

Frequently Asked Questions

Cranberries for Preventing Urinary Tract Infections (Review)

The Cochrane Collaboration

1. Why is the study of cranberries and urinary tract infection (UTI) prevention an important area of study?

Since UTIs are the second most-common type of infection in the body, prevention of UTIs through the use of cranberry juice could make a significant impact in reducing healthcare costs in general, as well as those due to antibiotic resistance. It is important that the cranberry continue to be regarded and researched as a viable means to help address the public health challenge that urinary tract infections and their treatment present to antibiotic resistance. The effects of the studies may be small but clinically important to the 15 million women who contract UTIs each year.

2. What is a Cochrane Review? Can this type of review appropriately assess the relationship between cranberries and urinary tract infection?

The Cochrane Collaboration states that the Cochrane Reviews "are systematic reviews of primary research in human health care and health policy and are internationally recognized as the highest standard in evidence-based health care. They investigate the effects of interventions for prevention, treatment and rehabilitation by reviewing randomized, controlled trials (RCTs). They are published online in *The Cochrane Library*."

According to the *European Journal of Clinical Nutrition*, the Cochrane Review is not designed to address diet and nutrition research because of the type of methodology it employs. The author, A.S. Truswell of the Human Nutrition Unit, University of Sydney in Sydney, Australia, states, "Evidence-based nutrition has to be more than a Cochrane-type meta-analysis of randomized controlled trials (RCTs)." Truswell notes that RCTs of diet change through to disease outcomes are uncommon and have usually involved the addition or removal of only a single food component. Trials with whole diets through to disease outcome are rare and the dietary change(s) made by individuals is not the same as the prescription. In addition, compliance is more complex than for taking a medication. Therefore, Truswell concludes that "Cochrane Reviews are primarily designed to evaluate drug therapy for treating disease. For evaluating nutrition research evidence, the Cochrane methodology is inadequate for the majority of nutrition questions in medical practice."

3. What did the authors of the 2012 Cochrane Review conclude about cranberries for preventing urinary tract infections?

The authors of the Cochrane Review stated: "Prior to the current update, it appeared there was some evidence that cranberry juice may decrease the number of symptomatic UTIs over a 12-month period, particularly for women with recurrent UTIs. The addition of 14 further studies suggests that cranberry juice is less effective than previously indicated. Although some of the small studies demonstrated a small benefit for women with recurrent UTIs, there were no statistically significant differences when the results of one larger study were included. Cranberry products were not significantly different to antibiotics for preventing UTIs in three, small studies. Given the large number of dropouts/withdrawals from studies (mainly attributed to the acceptability of consuming cranberry products, particularly juice, over long periods), and the evidence that the benefit for preventing UTI is small, cranberry juice cannot currently be recommended for the prevention of UTIs.

Other preparations (such as powders) need to be quantified, using standardized methods, to ensure the potency, and contain enough of the 'active' ingredient, before being evaluated in clinical studies or recommended for use."

4. What were the results of the 2008 Cochrane Review of cranberries and urinary tract infection?

In 2008, the authors of the Cochrane Review stated: "There is some evidence that cranberry juice may decrease the number of symptomatic UTIs over a 12-month period, particularly for women with recurrent UTIs. Its effectiveness for other groups is less certain. The large number of dropouts/withdrawals indicates that cranberry juice may not be acceptable over long periods of time. It is not clear what is the optimum dosage or method of administration (e.g., juice, tablets or capsules). Further properly designed studies with relevant outcomes are needed."

The health benefits of cranberries have been recognized for decades.



5. Have studies refuted the findings of the 2012 Cochrane Review?

Yes, recent publications show as much as a 65% reduction in UTIs with cranberry consumption, leading to reduced use of antibiotics and reduction in the number of incidences of recurrent UTIs in different populations, such as children (Salo 2011, Afshar 2012) and women over 50 (Takahashi 2012). These studies suggest that cranberries can play a role in maintaining urinary tract health. Additional research should be conducted to further explore the role of cranberry in helping reducing recurrent urinary tract infections, as it is one of the leading causes of the growing public health issue of antibiotic resistance.

In addition, the recent meta-analysis published in *The Archives of Internal Medicine* (Wang et al 2012) found that there is evidence that cranberry consumption is protective against urinary tract infection with some heterogeneity among trials. This is also reported in the Cochrane Review, but they came to a different conclusion. The study criteria selected differed among these two systematic reviews of cranberry, thus, resulting in different conclusions. Specifically, one study overwhelmingly influenced the Cochrane result, but that same study was not included in the Wang meta-analysis, as the authors found that the study did not meet their selection criteria. In addition, the Cochrane Review included studies that showed negative results when comparing cranberry intake versus antibiotic use, while Wang focused on the effect of cranberry consumption on urinary tract infection. For both reviews, the issue of subject compliance also remains an issue.

6. Given the conclusions made by the authors of the 2012 Cochrane Review, do cranberries help prevent urinary tract infections?

The wealth of evidence in all areas for cranberry research is longstanding and continues to grow. Research from institutions globally has demonstrated that regular consumption of cranberry juice helps promote a healthy urinary tract system. The recent review on cranberry needs to be put into perspective and weighed against the other positive clinical trials, over the past couple of decades, in which cranberry was effective in maintaining urinary tract health.

In addition to the years of evidence to support the consumption of cranberries for a healthy urinary tract, recent publications have shown as much as a 65% reduction in UTIs, leading to reduced use of antibiotics and reduction in the number of incidences of recurrent UTIs in different populations, such as children (Salo 2011, Afshar 2012) and women over 50 (Takahashi 2012). These studies support that cranberries play a role in maintaining urinary tract health. Additional research should be conducted to further explore the role of cranberry in helping reduce recurrent urinary tract infections, as it is one of the leading causes of the growing public health issue of antibiotic resistance.

Cranberries naturally contain the flavonoid proanthocyanidin (PAC) and other polyphenols that have other potential health benefits for cardiovascular, digestive and oral health.

7. Where can I find more information about the cranberry health research?

The Cranberry Institute website provides the abstracts for over 300 cranberry health research studies and reviews. They can be accessed by topic area by visiting the Cranberry Health Research Library: <http://www.cranberryinstitute.org>.

