In adults using antibiotics, do high-dose probiotics result in greater reduction of gastrointestinal symptoms than low-dose probiotics?

**EVIDENCE-BASED ANSWER**

Compared with low-dose probiotics, high-dose probiotics reduce duration of antibiotic-associated diarrhea (AAD) and certain gastrointestinal (GI) side effects associated with antibiotic use, such as fever, abdominal pain, bloating, abdominal distension, loose stools, and constipation (SOR: B, RCTs). High-dose probiotics may also reduce incidence of AAD and *Clostridium difficile*–associated diarrhea (CDAD) (SOR: B, conflicting RCTs). Data may be biased due to industry sponsorship of trials.

A 2014 single-center, triple-blind, industry-sponsored, RCT in China evaluated the effect of probiotics on GI symptoms in 503 hospitalized adults 30 to 70 years old taking antibiotics (penicillins, cephalosporins, or clindamycin) for 3 to 14 days.¹ Exclusion criteria included pregnancy, breastfeeding, active diarrhea, prior consumption of probiotics or fermented milk products, prior probiotic allergy, uncontrolled intestinal disease, *C difficile* infection within the past 3 months, parenteral nutrition, NPO status, immunosuppressed state, antibiotic use within the past 1 month, and lactose intolerance. Participants were stratified by age, sex, and duration of antibiotic therapy and then randomized to receive HOWARU® Restore 4-strain probiotic formula at a high dose of 17 billion CFU (n=168), a low dose of 4.17 billion CFU (n=168), or placebo (n=167). Probiotics were initiated within 36 hours of antibiotic initiation and continued until 7 days after antibiotic completion. Compliance and GI symptoms were followed during admission and for 4 weeks after discharge.

Compared with the low-dose probiotic group, the high-dose probiotic group had lower incidence of AAD (28.2% vs 15.5%; *P*=.02), shorter mean duration of AAD (4.1 days vs 2.8 days; *P*=.04), lower incidence of CDAD (9.4% vs 1.2%; *P*=.04), and lower incidence of abdominal pain, abdominal distension, loose stools, and constipation. No adverse effects were attributed to probiotic use.²

*Richa Garg, MD, MS*
*Pooja Saigal, MD*
*University of Chicago*
*Chicago, IL*


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Is capsaicin cream safe and effective at reducing knee osteoarthritis pain?

**EVIDENCE-BASED ANSWER**

Capsaicin cream and its cis-isomer, cimamide, have small to moderate effects reducing osteoarthritis knee pain after at least four weeks of use. Capsaicin cream is safe, but commonly causes application-site burning that rarely leads to stopping treatment (SOR: A, systematic review of RCTs and one crossover study).

A 2014 systematic review examined capsaicin cream for knee osteoarthritis in 5 double-blind RCTs and 1 case-crossover trial.