PHARM.D • YEAR 1

Pharmaceutical Inorganic Chemistry

CHAPTER 13

# Antacids

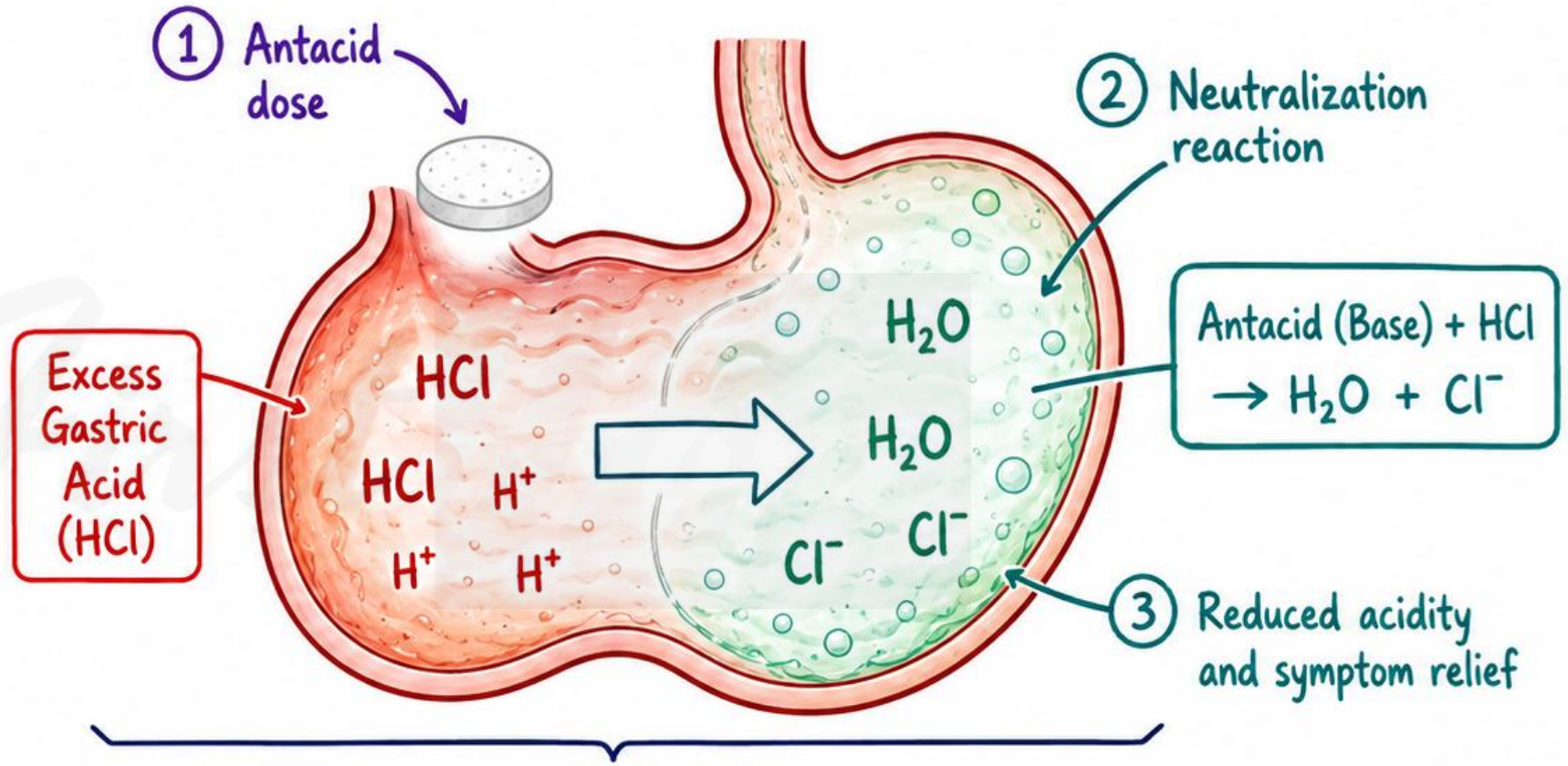
PPT CHAPTER COVER



# How Antacids Neutralize Gastric Acid

## The Principle

1. Antacids neutralize excess hydrochloric acid (HCl) in the stomach.
2. They act primarily within the gastrointestinal tract with minimal systemic absorption.
3. Combination antacids use more than one active ingredient to balance benefits and reduce side effects.




Antacid works in the stomach to neutralize acid.

**Takeaway:** Antacids neutralize gastric acid (HCl) in the stomach to relieve heartburn and indigestion, acting locally in the GI tract with minimal absorption.

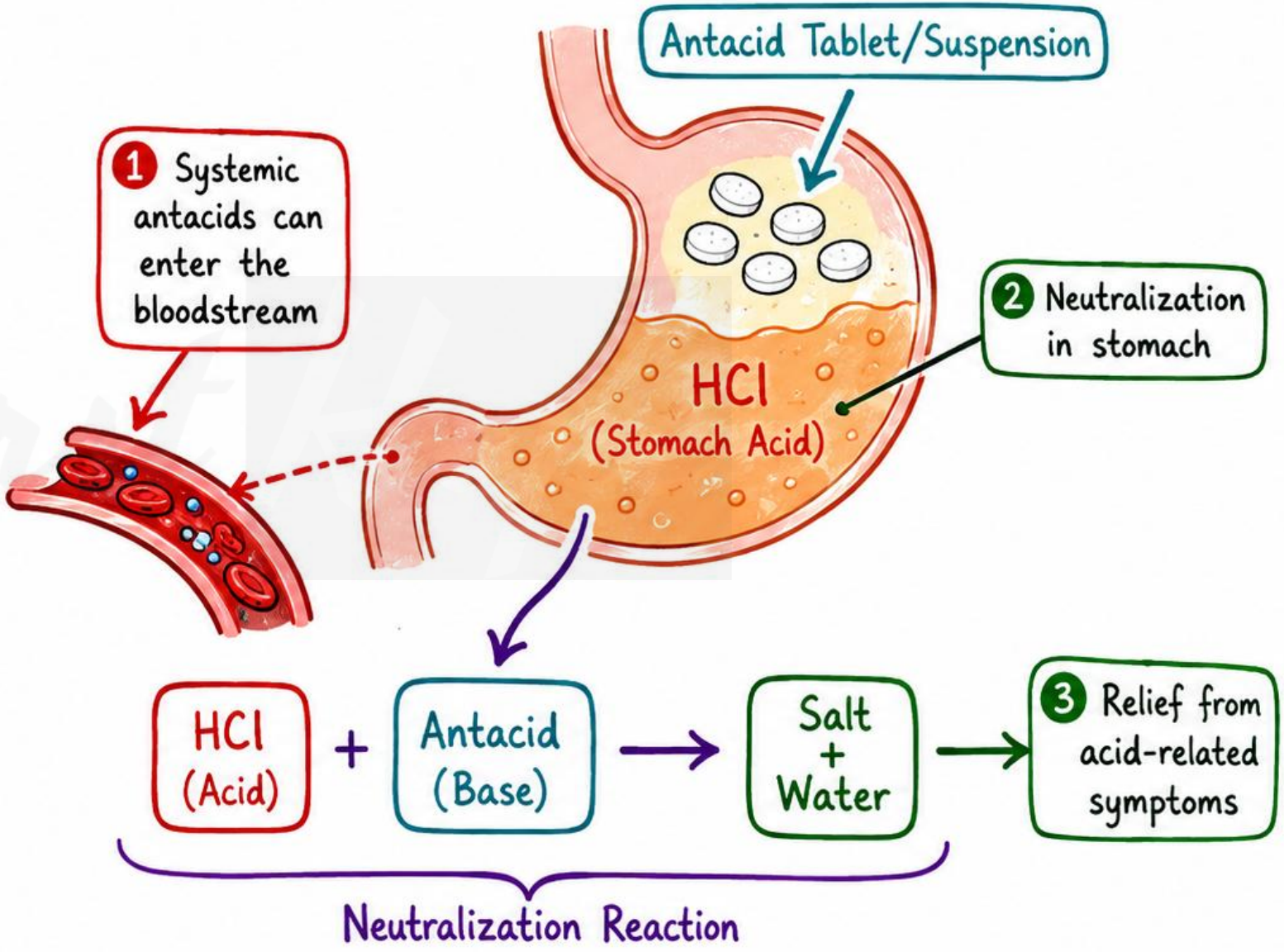
# Systemic and Non-Systemic Antacids

## Definition

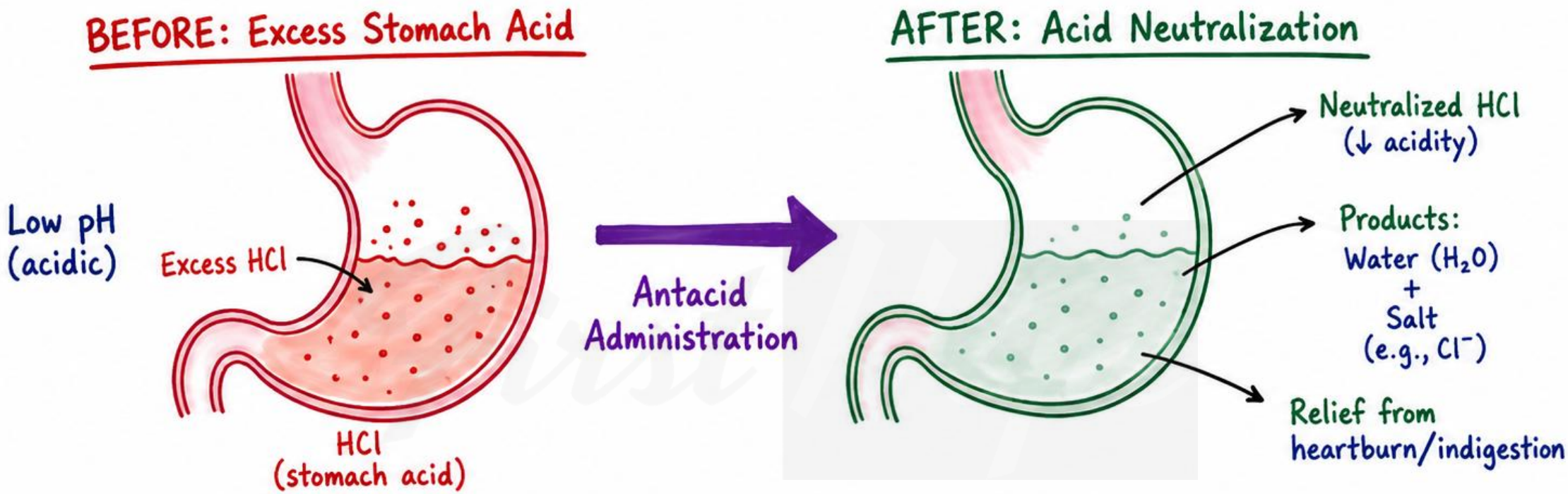
Antacids are medicines that neutralize excess stomach acid (HCl) to relieve heartburn, indigestion and GERD.

## Key Points

1. Systemic antacids: affect acid-base balance beyond the stomach and can enter the bloodstream.
2. Non-systemic antacids: act primarily within the gastrointestinal tract with minimal systemic absorption.
3. Combination antacids: contain more than one type of ingredient to balance benefits and minimize side effects.



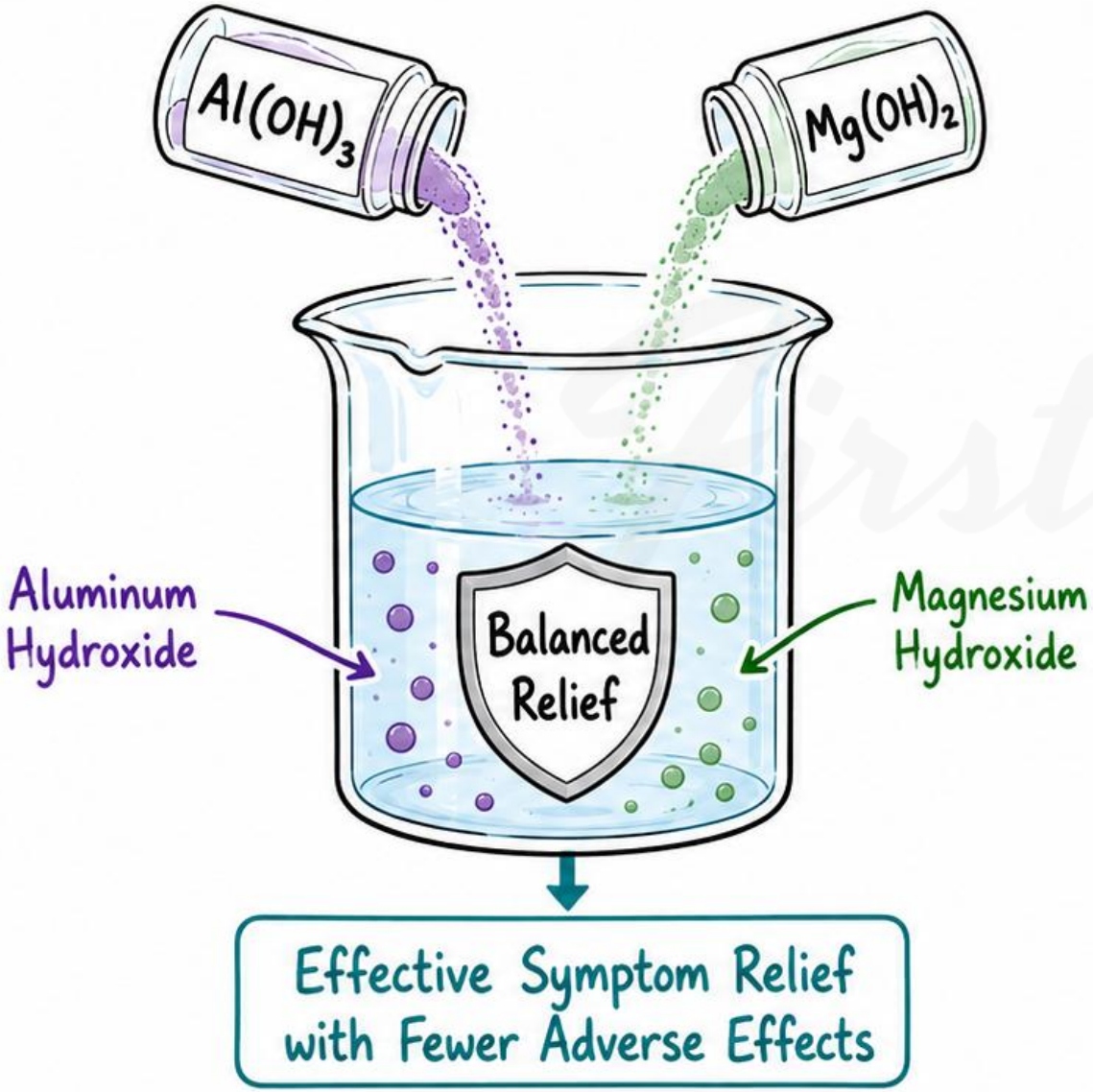
# Ideal Antacid Properties and Interactions




Antacid (Base) + HCl (Acid) → $H_2O$ (Water) + Salt (e.g., $Cl^-$)

1. Act locally in the gastrointestinal tract to neutralize excess HCl.
2. Minimal systemic absorption; do not significantly affect whole-body acid–base balance.
3. Safe, fast-acting, and effective in relieving heartburn and indigestion.

# Combination Products and Adverse Effects




1. **Hydroxide:** Balance the constipating effect of aluminum with the laxative effect of magnesium.

2. **Carbonate:** Provide effective relief while minimizing the risk of constipation or diarrhea.

3. **Goal:** These combinations aim to provide effective symptom relief while reducing the risk of side effects like constipation or diarrhea.

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