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### **Nutrition Forum (1997)**

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#### **Cranberry juice and UTIs: maybe Grandma was right. (urinary tract infections)**

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Generations of women have regarded drinking cranberry juice as a simple preventive or treatment for urinary tract infections (UTIs). Is this just another dubious folk remedy, or has science shown that this bit of medical folklore has some merit?

#### Cranberry Science

About 75 years ago scientists determined that eating large amounts of cranberries could cause urine to become more acid. They speculated that this could prevent or treat recurrent UTIs since bacteria favor an alkaline medium for growth. Subsequently, commercial cranberry juice cocktails became a popular "cure" for women suffering from recurrent UTIs, and anecdotal evidence seemed to support the notion. It was years later that scientists found that the increase in urine acidity after drinking cranberry juice was small and transient, but this finding did not seem to sway those who believed in the benefits of the beverage.

More recent studies have suggested that cranberry juice's alleged effectiveness against bacteria is not in its ability to acidify the urine, but in its ability to prevent bacteria from sticking to the lining of the urinary tract where they can multiply and cause infection. Two anti-adhesion factors have been isolated from cranberry juice, fructose and another polymeric compound of unknown nature. Several fruit juices have been tested, but only cranberry and blueberry juice contain the latter inhibitor.

Recently a randomized, doubleblind, placebo-controlled study of 153 elderly women was undertaken to determine whether the regular consumption of cranberry juice did indeed have an effect on the incidence of UTIs (Journal of the American Medical Association 271:751-754, 1994). This population was chosen because the condition is particularly prevalent in older women. The researchers found that women given 10 ounces of cranberry juice every day for 6 months were half as likely to develop a urinary tract infection as women who consumed a placebo beverage. The study also suggested that cranberry juice reduced preexisting bacteria in the urinary tract as well as the occurrence of new bacteria, and that the effects were unrelated to the acidity of the women's urine. The researchers concluded that prevalent beliefs about the effects of cranberry juice on the urinary tract may have microbiologic justification.

#### Pop a Pill Instead?

Cranberry pills and capsules are sold in health-food stores and pharmacies. One brand is marketed as a convenient way to get the benefits of cranberry

juice "without the unnecessary, and nutritionally harmful, calories." The pills are purported not only to prevent or treat UTIs, but also to treat kidney stones and act as a "urine deodorizer" for those troubled by urinary incontinence.

A Good Housekeeping Institute study of cranberry pills, however, found that they vary greatly in the amount of cranberry concentrate they contain, in the number of pills recommended per day, and in their price. The manufacturers base their claims about the pills' effectiveness against UTIs on studies using cranberry juice. But there is no scientific evidence that cranberry pills are effective. Nor is there evidence that cranberry pills prevent kidney stones or "deodorize" the urine.

Jerry Avorn, MD, of Brigham and Women's Hospital and Harvard Medical School, was a researcher in the JAMA study. He doubts the effectiveness of cranberry pills or capsules. Avorn told the Good Housekeeping Institute, "We don't know if the active component in cranberries survives the extraction process, or, if it does, if it's present in an amount that would help."

#### The Bottom Line

So is cranberry juice effective against urinary tract infections? The answer seems to be probably. NF Editorial Board member Varro Tyler, PhD, a top expert on the medicinal use of plants, says that an "appropriate cranberry product" does seem to be useful in the prevention and treatment of UTIs. He thinks that consuming about 3 ounces daily of cranberry juice cocktail (which is about 33% cranberry juice) may work as a preventive, while 12 to 32 ounces daily may be useful as treatment for a UTI. He cautions, however, that cranberry juice may be a useful addition to standard antibiotic therapy but should never be used in place of such therapy.

More research is needed before we're certain of cranberry juice's anti-UTI effects in older women. And more studies will be necessary to determine if cranberry juice is effective at all in younger women. Another question that needs to be answered: Does cranberry juice taken along with antibiotics offer any benefit over either antibiotics or cranberry juice alone? In any case, it seems clear that for an otherwise healthy individual, drinking moderate amounts of cranberry juice can't do any harm and might even do some good.

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