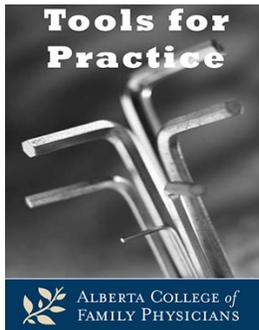


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**Reviewed: August 10, 2016**  
**Evidence Updated: New evidence**  
**Bottom Line: Wording modified**  
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## **Cranberry Juice/Tablets for the Prevention of Urinary Tract Infection: Naturally the Best?**

**Clinical Question: Does cranberry juice or extract prevent recurrent urinary tract infections (UTI)?**

**Bottom Line: Available evidence for cranberry products for reduction of UTIs is poor and inconsistent. Funding or selective reporting influence the few positive results.**

**Evidence:** Two systematic reviews<sup>1,2</sup> and five Randomized Controlled Trials (RCTs),<sup>3-7</sup> in mostly female patients followed ~six months.

- Cochrane:<sup>1</sup> 24 RCTs (13 RCTs with juice/concentrate, ten tablets/capsules and one both), 4473 patients.
  - 13 RCTs meta-analyzed:
    - No significant difference in number of patients getting  $\geq$ one UTI, Relative Risk (RR) 0.86 (0.71-1.04).
    - No difference in subgroups (recurrent UTI, elderly, catheterized, pregnant, or children).
  - Studies not meta-analyzed: eight found no benefit, two found benefit.
  - RCTs at high risk of bias: For example, 75% of RCTs excluded patients from analysis and 46% lost  $\geq$ 20% of patients.
- Archives:<sup>2</sup> 13 RCTs (eight RCTs of juice/concentrate, four tablets/capsules, and one both), 1616 patients.
  - Statistically significant reduction in UTIs, RR 0.62 (0.49-0.80), Number Needed to Treat (NNT)=12 to avoid recurrent UTI.
    - Excluded one negative outlier trial but included the one positive outlier trial. If positive outlier excluded, results no longer significant.
  - Issues: Poorer quality literature search, poor-quality RCTs (as above), and selective analysis.
- Three RCTs of women with recurrent UTI:
  - 176 patients:<sup>3</sup> No difference in UTI (cranberry juice 27.5%, placebo 30.4%,  $p=0.70$ ).

- 213 patients:<sup>4</sup> No difference in UTI (cranberry juice 29.9%, placebo 35.8%, p=0.13).
- 373 patients:<sup>5</sup> Statistically significant reduction in UTI.
  - Cranberry juice 18%, placebo 27%, NNT=12.
- A cranberry juice manufacturer sponsored the only RCT of the three with positive results (the others were not industry sponsored).

**Context:**

- Proposed active ingredient in cranberry (A-type proanthocyanidins) is believed to inhibit adherence of *Escherichia coli* to the urogenital mucosa.<sup>1,2</sup> Clinically unproven.
- Cranberry juice/cocktail costs ~\$0.45-0.66 and contains 120-150 Calories per 250 mL
  - Assuming two cups/day and the most positive data:<sup>2,5</sup> One in 12 chance of avoiding UTI over six months would cost ~\$180 and ~45,000 Calories (5.8 kg potential weight gain).
- Cranberry products likely inferior to antibiotics.
  - RCT of 221 women with recurrent UTI: Statistically significant more UTIs over 12 months for cranberry capsules (four/woman) versus trimethoprim-sulfamethoxazole (1.8/woman).<sup>6</sup>

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