

List the common causes of metabolic acidosis and respiratory acidosis, metabolic alkalosis and respiratory alkalosis

Metabolic acidosis

Bicarbonate loss or hydrogen gain:

- Bicarbonate loss through renal or GI tract (diarrhoea)
- Hydrogen increase through toxic substances and lactic acid
- This is compensated via hyperventilation, breathing off CO₂

Respiratory acidosis

Respiratory acidosis can be caused by conditions and diseases that decreases the amount of CO₂ expelled by the body (thinking resp. rate and depth)

- Gas exchange conditions
 - COPD chronic obstructive pulmonary disease
 - CORD chronic obstructive respiratory disease
 - COAD chronic obstructive airway disease
 - Pneumonia
- Inhibition of respiratory centres due to drug induced hypoventilation and opiates
- Muscle diseases such as myasthenia gravis and Guillain-Barre
- This is compensated through renal retention of bicarbonate and excretion of acid salts

Metabolic alkalosis

When there is too much H⁺ lost or there is too much bicarbonate retained therefore the body becomes too alkali.

- Net loss of H⁺ from ECF
 - Vomiting
 - Renal loss due to diuretics
- Retention of bicarbonate due to the excess administration of bicarbonate
- This is compensated through hypoventilation

Respiratory alkalosis

This is due to conditions where too much CO₂ is being breathed off, or expelled

- Hyperventilation (emotional causes)
- Head trauma that increases resp. rate
- Excessive mechanical ventilation
- This is compensated through renal excretion of bicarbonate, or the retention of acid salts.