RELATIVE EFFECTIVENESS OF VARYING LEVELS OF LACTOSE REDUCTION IN MILK IN ALLEVIATING MILK INTOLERANCE

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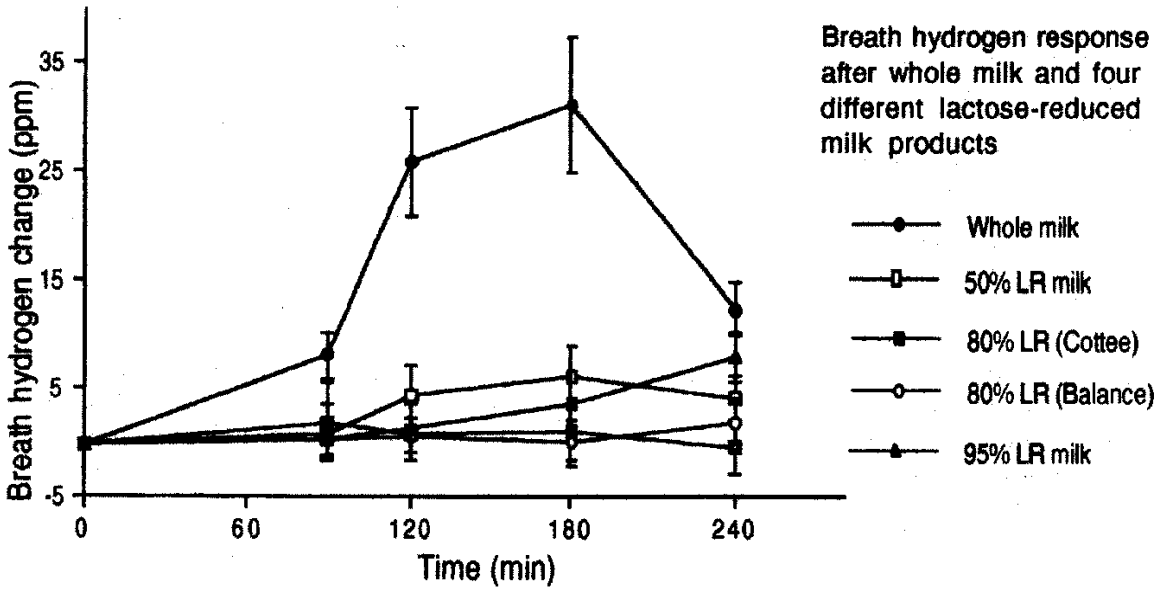
Lactose modified milk products are increasingly available on the retail market as substitutes for milk for lactose-intolerant individuals. The amount of lactose remaining ranges from 5% to 50% of the level in the original milk. The degree of reduction necessary in order to alleviate the signs and symptoms of milk intolerance has received little study. Our objective was to compare the relative effectiveness of various levels of lactose reduction in full fat cow's milk in reducing the breath hydrogen response and alleviating the symptoms of lactose maldigestion.

Five milk products with lactose reduction of 0%, 50%, 80% (#1), 80% (#2) and 95% were evaluated in six healthy adult subjects with lactase nonpersistence. They were Nowra™ pasteurised, homogenized whole milk (Shoalhaven Dairy Co-op Ltd, Bombaderry, NSW); Balance™ low lactose milk (Dairy Farmers Co-op Ltd, NSW, an Ultra Heat Treated (UHT) product in which 80% of the lactose has been hydrolysed by direct enzyme addition); and Digestelact™ (Sharpe Laboratories Pty Ltd, Ermington, NSW, a 95% lactose hydrolysed milk powder produced by direct enzyme addition). The other two products were fresh, pasteurised 50% and 80% lactose reduced (LR) milks (Cottee Corporation P/L, Chatswood, NSW) manufactured by a patented process that involves physical removal of the lactose. The 50% LR product (Lacto Lo™) was undergoing test marketing at the time of the study and the 80% LR equivalent was studied for comparison. Breath hydrogen was measured at hourly intervals for 4 h after consumption of 300mL of each product in a single blind, randomised design.

The mean (± SE) maximum breath hydrogen rise (ppm) after the 0%, 50%, 80% (#1), 80% (#2) and 95% LR milks was 31 (± 6), 7 (± 3), 5 (± 3), 5 (± 2) and 8 (± 3), respectively (see figure).≥



The difference between whole milk and the LR milks was statistically significant ($p<0.05$) but there was no important difference among any of the LR milks. Whole milk provoked symptoms in most subjects while 95% LR milk produced none. Only one out of six subjects reacted to the 50% and 80% LR milks. The results suggest that a 50% level of lactose reduction in milk may be adequate to relieve the signs and symptoms of milk intolerance in a majority of healthy adults with lactose malabsorption.

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