



Estrogen – an answer to a burning question?

CLINICAL QUESTION

Does estrogen reduce urinary tract infections (UTIs) in post-menopausal women?

BOTTOM LINE

In women with recurrent UTIs or urogenital symptoms, vaginal estrogens reduce the number of women with UTIs from 24% to 10% at ~1 year. Women with recurrent UTIs may see the largest benefit. Oral estrogens are not effective.

EVIDENCE

- Results statistically significant unless stated.
- One systematic review, 8 Randomized Controlled Trials (RCTs), postmenopausal women with either urogenital symptoms or recurrent UTIs.¹
 - Proportion of women with any UTI, all patients:
 - Oral estrogen (3 RCTs, 2766 patients). At 12 weeks–4 years: Not statistically different.
 - Vaginal estrogen (cream, ovule, ring) (5 RCTs, 1936 patients). At 32-52 weeks: 9.9% versus 24% (placebo), Number Needed to Treat (NNT)=8.
 - In largest RCT in above review,² women had urogenital symptoms, 341/1612 had ≥ 1 UTI in past year. 25mcg vaginal estradiol tablet or placebo. At 12 months:
 - All women with any UTI: 6.2% versus 16% (placebo).
 - RCTs in women with ≥ 2 UTIs in past 6-18 months, proportion with UTI:
 - Vaginal estradiol ring (2mg) versus no treatment (1 RCT, 108 patients). At 9 months:³

- 51% versus 80% (no treatment), NNT=4.
- Estriol cream 0.5mg with applicator versus placebo cream (1 RCT, 93 patients). At 8 months:⁴
 - 16% versus 63% (placebo), NNT=3.
- Vaginal estradiol ring (2mg) or conjugated estrogen cream (0.625 mg/g) dosed at 0.5g twice a week versus placebo cream (1 RCT, 35 patients). At 6 months:⁵
 - 61% (ring/cream) versus 94% (placebo cream), NNT=4.
- Adverse events:¹ No difference.
- Limitations:¹ Primarily small studies, high drop-out rates.

CONTEXT

- Guidelines recommend vaginal estrogen therapy for recurrent, uncomplicated UTIs in peri- and post-menopausal women.⁶
- Topical estrogens reduce the percentage of women with incontinence episodes (baseline ~30% reduced to 14% estrogen versus 18% placebo).² Oral estrogens have no effect and may possibly worsen symptoms.⁷
- Daily antibiotics for 6-12 months: ≥1 UTI: 7% (antibiotics) versus 51% (placebo).
 - 15% will experience an adverse event versus 8% with placebo.⁸
- Based on 1 high-quality RCT, increasing daily water intake by 1.5L per day (in women with low baseline intake) resulted in 1.5 fewer UTIs/year.⁹

REFERENCES

1. Chen YY, Su TH, Lau HH. Int Urogynecol J. 2021 Jan;32(1): 17-25.
2. Simunić V, Banović I, Ciglar S, *et al.* Int J Gynaecol Obstet. 2003 Aug;82(2): 187-97.
3. Eriksen B. Am J Obstet Gynecol. 1999 May;180(5): 1072-9.
4. Raz R, Stamm WE. N Engl J Med. 1993 Sep 9;329(11): 753-6.
5. Ferrante KL, Wasenda EJ, Jung CE, *et al.* Female Pelvic Med Reconstr Surg. 2021 Feb 1;27(2): 112-117.
6. Anger J, Lee U, Ackerman AL, *et al.* J Urol. 2019 Aug;202(2): 282-289.
7. Christmas MM, Iyer S, Daisy C, *et al.* Menopause. 2023 Jun 1;30(6): 672-685.
8. Finlay C, Falk J, Korownyk T. Tools for Practice #322 A dose a day keeps the UTI away?. Available at: <https://cfpclearn.ca/tfp322/> Accessed Sept 24, 2025.
9. Lindblad A, Craig R. Tools for Practice #233 Drink Up: Increasing Fluid Intake to Prevent Recurrent UTIs. Available at: <https://cfpclearn.ca/tfp233/> Accessed Sept 24, 2025.

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