Self Assessment – Module D

1. Which obstructive lung disease most likely will have a diffusion defect? **EMPHYSEMA**

2. Which lung volume/capacity is the only one obtained during a bedside PFT? **VITAL CAPACITY (FORCED)**

3. How would you calculate the normal $FEV_{0.5}$, FEV_1, FEV_2, & FEV_3 for a normal 70 kg young male patient? **PREDICTED VALUES ARE OBTAINED FROM THE PATIENT'S HEIGHT, AGE, AND SEX.**

4. Name the three tests used to measure the indirect lung volumes (RV, TLC, FRC). Which one is more accurate in COPD? **HELIUM DILUTION (CLOSED CIRCUIT) , NITROGEN WASHOUT (OPEN CIRCUIT), BODY PLETHYSMOGRAPHY (BODY BOX). BODY PLETHYSMOGRAPHY WILL BE THE MOST ACCURATE IN COPD.**

5. When the Slow vital capacity (SVC) = the Forced vital capacity (FVC) but both values are decreased, the patient has
   A. Obstructive disease
   B. Restrictive disease
   C. Normal lung function

6. How is % predicted calculated? **ACTUAL VALUE ÷ PREDICTED VALUE × 100%**

7. In restrictive lung disease, the patients flow rates may be normal or decreased.
   A. True B. False

8. How is the $FEV_{T\%}$ ($FEV_{0.5}$%, FEV_1%, FEV_2%, FEV_3%) affected in obstructive and restrictive disease?

   A. Obstructive disease **REDUCED**
   B. Restrictive disease **NORMAL OR INCREASED**

9. Given a RV 1000 mL, TLC 5700 mL, FRC 2400 mL, IRV 2700 mL, calculate the following:

   10. VC **= TLC – RV = 5,700 mL – 1,000 mL = 4,700 mL**

   11. IC **= TLC – FRC = 5,700 mL – 2,400 mL = 3,300 mL**

   12. ERV **= FRC – RV = 2,400 – 1,000 mL = 1,400 mL**

   13. TV **= TLC – FRC – IRV = 5,700 mL – 2,400 mL – 2,700 mL = 600 mL**

14. List the normal values for the following flows (assume a healthy young male patient):

A. $FEF_{200-1200}$ **8 L/sec (480 L/min)**
B. $FEF_{25-75\%}$ **4.5 L/sec (270 L/min)**
C. PEFR **10 L/sec (600 L/min)**
D. MVV **170 L/min**

15. Which part of the forced vital capacity is effort dependent? **The first 30% of the maneuver**

16. Which gas is used to measure the DLCO? **Carbon Monoxide**

17. Why is this gas used? **Very high affinity for hemoglobin. In patient's with normal hemoglobin and ventilatory function, the only limiting factor is the diffusing capacity.**

18. Obstructive lung disease patients have a long expiratory time.
A. True B. False

19. Fill in the blanks & interpret the following PFT

Test	Predicted	Actual	% Predicted
FVC	4.67 L	4.0 L	**85.7%**
FEV1	3.52 L	1.23 L	**34.9%**
FEV1%	**75.3%**	31%	**41.2%**

INTERPRETATION: **Obstructive Disease**

1. In restrictive lung diseases, lung volumes are
A. Increased B. Decreased C. Normal

2. How would you instruct a patient to perform the following maneuvers?

A. Forced vital capacity: **Take a deep breath in, as deep as you can, and then blow it as hard and fast as you can until you can't blow out any more.**

B. Slow vital capacity: **Take a deep breath in, as deep as you can, and then blow it out slowly until you can't blow out any more.**

C. Peak Flowrate: **Take a deep breath in, as deep as you can, and then blow it as hard and fast as you can.**

3. The amount of air remaining in the lungs after a maximal exhalation is called the **RESIDUAL VOLUME**.

4. The volume of air normally moved into or out of the lungs in one quiet breath is called **TIDAL VOLUME**.

5. The maximum volume of air that can in inhaled after a normal exhalation is called **INSPIRATORY CAPACITY**.

6. The volume of air remaining in the lungs after a normal exhalation is called the **FUNCTIONAL RESIDUAL CAPACITY**.

7. The maximum volume of air that can be exhaled after a normal tidal volume exhalation is called the **EXPIRATORY RESERVE VOLUME**.

8. Draw a picture of a normal flow-volume loop and label the loop with the following: VC, PIFR, PEFR, FEF_{25}, FEF_{50}, FEF_{75}, FIF_{25}, FIF_{50}, FIF_{75}