer: D ⇒ 5 times greater

47) Regarding the cough reflex which is INCORRECT?

a. It is complex, involving the central and peripheral nervous systems as well as the smooth muscle of the bronchial tree.
b. Chemical or mechanical irritation of the epithelium within bronchial mucosa stimulates cough receptors .
c. Cough receptors are also present in pericardium,oesophagus and stomach.
d. Diaphragmatic weakness may cause impaired cough reflex.
e. Afferent conduction from cough receptors occurs via the glossopharyngeal nerve to centers within the medulla

Answer: e

21) Which of the following is NOT CONSISTENT with respiratory system under stress in high attitudes?

a. Increases production of 2, 3-Diphosphoglycerate
b. Right shift of oxyhemoglobin dissociation cure
c. At very high attitude left shift of oxyhemoglobin dissociation curve could happen due to increase pH
d. Respiratory alkalosis
e. Increase PA02 due to hyperventilation

Answer : C ⟹ Right not left

22) With regard to pulmonary function?

a. Restrictive lung disease: FEVI decrease less than FVC
b. In reversible airway obstruction: Post- bronchodilator FEVI % change decreases less than 12%
c. In normal lung. FEVI / FVC less than 70%
d. Obstructive lung disease: FEVI/ FVC more than 70%
e. Functional residual capacity (FRC) can be measured by spirometry.

Answer : A

$\frac{FEV_1}{FVC}$ مرات بكون الـ

بالـ Restrictive أكبر من 80%

11) Volumes and flows in the lung?

a. The ventilation rate is approximately7500ml/min

b. The ventilation rate is approximately 5250ml/min

c. The volume reaching the blood gas per a minute on the gas side and the blood side is different

d. The volume of alveolar gas and the volume of blood capillary at any instant in time is the same

e. The fact is that the ratio of ventilation to pulmonary blood flow is more than one

Answer : A

Ventilation Rate = RMV = Tv x RR

= 0,500L x 15 breath/min

= 7,5 L

4) By comparing between pulmonary and systemic circulation, which of the following is NOT TRUE?

a. Pulmonary vascular resistance is 1/10 of Systemic vascular resistance

b. The right ventricle receives mixed venous blood and pumps it through the pulmonic valve, which marks the beginning of the pulmonary circulation

c. Pulmonary capillary blood flows in thin sheets, as opposed to the distinctly tubular flow in systemic capillaries

d. The thin walls of pulmonary vessels and vast area of the capillary bed make the pulmonary vasculature highly distensible compared with the systemic vasculature

e. The diffusion distance between air and blood in pulmonary circulation is ten times of the diffusion distance that exists between systemic capillaries and tissue cells

Answer : E

بالتوفيق جميعاً

Archive

“Pulmonary Ventilation “

1) IPP become positive in all of the following except:

A)valsalva's manouver
B)haemo-thorax
C)tention pneumothorax
D)muller'manouver

Answer: D

2) the cause of the negativity of the intraplural pressure is?

A)the pressure inside the alveoli during respiratory cycle
B)dynamic harmonious antagonism between the chest wall and the lung
C) two different forces between parietal layer which lines the thorax and visceral layer which covers the lungs

Answer: B

3)All the factors would affect the intra pleural pressure EXCEPT?

a)Elasticity of the chest wall
b)Airways generation
C)lymphatic drainage

Answer: B

“Pulmonary circulation “

4) all of the following are edema safety factors except:

A)high pulmonary capillary hydrostatic pressure
B)presence of the surfactant
C)negative (ISF)
D)high osmotic pressure of the plasma proteins

Answer: A

5)which one of the following Keeps the alveoli dry?

A-positive ISF
B-high plasma colloid osmotic pressure
C-high pulmonary capillary pressure

Answer: B

“O2-Hb dissociation curve,shift &significance “

6) all of the following cause shifting the O2 dissociation curve to the right except:

A)decrease O2
B)increase temperature (fever)
C) acidosis
D)pregnancy
E) fetal hemoglobin

Answer: E

7)At onest of exercise ,what is the stimulation of respiration?

A)increase Co2&H+
B)increase temperature of blood
C)impulse from proprioceptors
D)decrease O2

Answer: C

All the following exert non-chemical influence on respiration except

(A) Hypercapnia.
B)Pain sensation through the hypothalamus
C)Proprioceptors.
D)Irritation of the air passages in coughing

Answer: A

The Hering-Breuer reflexes originate from the :
(A) Chemoreceptors in the lungs.
(C) Baroreceptors.
(E) Carotid and aortic bodies.
(B) Hypothalamus.
(D) Mechanoreceptors in the lungs

D

Concerning the Cheyne-Stokes respiration :
(A) During hyperventilation. the PO, is lowered and PCO is elevated
B)It never occurs normallv.
C)It is a type of periodic (interrupted) breathing.
D)During apnea, the PCO, is decreased and PO, is elevated.
E)The hypoxia resulting from apnea stimulates the central chemoreceptors.
Answer: C

1)The pleural pressure of a normal 56year old woman is approximately -5 (cm H2O) during resting conditions what is the pleural pressure during inspiration?

A)+1
B)+4
C)0
D)-7***

2)The alveolar pressure of a normal 77year old man is 1cm H2O during expiration . What is the alveolar pressure during inspiration ?
A)+0.5
B)-1**
C)-5
D)+1

A patient has a dead space of 150 ml, functional residual capacity of 3L, tidal volume of 650 ml, expiratory reseve volume of 1.5 L, what is the residual volume?
A)500ml
B)1500ml**
C)6500ml
D)1000ml

At the end of inhalation , with an open glottis , the pleural pressure is:
A) greater than atomospheric pressure
B) greater than alveolar pressure
C) less than alveolar pressure**
D) equal to alveolar pressure