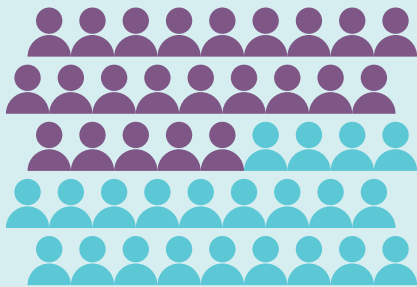
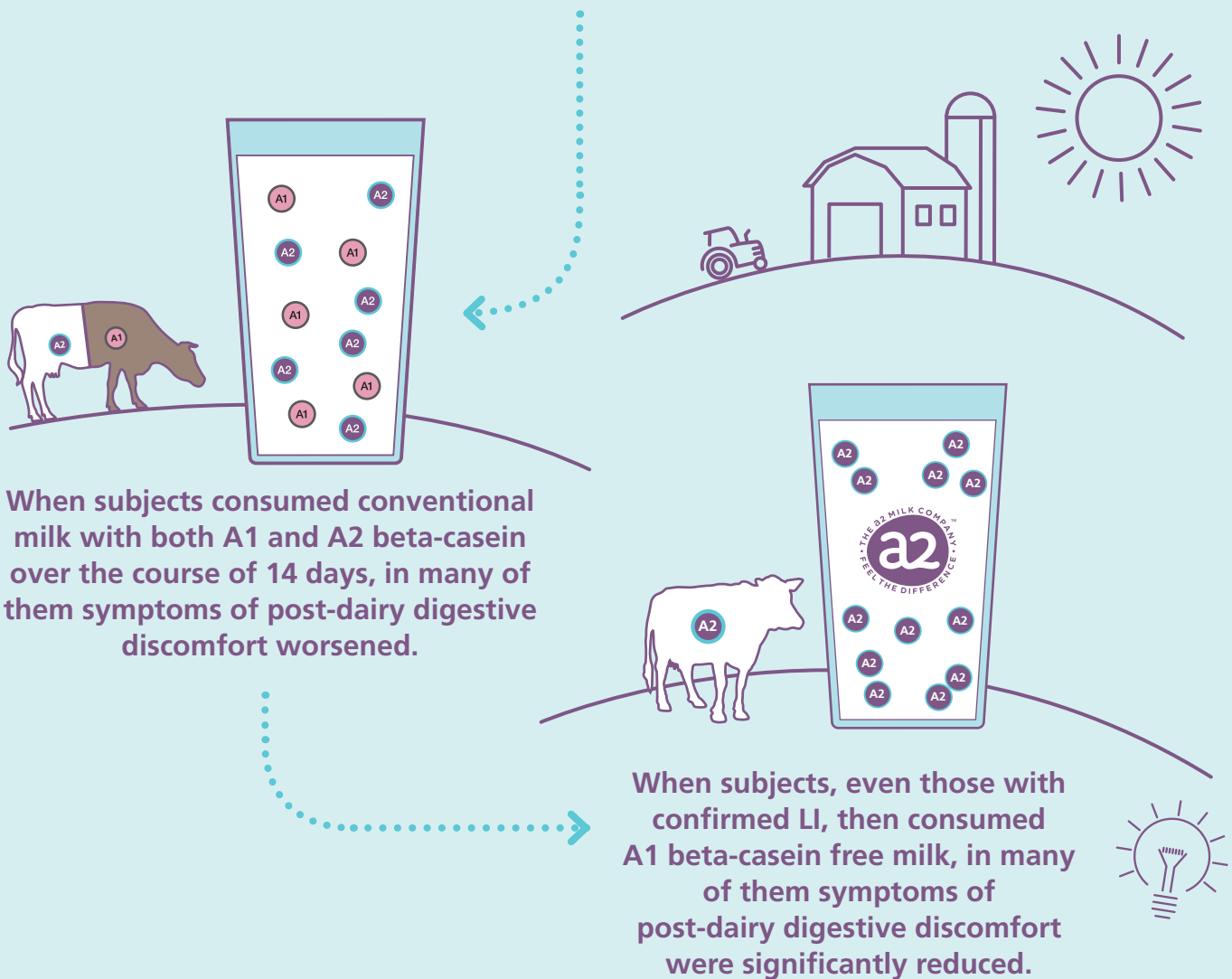


A 2016 TRIAL REPORTS CONSUMPTION OF A1 BETA-CASEIN PROTEIN AS A POTENTIAL CAUSE OF POST-DAIRY DIGESTIVE DISCOMFORT



45 Han Chinese adults self-diagnosed with milk intolerance, 23 of whom were diagnosed via urinary galactose test as lactose intolerant (LI), participated in a double-blind, randomized, 2 x 2 crossover trial that involved consuming conventional milk (containing both A1 and A2 beta-casein proteins*) and milk containing only A2 beta-casein protein.



Effects of milk containing only A2 beta-casein versus milk containing both A1 and A2 beta-casein proteins on gastrointestinal physiology, symptoms of discomfort, and cognitive behavior of people with self-reported intolerance to traditional cows' milk

Sun Jianqin, Xu Leiming, Xia Lu, Gregory W. Yelland, Jiayi Ni and Andrew J. Clarke.
Nutrition Journal (2016) 15:35

Abstract

Background: Cows' milk generally contains two types of β -casein, A1 and A2 types. Digestion of A1 type can yield the peptide β -casomorphin-7, which is implicated in adverse gastrointestinal effects of milk consumption, some of which resemble those in lactose intolerance. This study aimed to compare the effects of milk containing A1 β -casein with those of milk containing only A2 β -casein on inflammation, symptoms of post-dairy digestive discomfort (PD3), and cognitive processing in subjects with self-reported lactose intolerance.

Methods: Forty-five Han Chinese subjects participated in this double-blind, randomized, 2x2 crossover trial and consumed milk containing both β -casein types or milk containing only A2 β -casein. Each treatment period was 14 days with a 14-day washout period at baseline and between treatment periods. Outcomes included PD3, gastrointestinal function (measured by smart pill), Subtle Cognitive Impairment Test (SCIT), serum/fecal laboratory biomarkers, and adverse events.

Results: Compared with milk containing only A2 β -casein, the consumption of milk containing both β -casein types was associated with significantly greater PD3 symptoms; higher concentrations of inflammation-related biomarkers and β -casomorphin-7; longer gastrointestinal transit times and lower levels of short-chain fatty acids; and increased response time and error rate on the SCIT. Consumption of milk containing both β -casein types was associated with worsening of PD3 symptoms relative to baseline in lactose tolerant and lactose intolerant subjects. Consumption of milk containing only A2 β -casein did not aggravate PD3 symptoms relative to baseline (i.e., after wash out of dairy products) in lactose tolerant and intolerant subjects.

Conclusions: Consumption of milk containing A1 β -casein was associated with increased gastrointestinal inflammation, worsening of PD3 symptoms, delayed transit, and decreased cognitive processing speed and accuracy. Because elimination of A1 β -casein attenuated these effects, some symptoms of lactose intolerance may stem from inflammation it triggers, and can be avoided by consuming milk containing only the A2 type of β -casein.