

Probiotics in eczema

Nataly Martini BPharm, MSc, PhD

Probiotics are live microbial food supplements that when consumed in sufficient quantities, are believed to play an important role in regulating proper intestinal function and digestion. Purported health benefits of probiotics are considered to be strain-specific. While evidence supports the use of probiotics in bacterial vaginosis, diarrhoea, and irritable bowel syndrome for instance; many other claims remain largely unsubstantiated by research. This review will focus on the use of probiotics in eczema.

PREPARATIONS: Probiotic cultures are available in several food sources; particularly fermented products (eg pickled vegetables, miso, kimchi and dairy). Commercially available products such as tablets, capsules, powders and sachets use microencapsulation techniques to prevent the freeze-dried bacteria from being destroyed in the acid environment of the stomach.

COMMON NAMES: Yoghurt, sour milk and other fermented food preparations are often associated with probiotics.

LATIN NAME: *Lactobacillus* spp. (eg *L. acidophilus*, *L. casei*, *L. rhamnosus*, *L. bulgaricus*, *L. plantarum*, *L. helveticus*), *Bifidobacterium* spp. (eg *B. bifidum*, *B. longum*, *B. breve*, *B. infantis*), *Saccharomyces boulardii*, *Streptococcus salvarius*, *Enterococcus faecium*.

ACTIVE CONSTITUENTS: Different commercial preparations contain different combinations and numbers of active microbial strains in their products, which are measured as colony forming units (CFU) per tablet/capsule or per g/ml. *Lactobacillus rhamnosus* and *Bifidobacterium* spp. are two of the probiotic strains most commonly mentioned for eczema treatment.

MEDICAL CLAIMS: Probiotics are claimed to be effective in preventing and/or reducing the rate of development of eczema. Some claims propose that they may be beneficial in treating the symptoms of eczema.

EVIDENCE: Probiotics given during pregnancy and early infancy show more promising results in reducing the incidence of eczema. One study suggested a decrease in the incidence of 26%, expanded to 52% when *L. paracasei* was included in the supplement. Heterogeneity was a limitation in studies, with some strains exhibiting greater effectiveness than others. This was not considered to be significant however.

Meta-analysis of data from five trials identified in a Cochrane systematic review found no significant effect of probiotics on reducing symptoms of itch and sleep disturbance. Furthermore, eczema severity was reduced by less than 7.45 points on the 102-point SCORAD scale. Substantial heterogeneity was found among the 12 included trials, suggesting that different probiotic strains may have different effects on eczema management. Three trials using the probiotic strain *L. rhamnosus* resulted in an increase in eczema severity, while other *Lactobacillus* strains reduced severity compared with placebo. These inconsistencies are thought to be due to different anti-inflammatory properties of various strains.

ADVERSE EFFECTS: Probiotics are considered relatively safe for use. They may cause mild stomach upset, flatulence, diarrhoea and bloating, especially during the first few days of use; however these often disappear with regular use. Isolated case reports link probiotics to serious adverse effects such as sepsis and bowel ischaemia. Caution is advised for patients at risk of opportunistic

J PRIM HEALTH CARE
2017;9(2):178–179.
doi:10.1071/HC15921
Published online 30 June 2017

CORRESPONDENCE TO:

Nataly Martini
Senior Lecturer, School of
Pharmacy, The University
of Auckland, PB 92019,
Auckland, New Zealand
n.martini@auckland.ac.nz

Natural products and dietary supplements are a popular health care choice, but few have been tested to contemporary standards. **POTION OR POISON?** summarises the evidence for the potential benefits and possible harms of well-known herbal medicines.

Summary message

Probiotics supplementation during pregnancy and first several years of life showed a significant reduction in the development of eczema. Benefits may depend, however, on factors such as bacterial strain, duration of administration, pathology and patient characteristics (age, diet, allergy predisposition). In the treatment of eczema, studies are less promising with evidence suggesting that probiotics are not effective.

While considered relatively safe for use, probiotics may cause sepsis and bowel ischaemia, and caution is advised for patients at risk of opportunistic infections and in those with badly damaged gastrointestinal tracts. Interactions may occur with antibiotics and antifungals, immunosuppressants, antidiarrhoeals, oral contraceptives, proton pump inhibitors, iron salts, benzodiazepines and vaccinations.

infections and in those with badly damaged gastrointestinal tracts. Safety and efficacy of the different strains of probiotics in pregnancy and lactation is lacking, despite studies being conducted in pregnant women for the prevention of atopic eczema in children.

DRUG INTERACTIONS: Lactobacillus may affect insulin sensitivity and caution is advised if concurrent medication is taken that may affect blood glucose levels. Antibiotics should be taken separately from probiotics by at least two hours and *S. boulardii* may be inactivated by antifungals. Caution should be exercised with immunosuppressants, antidiarrhoeals, oral contraceptives,

proton pump inhibitors, iron salts, benzodiazepines and vaccinations.

Key references

1. Mansfield JA, Bergin SW, Cooper JR, Olsen CH. Comparative probiotic strain efficacy in the prevention of eczema in infants and children: a systematic review and meta-analysis. *Mil Med.* 2014;179(6):580–92. doi:10.7205/MILMED-D-13-00546
2. Boyle RJ, Bath-Hextall FJ, Leonardi-Bee J, Murrell DF, Tang ML. Probiotics for the treatment of eczema: a systematic review. *Clin Exp Allergy.* 2009;39(8):1117–27. doi:10.1111/j.1365-2222.2009.03305.x
3. Wickens K, Stanley TV, Mitchell EA, Barthow C, et al. Early supplementation with Lactobacillus rhamnosus HN001 reduces eczema prevalence to 6 years: does it also reduce atopic sensitization? *Clin Exp Allergy.* 2013;43:1048–57. doi:10.1111/cea.12154