Review: *Lactobacillus* is safe and effective for treating children with acute infectious diarrhoea


**QUESTION:** In children with acute infectious diarrhoea (ID), is treatment with *Lactobacillus* safe and effective for improving clinical outcomes?

**Main results**

26 studies were identified, and 9 studies were included. 8 studies involved only hospitalised children. In all 9 studies, children received at least oral rehydration solution in addition to *Lactobacillus* or control. Meta-analysis showed that children who received *Lactobacillus* had a shorter duration (mean reduction 0.7 d, 95% CI 0.3 to 1.2 d; 7 studies) and less frequent diarrhoea on day 2 (mean reduction in number of stools 1.6/d, CI 0.7 to 2.6/d; 3 studies) than did those who received a control intervention. Subgroup analyses showed that *Lactobacillus* reduced the duration of diarrhoea more than did control interventions in 5 studies done in developed countries (mean reduction 0.8 d, CI 0.1 to 1.5 d), in 6 studies that used only live *Lactobacillus* preparations (mean reduction 0.8 d, CI 0.5 to 1.3 d), and in studies that included children with ID of all causes (not just rotavirus) (mean reduction 0.5 d, CI 0.1 to 1.0 d). Adverse reactions consistent with signs and symptoms of ID were generally similar in children who received *Lactobacillus* and those who received a control intervention.

**Conclusion**

In children with acute infectious diarrhoea, treatment with *Lactobacillus* is safe and effective for reducing the duration and frequency of diarrhoea.

**COMMENTARY**

The use of probiotics is well accepted. Although the exact mechanism by which this treatment accelerates recovery from infectious diarrhoea is not known, its use is medically sound. In this meta-analysis by Van Niel et al, treatment with *Lactobacillus* is effective for accelerating the recovery from infectious diarrhoea. The effect size was a decreased duration of diarrhoea of 0.7 days and a reduction of 1.6 stools on day 2 of treatment.

Because the estimates of the effect of *Lactobacillus* treatment are statistically significant, should we use *Lactobacillus* regularly in treating gastroenteritis in children? Several considerations should be made before accepting a universal recommendation based on the results of this meta-analysis. It is important to note that different types of lactobacilli may have different effect sizes. Furthermore, Van Niel et al combined the results of *Lactobacillus* GG, *L. reuteri*, *L. acidophilus*, and *L. bulgaricus*, which may not be appropriate. Marked differences exist in the amounts of bacteria given to patients in different trials, in the different preparations of *Lactobacillus*, and in the amounts that are commercially available in different food products. In this meta-analysis, a clear dose-response relationship was found. Thus, in practice, doses should contain ≥10^10 colony-forming units of *Lactobacillus* and be given ≥2 times daily.

Van Niel et al concluded that *Lactobacillus* is safe when given to children with diarrhoea. However, only 591 patients were exposed to *Lactobacillus* in the studies included in this meta-analysis. In the elderly, individual cases of serious infections caused by *Lactobacillus* have been reported. I would agree with Van Niel et al that the studies available so far are encouraging, but more data are needed before a universal recommendation of the use of *Lactobacillus* can be made.

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