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Effect of a web-based behaviour change program on weight loss: a randomised controlled trial

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Identifying effective and cost-effective treatment and prevention strategies for obesity is a top priority for all healthcare systems. There is growing evidence suggesting that the internet may be a viable medium for encouraging weight loss. However, several systematic reviews conducted in this area, have found it difficult to draw definitive conclusions regarding its effectiveness owing to heterogeneity in study designs, methods employed and the lack of 'true control' groups used[1–2]. Furthermore, there is a paucity of information regarding the effect of these web-based programs (WBPs) on other health outcomes that co-exist with weight loss such as cardiovascular disease (CVD) risk factors.

The aim of this study was to evaluate the effects of a unique interactive WBP called *'Imperative Health'* on weight loss and cardiovascular risk factors in an overweight and obese population at high risk of CVD using a randomised controlled design and a 'true control' group. Imperative health supports positive dietary and physical activity changes as well as assist in managing weight and other CVD risk factors. It combines objective monitoring of weight and physical activity with automated, tailored feedback.

A total of 65 participants (52·9 ± 7·3 years) were recruited and allocated to one of two groups using a block randomisation approach: group 1 (intervention group) was provided with the WBP, and group 2 (control group) was requested to continue with their usual self and medical care. All participants were followed up 3 months, 6 months and 12 months after randomisation for assessment of weight loss (primary outcome), and secondary outcomes including: anthropometric measurements, body fat percentage, blood pressure, lipid measurements, vascular compliance, physical activity levels and energy intake.

Attrition rates were 12%, 20% and 29%, at 3 months, 6 months and 12 months respectively. As shown in the table below, intention-to-treat analysis revealed that the WBP group lost significantly more weight at 3 months ($P = 0{\cdot}001$) and at 6 months ($P = 0{\cdot}016$) compared to the usual care group after adjusting for baseline weight. No between-group treatment effect was observed in the longer-term (12 months).

	Weight change from baseline (kg)						
	Intervention[2]		Control[2]		Difference between groups		Between group[1]
Month	Mean	SD	Mean	SD	Mean	95% CI	P value
3	−3·41	3·56***	−0·52	2·92	−2·70	−4·27, −1·13	0·001
6	−3·47	4·13***	−0·81	4·00	−2·49	−4·50, −0·48	0·016
12	−2·38	3·92**	−1·80	3·83*	−0·38	−2·26, 1·51	0·692

[1]Difference between groups analysed using ANCOVA and adjusted for baseline weight. [2]Within group changes analysed using paired sample t-test and only significant results are presented *$P \leq 0{\cdot}05$, **$P \leq 0{\cdot}01$, ***$P \leq 0{\cdot}001$.

Significantly more participants in the WBP group compared with the usual care group lost 5% or more of their baseline body weight at 3 months (34·4% *vs* 3·0%, $P = 0{\cdot}001$) and at 6 months (40·6% *vs* 18·2%, $P = 0{\cdot}047$), but not at 12 months (21·9% *vs* 21·2%, $P = 0{\cdot}948$). The WBP group showed improvements in anthropometric measurements, total cholesterol and triglyceride concentrations, and adopted positive dietary and physical activity behaviours for up to 3–6 months compared with the usual care group ($P < 0{\cdot}05$), however, these improvements were not sustained in the longer-term (up to 12 months).

Results of this study indicate that this WBP can be used to initiate and achieve clinically relevant weight loss but highlights a need for augmenting WBPs with further interventions after 6 months of usage in order to encourage maintenance of weight loss in the longer-term.

1. Neve M, Morgan PJ, Jones PR *et al.* (2009) *Obes Rev* **11**, 306–321.
2. Manzoni GM, Pagninif F, Corti S *et al.* (2011) *ClinPractEpidemiolMent Health* **7**, 19–28.