Using "Meal Replacements" For Weight Loss

What Is A Meal-Replacement?

A meal replacement is a portion-controlled, prepackaged meal, shake, drink or bar that contains approximately 100 to 200 calories and is used to replace an entire meal or snack to help you reduce your total calorie intake and thus lose weight. These include nutritionally fortified diet protein shakes, snack bars, and low-calorie meals. The weight loss shakes and bars are usually low in fat and calories, with about 100 to 200 calories, 2 to 5 grams of fat, about 10 to 15 grams of protein, various vitamins and minerals, and up to 5 grams of fiber.

How Do Meal Replacements Work?

Meal replacements help people lose weight by providing a controlled amount of calories, protein, carbohydrates and fat in a prefixed portion. They simplify meal planning because they are convenient -- easy to store, and requiring little preparation. They are also reasonably priced, usually costing less than the meal they replace. Meal replacements reduce the number of decisions you have to make about what to eat and reduce your exposure to tempting foods that might result in overeating.

Many effective weight loss plans that use meal replacements recommend either using them in addition to eating 1 or 2 healthy "grocery" foods meals, or replacing 2 or 3 meals and several snacks per day to lose weight, and then replacing 1 meal per day to maintain weight.

Using a meal replacement instead of an entire meal or snack can help you to reduce your calorie and fat intake and your blood sugar levels. When you first start using meal replacements, you will likely notice an immediate reduction in your blood sugar levels because you will probably be consuming fewer calories and less carbohydrates than you would with your usual meal.
How Effective Are Meal Replacements?

Recent studies show that meal replacements have an important role to play in the diet of anyone who wants to lose excess body-fat and build healthy lean muscle. A good example comes from a study published in the American Journal of Clinical Nutrition. Researchers from the University Hospital of Ulm in Germany assessed the effects of low-calorie diet combined with meal replacements on weight loss in a group of 100 obese patients.

Half of the group followed a self-selected diet of 1,200 to 1,500 calories per day, which included three meals and two snacks. The other half followed a similar self-directed diet except that they replaced two snacks and two of the three meals with meal replacements (shakes, soups or hot chocolate). After three months, the people on the self-selected diet lost an average of 2.9 lbs., while the people using meal replacements lost an average of 15.6 lbs.

After the first three months, everyone was asked to replace one meal and one snack per day with a meal replacement. Over the next 24 months, original self-selected diet group lost an average of nine additional pounds, and the original meal replacement group lost an average of another seven more pounds. At the end of the study, the self-selected diet group had a 5.9 percent weight loss, whereas the original meal replacement group had an 11 percent weight loss.

Another study by researchers from the University of Nevada report similar results. Women using meal replacement supplements were able to maintain a far greater weight loss over the course of a year than those using other methods to control their weight.

Other Selected References on Meal Replacements

In general, published studies and references have concluded that diets including meal replacements (portion-controlled, calorie-restricted meals) produce substantially greater weight loss and weight loss maintenance than traditional diets.

- On average, more than three times as much weight is lost and maintained using meal replacements as compared to traditional diets.

- Meal replacements can be used successfully in a variety of settings and with various treatment populations - e.g., by individuals alone, in structured groups, with or without professional support, and with all medical co-morbidities.

- Importantly, meal replacements also improve dietary compliance and overall nutritional intake, and they reduce all measured medical risk factors. Following is a sample of meal replacement references.

Research/Studies: General Weight Loss Success

There was a 32.6 pound difference between individuals who used a meal replacement plan over 10 years compared to matched controls. Those using meal replacements lost an average of 6 pounds over the 10 years; those not using meal replacements gained 26.6 pounds. Participants were only given information on the use of meal replacements to lose and maintain weight - no other instruction was provided.


This meta-analysis of six studies found significantly greater weight loss in subjects using partial meal replacement plans (PMR) vs. conventional reduced calorie diets. The dropout rate was equivalent at 3 months but significantly less in the meal replacement group at one year. The authors concluded that "our findings demonstrate the important potential of well-developed PMR products and plans as a means of weight control."


In a prospective randomized study, obese patients who used four meal replacements per day (two meals and two snacks) for three months lost five times more weight than those who were on a conventional low-calorie diet (15.6 pounds vs. 2.9 pounds). Both groups then used two meal replacements (one meal and one snack) and, on average, all continued to lose weight long term (24-month maintenance phase). Additionally, by the end of the study, both groups experienced significant reductions in blood pressure, glucose, and insulin.


In these two editorials the authors supported the effectiveness of meal replacements as a simple and minimal intervention. As Bray noted, the long-term results imply that "the subjects were continuing to treat themselves, which is the hallmark of success for primary treatment of obesity and for secondary prevention of weight regain". Hill concluded that, "in this study, a minimal intervention [i.e., meal replacements] had a significant impact on body weight". Commenting on the practical value of meal replacements, he stated that "we need to evaluate
more of these ‘real-life’ interventions that have the potential to be translated into other settings”.


In a one-year randomized trial of 53 obese women, those who used meal replacements for four months in conjunction with group lifestyle modification and obesity medications lost four times more weight than women who used medications alone (36.5 vs. 8.4 pounds).


Seventy-five overweight women were randomized to either a recommended 1200 calorie/day diet of low fat foods or a similar diet with at least one meal replacement per day for one year. There was no other intervention. After 12 weeks, the meal replacement group lost significantly more weight than the diet group, and, after one year, the meal replacement group maintained their initial weight loss whereas the traditional diet group regained most of their weight loss. "In this study, having food consumption controlled at one meal was enough to keep the weight from coming back."


One hundred obese patients using five meal replacement shakes a day (along with fruits and vegetables) lost significantly more weight after 12 weeks than those following a conventional low calorie diet. The meal replacement group also had a greater change in total and LDL cholesterol.


Fifty-two patients who had used a VLCD for 12 weeks were then randomized to a 1600-calorie maintenance diet - one group with and one without the inclusion of two daily liquid supplements.
After one year, the group using two daily supplements kept off more of their weight loss than the group using no supplement.

Meal Replacements Safely Used in Type 2 Diabetes


Overweight individuals with type 2 diabetes lost significantly more weight and improved diabetes control with a combination therapy that included meal replacements compared with a standard weight loss program.


Fifty-seven patients with type 2 diabetes used either meal replacements (two meal replacement shakes and one portion-controlled dinner high in fruits and vegetables per day) or a calorically-restricted diet (American Diabetes Association Exchange Diet) for 12 weeks. Both diets resulted in significant weight loss demonstrating that meal replacements can be used safely for weight loss in obese type 2 diabetics. The meal replacement group had greater weight and fat mass loss and reductions in fasting glucose compared to the ADA group.

Li Z, Hong K, Thames G, Minutti C, Heber D. Meal replacements but not individualized exchange plan diets result in reductions in C-reactive protein (hsCRP) levels in obese patients with type 2 diabetes. Obes Res 2003;11(suppl):A50.

Meal replacement use resulted in greater weight loss over 24 weeks than individualized diet plans in obese patients with type 2 diabetes. This resulted in significant improvements in C-reactive protein, insulin sensitivity, and lipid levels.


Patients with long-standing, poorly controlled type 2 diabetes requiring insulin therapy
participated in a 6-month structured program incorporating meal replacements (three shakes and two pre-packaged entrees per day), fruits and vegetables, and physical activity. The average weight loss of 20.2 pounds led to substantial reductions in multiple cardiovascular risk factors along with a 14.1 unit/day average decrease in insulin dose and an average decrease in HbA1c of 1.2 percentage points.


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Meal Replacements Used Successfully in a Variety of Settings


A primary care office intervention that included brief physician/nurse visits and the use of meal replacements was as effective as a traditional group intervention without meal replacements. Furthermore, overweight women using meal replacements in a traditional lifestyle-based group lost more than twice as much weight and maintained significantly more of the weight loss after one year than women not using meal replacements. The average weight loss in the meal replacement group was 9.1% of initial body weight, with substantial improvements in medical risk factors.


Nearly 500 employees in four different occupational groups who used meal replacements (shakes and nutrition bars) on their own, lost an average of 16 pounds in 12 weeks. The retention of weight loss was considerable, particularly in the airline personnel, 2/3 of whom had retained >80% of their weight loss after one year, and half of these weighed less than at week 12.

Employees at a worksite were randomized to a 1200-calorie/day diet or a similar caloric meal replacement plan. The meal replacement group lost more weight and showed greater reductions in systolic blood pressure and cholesterol. The participants found the meal replacements "made a weight loss program simple and easy to follow."


Participants in a phone-based weight loss program incorporating meal replacements (3 shakes and 2 pre-packaged entrees per day) lost an average of 16 pounds in 6 weeks or 7.5% of initial body weight. These results were virtually identical to those of participants in a clinic using the same weight loss program.

Meal Replacements Improve Dietary Compliance, Nutritional Intake, and Reduce Risk Factors


In the second year (maintenance) of an earlier study, women using meal replacements maintained more weight loss than those not using meal replacements. Those using meal replacements within the structure of a lifestyle group maintained significantly more weight loss (8.5% of initial body weight) than all the others. Furthermore, women using meal replacements in the group showed an increased intake of micronutrients as well as significant increases in vegetable and fruit servings.


In a continuation of an earlier study, two meal replacements (one meal and one snack) daily were effective in maintaining weight loss and sustaining healthy eating (reduced energy, fat, and cholesterol intake) for a period of four years. "From the health point of view, the most important
observation is that continued use of a meal replacement strategy can improve several important biomarkers of disease risk for an extended time (e.g., glucose, insulin, lipids, and blood pressure). Furthermore, the continued use of meal replacements prevented weight gain in those who dropped out and then re-entered the program.

Rothacker DQ, McPartlan L. Improved intakes of calcium with reduced fat in adults using one daily meal replacement shake. Obes Res 1999;7 (suppl 1):96S.

Food diaries were analyzed on designated meal replacement days (using a meal replacement shake for the first meal of the day) and control days for 117 adults. By simply adding one meal replacement shake a day, a significantly greater percent of adults (52% vs. NIH's estimate of 19%) were able to meet the 1000 mg/day guideline for calcium. The average daily intake of calcium increased by almost 300 mg, while calories and fat were consistently lower.

Metz JA, Stern, JS, Kris-Etherton P, et al. A randomized trial of improved weight loss with a prepared meal plan in overweight and obese patients. Arch Intern Med 2000;160:2150-2158. This year-long, randomized, clinical trial to test the effect of a prepared meal plan on weight loss included 302 patients with hypertension and dyslipidemia or type 2 diabetes. "The results demonstrate that the prepared meal plan is more effective in inducing weight loss in such subjects than a macronutrient-equivalent UCD (usual care diet). The greater weight loss in the prepared meal plan group likely reflects, in part, better dietary compliance and thus, greater sustained reductions in energy and fat intake. Furthermore, the prepared meal plan was more effective in improving multiple risk factors and in enhancing quality of life.


The purpose of this multicenter trial (see also Metz above) was to assess the clinical effects of a total dietary plan designed to meet the nutritional recommendations of major U.S. health organizations for cardiovascular risk reduction. The use of prepackaged meals for 10 weeks was compared to a nutritionist-guided self-selected diet in people with hypertension, dyslipidemia, diabetes, or a combination of these conditions. The prepackaged plan resulted in greater clinical benefits, weight loss, nutritional completeness, and compliance than the self-selected diet. Most significant was the impact of the food plans on achieving simultaneous reductions in multiple cardiovascular risk factors.

A ready-to-eat cereal, used as a portion-controlled meal replacement twice a day for two weeks, led to lowered calorie intake and therefore, greater weight loss as compared to control groups. This study lends further support that meal replacements provide "a conceptually simply regimen, high palatability, relatively low cost, and wide availability."

The results of these studies suggest that meal replacements can be an effective weight-loss strategy both short and long term.