Proceedings of the Nutrition Society (2016), **75 (OCE2)**, E44 doi:10.1017/S0029665116000343

Scottish Section Meeting, 21–22 March 2016, Phytochemicals and health: new perspectives on plant based nutrition

The Effect of Dietary Fibre Source on Satiety and Bowel Function

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Research suggests that a diet rich in fibre is strongly correlated with improvement in bowel functioning and satiety induction[1]. Despite the considerable variety of fibre-rich foods available, it is alarming that a significant number of individuals' intake is considerably lower than the recommended level recently advised by SACN (30 g/day)[2]. However, as dietary fibre comes from various sources with somewhat varying chemical composition, this study aimed to investigate the effect of fibre source by examining three types, namely, psyllium husk, flaxseed, and chia seeds in equal amounts on bowel function and satiety.

Within a pre-post repeated measure design, 18 participants were randomly assigned into three groups. Each group was provided with a different fibre source for consumption (5 g of fibre) in its natural form; daily for seven consecutive days. All participants were required to complete an evaluation questionnaire for two weeks where satiety index and parameters of bowel functioning were assessed. Parameters of bowel functions were weekly bowel movement, Bristol stool scale score, and bowel function index (taking into account; ease of defecation, bowel evacuation and perceived constipation)[3]. During week 1, participants were asked to maintain their normal diet (baseline) and during week 2, participants were asked to consume the provided fibre source with breakfast (treatment).

Analysis of Variance for the change to the baseline followed by Tukey test for multiple comparisons was performed using SPSS version 19. A statistically significant difference ($P < 0{\cdot}05$) in Bristol stool scale score was found, indicating that psyllium husk was more effective than flaxseed whereas chia seed was not significantly different from psyllium husk. Overall, positive trends suggested that all three fibres led to improvement in bowel function and satiety; however psyllium husk presented the greatest mean change for the majority of parameters measured.

	Mean Change from baseline		
Parameter	Chia Seed	Flaxseed	Psyllium Husk
Weekly Satiety Index	0·058	0·083	0·240
Weekly Bowel Movement	0·500	0·333	1·167
Bristol Stool Scale Score	7·833	4·500	15·500
Bowel Function Index	−12·944	−11·444	−27·111

These findings suggest that fibre intake has a positive effect on satiety and bowel function, reinforcing the importance of fibre intake, whilst appreciating that not all fibres work the same on bowel functioning. Additionally, the findings also highlight the rapid effects of fibre on bowel movement (within seven days clinically positive outcomes were experienced by several participants).

1. Slavin J. (2013) Fiber and Prebiotics: Mechanisms and Health Benefits. *Nutrients* **5**(4), 1417–1435.
2. GOV. SACN [Internet]. 2015 [cited 1 October 2015]. Available from: https://www.gov.uk/government/
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