# Acetazolamide

Acetazolamide a diuretic that works by inhibiting carbonic anhydrase, halting the production of bicarbonate from water and CO<sub>2</sub>. 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 osmositic 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 bloods 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 HCO3-, 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 (NaHCO3) Diuresis**
Salt-shaker Bi-car-bomb Die-rocket
Acetazolamide causes self-limited NaHCO3 diuresis, and reduces total body stores of HCO3-.

## Side Effects

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**Metabolic Acidosis**

Metal-Ball Acidic-lemon

A side effect of acetazolamide use may be metabolic acidosis, as it causes reduction of total HCO3- 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.

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