



Irish Section Meeting, 17–19 June 2015, Nutrition at key life stages: new findings, new approaches

## Eat your vegetables! Dietary fibre intakes and stool hardness in picky eaters

C.M. Taylor<sup>1</sup>, K. Northstone<sup>2</sup>, S. Wernimont<sup>3</sup> and P. Emmett<sup>1</sup>

<sup>1</sup>Centre for Child and Adolescent Health, School of Social and Community Medicine, University of Bristol, Bristol BS8 2BN, UK, <sup>2</sup>School of Social and Community Medicine, University of Bristol, Bristol BS8 2PS, UK and <sup>3</sup>Nestlé Nutrition, 3000 Horizon Drive, King of Prussia, PA 19406, USA

Constipation is a common condition in childhood, affecting up to 30 % of school age children in the UK<sup>(1)</sup>. For many children, the causes are not well understood; however, low intakes of fibre, and of fruits and vegetables, may be risk factors<sup>(2)</sup>. Further, fibre supplements have been shown to be effective in children with chronic constipation<sup>(3)</sup>. It has been suggested that constipation may be associated with picky eating<sup>(4)</sup>, which is characterised by an unwillingness to eat familiar foods or to try new foods, as well as strong food preferences<sup>(5)</sup>. A reduction in vegetable intakes in children who are picky eaters has been noted previously<sup>(6, 7)</sup>, but the effect of picky eating on dietary fibre intake and stool hardness is unknown. The aims of the study were: (1) to determine the dietary fibre intake and the relative contribution from vegetables in children age 3 years enrolled in the Avon Longitudinal Study of Parents and Children (ALSPAC) who were identified as picky eaters compared with those who were not picky eaters; (2) to investigate whether any difference in dietary fibre intake between the two groups was reflected in usual stool hardness.

Picky eating was identified from a postal self-completion questionnaire completed by the primary caregiver at 38 months, indicating whether the child was 'Yes, very choosy' in response to the question 'Does your child have definite likes and dislikes as far as food is concerned?'. Dietary intake was assessed at 43 months with a 3-day food record. Stool type was assessed using a questionnaire item completed by the caregiver at 42 months, indicating the usual hardness of the child's stools.

Dietary fibre intake was significantly lower in children who were picky eaters than non-picky eaters (mean difference for non-starch polysaccharide (NSP) fibre  $-1.5$  (95 % CI  $-2.2, -0.9$ ) g/day,  $p < 0.001$ ). In an adjusted regression model, picky eating was strongly associated with dietary fibre intake ( $\beta$   $-1.35$  (95 % CI  $-1.94, -0.76$ ) g/day,  $p < 0.001$ ). Children who were picky eaters had a lower percentage of fibre from vegetables (7.8 (95 % CI 6.1, 9.4)%) compared with non-picky eaters (12.6 (95% CI 11.6, 13.6)%,  $p < 0.001$ ). Picky eating was significantly associated with usually having hard stools (chi-square test,  $p < 0.002$ ). In an adjusted multinomial model, the association between picky eating and hard stool was attenuated when dietary fibre was included in the model, suggesting that fibre mediated the association.

Picky eating in 3-year-old children was associated with an increased prevalence of usually having hard stools. This association was mediated by the low dietary fibre intake of picky eaters. For children with picky eating behaviour, dietary advice aimed at increasing fibre intake may help avoid hard stools.

This study was supported by Nestlé Nutrition.

1. Auth MK, Vora R, Farrelly P *et al.* (2012) *BMJ* **345**, e7309.
2. Mugie SM, Benninga MA, Di Lorenzo C (2011) *Best Pract Clin Gastroenterol* **25**, 3–18.
3. Castillejo G, Bullo M, Anguera A *et al.* (2006) *Pediatrics* **118**, e641–648.
4. Tharner A, Jansen PW, Kiefte-de Jong JC *et al.* (2015) *J Pediatr* **166**, 91–96.
5. Dovey TM, Staples PA, Gibson EL *et al.* (2008) *Appetite* **50**, 181–193.
6. Galloway AT, Lee Y, Birch LL (2003) *J Am Diet Assoc* **103**, 692–698.
7. Jacobi C, Agras WS, Bryson S *et al.* (2003) *J Am Acad Child Adolesc Psych* **42**, 76–84.