

### Medication Names

Metformin  
Glucophage

### Therapeutic Use

Type 2 diabetes mellitus

### Adverse Drug Reactions

Lactic acidosis (rare, but potentially fatal)  
Nausea, diarrhea, vomiting  
Unpleasant metallic taste  
Vitamin deficiencies (vitamin B12, folic acid)

### Interventions

Monitor for indications of lactic acidosis.  
For signs of lactic acidosis, stop drug therapy immediately.  
Expect that severe lactic acidosis will require hemodialysis.  
Monitor for persistent nausea, vomiting, or diarrhea  
Monitor fluid intake and output.  
Monitor for indications of vitamin B12 or folic acid deficiency.  
Recommend the appropriate supplements.  
Monitor renal function upon initial therapy and yearly afterward

### Precautions

Diarrhea, Dehydration  
Anemia  
Pituitary insufficiency  
Gastroparesis  
Gastrointestinal obstruction.  
Hyperthyroidism  
Older adults

### Drug Administration

Give orally twice a day with the morning and evening meals (immediate-release) or once a day with the evening meal (extended-release)  
Make sure clients swallow the extended-release form whole and do not crush or chew it.

### Patient Education

Avoid drinking alcohol.  
Report weakness, fatigue, lethargy, or hyperventilation.  
If these symptoms develop, stop taking the drug and seek medical care immediately  
Expect these effects to diminish as drug therapy continues  
Lie down when feeling nauseated  
Maintain adequate carbohydrate and fluid intake  
Report weakness, fatigue, pallor, or reddened tongue.

### Contraindications

Diabetic ketoacidosis  
Cardiopulmonary, hepatic, or renal insufficiency  
Alcoholism  
Heart failure  
Severe infection  
Shock  
Acute myocardial infarction  
Hypoxemia  
Lactic acidosis

### Interactions

Alcohol and cimetidine (Tagamet) increase the risk of lactic acidosis.  
Any contrast medium containing iodine increases the risk of acute renal failure, thus worsening lactic acidosis  
Nifedipine (Procardia), furosemide (Lasix), morphine, antifungals, and many other drugs increase hypoglycemic effects.

