

**\*\*Metformin 500 mg capsules are widely prescribed for managing type 2 diabetes. They help lower blood sugar levels and improve insulin sensitivity, making them a cornerstone of diabetes treatment.\*\***

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## ## 🧪 Chemical Composition

- **\*\*Active Ingredient:\*\*** \*Metformin hydrochloride\* 500 mg
- **\*\*Molecular Formula:\*\***  $C_4H_{11}N_5 \cdot HCl$
- **\*\*Drug Class:\*\*** Biguanide antidiabetic agent
- **\*\*Formulations:\*\*** Capsules, tablets (immediate and extended-release), oral solution

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## ## 💊 Dosage & Administration

- **\*\*Route:\*\*** Oral
- **\*\*Typical Adult Dosage:\*\***
  - Initial: 500 mg once or twice daily with meals
  - Maintenance: 1500–2000 mg/day in divided doses
  - Maximum: 2550 mg/day (immediate-release); 2000 mg/day (extended-release)
- **\*\*Pediatric Use:\*\*** Approved for children  $\geq 10$  years; starting dose is 500 mg once daily
- **\*\*Administration Tips:\*\***
  - Take with food to reduce gastrointestinal side effects
  - Swallow capsules whole; do not crush or chew

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## ## 🏥 Medical Uses

- **\*\*Primary Indications:\*\***
  - \*Type 2 diabetes mellitus\*
  - \*Polycystic ovary syndrome (PCOS)\* (off-label)
  - \*Insulin resistance\* and \*metabolic syndrome\*
- **\*\*Mechanism of Action:\*\***
  - Reduces hepatic glucose production
  - Enhances peripheral glucose uptake
  - Delays intestinal glucose absorption

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## ## ⚠️ Side Effects

**\*\*Common:\*\***

- Nausea
- Diarrhea
- Abdominal discomfort
- Metallic taste

**\*\*Less Common but Serious:\*\***

- Lactic acidosis (rare but life-threatening)

- Vitamin B12 deficiency (with long-term use)
- Hypoglycemia (rare, usually when combined with other drugs)

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## ⚠️ Risks & Precautions

- **\*\*Contraindications:\*\***
  - Severe renal impairment (eGFR <30 mL/min/1.73 m²)
  - Metabolic acidosis
  - Liver disease
  - Alcohol abuse
- **\*\*Pregnancy & Breastfeeding:\*\***
  - Generally considered safe; consult a physician
- **\*\*Drug Interactions:\*\***
  - Cimetidine, iodinated contrast agents, and alcohol may increase risk of lactic acidosis
- **\*\*Monitoring:\*\***
  - Renal function, blood glucose, and vitamin B12 levels during long-term use

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## 💬 Patient Feedback & Complaints

- **\*\*Positive Feedback:\*\***
  - Effective in controlling blood sugar
  - Weight-neutral or mild weight loss
  - Affordable and widely available
- **\*\*Common Complaints:\*\***
  - Gastrointestinal upset (especially at start)
  - Metallic taste
  - Fatigue or weakness
  - Concerns about long-term B12 deficiency

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## 📄 Summary Table

Category	Details
Drug Name	Metformin 500 mg
Active Ingredient	Metformin hydrochloride
Use	Type 2 diabetes, PCOS, insulin resistance
Dosage	500 mg once or twice daily; max 2550 mg/day
Common Side Effects	Nausea, diarrhea, abdominal pain, metallic taste

Serious Risks	Lactic acidosis, B12 deficiency, renal complications
Patient Feedback concerns	Effective; GI upset, taste issues, long-term safety concerns
Contraindications	Renal/liver disease, alcohol abuse, metabolic acidosis

#### Sources:

- [Drugs.com - Metformin Overview](<https://www.drugs.com/metformin.html>)
- [Practo - Metformin 500 mg Tablet](<https://www.practo.com/medicine-info/metformin-500-mg-tablet-6416>)
- [1mg - Metformin 500 mg Tablet](<https://www.1mg.com/drugs/metformin-500mg-tablet-564579>)

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