

## Gas Exchange Video Reflection

While watching the tuberculosis YouTube video, I began learning almost immediately. I was not aware that tuberculosis can spread from the lungs and infect other organs in the body such as the kidney, bones, and brain. Tuberculosis travels to these other organs via lymph nodes or through the bloodstream. Something I found quite interesting while watching is that the infection is not caused in the body by large particles. The infection is caused by small particles that implant themselves in the subpleural spaces of the lungs. Another topic of the video that caught my attention was the conversation had about the inactive, or latent, form of tuberculosis because I didn't know there was such a thing. This form does not transmit bacteria, which means that individuals with inactive tuberculosis are not contagious. Those with inactive tuberculosis have healthy immune systems that fight the bacteria; however, the disease can grow at any given time.

Moving onto the next video, I started with learning that chronic obstructive pulmonary disease is the fourth leading cause of death in the United States. Half of the individuals in the US that have COPD exhibit symptoms without even knowing. I found it interesting that genetics can, in certain circumstances, play a role in whether or not that individual will develop COPD. The primary cause of developing COPD is by smoking or second-hand smoking; however, that is not the only way to inherit this disease. When diagnosing individuals with COPD, an arterial blood gas test can be taken. An ABG is simply measuring the level of oxygen in the blood. Another discussion that caught my attention was that emphysema is a type of COPD. The most damage is caused to the alveolar walls which then decreases the amount of gaseous exchange in the lungs.

I've always known what sleep apnea is but not how it is caused. Sleep apnea is caused by an obstruction in the airway, which is usually fat tissue stored where the base of the tongue lies. When asleep, people's tongues tend to fall backwards because the muscles holding it in place are asleep. This causes the tongue to press against that fatty tissue. The fatty tissue is floppy and not structured because like the tongue, the muscles helping it stay constricted when awake are sleeping at this time. Therefore, the tongue pressing against this tissue causes the tissue to droop downward into the airway, thus causing an obstruction.

An increased risk for sleep apnea that I found interesting is being in REM sleep. REM sleep is rapid eye movement sleep, which is the state of sleep when the body is dreaming. While in REM sleep, the body is paralyzed. The reason for this is that if the body weren't paralyzed, we would be acting out our dreams while sleeping. Due to the body paralysis, all muscles are also paralyzed which again can lead to airway obstruction. Men are also at high risk for sleep apnea for a number of reasons; however, there was one reason in particular that I found quite interesting. Men are more prone than women to store fat in their neck which can lead to an increased chance of developing sleep apnea.

The beginning of the pneumonia video talked about the lung function which created a picture that is so much clearer for me to understand. The alveoli work like balloons, they inflate with inspiration and deflate with expiration. I always wondered how CO<sub>2</sub> got from the lungs to the heart eventually; I knew it was due to circulation of blood but I didn't know how the process happened until watching this video. The alveoli and capillary walls are permeable; therefore, the alveoli collects CO<sub>2</sub> from the capillaries and the capillaries collect O<sub>2</sub> from the alveoli to provide oxygenated blood to the heart so it can be pumped to the rest of the body. These alveoli can become inflamed due to bacteria, such as pneumonia, getting past the mucosal layer of the lungs. The inflammation causes the alveoli to fill with fluid which decreases the effectiveness of

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breathing. There can be different types of pneumonia, such as lobar and broncho. Bronchopneumonia is pneumonia that has affected many lobes or areas of the lungs while lobar pneumonia just effects one lobe of whichever lung is affected.

The chest tube video covered a lot of what was taught during lecture, so it was more of a review than anything. I did learn that the lungs function using negative pressure and when fluid gets into the pleural space, that negative pressure is compromised. Therefore, a chest tube is placed to get rid of this fluid to restore negative pressure. Along with chest tubes being placed in the pleural space of the lung, there is also a mediastinal chest tube which is placed in the space surrounding the mediastinum. This chest tube is sometimes needed after cardiac surgery to remove fluid that has collected around the heart.