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Investigation of the effects of a slow eating rate protocol on body composition in overweight people, in a 6-week community intervention study

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The worldwide prevalence of overweight and obesity are cause for concern[1]. Reducing eating rate may be a promising tool in combating obesity as people who eat quickly tend to consume more calories, be overweight and have lower satiation after a meal[2]. However there remains limited evidence of the efficacy of eating rate-based interventions in the community. This study aimed to investigate if a previously developed[3] slow eating rate (SER) protocol could facilitate weight loss in overweight adults in a free-living community setting.

The 15 adult participants recruited to this 10-week parallel, open label randomised controlled trial were randomised to the control group: Cont [n = 7 (3M,4 F), BMI 32·7 ± 4·8 kg/m^2, Age 30·5 ± 4·2yrs] or the intervention group: SER [n = 8 (4M,4 F), BMI 29·75 ± 3·3, Age 32·5 ± 3·9]. A favourable ethical opinion was obtained from the University Ethics Committee. Weight, height, BMI, % body fat, % visceral fat and energy intake were measured at each of the 4 study visits (see table 1). Participants were video-recorded (to assess eating rate via chew counts) while consuming test meals at their own pace at visits 1 (baseline eating rate (ER)) and 4. Between visits, participants returned to their free-living environment in the community for six weeks. The SER group were asked to follow the SER protocol daily whilst consuming their lunchtime meal whilst the CONT group received no instructions. Monitoring of the SER group was through the study's dedicated website and phone application, using Mixpanel core analytics.

Table 1. Effect of Intervention on Body Composition & Energy Intake.

Characteristics	Control (n = 7) Mean ± SD			Intervention (n = 8) Mean ± SD			2-way ANOVA
	Baseline	Visit 4	P[1]	Baseline	Visit 4	P[1]	P[2]
Weight (kg)	92·5 ± 9·6	92·7 ± 9·6	0·5808	85·2 ± 17·1	82·7 ± 16·7	0·009	0·006
BMI (kg/m^2)	32·7 ± 4·8	32·7 ± 4·8	0·5708	29·75 ± 3·3	28·9 ± 3·4	0·009	0·005
% Fat	31·25 ± 11·5	30·1 ± 10·9	0·5990	33·0 ± 6	31·7 ± 7·1	0·086	0·026
Visceral Fat	7·9 ± 3·9	8·1 ± 4·0	0·1723	8·9 ± 4·2	8·0 ± 4	0·0021	0·007
Energy Intake (kcal)	1890·8 ± 491·5	1840·1 ± 516·8	0·191	2020·4 ± 460·2	1801·4 ± 326·2	0·049	0·086

Data presented as Mean ± standard deviation; BMI, body mass index. [1]Paired t test within group, baseline compared to visit 4. 2-Way repeated measures ANOVA, significant effect of intervention, level of significance $p \leqslant 0{\cdot}05$.

Repeated measures 2-ways analysis of variances showed a significant effect of treatment group and visit number for all body composition parameters. The intervention group significantly reduced their weight (p = 0·006), BMI (p = 0·005), body fat % (p = 0·03) and visceral fat (p= 0·007) and showed a trend towards a reduced energy intake (p = 0·086).

This is the first study of its kind to successfully apply a SER protocol in a free-living population and the promising findings warrant further investigation to confirm the role of mindfulness-promoting tools in weight management strategies.

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