

PRESCRIPTION MONOGRAPH

Compounded Active Ingredients: Minoxidil/Progesterone/Melatonin

Form: Topical Solution

Drug Class:

- Minoxidil: Antihypertensive vasodilator
 - Progesterone: Progestin (Natural Steroid Hormone); local 5- α -reductase modulator
 - Melatonin: Eurohormone/chronobiotic with antioxidant and follicular MT1/MT2 receptor activity
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Mechanism of Action^{1,2,3}:

When compounded together, Minoxidil, Progesterone, and Melatonin have the potential to provide a multi-targeted approach that enhances overall hair growth and restoration. Together they are intended to:

- Stimulate vascular and follicular activity by opening potassium channels in dermal papilla cells, to enhance blood flow and nutrient delivery to follicles, promoting local growth factors.
 - Reduce the effect of androgens by blocking the 5- α -reductase enzyme in hair follicles, lowering scalp DHT and helping slow follicle shrinkage.
 - Counter oxidative/androgen stress by scavenging reactive oxygen species in scalp, modulating MT1/MT2 on follicles, and lowering androgen influence in targeted tissues to help potentially protect dermal papilla cells.
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Indications Commonly Prescribed For:

- Androgenetic alopecia
 - Post-inflammatory shedding
 - Cosmetic hair quality: To improve density, thickness, and retention.
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Before Use: Let your health care provider know if you have any medication allergies before you take this compounded preparation. Let your health care provider know if you have any liver or kidney problems. Let your healthcare provider know of all supplements you are currently taking.

Contraindications:

- Hypersensitivity to any component
 - Scalp irritation or dermatitis where barrier is compromised
 - Systemic absorption of high minoxidil concentrations may cause hypotension
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Cautions: Let your Healthcare provider know if you experience any adverse side effects.

How to Use: This compounded preparation is provided as a topical solution in a spray bottle. Apply the directed number of sprays evenly to the affected areas of the scalp, usually once or twice daily as instructed by your provider. Gently massage the solution into the scalp if recommended. Wash your hands after application. Avoid getting the solution in your eyes, mouth, or on broken skin. If you miss a dose, apply it as soon as you remember, but do not double the application if it is nearly time for the next one. Consistent use is important, and desired results may take several weeks to become noticeable.

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Warnings and Precautions:

- Initial shedding: Minoxidil may cause early “shedding” as follicles transition.
 - Systemic absorption risk: monitor for hypotension and tachycardia.
 - Cumulative irritation with retinoids or acids may increase scalp sensitivity—stagger products.
 - Scalp conditions: Use with caution with psoriasis, eczema, or other compromised barrier.
 - Photosensitivity/photoprotection: Routine scalp photoprotection is sensible in AGA; melatonin is antioxidant but not a sunscreen.
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Adverse Reactions:

Common:

- Mild skin irritation
- Transient erythema
- Itching, Dryness

Rare:

- Nausea, Dizziness
 - Tachycardia
 - Breast Tenderness
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Interactions:

- Concurrent strong vasodilators or antihypertensives may have additive hypotensive effect if absorption is higher than expected.
 - Other active topicals (retinoids/strong acids/alcohol-heavy sprays): may increase irritation—stagger use.
 - May alter response if patient is on other hormonal therapies.
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Use in Specific Populations:

- Pregnancy: Avoid if pregnant or planning pregnancy
 - Pediatrics: Avoid unless under dermatologic supervision.
 - Geriatrics: Start with the lower minoxidil strength (2%) and monitor tolerability.
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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
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Monitoring Parameters:

- Skin/hair response over 8–12 weeks
 - Safety/tolerability: ask about irritation, pruritus, scaling, systemic hormonal symptoms; adjust vehicle/strength or frequency as needed
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Citations:

1. Li M, Marubayashi A, Nakaya Y, Fukui K, Arase S. Minoxidil-induced hair growth is mediated by adenosine in cultured dermal papilla cells: possible involvement of sulfonyleurea receptor 2B as a target of minoxidil. *J Invest Dermatol.* 2001;117(6):1594-1600. doi:10.1046/j.0022-202X.2001.01570.x
 2. Tawanwongsri W, Eden C. Melatonin for hair regrowth: Preclinical insights, current evidence, and future perspectives. *Electron J Gen Med.* 2025;22(4):em669. doi:10.29333/ejgm/16520
 3. Grymowicz M, Rudnicka E, Podfigurna A, Napierala P, Smolarczyk R, Smolarczyk K, Meczekalski B. Hormonal effects on hair follicles. *Int J Mol Sci.* 2020;21(15):5342. doi:10.3390/ijms21155342
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