PERSONALIZED COACHING VS. ACTIVITY MONITOR FOR WEIGHT LOSS IN OBESE ADULTS: THE HEALTH COACH STUDY

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Abstract

PURPOSE: There is little consensus on the best approach to promote weight loss. Guided weight loss programs have shown positive results, but they can be time-consuming and expensive. Online programs based on self-monitoring (PAM) may provide a more cost-effective strategy for promoting weight loss. The purpose of this study was to compare the relative effectiveness of a HC to a self-monitoring group provided with access to the PAM over 8 weeks.

METHODS: Seventy-eight obese adults (31 male and 47 female) were randomized to one of the two program options [HC or PAM] or to a combined group receiving both treatments [HC+ PAM]. The HC participants attended weekly visits with a personal health coach. PAM participants had 2 visits with a health coach and received PAM instructions. Combination participants received the same curriculum as the HC group, as well as the PAM monitor. Standard weight loss outcomes (BMI, percent body fat, waist circumference (WC), blood pressure (BP), and fasting lipids and glucose) were assessed at baseline and at the end of 8 weeks to evaluate the relative effectiveness of the three options. A two-way (Group x Gender) ANOVA was used to examine treatment effects and interactions. Differences in group effects were reported as Effect Sizes (ES) to facilitate interpretation.

RESULTS: Significant trial effects were found for weight ((-4.21 ± 3.08 kg, p < 0.0001), BMI (p < 0.0001), percent fat (p = 0.0008), WC (p < 0.0001), diastolic BP ((p = 0.0004), glucose (p = 0.0001), Total Cholesterol (p = 0.0003), and Triglycerides (p = 0.0001). All groups experienced a significant weight reduction. Larger effects were seen in the combination group for both weight loss [ES (HC+PAM vs. HC) = -0.37; ES (HC+PAM vs. PAM) = -0.27] and metabolic syndrome score [ES (HC+PAM vs. HC) = -0.76; ES (HC+PAM vs. PAM) = -0.54).

CONCLUSIONS: The PAM may be as beneficial as in-person health coaching to facilitate weight loss; however, combination of PAM and health coaching may provide additional benefits.

Introduction

The high prevalence of obesity and Metabolic Syndrome (MetS) have led to increased clinical and public health interest in effective weight loss programming. Behavior-based lifestyle programs that utilize technological support and health coaching may improve weight and other chronic disease conditions. However, the costs (both monetary and time) of individualized as well as group-based interventions limits the potential translatability of these interventions.

The purpose of this study was to determine the independent and interactive benefits of an individualized, guided weight loss program (based on health coaching principles) and a PAM on weight loss and clinically relevant health outcomes in obese adults.

Methods

PARTICIPANTS AND TREATMENT GROUPS
Inclusion criteria were: ≥18 years of age, BMI ≥ 30 kg/m², and weight stable (±10 lbs) for 3 months.
Participants were randomized (using a random number generator) to a trained health coach and one of three treatment groups:

1) HC: A guided weight loss program utilizing health coaching,
2) PAM: A supported self-monitoring program based on a commercial physical activity monitor, or
3) HC+PAM: A combined program that included both the guided weight loss program and use of PAM

ANTHROPOMETRIC AND CLINICAL MEASURES
Measurements were completed at baseline and 8-weeks and included:

- Height
- Weight
- Waist circumference
- Body composition (BIA)
- Blood pressure
- Total cholesterol
- HDL-cholesterol
- Triglycerides
- Blood glucose

Blood pressure, triglycerides, glucose, HDL-cholesterol, and waist circumference were used to compute a continuous MetS score, which reflects the average z-score for the five risk factors.

STATISTICAL ANALYSES
Group differences in the primary outcome variables (weight and continuous MetS score) were assessed using two-way (Group x Time) ANOVA. Subsequent ANOVA examined changes in other anthropometric and clinical variables. Effect sizes were calculated (Cohen's *d*) to compare the magnitude of changes among the treatment groups and one-way ANOVA evaluated differences in change in MetS score based on tertiles of weight loss.

Results

Significant improvements were seen in Weight, MetS score, and many other anthropometric and clinical measures, but there were no differences between groups. Effect sizes demonstrated generally stronger effects of the HC+PAM treatment (Table 1, Fig 1). Participants in the highest tertile of weight loss (- 7.8 kg ± 1.8) had a significantly greater improvement in their continuous MetS score (decrease of 2.16 SDs) than participants in the lowest tertile of weight change (-1.1 kg ± 1.2, decrease of 0.76 SD) (Fig 2).

|	Group		Time		Group*Time		Effect Size (*Cohen's d*)		
	F Value	p-value	F Value	p-value	F Value	p-value	HC+PAM vs. HC	HC+PAM vs. PAM	HC vs. PAM
BMI	0.07	0.93	135.89	<0.01	0.82	0.45	0.32	0.27	0.08
Weight	1.7	0.19	137.84	<0.01	1.18	0.31	0.41	0.27	0.16
WC	0.01	0.99	108.54	<0.01	1.12	0.33	0.18	-0.24	0.41
Bodyfat	4.74	0.01	30.06	<0.01	1.09	0.34	0.34	0.52	0.08
MetS	0.2	0.82	41.92	<0.01	3.8	0.03	0.76	0.54	0.16
Glucose	1.47	0.24	15.17	<0.01	3.98	0.02	0.77	0.47	0.32
TG	0.03	0.97	20.07	<0.01	3.14	0.05	0.60	0.51	0.11
TC	0.46	0.63	9.77	0.01	0.97	0.38	0.34	0.35	0.06
LDL-C	0.47	0.63	0.44	0.51	0.18	0.84	0.16	0.07	0.1
HDL-C	0.11	0.90	6.23	0.02	0.32	0.72	-0.17	0.06	-0.25
Systolic BP	0.77	0.47	4.39	0.04	0.96	0.39	0.23	0.38	-0.17
Diastolic BP	0.31	0.74	21.03	<0.01	0.82	0.44	0.14	0.36	-0.21
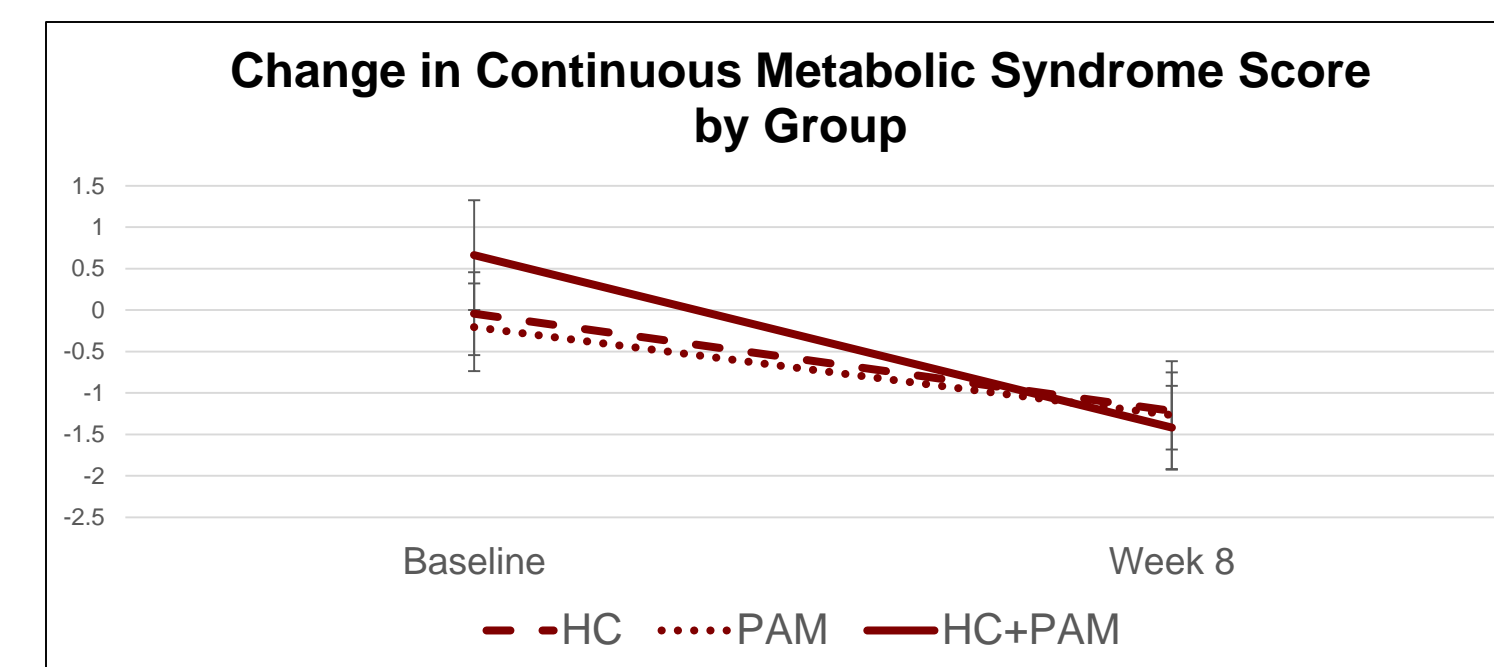
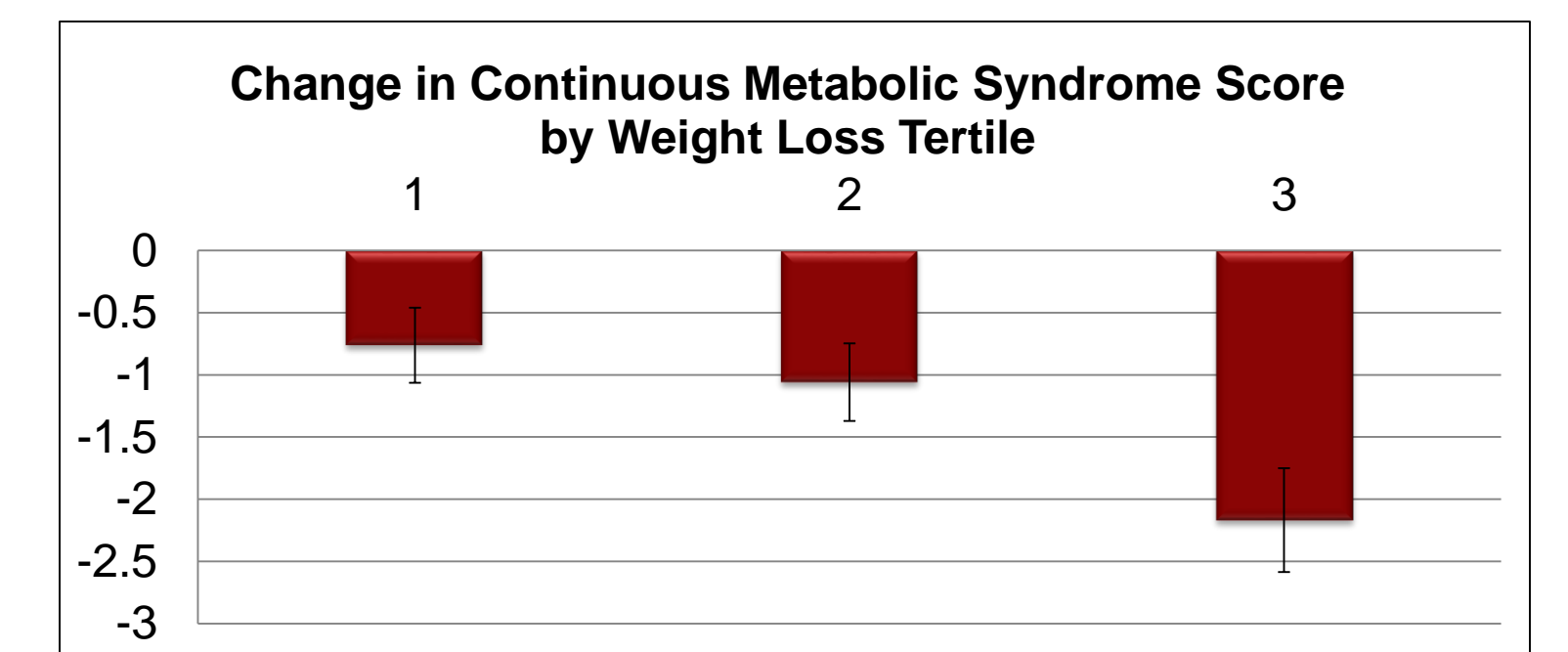Figure 1. Change in continuous metabolic syndrome score from baseline to Week 8 by treatment group

Figure 2. Mean change (expressed as SD units) in continuous metabolic syndrome score from baseline to 8 weeks by weight loss tertile

Conclusion

Our results demonstrate that there are several avenues to improving health, not only in terms of weight status, but also in improvements in clinically meaningful risk factors for cardiometabolic health. Further, results suggest that use of a cost-effective technological self-monitoring device may be equivalent to more intensive and personalized health coaching. Further research of longer duration with larger samples is warranted to understand how to best enhance the effective utilization of these commercially-available monitors.