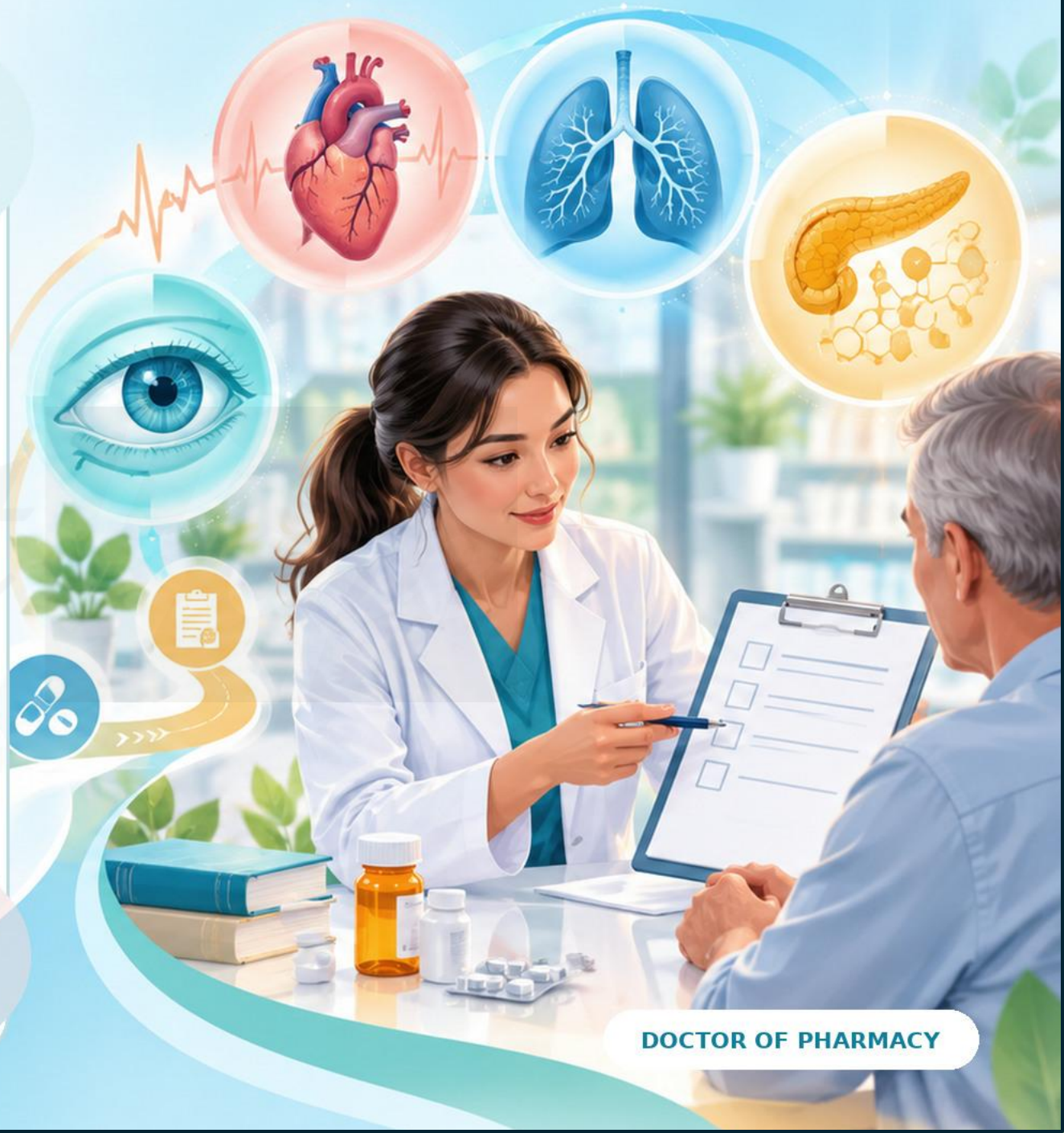
PHARM.D • YEAR 2

Pharmacotherapeutics

CHAPTER 2

Respiratory System and Endocrine System

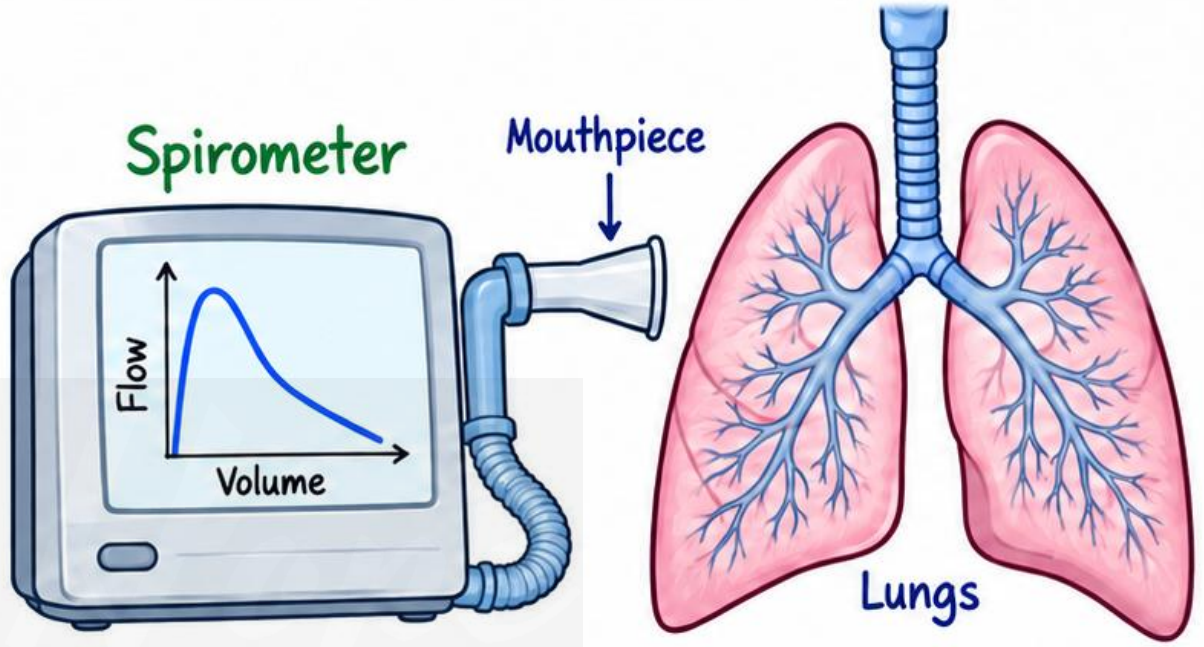
PPT CHAPTER COVER

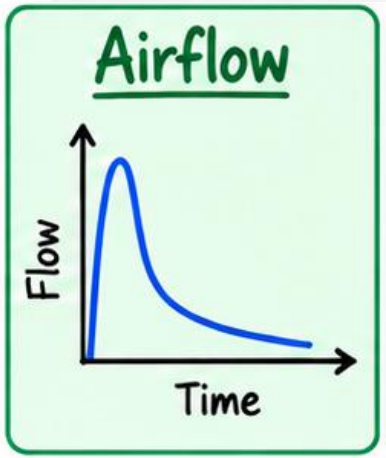


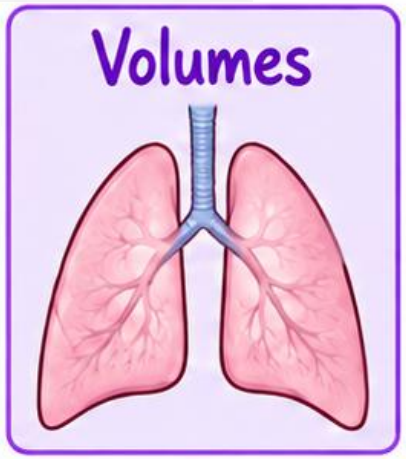
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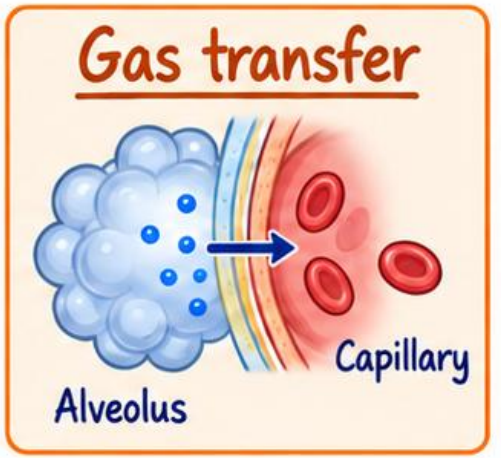
Pulmonary function tests: what they measure

- Pulmonary function tests quantify airflow, lung volumes and gas transfer.
- FEV1 is the volume forcibly expired during the first second.
- FVC is the total volume forcibly expired after a full inspiration.
- FEV1/FVC helps identify airflow obstruction.
- Lung-volume measurements include total lung capacity and residual volume.
- DLCO assesses transfer of carbon monoxide across the alveolar–capillary system.
- Results depend on technique, effort, reference values and clinical context.
- PFTs support diagnosis, severity assessment and monitoring; they do not independently choose a medicine.









PFT patterns: obstruction versus restriction

Obstructive pattern

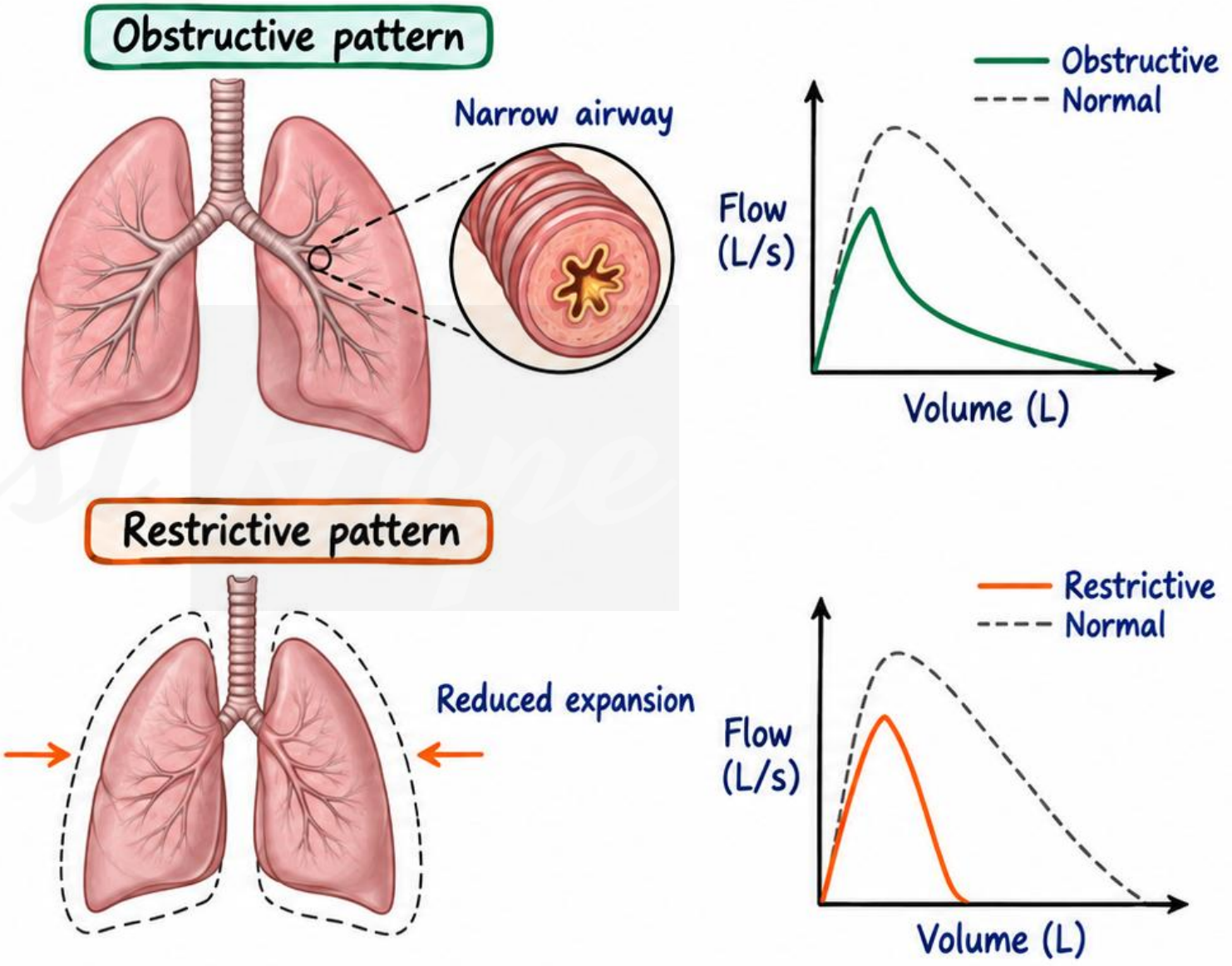
- FEV1/FVC is reduced; expiration is limited by narrowed airways or loss of elastic recoil.
- Air trapping can increase residual volume.

Restrictive pattern

- Total lung capacity is reduced; the lungs cannot expand to a normal volume.
- FVC may be low while FEV1/FVC is preserved or increased.

Important distinction

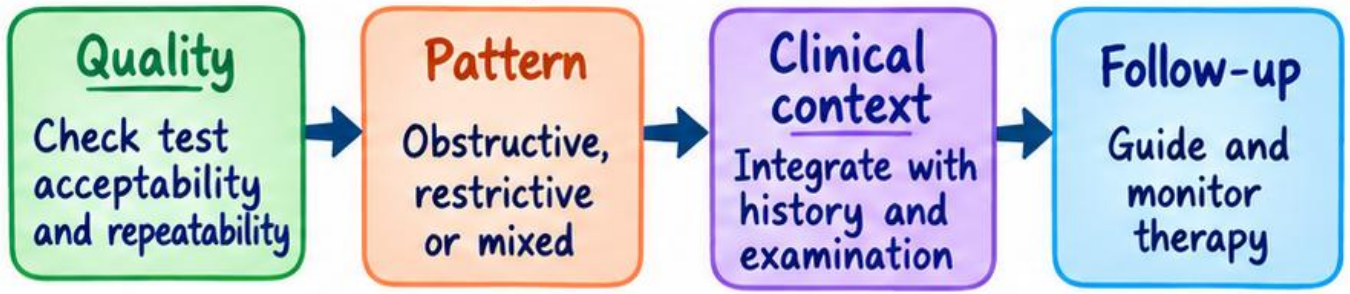
- A low FVC alone does not confirm restriction; air trapping or poor effort can also lower it.
- Mixed disease requires evidence of both obstruction and reduced total lung capacity.



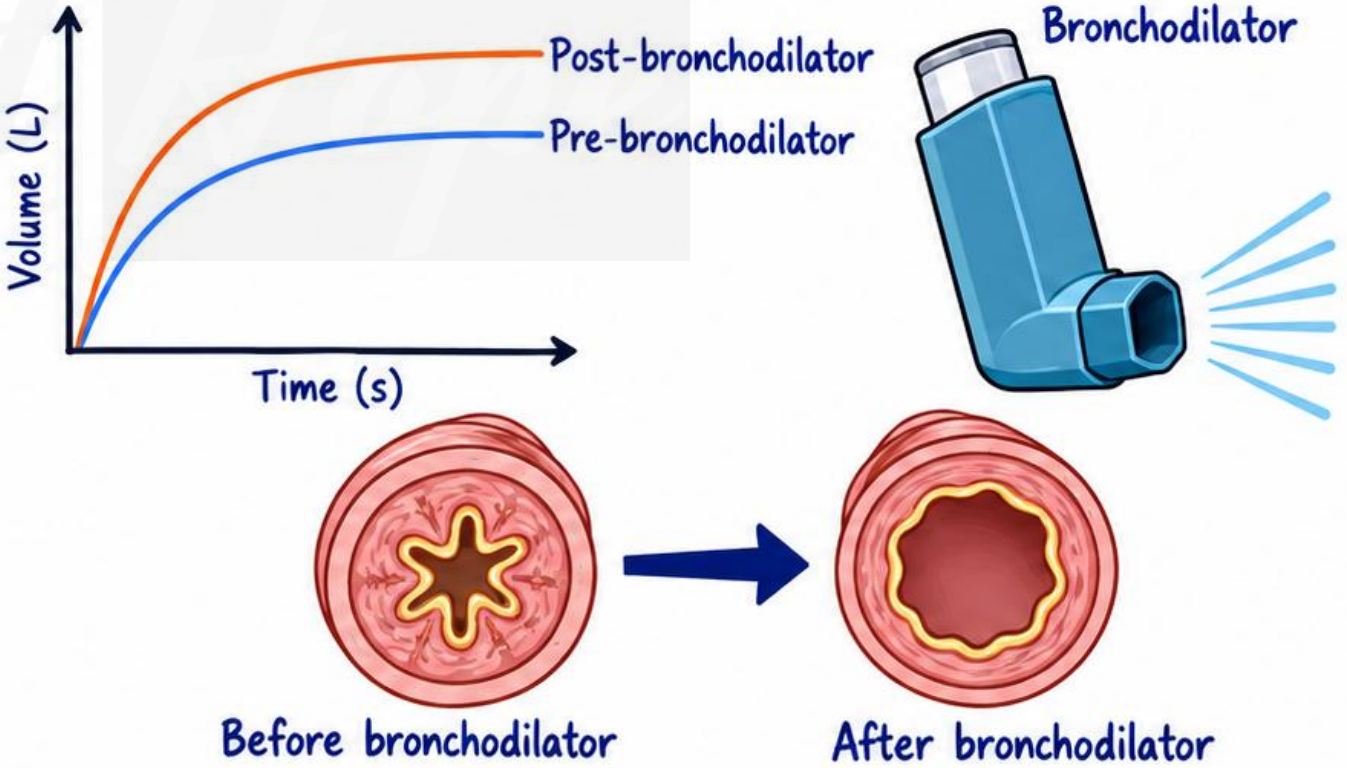
PFT interpretation & therapeutic follow-up

- Check test acceptability and repeatability before interpreting an abnormal result.
- Compare spirometry before and after a bronchodilator when indicated.
- A significant response supports variable airflow limitation, but one negative test does not exclude asthma.
- Bronchodilator responsiveness can also occur in COPD.
- Reduced DLCO has several causes, including emphysema, interstitial disease and pulmonary vascular disease.
- Follow symptoms, exacerbations and functional status alongside test results.
- Treatment for interstitial disease depends on its diagnosis; abnormal PFTs alone do not justify steroids or antifibrotic drugs.

Interpretation ladder

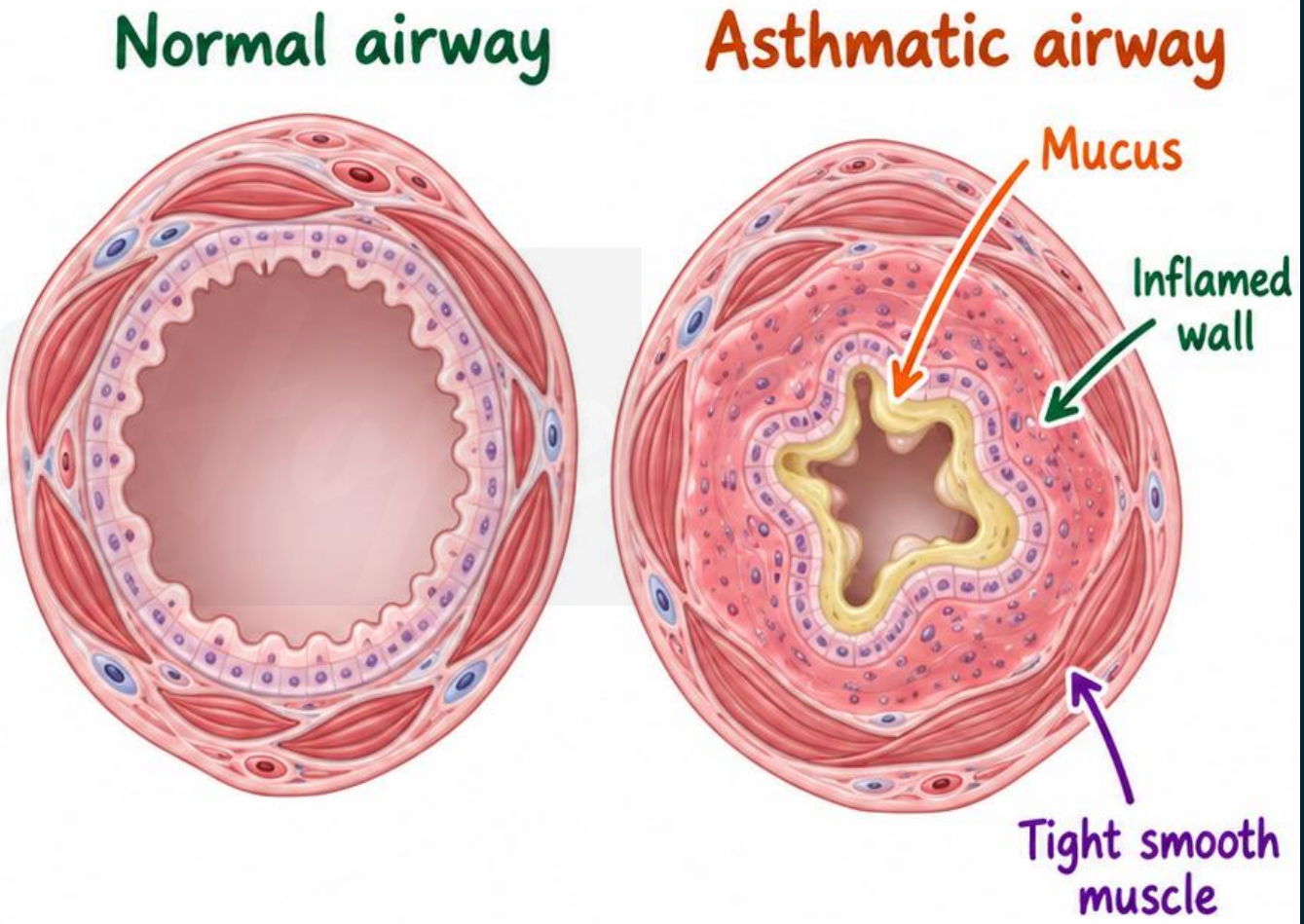


Spirometry before and after bronchodilator



Asthma: airway inflammation & variability

- Asthma is a heterogeneous disease with variable respiratory symptoms and variable expiratory airflow limitation.
- Airway inflammation, bronchial hyperresponsiveness, mucus and smooth-muscle narrowing contribute.
- Symptoms include wheeze, breathlessness, chest tightness and cough.
- Symptoms can vary with time, exercise, allergens, viral infections, weather or irritants.
- Type-2 inflammation is common, but not every patient has the same inflammatory pathway.
- Persistent inflammation may contribute to airway remodelling.
- Confirm the diagnosis objectively when possible rather than assuming every wheeze is asthma.



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