

DOES INTESTINAL SENESENCE CAUSE MALABSORPTION OF ORDINARY DIETARY CARBOHYDRATES? K Silliman,* NW Solomons, A Balsam,* P Reich,* AD Deodhar,* and J Rosado.* Department of Nutrition and Food Science, Massachusetts Institute of Technology, Cambridge, MA and Somerville-Cambridge Elderly Services, Somerville, MA.

It has been suggested that up to 33% of elders incompletely absorb the carbohydrate (CHO) in a mixed breakfast containing 100 g of CHO by manifesting a rise in breath H₂ concentration of >20 ppm within 120 min of the meal. (Feibusch JA, Holt PR: *Dig Dis Sci* 29:1095, 1982. To re-evaluate this issue, we followed in healthy white elders: 1) a self-selected breakfast meal (Br)(N=10); 2) 12 oz of intact cow milk (IM) (N=75). In the Br study, mean age was 72 yrs (range: 60-82 yrs), 1 male, 9 females. CHO content ranged from 24 to 113 g (mean: 52 ± 28 g). Only one of 10 elders (10%) manifested a rise of >20 ppm during 5 h. In 20 younger controls (mean age, 26; range: 20-38 yrs) one subject (5%) had a significant rise in response to a self-selected Br. Of 75 elders, mean age 72 yrs (range: 62-87 yrs), 23 M, 52 F, studied for 5 h after drinking 12 oz of IM containing 18 g of CHO as *lactose*, incomplete absorption as manifested by a rise in breath H₂ levels of >20 ppm was observed in 12 (16%). Of these, 7 (58%) had symptoms of milk intolerance in association with the test. Half of the malabsorbers were of southern European ethnic extraction, suggesting that *primary* adult lactase deficiency (hereditary), rather than acquired deficiency, was the major contributing factor to lactose maldigestion in this elderly white population. The overall frequency of lactase deficiency is comparable to the reported prevalence for the white adult population as a whole. In summary, at voluntary intakes, usual Br meals are rarely associated with significant CHO malabsorption, and no excess frequency of maldigestion of milk lactose can be related to normal aging.

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SEGMENTAL ZINC ABSORPTION IN HAMSTER SMALL INTESTINE. DL Antonson*, CJ Grandjean*, JA Vanderhoof, Department of Pediatrics, University of Nebraska Medical Center, Swanson Center for Nutrition, Omaha, NE.

In vivo intestinal perfusion was employed to define the segmental absorption characteristics for zinc in the hamster small intestine. The duodenum, both with and without bile and pancreatic secretions, and 5-7 cm segments of jejunum and ileum were studied with perfusates containing 10 µg/ml of zinc. Segments were perfused for 2 hours by recirculation employing polyethylene glycol as a nonabsorbable marker. Zinc concentrations of the perfusates were determined both before and after perfusion by atomic absorption spectrophotometry. Net zinc absorption by the hamster small intestine was significantly greater in the ileum (77%) when compared to the duodenum (46.4%), the jejunum (36.5%), and the duodenum with bile obstruction (31%), $p < .005$, $p < .001$, and $p < .001$ respectively. Mucosa was scraped from the serosa of each segment following perfusion and analyzed for zinc content and subsequently compared with nonperfused control segments. Post perfusion mucosal zinc content comprised 5.6% of the absorbed zinc from the ileum, 1.3% from the duodenum, 5.3% from the jejunum, and 2.7% from the duodenum with bile obstruction, indicating rapid transport of zinc occurs across the epithelial cells following uptake. Our data indicate that in the hamster the ileum has the greatest capacity for zinc absorption, and that although occurring at a much lower rate, duodenal zinc absorption is enhanced by the presence of bile and pancreatic secretions, $p < .001$.