

# Miconazole

## Antifungal Class:

Azoles (specifically imidazole)

## Antimicrobial Spectrum:

Various yeasts including *Pseudoallescheria* spp. and other phaeohyphomycoses

## Mechanism of Action:

Bind to the heme moiety of the fungal cytochrome P-450 dependent enzyme lanosterol 14- $\alpha$ -demethylase. Inhibits 14- $\alpha$ -demethylase, blocks formation of ergosterol and leads to the buildup of toxic methylated 14- $\alpha$ -sterols. Both effects serve to inhibit cell growth.

## Pharmacodynamics:

Other azoles have shown in murine models to exhibit AUC:MIC ratio as predictive of effect for *Candida* spp. This may vary by fungal species however.

## Pharmacokinetics:

Absorption: Topical: negligible through intact skin

## Adverse Effects:

Topical: Contact dermatitis, burning

Vaginal: Irritation, burning, itching, and abdominal cramping

## Dosage:

Miconazole nitrate vaginal suppository 200 mg

Topical Cream: 2% Various sizes, most commonly 15 g and 30 g

Vaginal Cream 2% With applicator, 45 g

Vaginal Cream 4% 15 g, 25 g

Topical liquid 2% 90 mL

Neosporin AF®: 2% (105 mL)

Topical Powder: 2%, Various sizes

Topical Tincture: 2%

Tinea corporis: Apply topically twice daily x 4 weeks

Tinea pedis: Apply topically twice daily x 4 weeks

Tinea cruris: Apply topically twice daily for 2 weeks

Vulvovaginal candidiasis:

Cream, 2%: Insert 1 applicatorful at bedtime for 7 days

Cream, 4%: Insert 1 applicatorful at bedtime for 3 days

Suppository, 100 mg: Insert 1 suppository at bedtime for 7 days

Suppository, 200 mg: Insert 1 suppository at bedtime for 3 days

Suppository, 1200 mg: Insert 1 suppository x 1 at bedtime

Disease state based dosing:

Renal failure: No dosing adjustment necessary

Hepatic failure: No dosing adjustment necessary

**Contraindications/Warnings/Precautions:**

Precautions: None

**Drug Interactions:**

Clotrimazole is an inhibitor of the cytochrome P450 3A4, 2A6, 2C8/9, and 2E1, 2C19, 2D6 isoenzymes. Caution should be exercised and monitoring is suggested when concomitantly administering miconazole with drugs that have narrow therapeutic windows and are substrates of aforementioned CYP substrates. However, it should be noted that the majority of drug interactions are appreciated using the IV form of miconazole which has been supplanted by newer azole antifungals.

**Pregnancy:**

Category C: Risk unknown. Human studies inadequate.

**Monitoring Requirements:**

None

**Brand names/Manufacturer:**

Aloe Vesta® 2-n-1 Antifungal - Convatec

Baza® Antifungal - Sween

DermaFungal - Dermarite

Dermagran® AF - Dermasciences

Fungoid® Tincture - Pedinol

Lotrimin® AF Powder/Spray - Schering-Plough

Mitrazol™ - Healthpoint

Monistat® 3 Ortho-Mcneil Pharmaceutical

Monistat® 7 Ortho-Mcneil Pharmaceutical

Podactin Cream - Reese

Zeasorb®-AF - Stiefel Laboratories