

Respiratory Physiology Crossword Puzzle

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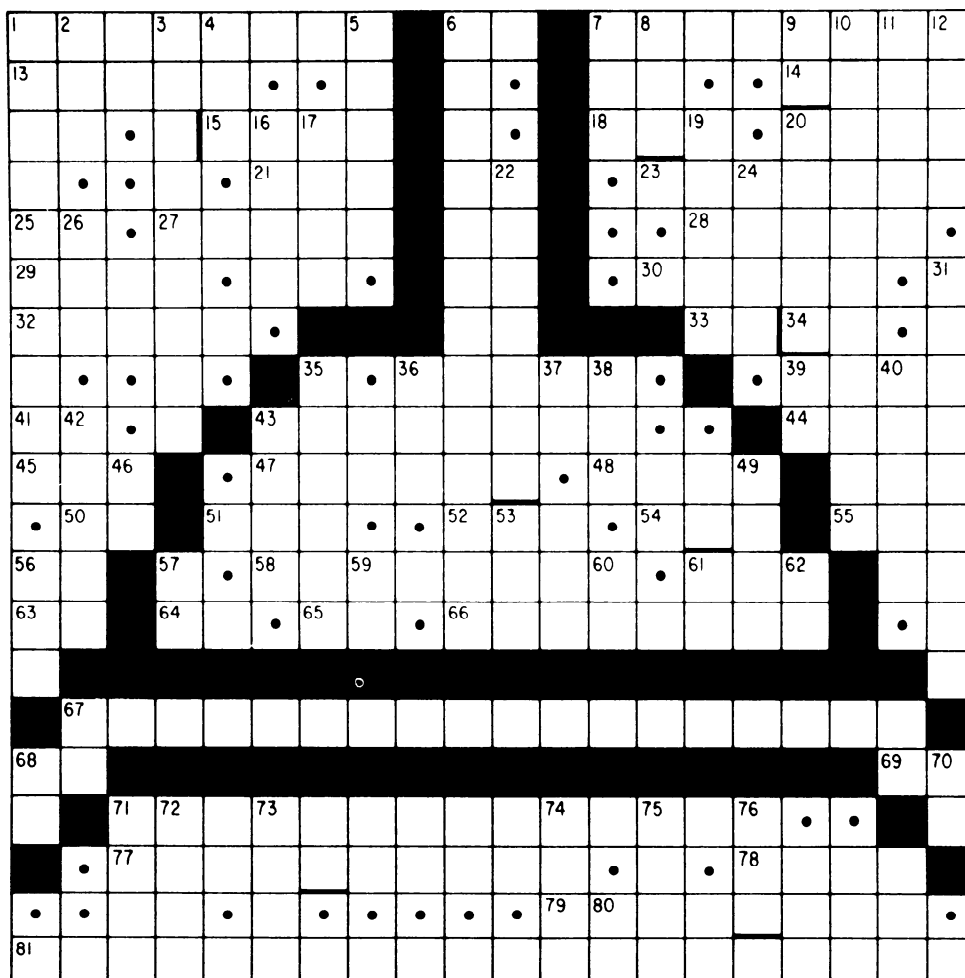
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This puzzle has been used on several occasions to enliven the first-year physiology course for medical and graduate students at UCSD. The puzzle has been given out every 2-3 years to ensure that the answers are forgotten in the meantime. This year the first correct answer was returned in 3 hours (during one of which the student was ostensibly listening to a lecture on the pulmonary circulation).

Some may quibble at 67 across – “dipalmitoylecithin” – because this is sometimes spelled “dipalmitoyllecithin.” An alternative answer would be “mucopolysaccharide” with the clue: component of bronchial mucus. The lack of a “down” clue here makes this more sporting.



ACROSS

1. He gave one of the first descriptions of the pulmonary circulation and was later burned at the stake.
6. Gas used to measure the diffusing capacity of the lungs.
7. He first described the pulmonary capillaries.
13. ventilation always causes a rise in arterial P_{CO_2} .
14. Double
15. Teacher
18. Taxi
20. Can be used for gas exchange underwater.
21. Boy's name
23. Small lung units
25. Aluminum
27. The O_2 dissociation curve shifted to the right by increase in pH.
28. These animals have a dramatic fall in heart rate when they dive.
29. This component of blood contains most of the carbonic anhydrase.
30. This desert donkey tolerates dehydration very well.
32. Normal inspired volume.
33. Northern territory (abbr.).
34. Abbreviation for condition caused by withdrawal of a drug.
36. These remove deposited dust from the airways.
39. Italian money
41. Northwest (abbr.).
43. Smallest air space in the lung.
44. Girl's name
45. Article
47. This diving beetle carries its own scuba equipment.
48. This organ is used for gas exchange by some amphibia.
50. Astatine
51. Unit of electron energy
52. An important creditor
54. Type of bread
55. Depression
56. Unit of volume
58. Gas remaining after a maximal expiration.
61. Blood flow is least in this part of the lung.
63. That is (abbr.)
64. Supported by
65. Or (invert.)
66. This animal has no pleural cavity.
67. Thought to be a constituent of surfactant.
68. Component of psyche
69. Ungulate
71. These respond to oxygen lack.
77. This property of the airways increases at low lung volumes.
78. Famous whaling captain
79. Commonest cause of an increase in ventilation.
81. This ratio is important for pulmonary gas exchange.

DOWN

1. Important factor in promoting alveolar stability.
2. . . . tidal P_{CO_2} is close to the arterial P_{CO_2} .
3. To inspire and expire.
4. Metric unit of work.
5. The only cause of hypoxemia not corrected by 100% inspired oxygen.
6. The body has very large stores of this gas.
7. Test of ventilatory capacity.
8. These diving women have a remarkable breath-holding ability and resistance to cold.
9. Psychiatric term
10. The fate of the discoverer of oxygen
11. Eighteenth century English vicar who measured blood pressure in the horse; also the size of the alveoli.
12. Maladies
16. Vessels
17. Effect of CO_2 on the O_2 dissociation curve of fish.
19. Ship's officer
20. Security agent
22. Seen in cells that secrete surfactant.
24. Father of hyperbaric physiology.
26. Flower necklace
31. It takes no part in gas exchange
35. Gregarious wading bird
37. Measure of drug potency (abbr.)
38. Fool
40. Not compliant
42. This mammal holds the record for breathholding.
43. Maple family
46. End tidal (abbr.)
49. Inert gas
53. One of the lobes of the lung (abbr.)
56. Middle
57. If the P_{CO_2} of the blood is doubled, does the pH halve?
59. Therefore
60. 33-1/3 rpm
62. Precious metal
68. Which direction with respect to the red cells does chloride move when CO_2 is taken up by the blood.
70. Radioactive gas used for measuring distribution of ventilation and bloodflow.
71. Type of berry
72. This moves the oxygen dissociation curve to the right.
73. For grinding
74. Furtive glance
75. . . . ventilation can cause tetany.
76. Blindly ending alveolar duct
80. Noble gas

Answer on following page.

