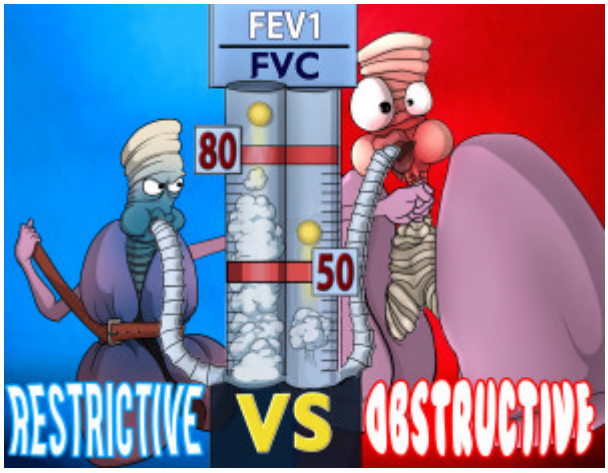
Restrictive vs. Obstructive Lung Diseases

Lung diseases can be classified as either restrictive or obstructive. Restrictive lung diseases cause a decrease in lung volume. Obstructive lung diseases trap air in the lungs and therefore increase lung volume. FEV1 is the forced expiratory volume in one second or the volume of air that can forcibly be blown out in one second, after full inspiration. FVC is the forced vital capacity or the volume of air that can forcibly be blown out after full inspiration and expiration. Both these values can be measured by spirometry. The ratio between the FEV1 and FVC can help distinguish between restrictive and obstructive lung diseases.Restrictive lung diseases can be caused by either poor breathing mechanics (a result of conditions like myasthenia gravis, obesity, and scoliosis) or can result from interstitial lung disease such as pneumoconioses or ARDS. Lung volume decreases in restrictive lung disease and the FEV1/FVC ratio is normal to increased (ie. greater than 80%) due to a significant decrease in forced vital capacity (FVC). Obstructive lung disease is characterized by airway obstruction and it is associated with inflammation of the airways and problems exhaling. Types of obstructive lung disease include asthma, bronchiectasis and COPD (chronic bronchitis and/or emphysema). Obstructive lung disease results in air trapping in the lungs which expands the lung volume over time. A decrease in the FEV1/FVC ratio suggests an obstructive condition.



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Restrictive Lung Disease

Lungs Restricted by a Belt

Restrictive lung diseases can be due to poor breathing mechanics, as a result of conditions like myasthenia gravis, obesity, and scoliosis. They may also be caused by interstitial lung disease. In restrictive lung disease, the lung volume decreases and the FEV1/FVC ratio is normal to increased (ie. greater than 80%) due to a significant decrease in forced vital capacity (FVC).

Decreased Lung Volume

Smaller Lungs

Mechanical, pleural or interstitial pathology restrict lung expansion, resulting in decreased lung volume.

FEV1/FVC Ratio Normal to Increased

Restrictive-lungs Blowing Ball Past the 80% Marker

FEV1 is the volume of air that can forcibly be blown out in one second, after full inspiration. This can be measured with spirometry. FVC is the forced vital capacity or the volume of air that can forcibly be blown out after full inspiration and expiration. The ratio between the FEV1 and FVC can help distinguish between restrictive and obstructive lung diseases. A ratio that is normal or increased (ie. greater than 80%) suggests a restrictive condition.

Obstructive Lung Disease

Hand Choking the Lungs' Airway

Obstructive lung disease is characterized by airway obstruction and associated with inflammation of the airways and problems exhaling. Types of obstructive lung disease are asthma, bronchiectasis and COPD (chronic bronchitis and/or emphysema).

Increased Lung Volume

Big Lungs

Obstructive lung disease results in air trapping in the lungs, which expands the lung volume over time.

Decreased FEV1/FVC Ratio

Lungs Unable to Blow Ball Past 80% Marker

FEV1 is the volume of air that can forcibly be blown out in one second, after full inspiration. This can be measured by spirometry. FVC is the forced vital capacity or the volume of air that can forcibly be blown out after full inspiration and expiration. The ratio between the FEV1 and FVC can help distinguish between restrictive and obstructive lung diseases. A decrease in the ratio suggests an obstructive condition.

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