

Thought Lab 7.2: You Diagnose It Answer Key

Answers to Analysis Questions

1. Patient A likely has asthma. Asthma is a chronic obstructive lung disease that affects the bronchi and bronchioles. Individuals with asthma are extremely sensitive to some triggers, which can cause the muscles around the bronchioles to react and constrict, making breathing difficult or impossible because of reduced air flow. It is also seasonal, which eliminates a number of other disorders.

Patient B likely has emphysema. Emphysema is an obstructive respiratory disorder, where the walls of the alveoli break down and lose their elasticity. This reduces the surface area for gas exchange, and causes oxygen shortages in the tissues. Exhaling becomes difficult because of the loss of elasticity in the tissues, so breathing is laboured. People with emphysema will also be tired because of the lack of oxygen.

2. Both patients would have to undergo a series of tests such as respiratory volume tests, blood tests, and chest X-rays. These tests would confirm or reject the doctor's initial diagnosis.
3. Patient A:
 - The triggers of asthma are varied but include pollen, dust, cigarette smoke, air pollution, and many other irritants. Avoiding these triggers may help to reduce the chances of an asthma attack.
 - Asthma can be managed but not cured. Most individuals with asthma use an inhaler, which is a handheld device that delivers medication deep into the lungs.
 - Medications work to reduce the inflammation in the airways and relax the bronchiole muscles, both of which open up the airways.

Patient B:

- Stopping smoking earlier might have prevented the onset of emphysema because almost all cases of emphysema are caused by smoking. The disease is permanent and incurable.
- Medications that open up the bronchioles can help to improve breathing.
- Emphysema patients often need low-flow oxygen tanks in order to breathe and acquire sufficient oxygen. A low-flow oxygen tank provides concentrations of oxygen that vary with the individual's rate of breathing.
- Lung volume reduction surgery (LVRS) is an experimental surgery for the treatment of emphysema.