

# Lowering lactose and carbs in milk does not help severely malnourished children

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Treating hospitalized, severely malnourished children with a lactose-free, reduced-carbohydrate milk formula does not improve clinical outcomes, according to a study published February 26 in the open-access journal *PLOS Medicine* by Robert Bandsma of the Hospital for Sick Children in Toronto, Canada, James Berkley of the KEMRI/Wellcome Trust Research Programme in Kilifi, Kenya, and colleagues.

Children who are sick and have severe acute malnutrition have a high risk of death during their stay in hospital. Diarrhea from malabsorption of sugars, and refeeding syndrome—a metabolic disturbance that occurs as a result of rapid reinstatement of nutrition—may both contribute to delayed recovery and early mortality.

Doctors and nutritionists have wondered if giving alternative types of formula, such as lactose-free feeds (lactose is one of the sugars that may not be absorbed and can cause [diarrhea](#)) may be beneficial; these feeds are intermittently used and are expensive in resource-poor settings.

The study team re-designed the initial formula given to sick, severely [malnourished children](#) by eliminating lactose and reducing other sugars (carbohydrates) by about 30%, in order to reduce these risks whilst still providing sufficient vital energy and nutrients to children.

In a multi-center, double-blind trial in Kenya and Malawi, hospitalized, sick severely malnourished children with a median age of 16 months were randomized to receive the existing standard formula (418

participants) or the modified formula (425 participants).

The two groups did not differ significantly in terms of how long it took to stabilize their condition, as judged by recovery from their acute illness as well as metabolic stabilization evidenced by recovery of appetite. There were no differences in the numbers who died or suffered diarrhea between the two groups.

Importantly, biochemical analysis amongst the children in the study who had diarrhea suggested that, despite removing lactose and reducing the other carbohydrates, the lactose-free formula still presented a load of carbohydrates above that which could be absorbed by the intestines.

According to the authors, the results support the ongoing use of the current milk formulation rather than using a lactose-free formula for children who are admitted to hospital sick and severely malnourished, including those with diarrhea. Further research is needed to investigate whether a more radical reformulation of these feeds could be made whilst still providing the energy and nutrients needed by sick and severely malnourished [children](#).

**More information:** Bandsma RHJ, Voskuijl W, Chimwezi E, Fegan G, Briend A, Thitiri J, et al. (2019) A reduced-carbohydrate and lactose-free formulation for stabilization among hospitalized children with severe acute malnutrition: A double-blind, randomized controlled trial. *PLoS Med* 16(2): e1002747. [doi.org/10.1371/journal.pmed.1002747](https://doi.org/10.1371/journal.pmed.1002747)

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