

FROM THE FAMILY PRACTICE INQUIRIES NETWORK

Does cranberry juice prevent or treat urinary tract infection?

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■ EVIDENCE-BASED ANSWER

Cranberry juice (200 mL daily to 250 mL 3 times daily) or cranberry concentrate tablets (at least 1:30 parts concentrated juice twice daily) reduce recurrent, symptomatic urinary tract infection (UTI) in women by 12% to 20% (absolute risk reduction [ARR]) compared with placebo (number needed to treat [NNT]=58) (strength of recommendation: **A**). There is no conclusive evidence that cranberry juice effectively treats UTI (SOR: **D**).

■ EVIDENCE SUMMARY

A Cochrane review found only a small number of poor-quality trials, providing insufficient support to recommend cranberry juice to prevent UTI.¹ However, 2 recent randomized studies, not included in the Cochrane review, found that women taking cranberry juice have fewer symptomatic UTIs.

In women with prior *Escherichia coli* UTI, 50 mL of cranberry-lingonberry juice concentrate daily for 6 months reduced the recurrence of symptomatic UTI from 36% in the control group to 16% in the treated group (NNT=5).²

In a placebo-controlled randomized trial, women with prior UTI who took 1 tablet of concentrated cranberry juice (at least 1:30 parts concentrated juice) twice daily (n=50) or drank 250 mL of pure unsweetened cranberry juice 3 times a day for 12 months (n=50) reduced their incidence of symptomatic UTI.³ Women who drank the juice had an ARR of 12% (32% symptomatic UTI on placebo group, 20% in cranberry juice group, NNT=8.3) over 1 year. Use of cranberry juice tablets produced an ARR of 14% (32% symptomatic UTI in placebo group; 18% in cranberry tablet group, NNT=7.1). Self-reported compliance was 75% to 90% in the juice group and 90% in the tablet group.

No dose-response studies have been done to determine the optimal volume of juice or number of tablets needed to prevent infection. Studies have used between 200 mL once a day to 250 mL 3 times a day of the

juice or 1 cranberry tablet taken twice daily. The subject dropout rate was as high as 34% in one study using juice,⁴ implying that cranberry juice—which is acidic and astringent at full strength—may not be acceptable to many patients as a prophylactic therapy over a long period. The 1-month compliance rate of patients taking cranberry tablets was between 88% and 100%, suggesting that this form of cranberry may improve compliance.

The cost of cranberry juice and cranberry tablets was estimated at \$1400 and \$624 per year, respectively.³ This must be balanced against the cost of treating symptomatic UTIs. No randomized trials have tested the more readily available and palatable cranberry juice cocktail—which is mixed with water, a sweetener, and vitamin C—to prevent recurrent UTI.

Cranberry juice does not inhibit bacterial growth and will not sterilize the urinary tract. Also, cranberry juice does not prevent or treat UTI by changing the pH of the urine. Rather, the suspected mechanism of action is that proanthocyanidins contained in cranberry juice prevent bacterial adherence to uroepithelial cells, thus reducing the development of UTI.⁵ Cranberry juice has been shown to reduce uroepithelial cell adherence by bacteria resistant to trimethoprim-sulfamethoxazole.⁶

■ RECOMMENDATIONS FROM OTHERS

No national practice guidelines have recommended cranberry juice as a preventive strategy for recurrent UTI but, anecdotally, patients are often advised to try cranberry juice to prevent UTI.

CLINICAL COMMENTARY

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The protective value of cranberry juice against UTI bacteria is supported by a significant body of data from in vitro studies. The published studies examining the clinical use of cranberry juice for UTI prevention suffer from a number of flaws, including small sample size, poor design, lack of randomization, lack of placebo control, heterogeneous endpoints, and a focus on the geriatric population. Even the best of these studies suffers from a major defect: failure to use commonly available cranberry juice cocktail as the experimental intervention.

Despite these flaws, the weight of the clinical evidence suggests that cranberry juice is an effective intervention for the prevention of UTIs—especially in high-risk populations. Unfortunately, cranberry juice is expensive and its taste is displeasing to some, thus limiting its usefulness. Cranberry capsules/ tablets offer a reasonable alternative, but their composition varies greatly by manufacturer, and patient compliance may be poor.

The decision to use cranberry juice should be left to the patient and her clinician.

Given the evidence, cranberry juice is best suited for secondary prevention of recurrent

UTI. Patients with recurrent UTI who are being considered for antibiotic prophylaxis and are willing to drink the juice are ideal candidates. Although the studies have yet to establish an ideal dose, 3 glasses a day should be sufficient.

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