

PRESCRIPTION MONOGRAPH

Compounded Active Ingredients: Metformin/CoQ10

Form: Chewable Tablet

Drug Class:

- Metformin: Antidiabetic (Biguanide)
- Coenzyme Q10 (CoQ10): Mitochondrial cofactor and antioxidant

Mechanism of Action: Together, they may improve metabolic efficiency, reduce oxidative stress, and enhance cellular function in metabolically compromised patients.

- Metformin¹: intended to reduce hepatic glucose production, decrease intestinal glucose absorption, and enhance insulin sensitivity in peripheral tissues. It potentially activates AMP-activated protein kinase (AMPK), a known key regulator of cellular energy.
- CoQ10²: intended to play a vital role in the electron transport chain, potentially promoting ATP production in mitochondria. It is also intended to neutralize free radicals and protect lipid membranes from oxidative damage

Indications Commonly Prescribed for:

- Type 2 Diabetes Mellitus (T2DM)
- Polycystic Ovary Syndrome (PCOS)
- Mitochondrial dysfunction and fatigue
- Statin-induced CoQ10 depletion
- Adjunctive cardiovascular support
- Neurodegenerative support (e.g., Parkinson's, Alzheimer's)

Before Use: Let your health care provider know if you have any medication allergies before you take this compounded preparation. Let your healthcare provider know if you have any liver or kidney problems. Let your healthcare provider know of all supplements you are currently taking.

Contraindications:

- Avoid metformin with renal impairment or dehydration, as it may increase the risk of lactic acidosis.
- Use CoQ10 with caution in patients on anticoagulants or antihypertensives due to theoretical additive effects.

Cautions: Let your Healthcare provider know if you experience any adverse side effects.

How to Use: This compounded preparation is in the form of a chewable tablet. Place the tablet in your mouth and chew it thoroughly until it has broken down completely. Do not swallow the tablet whole unless the label specifically states it is safe to do so. After chewing, you may swallow the resulting mixture with or without water, depending on your comfort. If you miss a dose, take as soon as you remember, but not at the time for the next dose. Desired results may take up to several weeks.

PRESCRIPTION MONOGRAPH

Warnings and Precautions:

- Risk of lactic acidosis (rare but serious); avoid in patients with:
 - Renal impairment
 - Severe hepatic disease
 - Acute heart failure, hypoxia, or sepsis
 - Temporarily discontinue before iodinated contrast imaging
 - Caution in patients taking warfarin or antihypertensive medications
-

Adverse Reactions:

- | | |
|---|------------------|
| • GI upset (nausea, diarrhea, bloating) | • B12 deficiency |
| • Headache | • Insomnia |
| • Flatulence | • Elevated LFTs |
| • Lactic acidosis | |
-

Interactions:

- Avoid with nephrotoxic agents
 - Use caution with alcohol (increased lactic acidosis risk)
 - May decrease absorption of vitamin B12
 - May reduce warfarin effectiveness
 - May enhance effects of antihypertensives
-

Use in Specific Populations:

- Pregnancy & Lactation: Category B – often used in gestational diabetes and PCOS
 - Elderly: start at lower doses; monitor renal function
 - Hepatic/Renal impairment: use metformin cautiously
-

Storage:

- Store in original container at room temperature (up to 30°C or 86°F)
 - Store in a cool dry place away from heat, sunlight, and moisture
-

Monitoring Parameters:

- Fasting blood glucose, HbA1c
 - Renal function (eGFR) for metformin users
 - Vitamin B12 levels with long-term metformin use
 - INR if using CoQ10 with anticoagulants
-

Citations:

1. Zhang T, Zhou L, Makarczyk MJ, Feng P, Zhang J. The Anti-Aging Mechanism of Metformin: From Molecular Insights to Clinical Applications. *Molecules*. 2025;30(4):816. Published 2025 Feb 10. doi:10.3390/molecules30040816
 2. Testai L, Martelli A, Flori L, Cicero AFG, Colletti A. Coenzyme Q10: Clinical Applications beyond Cardiovascular Diseases. *Nutrients*. 2021;13(5):1697. Published 2021 May 17. doi:10.3390/nu13051697
-