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## Mobile application use and healthy eating behaviors in young adult women

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## RESEARCH OBJECTIVE

To assess the differential effects of a mobile phone-based application (app) versus phone-based memo use on anthropometric measures, healthy eating, and physical activity behaviors in college-age women.

## METHODS

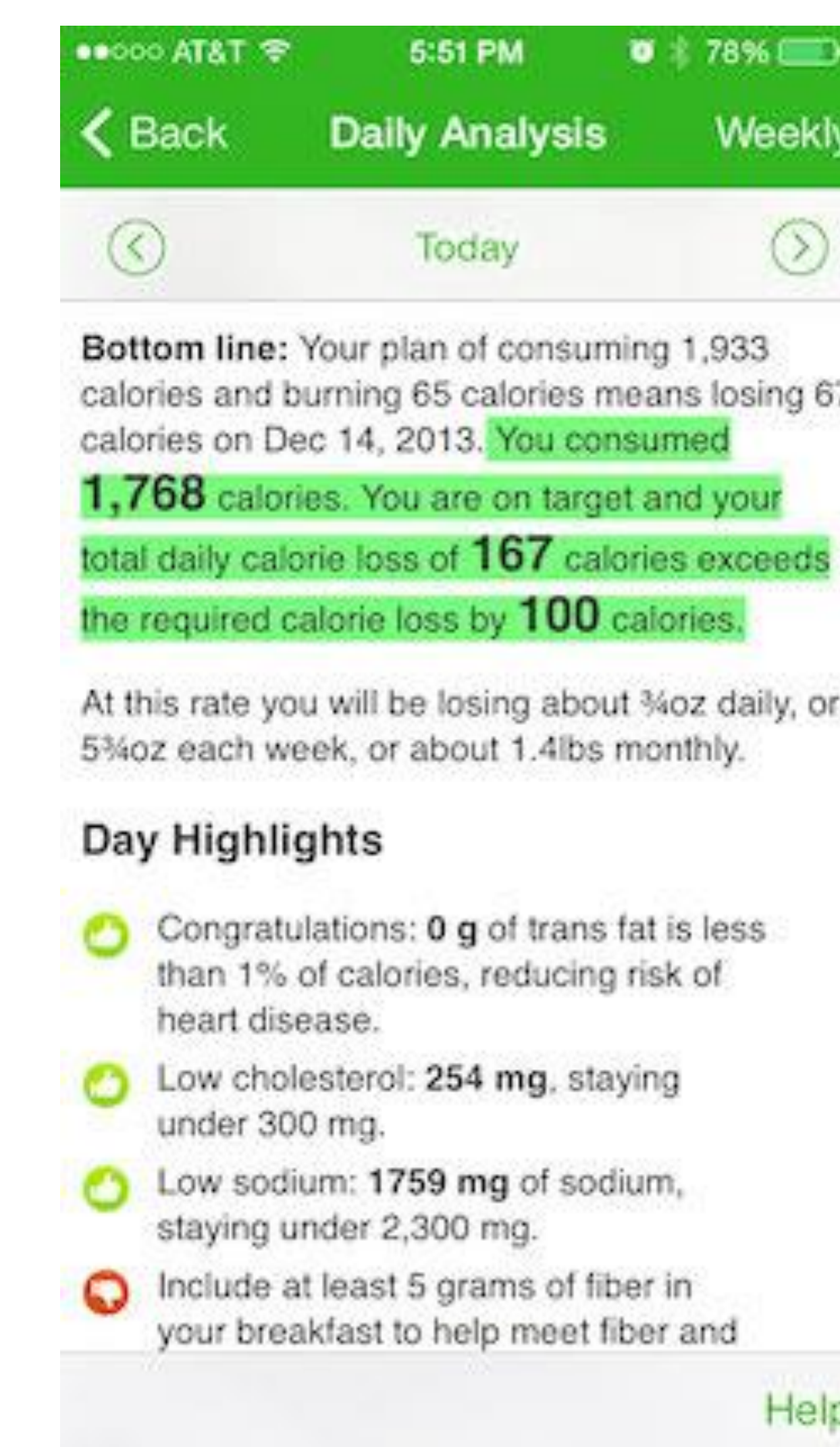
Participants (n=43) were randomly enrolled in a mobile app or phone-based memo group during a 6 week study. Participants in the app group were trained on proper usage of the free app, MyNetDiary, and the memo group received directions on how to journal their food and exercise activity on their phone. Participants were asked to complete pre-and post-questionnaires at baseline and at the conclusion of the study. Physical activity and health behavior change strategies were assessed via the Health Behavior Survey. The NHANES Dietary Screener was used to track dietary intake. Anthropometric data was collected at baseline and at completion of the 6 week study. Adherence to tracking dietary intake and physical activity was collected at week 3 and at the conclusion of the study. Comparisons between the App group and Memo group were examined using independent samples t-test for continuous variables and a  $\chi^2$  test of independence for categorical variables. A paired t-test was also used for assessing changes within the groups. ANCOVA was used to assess change across 6 weeks for physical activity and healthy eating change strategies.

Table 1. Changes in dietary intake, physical activity, and healthy eating change strategies

Diet (Times/Week)		Baseline	6 weeks	p-value
Measures	Group	Mean (SD)	Mean (SD)	
Fruit	App	6.54 (1.50)	6.23 (1.66)	.67
	Memo	6.19 (1.63)	5.95 (1.72)	
Veggies	App	5.23 (2.11)	4.77 (1.85)	.09
	Memo	5.57 (2.23)	5.62 (1.88)	
Whole Grains	App	4.62 (2.22)	4.68 (2.25)	.75
	Memo	4.67 (1.85)	4.90 (1.58)	
Milk	App	5.55 (2.81)	5.41 (2.72)	.79
	Memo	5.10 (2.74)	4.86 (3.07)	
Soda	App	1.45 (1.37)	1.32 (1.25)	.32
	Memo	2.38 (2.52)	2.15 (1.98)	
Cereal	App	3.18 (2.44)	2.77 (1.95)	.33
	Memo	3.00 (2.14)	2.29 (1.65)	
Greens	App	5.48 (1.97)	5.36 (1.97)	.34
	Memo	4.95 (1.77)	4.76 (2.10)	
<b>Healthy Eating (Times/Month)</b>				
HECS	App	37.36 (9.34)	37 (7.81)	.24
	Memo	33.67 (11.04)	34.57 (11.74)	
<b>Physical Activity (Times/Week/Month)</b>				
30 Min. PA	App	3.36 (1.53)	3.45 (2.10)	.81
	Memo	3.71 (1.79)	3.70 (1.69)	
PACS	App	37.27 (7.60)	37.04 (8.58)	.27
	Memo	37.05 (9.07)	35.14 (7.19)	

## RESULTS

There were no significant differences between the two groups in demographic and anthropometric variables at baseline. No significant changes in anthropometric measures were found from baseline to 6 weeks in either the App or Memo group. No significant differences were found between or within groups in any area of dietary intake measured, frequency of obtaining at least 30 minutes of physical activity per day, or physical activity or healthy eating change strategies. No significant differences were found for adherence between groups.



## CONCLUSIONS

No significant differences in health behaviors or anthropometric measures were found between groups using a phone-based app versus the memo feature of a phone after 6 weeks of recording. Strengths of this study include the use of a mobile phone in both groups, thus eliminating the confounding caused by variations in recording methodology. Additionally, adherence was assessed which is often omitted in other studies. Finally, there is limited research in normal weight individuals using a mobile app and its effect on anthropometrics and health behaviors. Limitations to the study could include the inability to generalize these findings beyond the relatively homogenous study population. A larger population of subjects and a longer time-frame (e.g. 12+ weeks) may be needed in order to see a change in eating habits and physical activity behaviors in healthy young adults. Finally, giving focused dietary and physical activity targets prior to commencing recording might lead to more health-related changes, thus allowing for clearer discrimination between groups.