Comprehensive Clinical Approach to Obesity Treatment

Written by Resolution Health’s Medical Advisor David Sarwer, PhD, Professor of Psychology in Psychiatry and Surgery at the Perelman School of Medicine at the University of Pennsylvania as well as Director of Clinical Services at the Center for Weight and Eating Disorders. Reviewed by Resolution Health’s Medical Advisor Robert Kushner, MD Clinical Director, Northwestern Comprehensive Center on Obesity, Professor in Medicine-General Internal Medicine.

Background: The Obesity Problem

Over the past several decades obesity has become one of the biggest public health issues in the United States. Obesity is defined by an individual’s body mass index (BMI) which evaluates a person’s weight relative to his or her height. Although it is not a perfect measure of the potential impact of body weight on health, BMI correlates with percent body fat, morbidity and mortality.

The most recent statistics suggest that approximately one-third of adult Americans are obese, as judged by a body mass index (BMI) of 30 kg/m² or greater. Another one-third of the adult population is overweight, defined as a BMI of 25-29.9 kg/m². Being overweight puts individuals at risk for developing obesity in the future. Thus, almost 70% of the American population—the majority of our nation’s citizens—is at risk of the developing health problems associated with excess body weight.

Rates of obesity differ by ethnicity. In the United States at present, more than 60% of adult of European-American heritage are overweight or obese. Among African-Americans, approximately 75% are overweight (31%) or obese (45%). Among Mexican-Americans, 39% are overweight and 37% are obese.

Obesity also is a growing problem in America’s youth. The rate of obesity or overweight has doubled in children and tripled in adolescents over the last 20 years. Furthermore, approximately 5% of American children and adolescents are above the 99th percentile and, thus, are extremely obese. This percentage is larger than the number of children and adolescents affected by cancer, cystic fibrosis, HIV and type I diabetes mellitus combined. The unfortunate reality is that the vast majority of children and adolescent who become obese will remain so throughout their adult lives.

While obesity is often seen as an aesthetic issue—that an individual will want to lose weight in order to look better—it is a significant medical condition. The presence of obesity increases the risk of a number of other health problems, including cardiovascular disease, type 2 diabetes, hypertension, sleep apnea, musculoskeletal problems and several forms of cancers. These medical conditions are estimated to cost our country approximately $100 billion annually. Obesity also is associated with an increased risk of premature death.

Causes of Obesity

Prior to the 1970’s the rates of obesity in the United States and other Westernized countries were relatively stable at approximately 20% of the population. Since that time, and as noted above, the
number of Americans with excessive body weight has increased dramatically. There are a range of possible explanations for the increase, which include genetic, physical, economic, environmental, behavioral and psychological factors.

For some individuals, there is clearly a genetic contribution to obesity. Up to 200 genes may influence an individual’s body weight. Nevertheless, when the obesity problem is considered on the population level, it is unlikely that some genetic mutation has occurred in the past several decades and that explains the dramatic increase in obesity in the United States and throughout the world.

For some individuals, certain medical illness, such as Cushing disease and hypothyroidism, may contribute to the development of obesity. The presence of a number of acquired medical conditions can account for an increase in body weight. Medications and other treatments for certain conditions (such as thyroid conditions, diabetes, and severe psychiatric illnesses) also can contribute to the development of obesity.

Many experts believe that the increase in obesity seen in the past several decades is best explained by environmental factors. While genetics may set the stage for the development of obesity, the environment likely influences to what extent the potential for obesity is realized in any individual.

The food environment in many Westernized countries, and the United States in particular, has been described as a “toxic environment”. In the United States, high calorie foods are widely available, heavily advertised, inexpensive, and often highly palatable. Many Americans are fascinated by large, if not excessively large, portion sizes to the point that recommended portion sizes seem overly small in comparison. (These issues are informatively underscored in the movie "Supersize Me" which can be a useful resource for both professionals and lay individuals looking for additional information on the environmental contribution to obesity.)

For these and likely other reasons, Americans eat about 300 more calories each day than they did 20 years ago. While the United States Department of Agriculture recommends that individuals consume a diet of 2000 calories per day, many individuals consume 3000 or more calories per day. Over time, these additional calories contribute to weight gain.

Another feature of the “toxic environment” is a decrease in amount of calories we burn each day in physical activity. The majority of American adults incorporate no vigorous physical activity in their leisure time. America’s youth are similarly inactive. According to the Surgeon General and the U.S. Department of Health and Human Services (U.S. Department of Health and Human Services), only 50% of adolescents regularly engage in vigorous physical activity, while 14% report no recent vigorous or only light-to-moderate activity (See The Surgeon General’s Call to Action to Prevent and Decrease Overweight in Children and Adolescents for a further discussion of the issue and recommendations for increasing physical activity).

Our reliance on modern technology—such as remote controls, cellular and smart phones, email, text messages, and the Internet—has made physical
movement less necessary than ever before. The infrastructure of many cities and towns also has made physical activity more difficult. For individuals who are overweight or obese, the physical and, for some, emotional discomfort caused by their weight further discourages regular exercise. When all of these variables are considered, the increasing rate of obesity is not particularly surprising.

For all of these reasons, there is great need for the delivery of effective weight loss interventions that can have a significant impact on weight related health problems. The Resolution Health Weight Management Program was designed to help people lose the weight contributing to these health conditions. The counseling sessions are structured to engage and motivate patients to gradually modify their lifestyle to incorporate behaviors that will drive long term weight management and improved health.

**Efficacy**

**Lifestyle Modification for Weight Loss**

Lifestyle modification is the cornerstone of most forms of weight loss treatment. The terms lifestyle modification, behavioral treatment, and behavioral weight control are often used interchangeably. They all include 3 principal components: 1) diet, 2) physical activity, and 3) behavioral modification. Lifestyle modification, as applied to weight control, refers to a set of principles and techniques to help patients adopt new eating and activity habits, replacing maladaptive habits which likely contributed to the development of obesity.

The elements of lifestyle modification for weight loss and maintenance are based on social cognitive theory. Social cognitive theory emphasizes that self-efficacy—the perceived ability to execute actions in support of a behavior—is a crucial determinant of the initiation and maintenance of an adaptive behavior. Central to the formulation of self-efficacy is the successful implementation of self-regulation strategies important for the management of chronic illness. As applied to weight control, these strategies include altering eating and exercise behaviors, as well as restructuring environmental cues to enhance the likelihood of adherence. Lifestyle modification also includes education about nutrition and physical activity.

Lifestyle modification programs typically consist of several main components. These include: self-monitoring of behavior, caloric restriction, increased physical activity and cognitive-behavioral strategies to identify maladaptive eating and activity behaviors and promote the development of healthy behaviors.

**Self-monitoring**

Self-monitoring of food intake and physical activity is likely the most important skill to help patients successfully engage in self-regulation and lose weight. Patients are typically asked to monitor their weight on a regular basis (at least weekly, if not daily), but also keep records of their daily food intake, total calories and physical activity. Self-monitoring provides patients with feedback on their targeted behavior as well as an opportunity to modify these behaviors as appropriate. Regular self-monitoring of food intake and weekly weighing is perhaps the strongest predictor of initial weight loss as well as larger weight losses at the end of treatment.
Sessions with the treatment provider typically begin with a review of participants’ food and activity records. The provider helps individuals identify strategies to cope with problems identified and, thus, increase their adherence to the prescribed eating and activity plans. Although the provider focuses a new topic each week, sessions focus more on participants’ reviewing their progress than on the practitioner’s lecturing.

**Caloric Restriction**

Lifestyle modification programs typically prescribe a diet that ranges from 1200 to 1800 calories per day. (This is in contrast to the 2000 calorie per day diet recommended by the United States Department of Agriculture and the 2000-2500 calorie per day diet consumed by those who are gaining weight.) Patients who begin treatment with a relatively lower body weight are given a calorie goal at the lower end of this range than individuals with a higher BMI. Calorie goals are based on the assumption that reducing daily intake to 500 calories below baseline levels will produce approximately 1 pound per week of weight loss. Through trial and error, the patient and treatment provider can determine a more specific calorie goal to promote this rate of weight loss, which is thought to minimize the potential risk of any negative health consequences related to a more rapid weight loss. Formulas also can be used to more precisely estimate energy needs based on gender, age, weight, and activity level. Adherence to the prescribed calorie goal is the key to achieving weight loss. Focusing on caloric intake goals allows patients to be flexible and make self-selected food choices that are sustainable over the long-term. Balanced deficit diets like this typically do not require ongoing medical supervision.

Overweight and obese individuals in lifestyle modification programs are usually encouraged to consume a high-carbohydrate, low-fat diet (i.e., fewer than 30% of calories from fat) that emphasizes consumption of fruits, vegetables, and whole grains. This diet is consistent with recommendations of the U.S. Department of Agriculture. Lifestyle modification, however, can be combined with a variety of other dietary approaches, including those which encourage a reduction in the consumption of carbohydrates and sugars.

As detailed below, the Resolution Health Weight Management Program phase one will use packaged food products to promote caloric restriction while removing the food stimuli. Removing the food choices helps to minimize temptations and poor eating decisions which is the first critical step to achieve long term lifestyle change. During this period, therefore, the individual will be better able to focus on behavioral changes. During the second phase of the program, patients will transition to a balanced deficit diet as described above. The final phase is incorporating the learned strategies and skills for long term maintenance success.

**Physical Activity and Exercise Program**

The Physical Activity and Exercise program component has been developed from the sound physiological research summarized in the American College of Sports Medicine Position Paper on ‘Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for
adults’ (Donnelly et al., 2009). This review cites over 150 publications ranging from scientific reviews, epidemiological studies, clinical trials, meta-analyses, consensus statements and evidence-based guidelines. The Resolution Health physical activity program utilizes the ‘small-changes’ approach to getting patients more physically active (Hill, 2009). A 17-member task force from the American Society for Nutrition, the Institute of Food Technologists, and the International Food Information Council was established to evaluate the efficacy of the small-changes obesity intervention (Hill, 2009). According to this task force, the three major reasons this approach to combating obesity may succeed are as follows:

1. Small changes are more realistic to achieve and maintain than large changes.
2. Even small changes can have an important impact on body weight regulation.
3. Small, successful lifestyle changes lead to increased patient self-efficacy that may motivate patients to even greater weight loss results.

Also integrated in the program are the lifestyle activity recommendations that have been shown to have an especially positive impact on weight loss success (Levine, 2005). Patients incorporating spontaneous physical activity lifestyle changes, such as taking the stairs instead of the elevator, can create a 200 to 700 caloric deficit on a daily basis.

**Cognitive-Behavioral Strategies**

Lifestyle modification programs also teach patients cognitive-behavioral skills. Patients practice setting short-term, reasonable, specific, and measurable goals for the development of more adaptive and healthy behaviors. Patients are taught, by the counselor, to identify the events or cues that occur before and after a targeted behavior to determine what is causing and maintaining the maladaptive behavior and make changes in these events or cues accordingly to promote the engagement in healthier behaviors. Stimulus control principles also are used to change the internal and external cues associated with unhealthy eating and sedentary behavior. Patients are taught to change their immediate environments (e.g., the home and workplace) so that they facilitate, rather than hinder, positive behavior change. For example, stimulus control can focus on reducing exposure to particularly tempting high-calorie foods, increasing the availability and visibility of healthy food, and creating cues for physical activity.

Problem solving is another core behavioral skill. Patients identify a problem in detail, brainstorm potential solutions to the problem, consider the pros and cons of each solution, choose one, develop a plan to implement it, and evaluate the effectiveness of the chosen solution once the behavior has been implemented. Relapse prevention skills help patients to anticipate and develop strategies for dealing with high-risk situations, such as a stressful project at work or a vacation, and plan how they will respond to lapses in adherence. Most lifestyle modification programs also teach cognitive restructuring, in which patients identify and modify automatic thoughts and develop rational responses to these thoughts as a way of changing behavior. Examples of all of these strategies can be found in the counselor manual.
The Efficacy of Lifestyle Modification Interventions for Weight Loss

In trials conducted at academic medical centers and with interventions often delivered by registered dietitians, persons treated with a 1200-1500 kcal/d diet, recommendations to increase physical activity and behavior modification strategies (taught either to individual patients or small groups on a weekly basis), lose 7%-10% of initial weight in 20-26 weeks. This magnitude of weight loss has been shown to be associated with improvements in weight related health problems (e.g., significant reductions in cardiovascular risk factors including blood pressure, blood glucose, and triglycerides as well as improvements in psychosocial status.

The Diabetes Prevention Program (DPP) has provided some of the strongest evidence to date of the benefits of lifestyle modification.11 Overweight patients who have impaired glucose tolerance and have lost approximately 7% of initial weight along with 150 minutes of exercise per week, decreased their risk of developing type 2 diabetes by 58% compared to control participants and by 31% compared with individuals treated with metformin. Improvement was observed across all age, gender, and ethnicity groups. The lifestyle intervention also was associated with a significantly greater reduction in the incidence of metabolic syndrome, as compared with both metformin and placebo.

Lifestyle modification also appears to be effective in the treatment of individuals with the metabolic syndrome. As defined by the National Cholesterol Education Program (Adult Treatment Panel III), the metabolic syndrome is characterized by having three of the following five characteristics: 1) waist circumference > 35 inches in women or 40 inches in men; 2) triglycerides > 150 mg/dl; 3) fasting blood sugar ≥ 100 mg/dl; 4) blood pressure > 130/85 mm Hg; and high density lipoprotein (HDL) cholesterol < 40 mg/dl in men or < 50 mg/dl in women. Approximately 24% of adult Americans meet the criteria for metabolic syndrome, with rates increasing to 44% in persons 60 years or older. Among persons seeking weight loss, up to 68% have been found to have the metabolic syndrome. Thus, many persons who are referred to the Resolution Health Weight Management Program will likely have metabolic syndrome.

Despite these encouraging outcomes of lifestyle modification described above, the approach has some limitations. First, many patients desire to lose, and likely could benefit from losing more than the 5-10% of weight typically seen with lifestyle modification interventions. Second, there is a great need to increase the availability of treatment, to move treatment from randomized controlled trials in specialty clinics to locations where a larger number of patients have access to treatment, such as medical practices. The Resolution Health Weight Management Program addresses both of these issues, through the use of portion-controlled servings which will promote greater caloric restriction and weight loss while the patient is learning lifestyle and behavioral strategies as well as through the delivery of the program in physician practices.

Rationale for Portion-Controlled Servings

As noted above, weight losses of 5% of initial weight (the lower end of the typical weight loss seen with lifestyle modification programs) are associated with improvements in health. At the same time, larger losses
are generally associated with greater improvements in glycemic control, blood pressure, and lipids. In addition, patients interested in losing weight typically want to lose as much weight as possible.

One of the most effective ways to promote larger weight losses is by facilitating caloric restriction. The use of portion-controlled servings of conventional foods (such as pre-packaged entrees for 2 to 3 meals a day), as well as meal replacements shakes and bars (typically used as meals or snacks) is effective in increasing initial weight losses as compared with the prescription of a self-selected diet of conventional foods with the same calorie goal. Portion-controlled servings (which are of a pre-determined quantity and energy content), reduce obese individual’s tendency to underestimate their calorie intake, which can be as great as 50%. A number of studies have shown that patients achieve greater weight losses using portion controlled servings (often 10-15% of initial body weight) as compared to lifestyle modification approaches without the use of meal replacement products.

Adjunctive pharmacotherapy should be considered for patients who are following the lifestyle program and adherent to the treatment protocol but not able to achieve the weight loss and/or clinical goals established. In 2012 two new anti-obesity medications were approved by the FDA: Qsymia™ phentermine topiramate ER, http://www.qsymia.com/pdf/prescribing-information.pdf and Belviq™ lorcaserin, http://us.eisai.com/package_inserts/BelviqPI.pdf. These medications are indicated for patients with a BMI ≥ 30 or ≥27 with existing co-morbid conditions as an adjunct to a reduced-calorie diet and increased physical activity for chronic weight management in adults. Prior to prescribing, the physician or Resolution Health nurse practitioner should carefully review the use, side effects and exclusion criteria for the two medications (review package insert (PI)). Anti-obesity medications are contraindicated during pregnancy. Although voluntary, it is highly recommended that Qsymia™ prescribers complete the Risk Evaluation and Mitigation Strategy (REMS) Healthcare Provider Training Program online http://www.qsymiarems.com/ that reviews the increased risk of congenital malformation, specifically orofacial clefts, in infants exposed to Qsymia™ during the first trimester of pregnancy. Monitoring for side effects and efficacy of medication should be conducted at each patient visit.

Rationale for the Management of Obesity in Primary Care Practice

Obesity is the most frequently encountered problem in primary care practice and, perhaps, the one least likely to be addressed. Primary care physicians, by their own report, do not discuss weight management with most of their patients. This is likely the result of several factors, including perceptions that: 1) obesity is a problem of low willpower; 2) broaching the subject of weight control is uncomfortable for both patient and provider; 3) most therapies have limited efficacy; and 4) treatment is not adequately reimbursed. Physicians also believe they lack the training and time to provide adequate weight counseling.

Numerous studies have shown that primary care providers, through brief interventions, can facilitate patients’ efforts to stop smoking and reduce alcohol intake. By contrast, there has been remarkably little
research on primary care interventions for weight management. **Encouragingly, a number of recent studies have shown that primary care physicians can use the lifestyle modification strategies outlined above and provide counseling, often in collaboration with other providers in the practice, to promote clinically significant weight losses and improvements in weight related health problems. These studies provide support for the Resolution Health Weight Management Program.**

**Long-Term Weight Maintenance**

Long-term weight maintenance is an important part of any weight loss program. There are likely a number of factors that contribute to weight regain. Compensatory metabolic responses to weight loss, including reductions in resting energy expenditure and changes in appetite hormones, protect against the adverse effects of caloric restriction. A number of environmental and behavioral factors also play a role in weight regain. For example, once patients stop active participation in lifestyle modification, they re-encounter the “toxic environment”, which, as detailed above, likely contributes significantly to weight gain.

Encouragingly, data from the National Weight Control Registry suggests that some individuals are successful maintaining weight losses over extended periods of time. The Registry, which includes individuals who have maintained at least a 30 lb weight loss for at least 1 year, suggests that continued application of the lifestyle modification strategies described above is associated with weight maintenance. Individuals in the Registry report eating a reduced calorie diet (approximately 1400 kcal/d) which is low in fat and high in carbohydrates. At the same time, they engage in high levels of lifestyle and programmed activity (approximately 2800 kcal/wk). A large percentage of Registry patients also continue to self-monitor their food intake and daily calories. Many registry members report that they regularly weigh themselves; 44% weigh themselves at least once a day and 31% weigh themselves weekly.

The Resolution Health recognizes how habits, behaviors, and actions all intersect to support a healthier lifestyle. From the first day of the Resolution Health Weight Management Program, patients begin to understand how particular behaviors affect their weight. No matter how much knowledge a patient may have about food, health, fitness and dieting, he/she may still have deeply rooted habits that are impacting their weight. Resolution Health is here to help patients solve these issues by providing realistic solution so patients can move forward to successfully achieve weight loss and long-term management.
References


Additional Resources


The American Medical Association’s Assessment and Management of Adult Obesity: A Primer for Physicians.