

# LETTERS TO THE EDITOR

## CRANBERRY CONCENTRATE: UTI PROPHYLAXIS

To the Editor:

Lower urinary tract infection (UTI) is a significant problem among 20% of the female population in the United States. It is estimated that as many as 2% to 5% of all women experience recurring UTIs once or twice per year. Cranberry's reputed effects in helping prevent bladder infections are well known, although not documented extensively by scientific research.

Historically, the organic acids in cranberries were thought to be responsible for their clinical effectiveness. During the last decade or so, however, laboratory experiments have shown that unidentified substances in cranberry interfere with binding of *Escherichia coli* bacteria to epithelial cells. In 1994, Avorn and co-workers reported the correlation of antiadherence activity and reduction of bacteriuria in elderly women (mean age 78 years) after ingestion of cranberry cocktail (Avorn J, Monana M, Gurwitz JH, et al. *Reduction of bacteriuria and pyuria after ingestion of cranberry juice. JAMA* 1994; 271:751-4). As part of our research into cranberry's antiadherence activity, we conducted a more limited clinical trial to examine the role of cranberry in the prevention of recurring UTIs among younger women.

As the source of cranberry, we selected a *solid* nutritional supplement with significant *in vitro* antiadherence activity as determined by laboratory tests. Each capsule contained 400 mg of cranberry solids. The placebo consisted of dicalcium phosphate.

Both cranberry and placebo were encapsulated in identical opaque capsules and placed in plain white bottles labeled only with a control number.

Following approval by the Human Subjects in Research Committee at Weber State University and the Institutional Review Committee at McKay-Dee Hospital center, we began a randomized, double-blind, crossover, placebo-controlled clinical trial. Subjects were recruited and screened to meet the following criteria: non-pregnant, sexually active women between the ages of 18 and 45 years who were generally healthy other than suffering from a demonstrated history of recurring urinary tract infections (four UTIs during the previous year or at least one UTI within the previous 3 months). No financial incentives were offered or paid to volunteers.

To ensure a consistent entry point into the study, each participant was held in a queue until suffering a symptomatic UTI. This UTI episode was not included in any final tally of infections. Each initial UTI was treated with a standard 10-day course of antibiotic therapy. Before completing the antibiotic therapy, each subject was randomly assigned to one of two groups and began daily consumption of either cranberry or placebo, thus initiating her 6-month study period. Every month for 6 months, each subject returned her bottle, received a new supply of capsules, and was interviewed for compliance and any adverse effects. For the first 3 months, group 1 received placebo; during the second 3 months, this group received the product containing cranberry extract. Group 2

received the product containing cranberry extract for the first 3 months, followed by placebo for 3 months. Both physicians and subjects were blind to their grouping.

Each subject was instructed to notify the attending physician during the study if she developed a symptomatic UTI or suspected she had an infection. Following diagnosis and submission of a urine sample for standard bacterial assay, antibiotics were prescribed to treat active infections. During treatment, subjects continued to take their assigned daily dietary supplements of cranberry product or placebo.

A total of 19 subjects who developed active infections during their time in the queue entered the study. Only 10 completed the 6-month period; 9 were lost because of pregnancy, unrelated infections requiring antibiotic therapy, and moving from the area. No subjects dropped out because of difficulty with the treatment regimen or undesirable side effects. All subjects who completed the study were married, sexually active women between the ages of 28 and 44 years, with a median age of 37. Of the 10 subjects who completed the study, 6 had been randomly assigned to group 1 and 4 had been assigned to group 2.

A total of 21 UTIs were recorded among the 10 subjects completing the study. Only two of the cultures (each from a different subject and both taken during the cranberry ingestion months) were positive for non-*E coli* bacteria. While taking cranberry as opposed to placebo, 7 of the 10 subjects exhibited fewer UTIs, 2 subjects exhibited the same number of UTIs, and 1 subject experienced one more UTI.

Of the total 21 incidents of UTIs recorded among the participants during the 6 months they were taking either cranberry or placebo, only 6 UTIs occurred among the 10 subjects (range 0 to 2 per subject) during their 3 months taking cranberry (2.4 per

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subject year). In contrast, a total of 15 UTIs occurred (range 0 to 3 per subject) among the 10 subjects during their 3 months on placebo (6.0 per subject year). Using Student's *t* distribution test and a 99% confidence interval, cranberry concentrate was found to be more effective than placebo in reducing the occurrence of UTI ( $P < .005$ ).

This is the first known study of an encapsulated concentrated cranberry extract product and its prophylactic effects in reducing the occurrence of UTI among relatively young adult women with a history of recurrent UTI. Our data reveal that daily consumption of powdered cranberry extract as a dietary supplement can help reduce the number of urinary tract infections over a period of 3 months. The data also demonstrate that cranberry in a more concentrated form, without extra liquids as a supporting medium, may be successful at helping decrease the frequency of UTIs.

Encouraged by our findings, we are actively engaged in isolating and characterizing components from cranberry that demonstrate antiadherence activity. Further research may offer an explanation of cranberry's popularity and apparent effectiveness as a prophylactic agent for urinary tract infections.

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#### DOUCHING FREQUENCY

To the Editor:

Vaginal douching remains a common practice in the United States despite

reports of douching being a risk factor for *Chlamydia trachomatis* infections<sup>1</sup> and tubal ectopic pregnancy.<sup>2</sup> Higher rates of cervical cancer have been reported in women who douche.<sup>3,4</sup> Vaginal douching is also associated with pelvic inflammatory disease,<sup>5</sup> and among current douchers, pelvic inflammatory disease is significantly related to frequency of douching.<sup>6</sup> It has been suggested that douching may allow overgrowth of more pathogenic organisms by suppressing normal vaginal flora.<sup>7</sup>

We studied a sequential sample of women presenting to an urban family care center who had a pelvic examination for any reason. Patients were evaluated by an attending physician, a resident, or a nurse practitioner, who took a structured history and used a checklist to record complaints, symptoms, and douching history.

Of 202 women, 75 (37%) stated that they never douched. Among women who douched, 96 (76%) douched less frequently than once a week, and 31 (24%) douched once a week or more often. Women who douched ranged in age from 13 to 64 years.

After age 21, with increasing age, there was a decrease in the proportion of women who douched. Frequent douching, defined as weekly or more frequently, was not associated with complaints of vaginal itching, discharge, pain, or soreness.

Sixty-three percent of the women

in our study douche, compared with 37% in a previous report.<sup>8</sup>

The high prevalence of douching and particularly frequent douching in the younger women, suggests that these women may be putting themselves at increased risk for pelvic inflammatory disease, ectopic pregnancy, and possibly even cervical carcinoma. Since there is no evidence of any benefit from this practice, physicians could provide a service by educating women that douching is not necessary or beneficial, and, particularly when practiced frequently, has a potential risk of harm. Further research would be useful in elucidating why women douche, what benefit they perceive from douching, and what types of solutions are being used.

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#### REFERENCES

1. Stergachis A, Scholes D, Heidrich FE, et al. Selective screening for *Chlamydia trachomatis* in a primary care population of women. *Am J Epidemiol* 1993; 138:143-53.
2. Chow W-H, Daling JR, Weiss NS, Moore D, Soderstrom R. Vaginal douching as a potential risk factor for tubal ectopic pregnancy. *Am J Obstet Gynecol* 1985; 153:727-9.
3. Gardner JW, Schuman KL, Slattery ML, et al. Is vaginal douching related to cervical carcinoma? *Am J Epidemiol* 1991; 133:368-75.
4. Herrero R, Brinton LA, Reeves WC, et al. Sexual behavior, venereal diseases, hygiene practices, and invasive cervical cancer in a high risk population. *Cancer* 1990; 65:380-6.
5. Scholes D, Daling JR, Stergachis A, et al. Vaginal douching as a risk factor for acute pelvic inflammatory disease. *Obstet Gynecol* 1993; 81:601-6.
6. Wolner-Hanssen P, Eschenback DA, Paavonen J, et al. Association between vaginal douching and acute pelvic inflammatory disease. *JAMA* 1990; 263:1936-41.
7. Onderdonk AB, Delaney ML, Hinkson PL, Dubois AM. Quantitative and qualitative effects of douche preparations on vaginal microflora. *Obstet Gynecol* 1992; 80:333-8.

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8. Aral SO, Mosher WD, Cates W Jr. Vaginal douching among women of reproductive age in the United States: 1988. *Am J Public Health* 1992; 82:210-14.

## CORRECTING MYOPIA

To the Editor:

Two years ago I picked up a book by Robert-Michael Kaplan, *Seeing Without Glasses*. I thought it might be quackery but I tried his program of therapy and my vision improved. At times, I even get sudden flashes of very clear vision. Since then I have read quite a bit more in the field of developmental optometry.

As a myope who once considered excimer laser photorefractive keratectomy (PRK), I suggest that your readers do some in-depth reading about the condition in order to see the "big picture" before considering improving their vision by means of corneal surgery or recommending it to a patient. As a child, I was told that my nearsightedness was a normal biological variant, genetically determined, like being tall. Now I understand it to be a pathological stretch, more like obesity.

The myopic eye is longer and the eye wall is thinner. Myopes have more retinal detachments, more glaucoma, more floaters and vitreous degeneration. According to one author, myopia is the sixth leading cause of blindness.<sup>1</sup> The etiology of myopia has never been pinned down, and the nature vs nurture debate continues.<sup>2,5</sup> Myopia is virtually unheard of in primitive cultures and has been shown to rise rapidly with the introduction of

industrialization and literacy.<sup>2,6,7</sup>

Behavioral/developmental optometrists have long promoted vision therapy as a reasonable treatment option for myopia. Research on other approaches to this problem continues and may result in better treatments with fewer risks, such as corneoplasty,<sup>8</sup> or possibly a medical approach that could reverse the entire pathological stretch and thus constitute a true cure for this disease.<sup>9</sup>

Corneal surgery is the most heavily marketed medical procedure in history. The money spent developing and selling this treatment would have been better spent elsewhere. It is an elective procedure that carries the risk of serious and permanent complications. This surgery is a treatment for a visual acuity problem, but it is not a cure for myopia. In my opinion, it is a poorly thought out approach to the problem of myopia. You simply cannot treat myopia comprehensively with surgery.

I highly recommend the book *Improve Your Vision Without Glasses or Contact Lenses*, by Drs Beresford, Muris, Allen, and Young (New York, NY: Simon & Schuster, 1996, ISBN 0-684-81438-2). This is an excellent summary for the lay person of the problem of myopia and concepts in vision therapy. You can also contact a behavioral optometrist through the Optometric Extension Program Foundation in Santa Ana (714-250-8070). High tech may be glamorous, but it is not always the best medicine.

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## REFERENCES

1. Sherman A. Myopia can often be prevented, controlled or eliminated. *J Behav Optom* 1993; 4(1):16.
2. Brody J. New surgery for myopia: look before you leap. *New York Times* 1994 Jun 1; Sect C:10.
3. Brody J. In debate on myopia's origins. The winner is: both sides? *New York Times* 1994 Jun 1; Sect C:10.
4. Zadnik K, Satariano WA, Mutti DO, et al. The effect of parental history of myopia on children's eye size. *JAMA* 1994; 271:1323-7.
5. Mutti DO, Zadnik K, Adams AJ. Myopia, the nature versus nurture debate goes on. *Invest Ophthalmol Vis Sci* 1996; 37:952-7.
6. Sato T. *Acquired myopia*. Chicago, Ill: Professional Press, 1964.
7. Young FA, Baldwin WA, Leary GA, et al. The transmission of refractive errors within Eskimo families. *Am J Optom/Arch Am Acad Optom* 1969; 46:676-85.
8. <http://www.slackinc.com/eye/pcon/199606/cornea.htm>
9. Raviola E, Wiesel TN. The neural basis of myopia. On the Brain, the Harvard Mahoney Neuroscience Institute Letter, summer, 1995.

## CORRECTION

Evaluation of the Dyspeptic Patient: A Cost-Utility Study (*Ebell MH, Warbasee L, Brenner C. J Fam Pract* 1997; 44:545-55). In the Methods section of the abstract (page 545), it reads "*H pylori* eradication using oral omeprazole (500 mg twice daily)." The dosage should have read 20 mg twice daily, and appears correctly in the rest of the paper. The *Journal* regrets the error.

## HUMOR IN MEDICINE ANECDOTE CONTEST

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