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Whole cranberry fruit powder supplement reduces the incidence of culture-confirmed urinary tract infections in women with a history of recurrent urinary tract infection: a 6-month multicentre, randomised, double-blind, placebo-controlled trial

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Urinary tract infections (UTI) are amongst the most common bacterial infections worldwide, posing significant clinical and economic burden(1). Women are more susceptible, with nearly 50–60% of women experiencing at least one UTI during their lifetime, and 30–40% experiencing recurrent UTI (rUTI) in their lifetime(1). Cystitis, the most common UTI, remains one of the most common indications for prescribing antimicrobial treatment. However, continued use is associated with antimicrobial resistance(2), a major concern to health care and economic burden. Establishing alternative safe and effective non-antibiotic therapies for prevention of rUTI in otherwise healthy women is therefore important. Cranberry-containing products have been shown to reduce risk of UTIs(3) through inducing anti-adhesive activity against uropathogenic *Escherichia coli* to uroepithelial cells(4). Most clinical trials to date have tested fractions from cranberry fruit, such as juice concentrate or isolated proanthocyanidins(3). This study investigated the effect of a whole cranberry fruit powder supplement on incidence of culture-confirmed UTI (primary outcome) in women with rUTI history. A multicentre, 6-month, randomised, placebo-controlled, double-blind study enrolled 150 healthy females (18–65 years, body mass index (BMI) > 17.5-<35 kg/m^2) with rUTI. rUTI was defined as ≥ 3 UTIs in the last year or at least 2 UTIs in the last 6 months, confirmed by a health professional. Women with a history of > 5 UTIs in the last 6 months were excluded. Eligible participants were randomised to 1 capsule of either 500 mg/day whole cranberry powder (Swisse High Strength Cranberry [Pacran®]) or placebo. Culture-confirmed UTIs (> 10^8 cfu/L) from mid-stream urine samples were assessed throughout the intervention period whenever participants experienced UTI symptoms (including dysuria, urinary frequency or urgency, fever, suprapubic pain, or macroscopic haematuria), and at baseline, 3- and 6-month clinic visits. Whole cranberry powder reduced culture-confirmed UTI risk compared to placebo by 52% (adjusted relative risk [RR] = 0.48, 95% CI = [0.26, 0.87], p = 0.01); reduced *Escherichia coli* UTIs (RR = 0.49, 95% CI = [0.24, 1.01], p = 0.05); incidence of UTI with urinary frequency and urgency symptomatology (RR = 0.29, 95% CI = [0.13, 0.63], p < 0.01); delayed time to first UTI episode (adjusted hazard ratio [HR] = 0.36, 95% CI = [0.18, 0.74], p = 0.01); and reduced the mean total number of UTIs per participant (adjusted incidence rate ratio [IRR] = 0.41, 95% CI = [0.21, 0.79], p = 0.01). Differences between groups in incidence of symptomatic suspected UTIs, and culture-confirmed dysuria were not detected. No safety concerns were reported. In conclusion, this study provides robust evidence that whole cranberry powder is safe to consume and reduces the incidence of culture-confirmed UTI and several other UTI-related outcomes in healthy women with rUTI history.

References

1. Foxman B (2003) *Dis Mon* **49**, 53–70.
2. Bell BG, Schellevis F, Stobberingh E *et al.* (2014) *BMC Infect Dis* **14**, 13.
3. Williams G, Stothart CI, Hahn D *et al.* (2023) *Cochrane Database Syst Rev* **11**, Cd001321.
4. Liu H, Howell AB, Zhang DJ *et al.* (2019) *Food Funct* **10**, 7645–7652.