(*The FASEB Journal*. 2006;20:A1018)

Effects of *Lactobacillus casei* and *Bifidobacterium bifidum* on intestinal enzymatic activity and sugar uptake

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ABSTRACT

Probiotics are live organisms, present in milk and its derived products, with beneficial effects for human health. In the present study, we have investigated the possible use of *Lactobacillus casei* (Lc) and *Bifidobacterium bifidum* (Bb) as probiotic factors, determining its effect on some aspects of the intestinal physiology.

Swiss mice (n=60) were divided in three groups and fed for 28 days with a control standard diet and milk with the different bacteria strains at a concentration of 10^8 cfu/ml. After the animal sacrifice, a portion of jejunum was excised and analysed for the presence of Peyer's patches. Other fragment was collected and processed for the isolation of brush border membrane vesicles (BBMV). In these vesicles the activity of sucrase, maltase, D-galactose uptake and the expression of the sugar transporter (SGLT1) were measured.

Addition of Bb or Lc in the diet did not alter body weight gain. In contrast, the number of jejunal Peyer's patches present in Lc- and Bb-fed-animals was significantly increased as compared to control group ($p<0.01$). Maltase and sucrase activities were also significantly increased ($p<0.001$) in both bacteria strains-fed animals. In BBMV uptake assays probiotics inhibited Na^+-dependent D-galactose uptake although SGLT1 expression in the two supplemented dietary groups increased as compared with (to) control group.

These data may indicate that Lc or Bb intake seems to stimulate: the immune system, the enzymatic activity and, the SGLT1 expression. It is suggested that dietary addition of these bacterial strains could help to improve intestinal sugar digestion and absorption.

This work was supported by Health Department of the Government of Navarra.