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Using fruit and vegetable intakes to illustrate the impacts of personalised nutrition feedback: Results from the MyPlanetDiet RCT

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Previous research has shown personalised nutrition feedback is more effective than generic onesize-fits-all nutrition advice(1). Using fruit and vegetable intakes from the MyPlanetDiet randomized controlled trial, this analysis will determine if different severity of personalised nutrition feedback delivers greater dietary change.

Participants were recruited from the general public and randomised to receive personalised feedback based on a more sustainable diet (intervention) or Healthy Eating Guidelines (control). Intervention participants received feedback on total fruit, total vegetables, dark green vegetables, and/or red/orange vegetables. Control participants received feedback on total fruit and vegetables, total vegetables, citrus fruits, and/or fruit juice. Participants completed dietary assessments (3x 24-hour recalls) at baseline (Week 0) and endpoint (Week 12) using Foodbook24, a validated online dietary assessment tool(2). Mean food group intakes and Healthy Eating Index scores were calculated. Personalised feedback messaging was assessed to measure the severity of fruit and vegetable feedback, ranging from zero messages (least severe) to four messages (most severe). Data are presented as mean ± standard error. Data were analysed via two-way mixed analysis of covariance and univariate general linear models using IMB SPSS Statistics (Version 29).

Participants (n = 292) were 56% female and 42.3 ± 0.7 years old. Mean fruit and vegetable intake at baseline was 325.4 ± 183.3g. Almost all participants (97%) received feedback for at least one component of fruit and vegetable intake. Control participants were more likely to receive feedback on fruit ($p<0.001$) while intervention participants were more likely to receive vegetable feedback ($p<0.001$). There was a significant time*group interaction for fruit intake ($p = 0.005$) with larger increases in the control (+102.3g) than the intervention group (+38.6g). The intervention group had higher vegetable intakes (200.6 ± 7.9g) compared to control (164.2 ± 7.5g) at endpoint ($p<0.001$). Those receiving more severe fruit and vegetable feedback had significantly lower intakes of fruit and vegetables at baseline ($p<0.001$) but not endpoint ($p = 0.80$). There was a significant time*group interaction for fruit and vegetable intake ($p<0.001$) between severity groups. Those with least severe feedback decreased fruit and vegetable intake (-57.4g) while those in the most severe group increased intakes by 162.2g. However, mean fruit and vegetable intake in the least severe group was still higher (472.9 ± 31.8g) at endpoint than in the most severe group (397.2 ± 23.6g). There was a significant time ($p<0.001$) and time*group interaction ($p = 0.039$) in HEI scores with the smallest increase in the least severe group (+3.7) and the largest increase in the most severe feedback group (+9.6).

More personalised nutrition feedback was associated with greater behaviour change when using fruit and vegetable intake as an example. Differences in messaging between control and intervention groups led to corresponding differences in dietary change. Different severity of personalised nutrition feedback resulted in participants having comparable fruit and vegetable intakes at endpoint.

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