



BY JARROD SHAPIRO, DPM

# Should We Prescribe Probiotics with Antibiotics?

Research suggests that there is a benefit from these supplements.

*Practice Perfect is a continuing every-issue column in which Dr. Shapiro offers his unique personal perspective on the ins and outs of running a podiatric practice.*

**W**ith the ever-increasing complexity of medicine and the large number of available supplements, it behooves each of us to stay as current as possible to provide the best care to our patients. Supplements are generally not well taught in medical school and the topic of co-prescribing probiotics with antibiotics is one of those poorly covered topics, so let's do a high yield Q&A of probiotic prescribing.

**Q:** *What organisms are we talking about?*

**A:** The most studied organisms are the following: Lactobacillus, Bifidobacterium, and Saccharomyces.<sup>1</sup>

**Q:** *Are probiotics effective in reducing the risk of antibiotic-associated diarrhea (AAD)?*

**A:** Yes, Hempel and colleagues performed a meta-analysis to evaluate the use of probiotics for prevention and treatment of antibiotic-associated diarrhea.<sup>2</sup> These researchers found 82 randomized controlled trials (11,811 patients). There was a statistically significant reduction of AAD with administration of probiotics. They found a relative risk of



0.58 (an adverse effect is twice as likely without probiotics than with them) and a number needed to treat of 13 (one would need to prescribe probiotics to 13 people to benefit one of them). The studies were too heterogeneous to determine which probiotic is best.

Interestingly, another meta-analysis from 2012 by Richie and Romanuk also found a 0.58 relative risk for the prevention and treatment of eight different gastrointestinal disorders, including antibiotic-associated diarrhea.<sup>3</sup> Note that two different meta-analyses found the same result.

**Q:** *Are probiotics effective in reducing the risk of Clostridium difficile colitis?*

**A:** Yes, Pattani, et al. performed a systematic review and meta-analysis including 16 studies that looked at

both *C. difficile* infection and antibiotic-associated diarrhea, and they found a relative risk of 0.37 of *C. difficile* infection with a number needed to treat of 144.

**Q:** *What probiotic strain should I prescribe?*


**A:** The research has not answered this question sufficiently to make a recommendation. However, in the meta-analyses above, the majority of included studies used Lactobacillus species. Until more research is done to solidify which strains are most effective, it appears most prudent to use Lactobacillus, although there appears to be no issue with combining species. Products with Lactobacillus species include the following: Bacid®, Bio-K Plus®, Culturelle®, DanActive™, and Lactinex™, among others.

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*Probiotics with Antibiotics? (from page 37)*

**Q:** What dosage should be prescribed and how long should it be taken?

**A:** A Cochrane systematic review and meta-analysis of 23 studies (3,938 pediatric patients) found 5 billion to 40 billion colony forming units to be most effective<sup>5</sup> and an evidence-based review suggests a minimum of 5 billion CFUs.<sup>1</sup> This same review suggests starting the probiotic on the same day as beginning the antibiotic and continuing it for one to two weeks after completion of the antibiotic.<sup>1</sup> **PM**

**References**

<sup>1</sup> Wilkins T, Sequoia J. Probiotics for Gastrointestinal Conditions: A Summary of the Evidence. *Am Fam Physician*. 2017 Aug 1;96(3):170-178.

<sup>2</sup> Hempel S, Newberry SJ, Maher AR, Wang Z, Miles JN, Shanman, R, Shekelle PG. Probiotics for the prevention and treatment of antibiotic-associated diarrhea: a systematic review and meta-analysis. *JAMA*. 2012 May 9;307(18):1959-1969.

<sup>3</sup> Ritchie ML, Romanuk TN. A meta-analysis of probiotic efficacy for gastrointestinal diseases. *PLoS One*. 2012;7(4):e34938.

<sup>4</sup> Pattani R, Palda VA, Hwang SW, Shah PS. Probiotics for the prevention of antibiotic-associated diarrhea and *Clostridium difficile* infection among hospitalized patients: systematic review and meta-analysis. *Open Med*. 2013 May 28;7(2):e56.

<sup>5</sup> Goldenberg JZ, Lytvyn L, Steurich, J, Parkin P, Mahant S, Johnston BC. Probiotics for the prevention of pediatric antibiotic-associated diarrhea. *Cochrane Database Syst Rev*. 2015 Dec 22;(12):CD004827.

**Dr. Shapiro** is editor of PRESENT Practice Perfect. He joined the faculty of Western University of Health Sciences, College of Podiatric Medicine, Pomona, CA in 2010.