The influence of social networks in increasing fruit and vegetables consumption in university students: a randomised controlled study

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Despite the benefits of fruit and vegetables (F&V) consumption on health, university students face difficulties adapting and/or maintaining a healthy lifestyle when living away from home. Adverse health-related behaviours are prevalent in this population [1–3] which potentially impact on longer-term health beyond young adulthood [4]. The present study aimed to 1) increase fruit and vegetable consumption in students living away from home, and 2) to determine whether F&V consumption was further enhanced when social networks (e.g. Facebook) providing nutritional education was also available.

A total of 60 (36 female 24 male) full-time university students living away from home were recruited and randomly allocated to one of 3 study groups, namely: '*Control*' received no intervention, '*F&V*' received two and three fruits and vegetables respectively for 4 weeks from an individualised preferred list, and the '*F&V + Education*' received F&V (as for the F&V group) plus nutrition education delivered via Facebook and which focused on benefits of F&V consumption. Consumption of F&V was assessed pre-intervention using a validated questionnaire and post intervention using a 4 day semi-quantitative food diaries. Compliance relating to consumption of F&V provided was assessed using records of waste/uneaten F&V. Analysis of food diaries was undertaken using Nutritics software and SPSS version 24 used for statistical analysis. All data were log-transformed before statistical analysis using Paired sample t-test and ANOVA.

Daily portions of F&V	Control group (n = 20)	P	F&Vgroup (n = 20)	P	F&V + Education group (n = 20)	P
Food-diary[1]						
Pre(baseline)	1·5 (0·5)	0·287[a]	1·7 (0·4)	<·0001[a]	1·6 (0·5)	<·0001[a]
Post(4weeks)	1·6 (0·4)		3·8 (1·1)		3·7 (1·7)	
ΔF&V[b]	0·1 (0·5)		2·2 (1·2)		2·2 (1·5)	<·0001[b]
Return bags[2]						
Pre(baseline)	NA		1·7 (0·4)	<·0001[a]	1·6 (0·5)	<·0001[a]
Post(4weeks)	NA		4·6 (0·6)		4·7 (0·4)	
ΔF&V[c]	NA		2·8 (0·7)		3·0 (0·6)	0·373[c]

F&V, Fruit and Vegetable; ΔF&V, Post minus Pre intake; NA, not applicable. Values are mean (SD) for F&V portions reported from [1]food-diary or [2]return bags. [a]Pre versus post intervention intake compared using paired Sample t-test. [b]Change in F&V intake compared across groups using ANOVA. [c]Change in F&V intake compared across groups using an independent t-test.

Participants at baseline were mean age 24·4y (SD 3·7) y, BMI 25·4 (SD 4·7) kg/m^2 and study groups did not differ by age. Consumption of F&V increased in both intervention groups ($P < ·0001$) from baseline to end of study with food diary data suggesting that 31 % of participants in both intervention groups consumed 5 portions of F&V each day. However in contrast data from 'return bags' suggested 65 % achieved this in both intervention groups. 70 % of participants engaged with Facebook regularly. In conclusion, this study showed that providing F&V weekly increased consumption in university students and providing additional nutrition education (via Facebook) did not further enhance intakes of F&V. Further work is currently underway to assess biomarkers of F&V intake to objectively assess F&V intakes during the study period and to determine whether continuing the nutrition education component can help sustain these changes in F&V intakes.

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