



## [Gastrointestinal System](#) | [Disorders and Disease](#)

Agents that neutralize acids in the [gastrointestinal system](#) and are weak [bases](#) that combine with hydrochloric acid in the stomach to form a salt and water. They reduce gastric acidity and thereby reduce the activity of pepsin. Antacids differ in their reaction time, neutralizing capacity, side effects, complications and price. Over-the-counter antacids vary as much as seven fold in neutralizing capacity in laboratory tests. Tablets are much less efficient than their liquid counterparts as well.

The dose-response relationship of antacids is variable depending on individual variation in gastric acid secretion and the rate of gastric emptying. Some people produce more gastric acid and are 'hypersecretors' while others are under secretors or 'hyposecretors'. Antacids are used to help the healing of [duodenal ulcers](#) (ulcers in the upper part of the small intestine) and in combination therapies for the treatment of [gastric ulcers](#) and [acid reflux](#).

Aluminum hydroxide ( $\text{Al}(\text{OH})_3$ ) preparations vary in their solubility and neutralizing ability. The aluminum chloride salt that is formed in the reaction with gastric acid is insoluble and can cause [constipation](#). Absorption of certain drugs, such as [tetracycline](#), is inhibited by this antacid. [Phosphate](#) also may be rendered unabsorbable due to salt formation and cause a bone condition called osteomalacia.

Calcium carbonate ( $\text{CaCO}_3$ ) is a very effective antacid and reacts more slowly than sodium bicarbonate and is the active ingredient in Tums®. Some (10%) of the ionic calcium is absorbed and may infrequently cause hypercalcemia (high [calcium](#) in the blood) which can cause [kidney failure](#). It is also used as an antidote to corrosive acid poisoning.

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