

Frequency of electronic dietary self monitoring using a smartphone app and weight loss

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Obesity is a major global public health issue due to its association with a number of serious chronic illnesses and its high economic burden to healthcare providers. Self monitoring (deliberately observing and recording behaviour) has been ascribed great importance in behavioural approaches to obesity due to its consistent associations with weight loss⁽¹⁾. However, there is limited evidence about how frequently individuals need to monitor their diet for optimal weight loss. Recording diet using a smartphone application (app) allows for a more objective assessment of self monitoring given that electronic records can be time and date stamped.

A randomised pilot trial comparing 3 methods of self monitoring (smartphone app, paper diary, web-based) has been conducted⁽²⁾. Trial duration was 6 months. The smartphone app 'My Meal Mate' (MMM) features an electronic food diary and users are required to select and log food and drink items from a 23,000 item food composition database⁽³⁾. All food consumption data is automatically uploaded with a time and date stamp. Post-hoc analysis of app usage patterns was undertaken (n = 43, 77 % female, 100 % white ethnic origin, mean age 41 (SD: 9) years, mean BMI: 34 (SD: 4) kg/m²) in order to explore the relationship between frequency of electronic dietary self monitoring and weight loss.

Table 1: Regression analysis of the relationship between frequency of use category and follow up weight (kg) (adjusted for baseline weight) after 6 months use of 'My Meal Mate' (MMM) a smartphone app for weight loss. *A complete day of dietary self monitoring was considered to be one with a biologically plausible energy intake recorded (≥ 500 and ≤ 5000 kcal/ ≥ 2093 kJ and ≤ 20934).

Frequency of app usage over 6 months*	N	Weight loss (kg)	95 % CI	p
Low (≤ 42 days of dietary self monitoring)	14	reference		
Moderate (≥ 43 days to 128 days)	14	-1.8	-5.3, 1.8	0.325
High (≥ 129 day)	15	-6.4	-10.0, -2.9	0.001

Regression analysis showed that those in the highest 'frequency of use' category had a -6.4 kg (95 % CI; -10.0, -2.9) lower follow up weight (adjusted for baseline weight) than those in the lowest 'frequency of use' category ($p < 0.01$). Results must be interpreted with caution given the small numbers in each category but this post-hoc exploratory analysis indicates that higher frequency of smartphone app use is associated with improved weight loss.

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2. Carter M.C., *et al.*, (2013) *J Med Internet Res* **15**, e32.
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