

Pilot study: Use of a novel portion control device and dietetic app in a six-week weight management intervention

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Large portion sizes are thought to contribute to excess energy intakes and therefore increase the risk of obesity^(1,2). Correspondingly, controlling portion size is thought to be an effective way to reduce energy intakes and facilitate weight loss^(2,3). Recent evidence has also suggested the efficacy of online applications in achieving weight loss⁽⁴⁾. This study investigated whether the use of a novel portion control device in conjunction with an online dietetic application in a six-week weight management intervention was associated with significant short-term weight loss. A convenience sample of thirty-eight Irish adult volunteers was recruited. Three did not meet the inclusion criteria and were excluded. Initial weight, height and waist circumference were measured and BMI and waist to height ratio (WHtR) calculated for each participant ($n = 35$). Participants were provided with a portion control device and written guidance on how to use the online app. This app assessed and scored overall dietary quality (%) across a number of different dietary domains (e.g., habitual consumption of fruit and vegetables, breakfast cereals, dairy foods, fatty foods, sugar- sweetened foods and beverages and alcohol), and provided personalised dietary advice to users. Weekly motivational emails and WhatsApp messages were sent to each participant. *Thirty-two* participants returned at six weeks for follow-up anthropometric measurements. There were significant reductions in mean body weight (3.0 ± 2 kg, 95% CI 2.2-3.7); BMI (1.0 ± 0.6 kg/m², 95% CI 0.7-1.2); waist circumference (6.0 ± 3.9 cm, 95% CI 4.6-7.4) and WHtR (0.03 ± 0.02 , 95% CI 0.03-0.04) between baseline and the end of the six-week program (all $p < 0.001$). *Sixteen* participants used both the app and the portion control device over the six-week period, achieving similar weight loss and waste reduction to those who used only the portion control device. Among the participants who used the app ($n = 16$), overall dietary quality score increased by 15.9 ± 10.6 percentage points between baseline and six-week follow-up ($p < 0.001$; 95% CI -21.59– -10.29). The self-reported dietary change most strongly associated with reductions in weight and waist circumference was increased high fiber breakfast cereal consumption ($p = 0.039$ and $p = 0.038$ respectively), although increased low-fat dairy food consumption ($p = 0.034$) and reduced intake of sugary foods and drinks ($p = 0.035$) also predicted reductions in waist circumference. Statistically significant short-term weight loss and waist circumference reduction occurred over the course of this six-week intervention. These positive anthropometric changes were associated with use of the portion control device; with increased intakes of high fiber breakfast cereals and low-fat dairy foods; and with reduced intakes of sugary foods and drinks.

References

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