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## Higher frequency of fruit and vegetable consumption is associated with greater daily stool weight in adults with constipation

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Chronic constipation is a prevalent gastrointestinal condition affecting approximately 10% of the global population<sup>(1)</sup> and is associated with substantial healthcare costs and quality of life impairments in the UK<sup>(2)</sup>. While the aetiology of chronic constipation is not fully understood, lower dietary fibre intake is associated with greater risk of constipation<sup>(3)</sup> and consumption of fruits, vegetables, and wholegrains is recommended within clinical guidelines. Although not diagnostic for constipation, low stool weight is a common feature and is associated with greater risk of colorectal cancer<sup>(4)</sup>; yet few studies have ever measured stool weight in constipation. This study investigated associations between frequency of plant food intake and stool weight in people with constipation.

Baseline data from a dietary intervention trial were analysed, which included participants meeting Rome IV criteria for constipation. Self-reported data on habitual consumption of nine plant food categories were collected using a validated tool. Participants performed 7-day total stool collection, which was weighed on the same weighing scales at the research centre. Associations between intake frequency for each plant food category and daily stool weight (total stool weight divided by 7 days) were analysed using independent-samples t-tests (SPSS, version 28,  $p < 0.05$  considered significant).

Ninety-nine people with Rome IV constipation (89% female; mean [± SD] age 32.4 [± 12.4] y; BMI 23.0 [± 3.2] kg/m<sup>2</sup>) provided 7-day total stool collections. Mean (± SD) stool weight was 72.5 ± 47.2 g/day (minimum 2.1 g/day; maximum 280.6 g/day). Stool weight was significantly higher among those consuming fruit once or more per day (86.2 ± 48.2 g/day), compared with those consuming fruit less than once per day (62.4 ± 44.1 g/day;  $p = 0.012$ ). Stool weight was also higher among those consuming vegetables once or more per day (98.6 ± 59.1 g/day) compared with those eating vegetables less than once per day (62.2 ± 37.2 g/day;  $p < 0.001$ ). Differences for green salad (79.6 ± 52.1 g/day; 63.3 ± 38.5 g/day;  $p = 0.088$ ) and high-fibre breads (84.1 ± 46.6 g/day; 65.1 ± 46.6 g/day;  $p = 0.05$ ) were borderline significant, when comparing those consuming these more than once per week, compared with once or less per week (respectively). No significant differences were found for frequency of consuming fruit juices, potatoes, vegetable soups/stews, high-fibre cereals, or beans and lentils.

This is the most comprehensive analysis to date of measured stool weight in constipation, and its association with plant food intake. Despite presence of constipation, participants with higher intakes of fruit and vegetables had a greater daily stool weight; an important feature associated with lower colorectal cancer risk<sup>(4)</sup>. However, intakes were not sufficient to manage their constipation symptoms. Intervention studies investigating potential benefits from increasing fruit and vegetable intakes in people with constipation are required and are currently underway.

### References

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