

Continuous Engagement in a Weight-Loss Program Promotes Sustained Significant Weight Loss

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ABSTRACT

Background: Significant weight loss improves health but regain is common.

Objective: The objective of the study was to determine if 2,346 members of Take Off Pounds Sensibly—a national, low-cost, peer-led weight-loss program—achieved and maintained significant weight loss with 7 consecutive annual renewals.

Methods: This study was a retrospective cohort design. For each renewal, the cumulative change from baseline weight was calculated. Weight change was placed into 1 of 3 categories: significant weight loss, loss $\geq 5\%$; weight stable, loss of 0 to $<5\%$; or weight gain, any amount above baseline weight.

Results: The cohort included 2,346 individuals. Fifty-one percent ($n=740$) of participants were in the significant weight-loss category all 7 years; 256 (18%) were in the significant weight-loss category at year 1 but moved into at least 1 other category during years 2 through 6; 359 (25%) were in the weight stable category at year 1; and 98 (7%) were in the weight gain category at year 1.

Conclusions: Over 60% of the population achieved significant weight loss by year 7. Since continuous, long-term engagement in a weight-loss program can lead to significant weight loss, even if significant weight loss is not initially achieved, participation should be encouraged.

INTRODUCTION

Overweight and obese individuals are at greater risk for virtually every chronic health disease, including Type 2 diabetes, coronary artery disease, dyslipidemia, and various forms of cancer.¹⁻⁴ On

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the other hand, individuals who experience significant weight loss—defined as weight loss $\geq 5\%$ of baseline weight—reduce or eliminate their risks for these conditions.⁵ Unfortunately, the health benefits of significant weight loss diminish when weight is regained.^{6,7} While weight-loss programs are effective at weight loss, maintaining significant weight loss over the longer term is a critical challenge. For example, a meta-analysis of weight-loss programs found approximately 80% of weight lost is regained after 4 to 5 years.⁸ However, few studies describe what percentage of individuals maintain significant weight loss for more than 2 years.⁹⁻¹¹

Objective

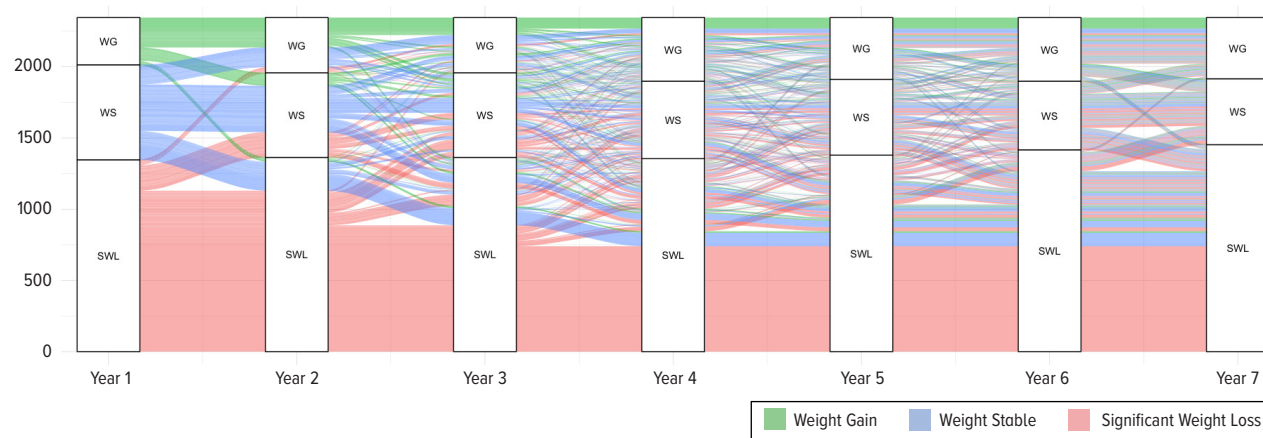
The objective of this research is to describe the percentage of Take Off Pounds Sensibly (TOPS) participants with significant weight loss over 7 consecutive years of membership. Fully

described elsewhere,¹² TOPS is a nonprofit, peer-led behavioral health promotion program designed to help its members lose weight by eating healthier and increasing physical activity. Previous studies of TOPS showed that the average weight loss for those consecutively renewing their membership was 7% to 8% of baseline weight.¹² The purpose of the study is to determine if individuals with 7 consecutive annual TOPS renewals stay in the significant weight loss category.

TOPS Program Details

TOPS is a health promotion program with over 115,000 members in more than 6,000 chapters located in communities throughout the United States. Chapters start with at least 4 interested com-

Figure. Weight-Change Categories Over 7 Years



munity members. A TOPS “chapter advocate” assists new chapters with initial paperwork, organization, and programming ideas. TOPS provides the administrative and educational materials. The program recommends one of two nutrition plans: the American Academy of Nutrition and Dietetics Food Exchange System¹³ or the US Department of Agriculture (USDA) My Plate Program.¹⁴ Participants also learn about recommended physical activity levels based on the US Department of Health and Human Services Physical Activity Guidelines.¹⁵

Weigh-in Procedures

Prior to each weekly meeting, a weight recorder documents members’ weights during a private weigh-in, then there is a group educational program. TOPS has specific weight measurement and recording procedures described in its chapter manual. For example, no members or officers are allowed to measure or record their own weights. Additionally, participants with medical equipment – such as casts or braces – must have a signed statement from a health care provider about the weight of the equipment, which is deducted from the participant’s recorded weight. There are also procedures for dealing with common variances when a chapter gets a new scale and when members transfer to new chapters.^{16,17} Although members are expected to weigh in each week, weight measurements are sent to the national office when members join and at the time they renew their annual membership. The data for this study were obtained from the national database.

Once individuals achieve their goal weights, they enter the maintenance phase of the program, Keep Off Pounds Sensibly (KOPS). Weight-loss and weight-maintenance phases are nearly indistinguishable because TOPS and KOPS members attend the same weekly meetings and weigh-ins.

METHODS

This is a retrospective cohort design to describe weight change for TOPS’ members who renewed their annual membership for

7 consecutive years. After obtaining Institutional Review Board approval, the TOPS national office shared deidentified information for members enrolling from January 2005 through December 2011. This study included only participants who (1) joined the program from January to December 2005 and (2) who renewed their annual membership for 7 consecutive years.

Weight Change

Weight change was calculated as percentage change from baseline weight at initial TOPS enrollment. For each year, cumulative weight change relative to baseline weight was placed into one of three categories: (1) significant weight loss (SWL, cumulative weight loss $\geq 5\%$ of baseline weight); (2) weight stable (WS, cumulative weight loss of 0 to $< 5\%$ of baseline); and (3) weight gain (WG, cumulative weight change > 0). Mean and standard deviations (SD) of the weights were calculated for the cohort. An alluvial figure (Figure 1) was created to show the change in weight categories across all 7 years of participation in the TOPS program. Data were analyzed using SAS v. 9.4 (Cary, NC) and R 3.1.3 (Vienna, Austria).

RESULTS

Of the 35,661 individuals who joined TOPS during 2005, the cohort contained 2,346 – less than 7% – who renewed their membership for 7 consecutive years. The mean baseline weight for the cohort was 97.5 kg (SD 20.8); 2,197 (94%) were women and 149 (6%) were men. Table 1 shows the cohort’s average cumulative weight change. Over the course of the study, the cohort’s cumulative average weight change was clinically significant at each of the 7 annual renewals.

Weight Change Categories Compared to Baseline Weight at Each Renewal

Table 2 shows the percentage of participants in each category over the 7 years. The percentage of participants with significant weight

loss ranged from 57% at year 1 renewal to 62% at year 7 renewal. The percentage of individuals in the WS category ranged from 20% at year 7 renewal to 28% at year 1 renewal. The percentage of participants in the WG category ranged from 14% at year 1 renewal to 19% at year 4 and 6 renewals.

Figure 1 shows how individuals either stayed within or moved between weight-change categories for years 1 through 7. The majority (64%) of participants moved between categories during the study period, whereas 36% remained in the same category all 7 years (ie, 740 [32%] in SWL, 20 [1%] in WS, and 78 [3%] in WG). At the year 7 renewal, 1,453 (62%), 463 (20%), and 430 (18%) were in the SWL, WS, and WG categories, respectively. Seven hundred-forty participants (51%) were in SWL for all 7 years; 256 (18%) were in SWL at year 1 but moved into at least one other category during years 2 through 6. Three hundred fifty-nine (25%) were in WS at year 1, while 98 (7%) were in WG at year 1.

Twenty participants (4%) were in the WS category all 7 years; 139 (30%) were in WS at year 1 but moved into at least one other category during years 2 through 6. Two hundred eighteen (47%) were in the SWL category at year 1; 86 (19%) were in the WG category. Seventy-eight (18%) were in the WG category all 7 years; 70 (18%) were in WG at year 1 but moved into at least one other category during years 2 through 6. One hundred forty-nine (35%) were in WS at year 1; and 133 (31%) were in SWL at year 1.

DISCUSSION

Over 60% of individuals who consecutively renewed their membership in a peer-led weight-loss program for 7 years achieved significant weight loss by year 7, with half staying in the SWL category for all 7 years. The implication is that continuous engagement in a weight-loss program helps participants maintain significant weight loss. It is also important to note that individuals who were in the WG group at the end of year 1 did not necessarily remain in that group by the end of year 7, implying that individuals were engaged in the weight-management process throughout their time as a TOPS member. These findings are significant since 62% of individuals were in the SWL category after 7 years.

Weight-loss and weight-maintenance phases of weight-management programs tend to be finite in nature and differ by frequency of participation – for example, weekly during the weight-loss phase and monthly during the maintenance phase. Weight-loss maintenance among TOPS participants may be enhanced by the program's continual support once they reach their goal weight and

Table 1. Average Cumulative Weight Change (kilograms and percentage) at Annual Renewals

	Starting Weight	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Weight change, mean kg (SD)	97.5 (20.8)	-7.0 (8.2)	-7.5 (9.6)	-7.3 (9.7)	-7.2 (10.0)	-7.5 (10.4)	-7.8 (10.7)	-8.2 (11.0)
Weight change, mean % (SD)		-7.1 (7.8)	-7.6 (8.8)	-7.4 (8.9)	-7.3 (9.2)	-7.4 (9.5)	-7.8 (9.7)	-8.2 (10.1)

Table 2. Weight Categories From Starting Weight at Annual Renewal, N=2,346^a

Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Significant weight loss, n (%)	1347 (57%)	1365 (58%)	1363 (58%)	1355 (58%)	1380 (59%)	1417 (60%)	1453 (62%)
Weight stable, n (%)	667 (28%)	593 (25%)	595 (25%)	544 (23%)	532 (23%)	482 (21%)	463 (20%)
Weight gain, n (%)	332 (14%)	388 (17%)	388 (17%)	447 (19%)	434 (19%)	447 (19%)	430 (18%)

Significant weight loss: $\geq 5\%$ loss; weight stable: 0 to $< 5\%$ loss; weight gain: > 0 .

^a Column percentages may not total 100% due to rounding.

become “KOPS” members. This aligns with a continuous care model of obesity treatment¹⁸ and has been supported in a review analyzing “extended care” for long-term weight-loss maintenance¹⁹ and national guidelines to manage overweight and obesity.⁵

Several studies have shown that the more program sessions individuals attend or the more time an individual spends in a program, the more weight they lose.²⁰⁻²² In this study, it is important to note that when individuals in the SWL category gain weight, they may remain in that category if their cumulative weight loss is $\geq 5\%$ of their initial weight. While no other national weight-loss program has investigated weight-change categories for all participants in a real-world scenario beyond 1 year, Weight Watchers has twice reported the weight-loss maintenance of a subset of program participants from 1 to 5 years.^{23,24} In the first study of 1,002 “lifetime” members – those who achieved and maintained their goal weights for at least 6 weeks – 70%, 60%, 54%, 46%, and 43% maintained significant weight loss at years 1 to 5, respectively. In the second study of almost 699 “lifetime” members, 80%, 71%, and 50% maintained significant weight loss at 1, 2, and 5 years, respectively. Although it is difficult to compare these results with the current study because of the different methodologies and the small subset of Weight Watchers members vs TOPS members with consecutive annual membership renewal, findings indicate that regaining weight is common among those with significant weight loss in a structured program and that individuals are less likely to maintain significant weight loss as times goes on.

This study is important because it examines the weight-change categories of a population of almost 2,400 individuals who participated in a low-cost, peer-led weight-loss program for at least 7 years. TOPS members might experience greater success at maintaining significant weight loss since individuals who reach their goal weights are expected to participate in weekly educational sessions as part of KOPS, the maintenance category for TOPS.

In TOPS, individuals who reach their goal weight are expected to continue to attend weekly meetings indefinitely. This expectation of continuous engagement in the weight-management process may be the key to the successful weight-loss maintenance for many of the individuals in this study.

There are two unexpected results from this study. Individuals who were above their initial weight after one or more consecutive annual renewals continued to renew their annual membership, and some of those individuals eventually lost a clinically significant amount of weight. First, it is surprising that individuals would remain in a weight-loss program where they gained weight over the course of 1 or more years. It is possible that participants enjoyed the social interactions within the TOPS chapter so they continued to participate, even if they did not lose weight. Second, these results contradict other studies and conventional wisdom suggesting that “successful” weight loss is mostly, if not only, associated with “early” weight loss.²⁵⁻²⁸ Our results may indicate the value of keeping individuals engaged in the weight-management process, even if they were initially unsuccessful.

One potential limitation is that this analysis represents a small percentage of those who joined the program during its first year because it was limited to individuals who consecutively renewed their annual membership. However, our goal was to determine the long-term weight-change categories of those who were continuously engaged in the program. Second, we do not have data about comorbid conditions, concomitant medication use, diet, physical activity, or weekly participation. While these factors could serve as significant confounding variables that influenced weight change over the study period, the study examines weight-change outcomes in a real-world setting. Third, we do not have data on participants’ socioeconomic status. Therefore, we cannot draw any conclusions about whether this program is successful for individuals of varying socioeconomic levels. However, our previous research showed the demographics of the census tracts where TOPS chapters were located: more than 60% were in census tracts where the annual median income was less than \$50,000, more than 90% were in predominantly White census tracts, and almost 75% of TOPS chapters were in predominantly urban census tracts.²⁹ We also have published the average age and weight of female TOPS’ participants who achieved significant weight loss.³⁰

One practical implication is that insurance coverage for weight-loss programs could be used to a greater extent to assist individuals in managing their weight and, thus, improving their health. However, weight-loss programs for *overweight* patients with comorbidities are not fully covered by Medicare,⁵ and the coverage for obesity is restricted. For example, Medicare coverage for treating obesity (not overweight) allows weekly visits for month 1, every other week for months 2 to 6, and monthly for months 7 to 12, although interactions that are more frequent are associated with greater weight loss and weight-loss maintenance.^{21,22} Additionally,

Medicare continues to pay for individuals in months 7 to 12 only if they lose at least 3 kg within the first 6 months. Although we only have data for individuals at yearly intervals, 67% lost at least 3 kg by the end of the first year while 69% lost ≥ 3 kg by the end of year 7 (when comparing weight at renewal to weight at baseline). Thus, 33% of individuals would not have insurance coverage even though they might successfully lose weight if given more time to do so. Additionally, almost 46% of individuals in either the WG or WS categories at the end of their first year moved to the SWL category by year 7. Finally, Medicare only covers behavioral counseling for 1 year, even if participants lose the requisite 3 kg in the first 6 months. To maintain weight loss, individuals need to continue the behaviors that helped them lose weight. Under Current Procedure Terminology (CPT) G0447, the total Medicare reimbursement for individual behavioral weight-loss counseling is approximately \$500 per year. TOPS costs approximately \$92 per year.

CONCLUSION

This study shows that continuous engagement in a weight-loss program can lead to sustained positive results for most participants through either significant weight-loss maintenance or weight loss after initial weight gain. Future research should study why individuals who gain weight may choose to remain in these programs and what motivated those who were initially unsuccessful to start losing weight. To promote sustained weight loss, weight-loss programs should incorporate a model that encourages continuous, long-term engagement. Additionally, insurance programs should consider covering those types of programs.

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