

# White Paper

## BENEFIT OF MEAL REPLACEMENTS IN WEIGHT MANAGEMENT

The benefit of replacing grocery foods with balanced nutritional Meal Replacements is a useful clinical tool to support calorie restriction and provide optimal levels of macro and micro nutrients. It is known that incorporation of added protein during calorie restriction aids in satiety as well as supporting lean body mass and metabolic rate.

In 2009 the American Dietetic Association supported inclusion of Meal Replacements in their position statement on Weight Management.<sup>1</sup> It was reported that Meal replacements, containing known energy and macronutrient contents, are a useful strategy to eliminate problematic food choices or complex meal planning while trying to attain a daily caloric deficit. Substituting one or two daily meals or snacks with meal replacements in the form of liquid meals, meal bars or calorie-controlled packaged meals may be used as part of the comprehensive weight management program.

In a review by Hymesfield, randomized controlled studies that used meal replacements for at least three months were compared to a conventional reduced calorie diet. It was determined that while both groups lost weight, dieters using of meal replacements lost more weight after 1 year.<sup>2</sup> Weight loss after one year averaged 7-8% from base line which was comparable or above the level observed with pharmacologic weight loss studies and the level known to lower disease risk.

Meal replacements have also been an effective alternative for dieters with diabetes. In addition to simplifying meal planning it can help dieters achieve healthy blood glucose levels while they are learning skills to balance their dietary carbohydrate intake. Cheskin et.al.<sup>3</sup> reported that a diet using a portion-controlled meal replacement diet (PCD) yielded significantly greater initial weight loss and less regain after 1 year of maintenance than a standard, self-selected, food-based diet.

Meal replacements were also utilized in the multi-center Look AHEAD (Action for Health in Diabetes) study<sup>4</sup> with over 5000 participants. During the weight loss phase it was found that the number of meal replacements consumed was significantly associated the amount of weight loss. At the end of one year the group using meal replacements lost 6.8% of their initial weight compared to only 0.7% for the group without meal replacement use. After initial weight loss participants in this multi-year study were encouraged to continue to replace one meal and one snack per day with liquid shakes and meal bars.

Weight loss maintenance is another good fit for meal replacements. Continuing to substitute a meal replacement for one or two daily meals or snacks has been found to support long term weight maintenance.<sup>5</sup>

### REFERENCES:

1. *Position of the American Dietetic Association: Weight Management Journal of the American Dietetic Association. 2009; 109:330-346.*
2. *Heymsfield SB, van Mierlo CA, van der Knaap HC, Heo M, Frier HI. Weight management using a meal replacement strategy: meta and pooling analysis from six studies. International Journal of Obesity and Related Metabolic Disorders. 2003 May;27(5):537-49.*
3. *Cheskin LJ, Mitchell AM, Jhaveri AD, Mitola AH, Davis LM, Lewis RL, Yep MA, Lycan TW. Efficacy of Meal Replacements Versus a Standard Food-Based Diet for Weight Loss in Type 2 Diabetes. The Diabetes Educator. 2008; 34: 118-127.*
4. *Wadden TA, Neiberg RH, Wing RR, Clark JM, Delahanty LM, Hill JO, Krakoff J, Otto A, Ryan DH, Vitolins MZ; Look AHEAD Research Group. One Year Weight Losses in the Look AHEAD Study: Factors Associated with Success Obesity. 2009; 17: 713-722*
5. *Layman DK, Evans EM, Erickson D, Seyler J, Weber J, Bagshaw D, Griel A, Psota T, Kris-Etherton P. A moderate-protein diet produces sustained weight loss and long-term changes in body composition and blood lipids in obese adults. Journal of Nutrition. 2009. 139(3):514-21.*

## IMPORTANCE OF MEAL REPLACEMENTS IN WEIGHT MANAGEMENT

### **A two-year randomized trial of obesity treatment in primary care practice.**

(Wadden TA, Volger S, Sarwer DB, Vetter ML, Tsai AG, Berkowitz RI, Kumanyika S, Schmitz KH, Diewald LK, Barg R, Chittams J, Moore RH. *New England Journal of Medicine*. 2011 Nov 24;365(21):1969-79.)

Primary care physicians (PCPs), collaborating with medical assistants, helped obese patients lose an average of 4.7% of their initial weight at 24 months. This loss, which was accompanied by improvements in cardiovascular risk factors, was achieved with enhanced brief lifestyle counseling, which combined quarterly PCP visits, brief lifestyle coaching delivered monthly, and provided for the use of meal replacements to enhance weight loss.

### **Effect of a conventional energy-restricted modified diet with or without meal replacement on weight loss and cardiometabolic risk profile in overweight women.**

(Metzner CE, Folberth-Vögele A, Bitterlich N, Lemperle M, Schäfer S, Alteheld B, Stehle P, Siener R. *Nutrition & Metabolism* 2011 Sep 22;8(1):64.)

Compliance was higher in the meal replacement group than in the conventional diet group as demonstrated by the higher weight loss. In the meal replacement group 77% of participants lost more than 5% of their total weight in 12 weeks vs. only 50% in the conventional diet group while following a 1200 calorie diet. The average weight loss and percent body fat loss was higher with meal replacement vs. conventional diet.

### **Efficacy of a meal replacement diet plan compared to a food-based diet plan after a period of weight loss and weight maintenance: a randomized controlled trial.**

(Davis LM, Coleman C, Kiel J, Rampolla J, Hutchison T, Ford L, Andersen WS, Hanlon-Mitola A. *Nutrition Journal*. 2010;9:11.)

A meal replacement diet plan of a fixed macronutrient composition yielded clinically significant weight loss for 93% of obese participants. The intervention with meal replacements yielded changes in body composition that favorably impacted many cardiovascular health outcomes. The meal replacement diet plan evaluated is an effective strategy for producing robust initial weight loss, and for achieving improvements in a number of health parameters during weight maintenance, including inflammation and oxidative stress, two key factors recently understood to underlie our most common chronic diseases.

### **Meal replacements and energy balance.**

(Heymsfield SR. *Physiology and Behavior*. 2010; 100: 90-94.)

This collective information supports the view that meal replacements, particularly in beverage form, are now an effective and safe component for use in the clinical setting. Several studies suggest that the addition of a partial meal replacements (PMR) to pharmacotherapy may be additive for weight loss.

### **Position of the american dietetic association: weight management**

(Seagle HM, Witt Strain G, Makris A, Reeves R. *Journal of the American Dietetic Association*. 2009; 109:330-346.)

Individuals adhering to structured meal replacement plans lose more weight at both 12 weeks and one year than individuals following a conventional diet plan, with one year dropout rates for the structured meal replacement plan significantly less than the conventional diet plan.

### **One year weight losses in the look ahead study: factors associated with success**

(Wadden TA, Neiberg RH, Wing RR, Clark JM, Delahanty LM, Hill JO, Krakoff J, Otto A, Ryan DH, Vitolins MZ; Look AHEAD Research Group. *Obesity*. 2009; 17: 713-722.)

The numbers of meal replacements consumed in the first six months was significantly related to weight loss at week 26 as was the total number consumed for the year to weight loss at week 52. At the end of year one, the intensive lifestyle group using meal replacements lost 8.6% of their initial weight compared to 0.7% for the group receiving diabetes support and education.

### **Efficacy of meal replacements versus a standard food-based diet for weight loss in type 2 diabetes.**

(Cheskin LJ, Mitchell AM, Jhaveri AD, Mitola AH, Davis LM, Lewis RL, Yep MA, Lycan TW. *The Diabetes Educator*. 2008; 34: 118-127.)

A diet using portion-controlled meal replacements (PCD) yielded significantly greater initial weight loss and less regain after 1 year of maintenance than a standard, self-selected, food-based diet. As PCDs may help obese patients with type 2 diabetes adhere to a weight control program, diabetes educators may consider recommending them as part of a comprehensive approach to weight control.

## Should overweight and obese primary care patients be offered a meal replacement diet?

(Rohrer JE, Takahashi P. *Obesity Research and Clinical Practice*. 2008; 2: 263-268.)

The average adult primary care patient who receives a single motivational interview can lose about 3 kg in 1 month using meal replacements. The diet was 1200 cal per day using pre-packaged foods for all calories other than fresh fruits and vegetables. Subjects were told that fresh vegetables and fruits were 'free' and did not count against their calorie budgets. Individual servings of snacks or desserts were acceptable as were frozen meals. No particular brand was recommended.

## Effect of meal replacement on metabolic risk factors in overweight and obese subjects.

(König D, Deibert P, Frey I, Landmann U, Berg A. *Ann Nutr Metab*. 2008;52(1):74-8.)

Even over a short period of time, a meal replacement diet is more effective in reducing metabolic risk factors, insulin, and leptin, and in improving anthropometric measures than a fat-restricted low-calorie diet. Meal replacement subjects showed a stronger improvement in metabolic risk factors and a 12% reduction in the prevalence of the metabolic syndrome.

## Meal replacements double weight loss, support maintenance.

(Tucker M. *Family Practice News*, DEC 2008.)

"Meal replacements are considered state-of-the-art dietary treatment for overweight and obesity. They produce double the weight loss of traditional weight loss plans and they improve long-term maintenance," reported by Anne Daly at the annual meeting of the American Association of Diabetes Educators.

## The evolution of very-low-calorie-diets: an update and meta-analysis.

(Tsai AG, Wadden TA. *Obesity*. 2006; 14: 1283-93.)

Partial meal replacement plans facilitate greater weight loss than the prescription of equivalent-calorie diets with conventional foods.

## Weight management using a meal replacement strategy: meta and pooling analysis from six studies.

(Heymsfield SB, van Mierlo CA, van der Knaap HC, Heo M, Frier HI. *International Journal of Obesity and Related Metabolic Disorders*. 2003 May;27(5):537-49.)

Based on the review of randomized controlled trials, utilizing partial meal replacement plans for weight management indicates that these types of interventions can safely and effectively produce significant sustainable weight loss and improve weight-related risk factors of disease.

## Value of structured meals for weight management: risk factors and long-term weight maintenance

(Ditschuneit, Herwig and Marion Flechtner-Mors. *Obesity Research*. 2001; 9: 284S-289S.)

For two groups, one with a 1,200-1,500 calorie diet and another with a diet using 2 or 3 meal replacements, the differences were significant. The first group lost an average of 1.5 pounds over 3 months and 3.3 pound after 4 years. The second group lost 7.8 pounds after 3 months and 8.4 pound after 4 years.

## Meal replacements in weight intervention

(Judith M. Ashley JM, St. Jeor ST, Suzanne Perumean-Chaney S, Jon Schrage J, Bovee V. *Obesity Research* (2001) 9, s312-S320.)

Traditional weight loss intervention incorporating MRs was effective as a weight loss tool in the medical office practice and in the dietitian-led group setting. Meal replacements provide a structured eating pattern that is easy to comply with and that can improve the magnitude of weight loss compared with a traditional diet and provides physicians with practical tool with ease of explanation that is effective with patients. In addition, incorporating a MR strategy into a traditional weight management program can improve food choice behavior and nutrient adequacy, even while following a reduced energy intake.

**ROBARD CORPORATION**

Leaders in Weight Management  
800.222.9201 | www.Robard.com