

Probiotics for Antibiotic-Associated Diarrhea, *C. difficile* Infection, and Irritable Bowel Syndrome

Context

More than 20 million Canadians suffer from digestive disorders every year. Diarrhea, a frequent digestive disorder, is a common side effect of treatment with antibiotics, occurring in 2% to 25% of people depending on the type of antibiotic prescribed. Antibiotic-associated diarrhea can be a result of changes in the bowel flora, a direct effect of the antibiotic, an overgrowth of *Clostridium difficile* (*C. difficile*), or — rarely — as an allergic response to the antibiotic. Most cases are mild and self-limited, with no complications. However, approximately 20% of antibiotic-related cases are due to *C. difficile*, which can lead to serious complications and recurrences, and can be fatal. Another common digestive disorder is irritable bowel syndrome (IBS), with Canada having the highest incidence of IBS in the world. Symptoms are ongoing and include gas, bloating, abdominal pain, irregular bowel movements, diarrhea, constipation, heartburn, nausea, and mucus in the stool.

Technology

Probiotics are microorganisms that, when taken in adequate amounts, confer potential health benefits, most of them related to gastrointestinal conditions. Examples include *Lactobacillus sp.*, *Bifidobacterium sp.*, and *Saccharomyces boulardii*. Probiotics may be combined with prebiotics — non-digestible food products that selectively stimulate the growth or activity of bacteria in the colon; the combination of probiotic and prebiotic products are called synbiotics.

Issue

It is uncertain how probiotics work to potentially improve digestive health, but they may provide a protective

barrier, enhance immunity, and compete with disease-causing bacteria. However, by reviewing their clinical effectiveness and safety, informed decisions about their use can be made.

Methods

A focused literature search of key resources was conducted, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages

For Antibiotic-Associated Diarrhea (AAD)

- Probiotics may reduce the risk of developing AAD.

For IBS:

- Probiotics may reduce the severity of IBS symptoms.

For Recurrent *C. difficile* Infection:

- *Saccharomyces boulardii* with vancomycin or metronidazole may reduce the risk of recurrent *C. difficile* infection compared to antibiotics alone.

Results

The literature search produced 409 citations of which 92 were deemed potentially relevant, together with 5 additional reports from other sources. Of these 97 reports, 31 met the criteria for inclusion in this review: 1 health technology report, 5 systematic reviews/meta-analyses, and 25 randomized controlled trials (RCTs).

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