

Ruppel's Manual of Pulmonary Function Testing 11th Edition Test Bank

1. Chapter 01-01

Who first popularized spirometry for the evaluation of pulmonary function?

- a. August and Marie Krogh
- b. Alvan Barach
- c. John Severinghaus
- *d. John Hutchinson

2. Chapter 01-02

Which of the following are indications for performing spirometry?

- 1. Assess the risk of lung resection.
 - 2. Determine the response to bronchodilator therapy.
 - 3. Assess the severity of restrictive lung disease.
 - 4. Quantify the extent of COPD.
- a. 1 and 4
 - b. 2 and 3
 - *c. 1, 2, and 4
 - d. 2, 3, and 4

3. Chapter 01-03

The main indication for the measurement of lung volumes is to do which of the following?

- *a. Diagnose or assess the severity of restriction.
- b. Evaluate the severity of pulmonary hypertension.
- c. Determine the level of cardiopulmonary fitness.
- d. Assess the risk of abdominal surgical procedures.

4. Chapter 01-04

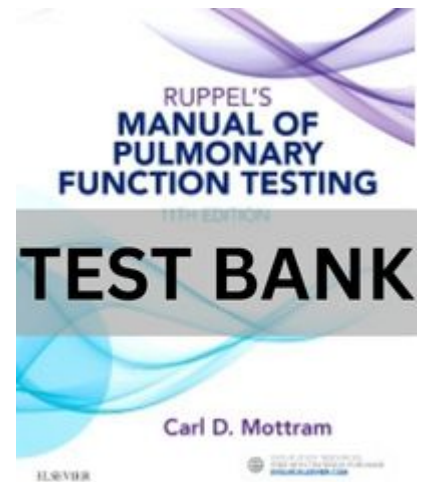
DLCO measurements may be indicated to evaluate pulmonary involvement in which of the following systemic diseases?

- a. Asthma
- *b. Sarcoidosis
- c. Exertional hypoxemia
- d. Guillain-Barré syndrome

5. Chapter 01-05

Blood gas analysis is used with patients with COPD to do which of the following?

- a. Monitor airway responsiveness.
- b. Determine level of cardiopulmonary fitness.
- c. Detect pulmonary hypertension.
- *d. Assess need for supplementary O₂.



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6. Chapter 01-06

Which of the following cause emphysema?

1. α_1 -Antitrypsin deficiency
 2. Exposure to environmental pollutants
 3. Radiation therapy
 4. Cigarette smoking
- a. 1 and 2
 - b. 3 and 4
 - *c. 1, 2, and 4
 - d. 2, 3, and 4

7. Chapter 01-07

An adult patient complains of chest tightness and cough whenever he jogs in cold weather. These symptoms are consistent with which of the following?

- a. Cystic fibrosis
- *b. Asthma
- c. Pulmonary hypertension
- d. Idiopathic pulmonary fibrosis

8. Chapter 01-08

Which of the following statements concerning tumors in the upper airway is true?

- *a. There may be variable or fixed obstruction.
- b. Fixed obstruction will be present.
- c. Variable obstruction will be present.
- d. Small airway obstruction will result.

9. Chapter 01-09

Sarcoidosis is a systemic disorder that usually causes which of the following?

- *a. A restrictive ventilatory defect
- b. An obstructive ventilatory defect
- c. Hyperreactive airways
- d. Primary pulmonary hypertension

10. Chapter 01-10

For which of the following conditions might pulmonary function testing be contraindicated?

- a. Vocal cord dysfunction
- *b. Untreated pneumothorax
- c. Congestive heart failure (CHF)
- d. Bronchiolitis obliterans

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11. Chapter 01-11

Which of the following correctly describes appropriate physical measurements before pulmonary function testing?

1. Actual body weight should be used to calculate predicted values.
2. Standing height should be measured when the patient is barefoot.
3. Arm span should be used instead of height for a patient with kyphosis.
4. Age should be recorded to the nearest decade (10 years).

- a. 1 and 4
- *b. 2 and 3
- c. 1, 2, and 4
- d. 2, 3, and 4

12. Chapter 01-12

In addition to explaining the procedure for each pulmonary function test to the patient, the pulmonary function technologist should do which of the following?

- a. Briefly explain the physiologic basis of the test.
- *b. Demonstrate the correct performance of the test maneuver.
- c. Limit feedback to the patient to reduce the placebo effect.
- d. Explain the exact number of efforts that will be required for each test.

13. Chapter 01-13

The single-breath diffusing capacity test was first described by

- a. John Severinghaus.
- *b. August and Marie Krogh.
- c. Robert Hyatt.
- d. Leland Clark.

14. Chapter 01-14

DLCO measurements may be indicated to evaluate gas exchange abnormality in which of the following?

- a. Ketoacidosis
- b. Myasthenia gravis
- *c. Interstitial lung disease
- d. Bronchitis

15. Chapter 01-15

Vocal cord dysfunction will typically affect the flow-volume loop in what way?

- a. Blunt the expiratory portion of the curve
- b. Blunt both the inspiratory and expiratory portions of the curve
- *c. Blunt the inspiratory portion of the curve
- d. Have no effect on the curve but cause inspiratory stridor

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16. Chapter 01-16

All of the following disease processes are potential causes of a restrictive pattern except

- a. interstitial lung disease (e.g., fibrosis, sarcoidosis).
- b. kyphoscoliosis.
- *c. asthma.
- d. neuromuscular disorders.

17. Chapter 01-17

The following data are obtained from a subject complaining of shortness of breath:

	Predicted	Found	% Pred
TLCpl	5.76	3.18	55
RVpl	2.38	1.18	50
FVC	3.38	2.10	62
FEV ₁	2.63	1.88	71
FEV ₁ /FVC	78	89	
DLCO	23.1	6.0	26

These data are most consistent with which disease entity?

- *a. Pulmonary fibrosis
- b. Kyphoscoliosis
- c. Obesity
- d. Emphysema

18. Chapter 01-18

Lou Gehrig, a famous New York Yankee baseball player, is often associated with which neuromuscular disease?

- *a. Amyotrophic lateral sclerosis
- b. Guillain-Barré syndrome
- c. Diaphragm paralysis syndrome
- d. Myasthenia gravis

19. Chapter 01-19

The following data are obtained from a subject complaining of shortness of breath:

	Predicted	Found	% Pre d
TLCpl	6.59	4.12	63
RVpl	2.43	3.01	124
FVC	4.16	1.14	28
FEV ₁	3.16	1.16	37
FEV ₁ /FVC	76	99	
MEP	+190	63	33

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MIP	?2-101	?2-56	55
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These data are most consistent with which disease entity?

- a. Obesity
- b. Pectus excavatum
- c. Pulmonary fibrosis
- *d. Myasthenia gravis

20. Chapter 01-20

Which of the following pulmonary function tests may be used to follow the effect of treatment for congestive heart failure?

- 1. Lung volumes
- 2. Arterial blood gases
- 3. Diffusing capacity
- 4. Maximal respiratory pressures

- a. 1 and 2
- b. 3 and 4
- *c. 1, 2, and 3
- d. 2, 3, and 4

21. Chapter 01-21

Which of the following anthropometric measurements are essential for pulmonary function testing?

- 1. Height
- 2. Percent body fat
- 3. Gender
- 4. Age

- a. 1 and 2
- b. 3 and 4
- c. 1, 2, and 3
- *d. 1, 3, and 4

22. Chapter 01-22

There are three essential components to an FVC maneuver. Which of the following is the first phase of the maneuver?

- *a. A deep breath to TLC
- b. Continued exhalation to RV
- c. The initial blast of inspiratory breath after emptying the lungs fully
- d. A directed cough

23. Chapter 01-23

Which of the following pulmonary function tests are categories that fall under the forced vital capacity maneuver?

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1. FVC
2. VTG
3. FEF
4. PEF

- a. 1 and 2
- b. 3 and 4
- c. 1, 2, and 3
- *d. 1, 3, and 4

25. Chapter 01-25

Who is credited with first describing the flow-volume curve?

- *a. Hyatt
- b. Hutchinson
- c. Tiffeneau
- d. Fowler

26. Chapter 01-26

Which of the following is an indication for a cardiopulmonary exercise test?

- a. Vocal cord dysfunction
- *b. Pulmonary rehabilitation prescription
- c. Exercise-induced asthma
- d. Undefined cough

27. Chapter 01-27

A patient with cystic fibrosis may present with an increased

- *a. FRCpl and RV/TLC ratio.
- b. FVC and FEV₁.
- c. VA and DLCO.
- d. MIP and MEP.

28. Chapter 01-28

Technologist-driven protocols allow a selection of tests related to the

- a. diagnosis.
- *b. clinical question asked.
- c. physician interpretation.
- d. work of breathing.

29. Chapter 01-29

According to the ATS-ERS recommendations, which of the following activities should be avoided before testing lung function?

1. Smoking within 1 hour of testing

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2. Vigorous exercise 30 minutes before testing
3. Eating a large meal 2 hours before testing
4. Consuming alcohol within 24 hours of testing

- a. 1, 3, and 4
- b. 1 and 4
- c. 2, 3, and 4
- *d. 1, 2, and 3

30. Chapter 01-30

Which measurement is used to detect disorders that affect metabolism in critically ill patients?

- a. Basal metabolic rate
- *b. Resting energy expenditure
- c. 6-minute walk test
- d. Plotting oxygen consumption

31. Chapter 01-31

Which of the following tests may be helpful in distinguishing between emphysema and chronic bronchitis?

- a. FVC
- b. FEV₁/FVC
- c. 6-minute walk test
- *d. DLCO

1. Chapter 02-01

A subject who complains of shortness of breath has an FVC of 2.57 L, but her VC is 2.99 L. These findings suggest which of the following?

- a. Pulmonary fibrosis
- b. Chest wall abnormality
- *c. Emphysema
- d. Fixed upper airway obstruction

2. Chapter 02-02

A 47-year-old man with a history of cough has the following spirometry results:

	Measured	Predicted
FVC (L BTPS)	3.85	4.01
FEV ₁ (L BTPS)	2.14	3.33

These findings show the presence of which of the following?

- a. Reversible airway obstruction

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- *b. Moderate obstructive disease
- c. Normal lung function
- d. Incorrectly selected predicted values

3. Chapter 02-03

A 22-year-old patient with dyspnea performs three spirometry trials.

	Trial 1	Trial 2	Trial 3
FVC (L BTPS)	4.21	4.49	4.65
FEV ₁ (L BTPS)	3.88	3.91	3.93

The pulmonary function technologist should do which of the following?

- a. Report the values from trial 3.
- b. Report the largest sum of FVC and FEV₁.
- c. Average the data from trials 2 and 3.
- *d. Perform at least one more maneuver.

4. Chapter 02-04

Why should all values from a series of peak flow measurements be reported?

- *a. PEF may decrease with repeated efforts.
- b. A minimum of three values must be averaged.
- c. Peak flowmeters do not need to be precise.
- d. Forced exhalation produces a bronchodilator effect.

5. Chapter 02-05

Which of the following determines the shape of the “effort-independent” portion of the expiratory F-V curve?

1. Abdominal pressure during forced expiration
2. Elastic recoil of the lung
3. Flow resistance in the small airways
4. Cross-sectional area of the trachea

- a. 1 and 2
- *b. 2 and 3
- c. 1, 3, and 4
- d. 2, 3, and 4

6. Chapter 02-06

A patient being evaluated for disability has the following spirometry results:

	Measured	Predicted
FVC (L)	4.00	4.10
FEV ₁ (L)	2.00	3.30

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MVV (L/min)	105	110
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What do these findings indicate?

- *a. The patient has moderate obstructive disease.
- b. The patient has restriction.
- c. The patient's FEV₁ is larger than measured.
- d. The patient did not make a good effort on the MVV.

7. Chapter 02-07

Before bronchodilator studies, inhaled β -adrenergic agents should be withheld for how long?

- a. 0.5 to 1.5 hours unless corticosteroids are being used
- *b. 4 to 12 hours for regular or long-acting preparations
- c. 24 hours for most inhalers
- d. 24 to 48 hours

8. Chapter 02-08

Which answer is consistent with the following flow-volume curve?

