

## Acetazolamide

Acetazolamide is a diuretic that works by inhibiting carbonic anhydrase, halting the production of bicarbonate from water and  $\text{CO}_2$ . By inhibiting carbonic anhydrase, acetazolamide leads to sodium bicarbonate diuresis, acidifying the blood and alkalyzing the urine. This medication is helpful in treating glaucoma, as it decreases aqueous humor. It also decreases CSF pressure, and is used to treat pseudotumor cerebri. Other indications for treatment include CHF, metabolic alkalosis, and altitude sickness. Side effects of this drug include hyperchloremic metabolic acidosis, and paresthesias.



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### Indications

#### Glaucoma

##### Glock-eye

Acetazolamide is an effective treatment for glaucoma as it reduces intraocular pressure. This drug inhibits the formation of bicarbonate in the eye, which draws in sodium, which is followed by water via osmotic potential. This is typically called the aqueous humor. Thus, acetazolamide reduces bicarbonate, leading to decreased aqueous humor in the eye.

#### Altitude Sickness

##### High Altitude Vomiting

This drug may be used in prophylaxis and treatment of altitude sickness. Acetazolamide works by decreasing bicarbonate stores, acidifying the blood's pH. This mechanism facilitates the renal compensation for respiratory alkalosis, allowing ventilation to increase without having respiratory alkalosis.

#### Pseudotumor Cerebri

##### Sumo-tumor Cerebrum-I

Acetazolamide may be indicated for treatment of pseudotumor cerebri, or idiopathic intracranial hypertension. Carbonic anhydrase inhibitors may be able to reduce the rate of cerebrospinal fluid production to lower pressure.

#### CHF

##### CHF Heart-balloon

Acetazolamide may be used for diuresis when treating CHF-associated edema.

#### Metabolic Alkalosis

##### Metal-ball Elk-loser

Because of acetazolamide's actions in reducing total body stores of  $\text{HCO}_3^-$ , it may be used to treat metabolic alkalosis.

### Mechanism of Action

### Carbonic Anhydrase Inhibitor

[Carbon-fiber Hydra with Inhibiting-chains](#)

Acetazolamide works by inhibiting carbonic anhydrase, interfering with bicarbonate absorption in the kidneys. Thus, the blood is acidified and the urine is alkalyzed.

### Sodium Bicarbonate ( $\text{NaHCO}_3$ ) Diuresis

[Salt-shaker Bi-car-bomb Die-rocket](#)

Acetazolamide causes self-limited  $\text{NaHCO}_3$  diuresis, and reduces total body stores of  $\text{HCO}_3^-$ .

## Side Effects

### Metabolic Acidosis

[Metal-Ball Acidic-lemon](#)

A side effect of acetazolamide use may be metabolic acidosis, as it causes reduction of total  $\text{HCO}_3^-$  body stores, acidifying the blood. Patients may also become hyperchloremic.

### Paresthesias

[Paris-t-shirt with Pins-and-needles](#)

Another adverse effect of acetazolamide may be paresthesias, or tingling and numbness within the fingers and toes.