

Abstract

# Do Lactose Intolerant Individuals Efficiently Absorb Protein from Acute Milk Consumption? <sup>†</sup>

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**Background:** Lactose intolerance is due to the malabsorption of lactose, the predominant sugar present in milk. Although this has known impacts on lower gastrointestinal digestive processes (including diarrhoea), the impact on total gastrointestinal transit along with the digestion and absorption of other nutrients has not been investigated. Hence this study was undertaken to understand whether lactose intolerance impacts postprandial amino acid (AA) concentrations following milk ingestion.

**Methods:** Twenty young women enrolled in this double-blind, randomised crossover trial were classified as either lactose intolerant (LI,  $n = 10$ ) or dairy tolerant (DT,  $n = 10$ ) after a standardised lactose challenge (50 g), based on markers of malabsorption and symptoms. Each group was then provided with 750 mL of UHT-treated conventional milk, a2 Milk™ and lactose-free milk. Fasting and postprandial plasma samples were collected and analysed for AA concentrations using ultra-performance liquid chromatography.

**Results:** Relative to dairy tolerant group, lactose intolerant group had higher plasma concentrations of glutamic acid in response to all the milk types ( $p < 0.05$  each, respectively). However, in response to a2 Milk™, dairy tolerant group had higher circulatory concentrations of threonine compared to lactose intolerant group ( $p < 0.05$ ). Compared to conventional milk, both groups had higher plasma concentrations of threonine, alanine, proline and glutamic acid in response to lactose-free milk ( $p < 0.05$  each, respectively). However, in response to lactose-free milk, both groups had higher plasma concentrations of alanine and proline compared to a2 Milk™ ( $p < 0.05$  each, respectively). Additionally, in lactose intolerant group, threonine was found higher with lactose-free milk than a2 Milk™, glutamic acid was higher with conventional milk than lactose-free milk and alanine was higher with conventional milk than a2 Milk™ ( $p < 0.05$  each, respectively).

**Conclusions:** Lactose intolerance has little impact on postprandial plasma levels of specific AAs. This response did not differ between conventional or a2 Milk™, however lactose-free milk altered protein digestibility.

**Supplementary Material:** The oral presentation is available online at [www.mdpi.com/2504-3900/8/1/39/s1](http://www.mdpi.com/2504-3900/8/1/39/s1).



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