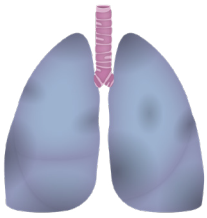
RESPIRATORY ACIDOSIS

Definition

- An accumulation of carbon dioxide in the body due to decreased excretion by the lungs
- Decreased carbon dioxide levels lead to pH imbalance.

Common Causes



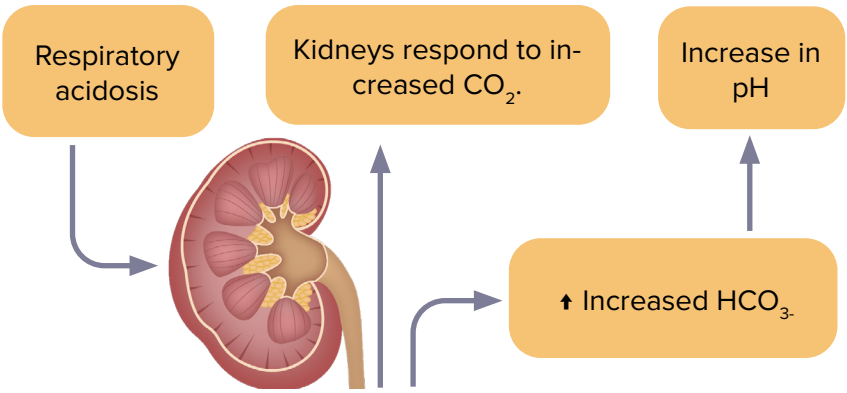
Pulmonary disease (COPD, asthma, pneumonia, pulmonary edema)

Respiratory failure

Lab Values

Disturbance	pH	CO_2	HCO_{3-}	Cause	Compensation
Respiratory acidosis	↓ Decreased	↑ Increased	Normal or ↓ decreased	Lungs excrete CO_2.	Kidneys control HCO_{3-}.
Normal values	7.35–7.45	35–45 mm Hg	22–26 mmol/L	O_2 levels are not part of ABG imbalance determination.	

Compensation



Uncompensated:
Opposite system is not responding, pH remains imbalanced.

Partial compensation:
Opposite system is working to correct imbalance, pH not yet normalized.

Full compensation:
Homeostasis achieved, all lab values return to normal.

Example

Steps:

1. Identify pH (acidosis or alkalosis).
2. Identify CO_2 (↑, ↓, normal).
3. Identify HCO_3 (↑, ↓, normal).
4. Which label matches pH?
5. Look at opposite system, evaluate if it is bringing pH back to normal.

Disturbance	pH	CO_2	HCO_{3-}
???	7.30	55	25

Answer: respiratory acidosis uncompensated

Treatment

Medication: bronchodilators, steroids

BiPAP or ventilator to assist breathing

Renal system increases HCO_{3-}.

NOTES