



## Dietary fibre intakes of two cohorts of New Zealand adults with and without constipation

H.M. Ng<sup>1</sup>, J. Maggo<sup>1</sup>, C. Wall<sup>1</sup>, S. Bayer<sup>1</sup>, N.C. Roy<sup>2,3</sup> and R. Gearry<sup>1</sup>

<sup>1</sup>Department of Medicine, University of Otago, Christchurch, 8011 New Zealand

<sup>2</sup>Department of Human Nutrition, University of Otago, Dunedin, 9016 New Zealand

<sup>3</sup>Riddet Institute, Massey University, Palmerston North, 4410, New Zealand

Adequate dietary fibre (DF) intake is recommended to relieve constipation and improve gut health<sup>(1)</sup>. It is often assumed that individuals with constipation have relatively low DF intake and do not meet the recommended adequate intake of 25 g and 30 g for females and males, respectively. The 2008/09 New Zealand Adult Nutrition Survey confirmed that the mean DF was 17.9 grams (g) per day for females and 22.8 g per day for males, which was well below the recommended adequate intake<sup>(2)</sup>. With the continuous shift of dietary patterns over time, we sought to compare the current usual DF intake of two cohorts of New Zealand adults: those who have constipation with those without constipation but with relatively low DF intake. We report baseline dietary data from two randomised controlled dietary studies (Kiwifruit Ingestion to Normalise Gut Symptoms (KINGS) (ACTRN12621000621819) and Bread Related Effects on microbiAl Distribution (BREAD) (ACTRN12622000884707)) conducted in Christchurch, New Zealand in 2021 and 2022, respectively. The KINGS study included adults with either functional constipation or constipation-predominant irritable bowel syndrome to consume either two green kiwifruit or maltodextrin for four weeks. The BREAD study is a crossover study and included healthy adults without constipation but with relatively low DF intake (<18 g for females, <22 g for males) to consume two types of bread with different DF content, each bread for four weeks separated by a two-week washout period. All participants completed a non-consecutive three-day food diary at baseline. Dietary data were entered into FoodWorks Online Professional (Xyris Software Australia, 2021) to assess mean daily DF intake. Fifty-six adults from the KINGS study ( $n = 48$  females,  $n = 8$  males; mean age  $\pm$  standard deviation:  $42.8 \pm 12.6$  years) and BREAD study ( $n = 33$  females,  $n = 23$  males; mean age:  $40.4 \pm 13.4$  years) completed a baseline food diary. In the KINGS study, females with constipation had a daily mean DF intake of  $25.0 \pm 9.4$  g whilst male participants consumed  $26.9 \pm 5.0$  g per day. In the BREAD study, females without constipation had a mean daily DF intake of  $19.4 \pm 5.8$  g, whereas males had  $22.6 \pm 8.5$  g per day. There was a statistically significant difference in the mean daily DF intake between females with constipation and those without constipation ( $p < 0.001$ ) but not between males ( $p = 0.19$ ). These two studies found that DF intakes among females with constipation were not as relatively low as previously assumed, as they met their adequate intake of 25 g. Further data analysis from the KINGS and BREAD studies will reveal the effects of using diet to manage constipation and promote better gut health in these two cohorts of New Zealand adults.

**Keywords:** dietary fibre intake; New Zealand; adults; constipation

### Ethics Declaration

Yes

### Financial Support

Funding from the BREAD study had come from the High-Value Nutrition National Science Challenge, which was funded by the New Zealand Ministry of Business, Innovation and Employment (MBIE), contract number (UOAX1902). Goodman Fielder provided approximately 10 percent of cash co-funding and in-kind contributions. For the KINGS study, funding had also come from the High-Value Nutrition National Science Challenge; and Zespri International Ltd.

### References

1. Jones JM (2014) *Nutr J* 12, 13:34.
2. University of Otago and Ministry of Health. A Focus on Nutrition: Key findings of the 2008/09 New Zealand Adult Nutrition Survey 2011 [Available from: <https://www.health.govt.nz/system/files/documents/publications/a-focus-on-nutrition-v2.pdf>].