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Long-term maintenance of weight loss after lifestyle intervention in frail, obese older adults

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Abstract

Objectives—To determine if long-term weight loss with associated improvement in physical and metabolic health can be maintained after lifestyle intervention in frail, obese older adults.

Design—Thirty-month follow-up pilot study of a 1-year lifestyle intervention trial.

Setting—Community

Participants—Sixteen frail, obese (body mass index = 36 ± 2 kg/m²) older (71 ± 1 yr) adults

Measurements—Body weight and composition, physical function, markers of the metabolic syndrome, glucose and insulin response to an oral glucose tolerance test, bone mineral density (BMD), liver and renal function tests, and food diaries.

Results—At 30-month follow-up, weight (101.5 ± 3.8 vs. 94.5 ± 3.9 kg) and BMI (36.0 ± 1.7 vs. 33.5 ± 1.7 kg/m²) remained significantly below baseline (all $p < 0.05$). No significant change in fat-free mass (56.7 ± 2.1 vs. 56.9 ± 2.2 kg) or appendicular lean mass (24.1 ± 1.0 vs. 24.1 ± 1.1 kg, all $p > 0.05$) occurred between 12 months (end of trial) and 30 months. Improvements in the physical performance test (PPT 27 ± 0.7 vs. 30.2 ± 0.6), insulin sensitivity (4.1 ± 0.8 vs. 3.0 ± 0.6), and insulin area under the curve (12484 ± 2042 vs. 9270 ± 1139 min-mg/dl) remained at 30 months compared to baseline (all $p < 0.05$). Waist circumference (116 ± 3 vs. 109 ± 3 cm) and systolic blood pressure (134 ± 6 vs. 123 ± 5 mm HG) remained decreased at 30 months compared to baseline (all $p < 0.05$). Whole body and lumbar spine BMD did not change; however, total hip BMD progressively decreased at 30 months compared to baseline ($0.985 \pm .026$ vs. $0.941 \pm .024$ g/cm²; $p < 0.05$). There were no adverse effects on liver or renal function. Food frequency questionnaire data showed lower overall caloric intake (-619 ± 157 kcal/day) at 30 months compared to baseline ($p < 0.05$).

Conclusion—These findings suggest that long-term maintenance of clinically important weight loss is possible in frail, obese older adults. Weight maintenance appears to be achieved through continued caloric restriction. Larger, long-term studies are needed to follow up on these findings and investigate mechanisms and behaviors underlying maintenance of weight loss and physical function.

Keywords

Obesity; frailty; older adults; lifestyle intervention; weight maintenance

Introduction

The aging population and the prevalence of obesity in later life will continue to create challenges for both society and health care systems.^{1,2} There is mounting evidence that obese older adults can successfully lose weight during intensive lifestyle interventions, and weight loss improves health outcomes such as physical function, insulin sensitivity, and coronary heart disease.^{3–8} Despite these positive findings, the debate remains whether the benefits of weight loss interventions outweigh their risks in older adults.^{9,10} The challenge in addressing this question is the lack of long-term follow up studies. Previously, we reported that a 1-year intervention consisting of diet-induced weight loss and regular exercise resulted in the greatest improvement in physical function.⁵ This follow-up pilot study aimed to determine if weight loss and improved health outcomes that occurred during the 1-year intervention⁸ would be maintained following an additional 18 months with no intervention or formal contact in frail, obese older adults.

Methods

Study Sample

Inclusion and exclusion criteria for the study population have been previously reported.⁵ Briefly, participants were obese (BMI ≥ 30 kg/m²), older (age ≥ 65 yrs) men and women with physical frailty (on the bases of the modified physical performance test [PPT], peak endurance power, and functional status questionnaire),^{5,11} who had stable weight (± 2 kg) and were on stable medications for ~ 6 months prior to the study. Volunteers taking bisphosphonates were excluded from participation. The aim of this pilot study was to provide preliminary information on maintenance of long-term weight loss at 30 months (i.e. 18 months following the 1-year lifestyle intervention). Thus, only the first 26 of 52 participants randomized to the weight loss groups (diet group [n=13] and diet-exercise [n=13])⁵ were recruited for this study. All participants received diet-behavioral therapy with the goal of achieving weight loss of $\sim 10\%$ at 6 months and maintaining that weight loss for an additional 6 months. Participants randomized to the diet-exercise group also underwent supervised aerobic/resistance exercise three times a week during the intervention period. After the 1-year lifestyle intervention, participants were discharged to the community with no contact by study personnel, until the 30-month follow-up period. During the follow-up phase, 10 (38%) participants were lost due to time commitment (2), personal reasons (3), medical (2), relocation (1), or unknown reasons (2). The remaining 16 participants (Table 1) were representative of the original cohort in respect to age, gender, and other demographic characteristics.⁵

Measurements

The primary outcome in the parent study was change in the PPT score from baseline. Secondary outcomes included other measures of frailty, body composition, bone mineral density (BMD), specific physical functions, and quality of life (QOL).⁵ Baseline energy

intake was assessed using 4-day food records. Participants reviewed records with the dietitian to ensure completeness and accuracy. Average caloric intake was determined using Nutrition Data Systems for Research (Minneapolis, MN).

The outcomes of interest in the 30-month follow-up study were changes in body weight and composition, physical function tests, QOL, components of the metabolic syndrome, glucose tolerance variables including insulin sensitivity, BMD, and renal and liver function tests. Details of these methods including the PPT have been previously described.^{5,12,13} Body composition and BMD were measured by dual energy x-ray absorptiometry. Metabolic syndrome was determined on the basis of the NCEP ATP III criteria.¹⁴ Glucose and insulin areas under the curve (AUC) were calculated by the trapezoid method.¹⁵ Insulin sensitivity index was calculated using the HOMA-IR.¹⁶ At 30-month follow up, participants also completed the Block Brief 2000 Food Frequency Questionnaire (FFQ) (Berkely, CA) to quantify average daily intake over the previous year.¹⁸ Participants were included if they completed at least 3 days of food records, submitted the FFQ, and had daily energy intakes 500 kcal/day for women and 800 kcal/day for men.

Statistical analyses

Analyses testing for within-group changes were performed using mixed model repeat-measures analysis of variance with linear contrasts. Statistical significance was $P < 0.05$. Results are reported as mean $\pm$ SEM.

Results

Our results showed that our subjects were able to maintain a significant amount of weight loss from baseline at the 30 month follow-up despite 18 months of no active intervention (Fig. 1A, Table 1). Body mass index (BMI) and parameters of body composition such as fat mass, fat-free mass (FFM), trunk fat, and appendicular lean mass (ALM), which significantly decreased from baseline at 6 months and 12 months, remained significantly below baseline at 30 months (Table 1).

These changes in body weight and composition were accompanied by similar positive changes in physical function. Our subjects were able to maintain the significant improvement in PPT noted at the end of the 12-month intervention period through the following 18 months of no intervention, albeit at a slightly reduced level (Fig 1B, Table 1). On the other hand, self-reported functional status and health-related QOL which achieved highest scores at 12 months (both $p < 0.05$), returned to baseline at 30 months.

Table 1 shows the changes in the rest of the outcome variables during the 30-month study, i.e. 12 months of active intervention followed by 18 months of no intervention. In terms of components of the metabolic syndrome, the waist circumference which significantly decreased at 6 months and 12 months of intervention remained significantly lower than baseline at 30 months. Although both systolic and diastolic blood pressures were significantly decreased from baseline at 6 and 12 months of intervention, only systolic blood pressure remained significantly lower at 30 months. HDL-cholesterol significantly increased from baseline at 12 months, but returned close to baseline at 30 months. Triglycerides which decreased at 6 and 12 months, also returned to baseline levels at 30 months. The prevalence of the metabolic syndrome was 56%, 31%, 43%, and 31% at baseline, 6 months, 12 months, and 30 months, respectively.

HOMA-IR which significantly improved at 6 months and 12 months of intervention, remained significantly improved compared to baseline at 30 months. Likewise, insulin AUC also remained significantly lower at 30 months compared to baseline. On the other hand,

glucose AUC which significantly improved throughout the 12 month intervention, returned to baseline at 30 months. Alanine aminotransferase (ALT), a parameter of liver function, showed sustained improvement, while serum creatinine showed no changes from baseline at the end of 30 months.

Areal BMD showed no significant change at the whole body and lumbar spine throughout the 30-month study period. However, BMD at the total hip showed a progressive decline over the 30-month period.

Thirteen participants met inclusion requirements for dietary analysis. Average caloric intake at baseline, was 2045 ± 178 kcal/day. At 30 month follow-up, FFQ estimated mean daily intake was 1427 ± 142 kcal/day. Overall, participants consumed an average of 619 ± 157 kcal/day less at follow-up compared to baseline ($p < 0.05$).

Discussion

The results of this 18-month of no active intervention after a 12-month of intensive lifestyle therapy provide encouraging evidence that frail, obese older adults can maintain not only long-term weight loss but also continue to benefit from the associated improvement in physical function and metabolic profile. After ~10% weight loss in response to the 1-year lifestyle intervention, ~7% weight loss was maintained at the 30-month non-intervention period. This maintenance of weight loss was clinically significant based on findings such as preservation of improved PPT scores and insulin sensitivity. An additional reassuring observation was that lean body mass (e.g. FFM) did not further decrease at the 30-month follow up period. However, total hip BMD decreased, the clinical impact of which needs further investigation. There were no long-term adverse effects on liver or renal function.

The data also suggests that weight loss was maintained by continued lower caloric intake. This would agree with behaviors to either lose weight or not to regain weight with eating less food reported by US adults (64.7% lose weight, vs. 52.2% not gaining), compared to other strategies such as exercising (1.3 vs. 45.9%), consuming less fat (45.7% vs. 41.7%) and switching to lower calorie foods (37.2% vs. 35.9%).¹⁹ In a rural population of 50–75 year old, at 3.5 year follow up, after 10% weight loss over 6 months, those successful at maintaining weight reduction of ~5%, reported frequent weight and food intake monitoring, choosing lower calorie foods and advance meal planning.²⁰ Thus, self-regulation appears a key components to successful behavioral change.²¹ However, much of this research has been in middle-aged adults, with short duration follow-up.²²

The Look AHEAD trial is one study that specifically investigated factors associated with long-term (4 year) maintenance of intentional weight loss in middle-aged and older patients with Type 2 diabetes.²³ The oldest participants (65–76 years) had more treatment contacts across the 4 years and reported lower caloric intake than younger individuals. Greater weight loss in the first year (~10%) was strongly related to weight loss at 4 years. They also found that weight loss maintainers reported eating significantly fewer calories at year 4 than did participants who gained above their baseline weight. However, this trial had continuing contact with these participants, whereas the current pilot study did not.

Continued increase in physical activity may also help with weight maintenance and preservation of physical function and FFM.²⁴ Unfortunately, we did not collect data on self-reported physical activity during the 30-month follow up. The Life-style Interventions and Independence for Elders Pilot (LIFE-P), which was not specifically a weight loss trial, reported that 2 years after the formal 12-month intervention ended, participants in the physical activity arm continued to engage in more minutes of physical activity and had better functional performance tests than the control group.²⁵ The data reported in the LIFE-P

trial combined with the current findings are encouraging and warrant further investigations into long-term physical activity changes following an intensive intervention.

The results of this pilot study suggest that changes in weight, body composition, dietary intake, physical function, and insulin sensitivity resulting from an intensive lifestyle therapy may be sustained long-term even after cessation of the intervention. However, it is important to note that our study is limited by the small sample size, potential for selection bias, lack of control group, and under-reporting of food intake from the participants. In addition, there were a number of participants who did not return for follow-up evaluation and thus, we do not know if their outcomes were different from those participating in this pilot study. It is also likely that the results overstate the degree to which participants maintained low calorie eating habits as the FFQ is known to underestimate total macronutrient intake.¹⁸ Moreover, without a non-weight loss control group, it is not possible to completely separate out some of the unwanted effects of weight loss from that of the aging process per se (e.g. hip BMD loss).

Conclusions

Larger, long-term studies with appropriate controls are needed to confirm these preliminary findings and to determine how best to achieve sustained lifestyle change (e.g. length of intervention, frequency of contact) associated with optimal health outcomes in frail, obese older adults. These studies could inform translation into communities, and also to investigate mechanisms underlying the maintenance of physical function and FFM concurrent with losses in hip BMD.

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Reference List

1. Villareal DT, Apovian CM, Kushner RF, Klein S. Obesity in older adults: technical review and position statement of the American Society for Nutrition and NAASO, The Obesity Society. *Am J Clin Nutr.* 2005; 82:923–934. [also published in: *Obes Res.* 2005; 13:1849–1863]. [PubMed: 16280421]
2. Han TS, Tajar A, Lean ME. Obesity and weight management in the elderly. *Br Med Bull.* 2011; 97:169–196. [PubMed: 21325341]
3. Anton SD, Manini TM, Milsom VA, et al. Effects of a weight loss plus exercise program on physical function in overweight, older women: a randomized controlled trial. *Clin Interv Aging.* 2011; 6:141–149. [PubMed: 21753869]
4. Messier SP, Loeser RF, Miller GD, et al. Exercise and dietary weight loss in overweight and obese older adults with knee osteoarthritis: the Arthritis, Diet, and Activity Promotion Trial. *Arthritis Rheum.* 2004; 50:1501–1510. [PubMed: 15146420]
5. Villareal DT, Chode S, Parimi N, et al. Weight loss, exercise, or both and physical function in obese older adults. *N Engl J Med.* 2011; 364:1218–1229. [PubMed: 21449785]
6. Rejeski WJ, Ip EH, Bertoni AG, et al. Lifestyle change and mobility in obese adults with type 2 diabetes. *N Engl J Med.* 2012; 366:1209–1217. [PubMed: 22455415]
7. Shah K, Stufflebam A, Hilton TN, Sinacore DR, Klein S, Villareal DT. Diet and exercise interventions reduce intrahepatic fat content and improve insulin sensitivity in obese older adults. *Obesity (Silver Spring).* 2009; 17:2162–2168. [PubMed: 19390517]
8. Weinheimer EM, Sands LP, Campbell WW. A systematic review of the separate and combined effects of energy restriction and exercise on fat-free mass in middle-aged and older adults: implications for sarcopenic obesity. *Nutr Rev.* 2010; 68:375–388. [PubMed: 20591106]

9. Morley JE, Chahla E, Alkaade S. Antiaging, longevity and calorie restriction. *Curr Opin Clin Nutr Metab Care*. 2010; 13:40–45. [PubMed: 19851100]
10. Rossner S. Should obesity in the elderly be treated? Sparse scientific evidence to support treatment of overweight in this age group. *Lakartidningen*. 2005; 102:2856–2858. [PubMed: 16255361]
11. Villareal DT, Banks M, Siener C, Sinacore DR, Klein S. Physical Frailty and Body Composition in Obese Elderly Men and Women. *Obes Res*. 2004; 12:913–920. [PubMed: 15229329]
12. Villareal DT, Miller BV III, Banks M, Fontana L, Sinacore DR, Klein S. Effect of lifestyle intervention on metabolic coronary heart disease risk factors in obese older adults. *Am J Clin Nutr*. 2006; 84:1317–1323. [PubMed: 17158411]
13. Villareal DT, Shah K, Banks MR, Sinacore DR, Klein S. Effect of weight loss and exercise therapy on bone metabolism and mass in obese older adults: a one-year randomized controlled trial. *J Clin Endocrinol Metab*. 2008; 93:2181–2187. [PubMed: 18364384]
14. Executive Summary of The Third Report of The National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation And Treatment of High Blood Cholesterol In Adults (Adult Treatment Panel III). *JAMA*. 2001; 285:2486–2497. [PubMed: 11368702]
15. Allison DB, Paultre F, Maggio C, Mezzitis N, Pi-Sunyer FX. The use of areas under curves in diabetes research. *Diabetes Care*. 1995; 18:245–250. [PubMed: 7729306]
16. Matthews DR, Hosker JP, Rudenski AS, Naylor BA, Treacher DF, Turner RC. Homeostasis model assessment: insulin resistance and beta-cell function from fasting plasma glucose and insulin concentrations in man. *Diabetologia*. 1985; 28:412–419. [PubMed: 3899825]
17. Matsuda M, DeFronzo RA. Insulin sensitivity indices obtained from oral glucose tolerance testing: comparison with the euglycemic insulin clamp. *Diabetes Care*. 1999; 22:1462–1470. [PubMed: 10480510]
18. Block G, Hartman AM, Naughton D. A reduced dietary questionnaire: development and validation. *Epidemiology*. 1990; 1:58–64. [PubMed: 2081241]
19. Weiss EC, Galuska DA, Khan LK, Serdula MK. Weight-control practices among U.S. adults, 2001–2002. *Am J Prev Med*. 2006; 31:18–24. [PubMed: 16777538]
20. Milsom VA, Middleton KM, Perri MG. Successful long-term weight loss maintenance in a rural population. *Clin Interv Aging*. 2011; 6:303–309. [PubMed: 22162646]
21. Wing RR, Tate DF, Gorin AA, Raynor HA, Fava JL. A self-regulation program for maintenance of weight loss. *N Engl J Med*. 2006; 355:1563–1571. [PubMed: 17035649]
22. Rejeski WJ, Mihalko SL, Ambrosius WT, Bearon LB, McClelland JW. Weight loss and self-regulatory eating efficacy in older adults: the cooperative lifestyle intervention program. *J Gerontol B Psychol Sci Soc Sci*. 2011; 66:279–286. [PubMed: 21292809]
23. Wadden TA, Neiberg RH, Wing RR, et al. Four-year weight losses in the Look AHEAD study: factors associated with long-term success. *Obesity (Silver Spring)*. 2011; 19:1987–1998. [PubMed: 21779086]
24. Donnelly JE, Blair SN, Jakicic JM, Manore MM, Rankin JW, Smith BK. American College of Sports Medicine Position Stand. Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. *Med Sci Sports Exerc*. 2009; 41:459–471. [PubMed: 19127177]
25. Rejeski WJ, Marsh AP, Chmelo E, et al. The Lifestyle Interventions and Independence for Elders Pilot (LIFE-P): 2-year follow-up. *J Gerontol A Biol Sci Med Sci*. 2009; 64:462–467. [PubMed: 19181715]

Figure 1. Effect of weight loss and long-term weight maintenance on body weight (Panel A) and scores in the modified physical performance test (PPT) (Panel B) in frail, obese older adults. Values are mean $\pm$ SEM. * $P < 0.05$ compared to baseline value

Table 1

Effect of weight loss and long-term weight maintenance on physical and metabolic outcomes in frail obese older adults *

	Baseline	6-months	12-months	30-months
Demographics				
Age (years)	70.6 ± 1.0			
Male/Female	5/11			
Caucasian/African American	14/2			
Body weight and composition				
Body mass index (kg/m ²)	36.0 ± 1.7	32.5 ± 1.7 [†]	32.1 ± 1.7 [†]	33.5 ± 1.7 [†]
Weight (kg)	101.5 ± 3.8	91.4 ± 3.8 [†]	90.1 ± 3.8 [†]	94.5 ± 3.9 [†]
Fat mass (kg)	40.9 ± 3.3	34.8 ± 3.3 [†]	33.7 ± 3.2 [†]	37.6 ± 3.2 [†]
Fat free mass (kg)	59.9 ± 2.3	56.7 ± 2.1 [†]	56.7 ± 2.1 [†]	56.9 ± 2.2 [†]
Trunk fat (kg)	21.6 ± 1.4	17.7 ± 1.6 [†]	17.1 ± 1.6 [†]	18.9 ± 1.5 [†]
Appendicular lean mass (kg)	26.0 ± 1.0	24.1 ± 1.0 [†]	24.1 ± 1.0 [†]	24.1 ± 1.1 [†]
Physical function and quality of life				
Physical performance test score	27.9 ± 0.7	30.3 ± 0.6 [†]	30.9 ± 0.7 [†]	30.2 ± 0.6 [†]
Functional status questionnaire	32.1 ± 0.6	32.9 ± 0.4 [†]	33.0 ± 0.4 [†]	32.1 ± 0.7
SF-36 quality of life, physical component (%)	74.5 ± 3.0	77.8 ± 2.3	80.5 ± 1.7 [†]	75.4 ± 3.6
Metabolic syndrome components				
Waist circumference (cm)	116.8 ± 3.2	108.6 ± 3.3 [†]	105.9 ± 3.5 [†]	108.9 ± 3.4 [†]
Systolic blood pressure (mm HG)	134 ± 6.3	118.1 ± 4.6 [†]	118.5 ± 5.0 [†]	123.4 ± 5.4 [†]
Diastolic blood pressure (mm HG)	73.0 ± 2.7	67.5 ± 1.8 [†]	68.6 ± 1.7 [†]	70.2 ± 2.4
HDL-cholesterol (mg/dL)	51.6 ± 2.7	52.9 ± 3.3	55.2 ± 3.0 [†]	49.1 ± 3.0
Triglyceride (mg/dL)	125.5 ± 12.9	107.1 ± 15.1 [†]	102.4 ± 8.8 [†]	113.7 ± 13.2
Plasma glucose (mg/dL)	95.4 ± 3.2	91.7 ± 2.3	91.4 ± 2.1	94.1 ± 2.2
Insulin sensitivity and glucose tolerance				
HOMA-IR	4.1 ± 0.8	2.8 ± 0.5 [†]	2.7 ± 0.5 [†]	3.0 ± 0.6 [†]
Glucose AUC (min-mg/dl)	17958 ± 724	16257 ± 797 [†]	16155 ± 696 [†]	17491 ± 603

	Baseline	6-months	12-months	30-months
Insulin AUC (min-mg/dl)	12484 ± 2042	8891 ± 942 [‡]	7636 ± 876 [‡]	9270 ± 1139 [‡]
Bone mineral density				
Total body (g/cm ²)	1.256 ± 0.056	1.250 ± 0.052	1.258 ± 0.047	1.248 ± 0.054
Lumbar spine (g/cm ²)	1.146 ± 0.042	1.153 ± 0.041	1.150 ± 0.039	1.157 ± 0.042
Total hip (g/cm ²)	0.985 ± 0.026	0.971 ± 0.025 [‡]	0.966 ± 0.025 [‡]	0.941 ± 0.024 [‡]
Liver and renal function				
Alkaline Phosphatase (U/L)	75.7 ± 5.0	70.9 ± 4.2	69.8 ± 3.9 [‡]	72.1 ± 4.7
Alanine aminotransferase (U/L)	35.6 ± 6.8	27.0 ± 3.5 [‡]	24.4 ± 2.9 [‡]	24.1 ± 3.3 [‡]
Aspartate aminotransferase (U/L)	27.2 ± 2.0	24.8 ± 2.0	25.3 ± 1.7	26.1 ± 2.6
Bilirubin (g/dL)	0.5 ± 0.1	0.5 ± 0.1	0.8 ± 0.3	0.5 ± 0.1
Blood urea nitrogen (mg/dL)	26.1 ± 9.6	17.7 ± 1.2	16.7 ± 1.2	19.1 ± 1.5
Creatinine (mg/dL)	0.9 ± 0.0	0.9 ± 0.0	0.9 ± 0.0	0.9 ± 0.0

Abbreviation: HOMA-IR, homeostasis model assessment of insulin resistance; AUC, area under the curve

* Plus-minus values are means ± SEM. Scores on the modified Physical Performance Test (PPT, the primary outcome) range from 0 to 36, with higher scores indicating better physical function. Scores on the Functional Status Questionnaire (FSQ) range from 0 to 36, with higher scores indicating better functional status.

[‡] P<0.05 compared to baseline value