Women’s Weight Loss Wellness: Effective and Safe Diet Techniques
by Nicole Van Hoey

INTRODUCTION
The U.S. obesity epidemic hits women hard, and the most efficacious weight control options are still unclear. Diet and weight loss industries have boomed as a result, but health safety remains a concern associated with many diet options. Pharmacists are poised to contribute to women’s weight loss efforts by providing positive reinforcement and safe, effective approaches to diet and nutrition.

Case Presentation
D.G., a 49-year-old woman, is in your pharmacy perusing the aisle of diet supplements, protein bars, and meal-replacement shakes. She approaches the counter and purchases a prescription for an antihypertensive and a caffeine-based weight loss product. As the pharmacist on duty, you request private counseling and invite her to attend your new weight management clinic on the coming Saturday. She is reticent but accepts your brochure and appears on Saturday morning. She weighs in at 152 pounds and is 5’3” tall, which equates to a BMI of 27 kg/m² on your Centers for Disease Control and Prevention-provided chart. Her waist circumference is 31 inches, within normal limits for women. D.G. reports a typical calorie intake of 2,100 kcals/d, and her hypertension was diagnosed two years ago (well controlled at 128/72 mmHg with an ACE inhibitor). She comments about struggling with weight gain after her first child was born and again recently. Describe your clinical efforts at evaluation and counseling for D.G., making sure to qualitatively and quantitatively address short- and long-term goals as well as behavior change counseling and follow-up.

INTRODUCTION TO WEIGHT MANAGEMENT
The United States is in the midst of an obesity epidemic: Americans are among the world’s heaviest people, and
obesity is the most preventable cause of chronic disease in this country. Excess weight is more common in affluent countries, and more than two-thirds of all U.S. adults are considered overweight or obese. Middle-aged urban women comprise one of the largest demographic groups that struggle with weight gain. Women particularly connect weight fluctuations and body fat with self-image. Weight loss in the United States, subsequently, is a big business. At any given time, 50 percent of women in the United States are dieting. More than 17 million women use over-the-counter products for weight loss, and educated women older than 35 years of age are the primary users. Approximately 34 percent of people on prescription weight loss agents use additional OTC products without health professional guidance.

Up to 90 percent of women worry about weight, despite evidence that weight changes across decades are normal. Rhythmic cycles of a woman’s life are associated with expected weight fluctuations, which are especially connected to hormonal changes, such as menstrual cycles, pregnancy and nursing, and menopause. During menopause in particular, a natural weight gain of 8–12 pounds occurs when the body’s metabolic, energy-burning processes slow. Weight gain at this stage results in great anxiety and negative body image in women. In fact, although young adulthood is characteristically plagued by eating disorders, middle-aged perimenopausal women are at risk of developing them as well. Body weight has continued to top female concerns into the 60- to 90-year-old decades, despite evidence that moderate weight increases alone are not linked to mortality in the older ages.

Body image is crucial to well-being; body dissatisfaction in women has doubled, to 56 percent of women, from 1972 to 1997, as women believe that they should be in better control of their weight changes. Excess weight accumulation at middle age is disempowering and leads to weight re-gain and yo-yo (that is, rapidly repeated) dieting. Drastic changes of eating patterns at this stage of life, in attempts to keep weight off, often warrant health professional intervention, because body image problems in midlife are potential precursors to clinical eating disorders.

Obesity develops as a result of genetic factors, behaviors or lifestyle choices, and some diseases or medications. The true interplay of factors is difficult to characterize, though. Behavioral risks for weight gain can be identified by evaluating eating patterns, food choices, and daily activity levels. Family history, medical conditions like thyroid or adrenal disorders, and medication use (such as corticosteroids, antidepressants and atypical antipsychotics) are identifiable contributing factors toward obesity. An individual’s natural metabolism is also a factor. Metabolism slows with age and is generally slower in women than in men. Metabolism reflects the body’s ability to convert foods into energy needs; it is typically unaffected by food choices, although excessive dieting can impede a healthy metabolic response to foods. Because weight is directly related to the balance of energy taken in through food calories and energy expended through physical activity, behaviors can counter genetics and play a primary role in the likelihood of weight gain or loss. If caloric intake exceeds output by physical activity, weight and fat accumulate in the body.

Clinically measured weight gain and fat storage at particular body areas have been linked directly to chronic diseases. According to the CDC, nearly 70 percent of obese and overweight adults have hypertension, high cholesterol, or both. Heart disease, high cholesterol, myocardial infarction, diabetes mellitus, and other preventable diseases result in part from uncontrolled obesity and high fat intake. To identify an individual’s true body fat and associated obesity diagnosis, body mass index (BMI) calculations and waist circumference measurements are used to indirectly reflect the proportion of excess weight overall and around the abdomen, respectively. The National Institutes of Health Weight-Control Information Network suggests that women should have a waist circumference <35 inches to prevent morbidity. BMI accounts for height and weight to define acceptable parameters of body fat. Measurements of 18.5–24.9 kg/m² reflect normal weight; 25–29.9, overweight; and 30–39.9, obese. According to the NIH, approximately one fourth of adults age 20 years or older in the United States are obese by BMI calculations. Disease prevalence is proportional to increasing BMI, and diabetes and cardiovascular disease risks increase
as abdominal fat increases, particularly with BMIs >35 kg/m² in women. Modest weight loss of 10 to 20 pounds in an obese adult improves blood pressure, total cholesterol, triglycerides, and lowers diabetes risk and blood glucose; even within a BMI category, this small loss improves health. However, in 2008, fewer than half of physicians measured BMI regularly in adult patients, making increased regular BMI evaluation one of the Healthy People 2020 objectives.

Despite the rampant health concerns resulting from excess weight and body fat, the obesity epidemic continues to grow. However, reversing disease risks is possible through weight reduction and better nutrition management. Proper education about regular eating habits is essential. Approximately 43 million women in the United States reportedly diet for weight loss, and an additional 26 million diet for maintenance. Only 20 percent of women eat instinctively when hungry; 40 percent of women either restrict or overeat; and at least 50 percent of women reportedly feel guilt after eating. An education plan about nutrition, disease risks, and behavior change benefits, supplemented by Healthy People 2020 goals, must be emphasized. The practitioner challenge is in approaching patients about weight and chronic disease risks. Pharmacists and other health professionals are positioned to encourage patients in community settings toward weight loss, weight maintenance, and nutrition education that constructively evaluates weight in terms of disease risks while recommending useful tools to promote healthier lifestyles for women of any age and BMI.

**POPPULAR WEIGHT LOSS PRODUCTS AND PROGRAMS**

**A Dieting Strategies Overview**

Losing weight can seem like an unreachable goal, especially as women age. It is unsurprising that women turn to diet products or programs that promise easy and fast results, regardless of cost or safety. However, yo-yo dieting behaviors can stall weight loss, inhibit healthy habits, and teach the body to guard fat and lower its metabolic rate in preparation for starvation conditions. As women repeatedly diet, their metabolism responds protectively to store nutrients and not burn energy efficiently. As a result, weight often becomes harder to shed and plateaus before a long-term weight goal is achieved.

Few popular dieting options encourage a nutritionally sound approach or support long-term, maintained weight loss that may prevent disease. Some fad diets, plans, and products can cause bothersome or dangerous adverse effects, including nutritional deficiencies, when used alone or in combination.

**Fad Diets Defined and Characterized**

**Spotting the Dangers**

The simplest definition of a fad diet is a weight loss method that gains—and subsequently loses—popularity quickly. Numerous fad diets are available and can be interspersed with more traditional diet products in store aisles. All fads share special characteristics that distinguish them from nutritionally sound options. These diets incorporate extreme food elimination or restriction: they include regimented diets like the lemon detox or grapefruit diets that promise drastic, rapid weight loss. Such diets eliminate meals in favor of a single food or type, claim to stimulate fat burning for energy, and do not involve meal planning or variety, resulting in boredom and lack of enjoyment from eating. These diets are ultimately not maintainable.

Fads seem too good to be true, and they usually are. Cleanses, like the acai berry diet, rely on testimonials instead of science. Fads can be effective for immediate weight loss, because they drastically reduce caloric intake to 800 kcal/d or less, not because they reset metabolism to burn fat faster. Very-low-calorie diets do not provide calories and nutrients sufficient to sustain health. Consumers can identify fads by these additional distinguishing factors: they rarely emphasize physical activity or encourage long-term management after a drastic weight loss; they are costly and lack any health data or warnings; and they blame weight gain on unchangeable factors like personality.

**Why Are Fads a Danger?**

The severe restriction fad encourages an unhealthy approach to eating and violates the first principle of good eating.
nutrition: to follow a balanced and varied diet and activity plan. These very-low-calorie diets lack crucial nutrients found in balanced meals. People frequently overlap fads or observe the diets in rapid sequence, and these restrictions ultimately threaten health by withholding nutrition and draining the body of energy needed to function. Malnutrition that results from eliminations or cleanses can cause serious damage to the nervous, renal, and cardiovascular systems. Acidosis, kidney stones, anemia, ketosis, and more can develop from vitamin and mineral restriction; lethargy and poor digestive health also are common.

Macronutrient Restriction Plans
Riding on the wave of cleanse diet popularity are more tempered options for weight loss that are based on quantities of nutrients in specific foods. Programs that require altered proportions of carbohydrate, fat, and protein macronutrients, such as the South Beach Diet® and the Atkins™ diet, are advertised on the premise that eating proportionally smaller amounts of fats or carbohydrates will result in successful and maintainable weight loss.

These diets programs hold appeal largely because they advocate a guided eating method with modest education but without extreme deprivation. Programs like the Atkins diet, the 17-day diet, and others appear medically sound, may be developed or promoted by physicians, and often endorse some physical activity and maintenance efforts. These diets typically allow a variety of foods, might suggest food types that should be avoided or limited, and can involve costly prepared food products to meet nutrient specifications.

Low-carb, low-fat, and moderately low-calorie diets are more persistent in their consumer availability than severe restriction fads. For example, the Atkins diet was first introduced in 1970, and its use has peaked again in recent years. Low-fat diets, advocated by groups like the American Heart Association (AHA), peaked in popularity during the late 20th century as models for weight loss and cardiovascular health. These diets are primarily aimed to prevent heart disease through avoidance of fats, which increase cholesterol levels, while promoting weight loss. Fats have approximately twice the calories per gram of carbohydrate or protein food sources. However, traditional low-fat diets do not necessarily promote quality of fats, and carbohydrate intake can remain unchecked, which can increase diabetes and cardiovascular disease as well.

Conversely, low-carb diets approach health and weight loss from the perspective of insulin and glucose control. Since 2007, multiple versions of low-carb diets have been favored over low-fat options, as diabetes, cardiovascular disease, and insulin resistance have become intertwined. Carbohydrates such as starches, fibers, and simple sugars are present in fruits, vegetables, grains, and dairy as well as in processed foods and alcohols. The body absorbs carbohydrates and converts them to glucose, which triggers the release and production of insulin. Refined carbohydrates like sugars and starches more rapidly increase glucose and insulin concentrations than complex, unrefined carbohydrates like grains and fibers. One goal of low-carb programs such as Atkins, Zone Diet™, or South Beach diets is to encourage moderate and gradual insulin release after meals instead of dramatic, rapid peaks that can foster insulin resistance and chronic disease.

Low-carb diets are not all the same, though. Some, like Atkins, greatly restrict carbohydrates but place no limits on fat and protein intake each day. Others, like the Zone diet, specify the types of carbohydrates allowed by their effects on blood glucose levels. The South Beach diet was developed by a nutritionist and a cardiologist to counter an exclusively low-fat diet approach. These low-carb programs have been clinically studied and compared with each other and with low-fat diets to determine their true effects on weight loss, nutrition, and chronic disease. Consumers and health professionals both require this additional knowledge to determine which diet plans are most effective.

The Atkins diet, as one of the most enduringly popular low-carb programs, promotes insulin control through avoidance of refined carbohydrates. Unfortunately, the Atkins diet allows up to 60 percent of a day’s calories from fat—25 percent of which can be unhealthy, saturated fat. The Atkins program is designed
for very-low-carbohydrate intake during weight loss, with fewer than 20 g/d of carbohydrates, and low carbohydrate intake during maintenance, with fewer than 50 g/d. Total calories per day are not necessarily restricted, and multivitamin use is encouraged.

The Zone diet allows up to 40 percent of calories as carbohydrates at every meal, with even distribution between fat and protein intake. The Zone diet, instead of overall limitation, emphasizes the type of carbohydrate on the premise that slower carbohydrates and higher protein intake minimize insulin changes and promote satiety, respectively. Unrefined carbohydrate sources such as grains, and fats from nuts and olive oils, are recommended. The Zone diet also encourages moderate caloric restriction by 500 calories per meal, and it allows two 100-calorie snacks each day, for a goal of 1,200 calories per day total.

The South Beach diet, developed in the late 1990s, has retained popularity by countering restrictive, low-fat diets with a program focused on a rebalanced approach to complex carbohydrates from grains, vegetables, and fruits. This program begins with an early-phase washout period that bans refined and high-sugar carbohydrate foods, including alcohol. In the following two phases, healthy carbohydrates are reintroduced, and the diet is maintained by eating only low-processed carbohydrates of any quantity and by eating only healthy fats. Rather than restricting intake in the latter phases, the South Beach diet encourages snacks that fall within approved food choices.

Low-carb diets, if not observed carefully for nutrition, can cause an imbalance of protein, carbohydrates, and fat in the body that results in vitamin deficiencies and poor digestive health. Efficacy remains unproven for many programs, especially for long-term use.

The Atkins and Zone low-carb diets have been compared with simple caloric restriction of 1,200 kcal/d and with a low-fat (such as 10 percent to 30 percent fat) diet. When more than 300 overweight, premenopausal women observed these diets for one year, weight loss and improved disease risk metrics resulted, with non-significant differences, in all groups. More important, though, was what diet comparison revealed about vitamin and mineral deficiency risks. Deficiencies were most pronounced in caloric restriction and in Atkins dieters: both were lower in thiamine and magnesium. Additionally, Atkins program dieters experienced pronounced inadequacies of folate, iron, and vitamin C after only eight weeks of observing the diet. Zone dieters were observed to have had lower risks of nutrient inadequacy. They reported especially adequate levels of fat-soluble vitamins A, E, and K, and of vitamin C. The Zone diet also had adequate levels of vitamin B6 and niacin despite caloric restriction and no multivitamin supplementation. Although these popular diets are safer nutritionally than fad options, they do not prepare consumers for long-term weight control. In addition, there remains little scientific support and guidance for health professional counseling on appropriate use.

**Meal Plan Popularity**

Like macronutrient-based diets, meal plans encourage moderate weight loss, and they often include physical activity recommendations as well as positive reinforcement through group meetings and outreach. Meal plans enhance weight loss likelihood by restricting caloric intake to only 1,000–1,500 calories per day, with arranged foods or liquid shakes. Prepared meals are touted as well-balanced foods of sufficient nutritional value. Programs like Weight Watchers and Medifast embody support group accountability which often provides positive feedback toward interim and long-term weight-management goals. The programs are highly directed and easy to follow, in part because they do not require participants to explicitly count calories or make ingredient choices on their own each day. Instead, the plan measures the portion sizes, designs healthful and balanced meal options, and tracks calories for the consumer. Snacks and other supplementary foods are often provided in prepackaged, calorie-limited options like shakes and protein bars.

Unlike fad diets, these programs vary food choices to improve eating enjoyment and diet adherence. Meal plans appear to be positive, well-rounded approaches to weight loss, and they can be effective for many women, especially those who respond well to group accountability and reinforcement. In fact, in a 2011 study that
compared one year of physician-supervised private weight loss efforts with one year of physician-encouraged Weight Watchers participation, women on the meal plan program lost substantially more weight and more body fat, and maintained the diet more successfully, than the private dieters. However, meal plans are extremely costly at the outset and as the program continues, because of the specialty food purchases. These programs are not always successful for maintenance after completion, because they do not require consumers to determine their own portion sizes and healthy food choices. Therefore, although weight loss is proven for programs like Weight Watchers, durable success depends more on an individual’s ability to maintain the lifestyle changes independently.

Diet Supplements: No Quick Fix
When weight loss attempts fail, or when they become less effective after years of yo-yo dieting, women may turn to supplements for a quick fix. Diet pills promise rapid results without prolonged effort. Herbal, homeopathic or vitamin products claim to shed excess pounds, often by burning fat or boosting the metabolism, and they are often viewed by consumers as replacements for nutrition and physical activity. Although these supplements appeal as an easy solution, their safety and effectiveness are questionable at best. Documented cardiac dangers from stimulant drugs like fen-phen (fenfluramine and pheniramine) or phenylpropanolamine have resulted in these and similar stimulant products being removed from the market. Available products today continue to pose great risks to consumers, in part because weight loss supplements are obtained easily, without consulting health professionals, in stores or online. Women frequently combine supplements, even during diet and food restriction attempts, to achieve even more weight loss. Just as patients are unlikely to disclose supplement use to their physicians, doctors infrequently question patients about weight loss drug use because of the lack of safe and effective recommendations available.

Diet supplements often fall into two categories: stimulants and diuretics. Purported diuretics, such as celery seed, ginger, aloe, parsley, or green tea, reduce weight by removing water from the body. Though the loss appears significant, it is not connected to fat stores and cannot be sustained. Water imbalance affects essential minerals like sodium and potassium; dehydration, acidosis, and hypotension are potential adverse effects of excessive diuretic use.

Stimulant products, including Metabolife, Hydroxycut™, and Dexatrim®, claim to reduce appetite and to burn fat. Instead, their stimulatory effects on the nervous system can result in headaches, hypertension, dizziness, nausea, and increased heart rate. These pills frequently contain ephedrine derivatives alone or in combination with caffeine to enhance stimulatory effects. Although coffee, green tea, yerba mate, and other caffeine-containing supplements might suppress hunger, increase fluid weight loss, and enhance the body’s use of fat for energy, these responses are minimal at best. According to the Mayo Clinic and numerous clinical studies, caffeine’s effect on weight loss is questionable, but its adverse effects when used as a drug can be dangerous. Overlapping use of stimulants in particular can cause hypertension as well as heart palpitations and arrhythmias that increase mortality.

Diet pills are most frequently used by obese young women, who neglect short- and long-term nutrition with these weight loss attempts. These supplements are expensive alternatives to a well-balanced long-term diet and lifestyle change.

hCG
One supplement has re-emerged across the decades as a behind-the-counter, health professional-directed treatment for obesity. Human chorionic gonadotropin, or hCG, is a hormone secreted by the placenta in pregnant women; it is distilled from their urine to develop prescription-only fertility treatments. In 1954, a slimming therapy was developed by Dr. Albert T.W. Simeons, who claimed that hCG produced drastic effects on weight, hunger, appetite, mood, and targeted fat sites (such as waist, upper arm, and hips) in women. Prepared by pharmacists for injection by a physician in a clinic setting, 125 units of hCG was administered intramuscularly each day for six days every week to
stimulate weight loss. The program, as originally designed, lasts from three and a half weeks to six weeks and intimates mood stabilization and hunger suppression as two unique benefits of the supplement. This hCG administration, though, was combined with a very-low-calorie diet. Severe, zero-fat, caloric restriction to only 500 kcal/d is likely the true and nutritionally unsound cause of weight loss.

Popularity of the Simeons treatment waned by the 1970s without evidence of targeted body fat changes or long-term weight loss. hCG use has resurged, though, as a natural hormone option for weight loss. As consumers turn to homeopathic options in the 21st century, the easy access of hCG in health stores and Internet retail sites has boosted its use. Despite prescription label warnings that hCG has no safety or efficacy against obesity, fat distribution, or metabolism changes, the product is unethically and illegally distributed for weight loss. hCG is obtained from women under the premise of fertility use, not weight loss, and the hormone is approved only for treatment of infertility in women. Even as a homeopathic agent, hCG remains uncertified as a supplement approved for legal sale as a drug product in the United States, according to the Food and Drug Administration goals and standards set forth in the Homeopathic Pharmacopoeia of the United States. Still, hCG marketing and sales persist at retail stores and online in forms such as oral drops, pellets, and sprays; the FDA and Federal Trade Commission continue to pursue action against the hormone’s illegal production and marketing.

The Simeons hCG program is dangerous to patient health in large part because of the deficiency risk and drastic weight loss associated with severe caloric restriction. In addition, hCG has extensive, documented adverse effects that are related to its hormonal activity. In data from infertility studies, hCG has been linked to increased libido, inhibited menstruation, ovarian hyperstimulation syndrome, and pelvic pain; nausea, vomiting, and diarrhea; shortness of breath and possible blood clots; as well as headache, mood swings, confusion, fatigue, and clinical depression. Instead of countering the mood and appetite changes associated with the Simeons-prescribed near-starvation calorie intake of 500 kcal/d, hCG furthers the damage to digestion, satiation, hormonal balance, and mental health and well-being.

Since the emergence of hCG as a weight loss treatment in the 1950s, few controlled studies have been conducted to bolster or refute its use for obesity. A 1995 meta analysis identified only eight controlled and 16 uncontrolled studies of hCG for weight loss across five decades; only four of these studies had been conducted after 1997. Studies commonly included end points of weight loss, hunger, fat loss, and well-being. However, the studies had overwhelmingly poor methods and little scientific evidence against placebos. Of the eight controlled studies, only one, by Asher and Harper in 1973, reported (statistically non-significant) benefits of an hCG diet compared with a placebo plus caloric restriction.

The results of the double-blind study by Asher and Harper remained contested until its data were re-reviewed in 1976 by Stein et al. The original study touted weight loss and reduced hunger in 51 women ages 18 to 60 years who observed the program for 32 days. However, the later review determined that women in the placebo group who missed injections and did not participate in the study diet were not removed from the initial evaluation, which skewed the results strongly in favor of hCG efficacy. When these data were removed, a distinct lack of hCG success was revealed. Even the historically supportive study of hCG for weight loss actually disproved its benefits.

In the 21st century, only one double-blind controlled study has been conducted on hCG use for weight loss. Women between the ages of 20 and 40 who were overweight received hCG injections or placebo with the very-low-calorie diet. Weight loss, hunger, mood, and body fat changes at the hip and leg were measured as end points. At the conclusion, all end points were statistically matched in the two groups and were attributed to the effects of extreme restriction dieting, not hCG. Health professionals now have enough knowledge and scientific data about healthy nutrition, hCG safety and efficacy, and caloric needs to refute the Simeons diet approach and hCG for weight loss entirely.
BETTER WEIGHT LOSS CONSIDERATIONS
Understanding Successful Diet Methods
Fad and restriction diets, then, are primarily used for short-term weight loss, and meal plans are often too costly to continue as a weight maintenance option. Safe, effective, and maintainable weight loss strategies exist, but they require long-term attention to quality of food intake. By learning how to choose foods with fibers, vitamins, minerals, and appropriate macronutrients, consumers obtain the knowledge and ability to persevere through normal weight fluctuations over time while minimizing the negative impact on body image. For providers and other health care professionals, background knowledge about the importance of macronutrients and their proportions guide individualized discussions about weight control. Understanding the basics of nutrition for weight management relies on explanations of how the body uses different types of foods, how different foods relate to disease risks, and how to evaluate fat effects on the body.

Healthful Macronutrient Proportions
All foods contain macronutrients that provide essential vitamins and minerals required by the body. (See Table 1) These macronutrients—fats, proteins, and carbohydrates—are the backbones of healthful eating and should not be eliminated from the diet, even for weight loss. However, all three macronutrients have more and less healthful food choices that impact weight management and disease risk.

### Table 1: Vital Macronutrient Descriptions and Selection

<table>
<thead>
<tr>
<th>Macronutrient</th>
<th>Benefits</th>
<th>Risks</th>
<th>Sources</th>
<th>US Dietary Guidelines 2010 Recommended Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fats</td>
<td>Cell production, energy storage, vitamin absorption</td>
<td>Cholesterol plaques, excess abdominal girth, low satiety</td>
<td>Unsaturated options such as olive and canola oils, flax, salmon</td>
<td>Saturated and trans (ie, solid) fats such as processed meats, full-fat cream, butter</td>
</tr>
<tr>
<td>Carbs</td>
<td>Energy provision</td>
<td>Insulin resistance and glucose imbalance</td>
<td>Slow carbs, low glycemic index foods that promote even insulin release, including bran</td>
<td>Simple or fast carbs, high glycemic index foods that cause glucose and insulin spikes; alcohol</td>
</tr>
<tr>
<td>Proteins</td>
<td>High satiety, iron source, bone and muscle health</td>
<td>Often fatty food sources, can be high calorie</td>
<td>Lean meats, soy, lentils, hummus, beans</td>
<td>Red meats, eggs or full-fat dairy in excess</td>
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Fats
Fats in the diet receive particular criticism as unnecessary components of a healthy diet, especially while attempting weight loss. Fats do increase the likelihood of weight gain more than other macronutrients, though the fat source is an important distinction for proper nutrition. When not being used, fats are stored and carried in the body by different lipoproteins. Low-density lipoprotein (LDL) forms occlusive fatty plaques by attaching to blood vessels; conversely, high-density lipoprotein (HDL) more often transports fats to the liver. The right fats contribute to wellness by providing energy, maintaining cell and muscle health, insulating the body, and fostering absorption of important vitamins like A, D, E, and K. Data from the Nurses’ Health Study supports the concept that the percentage of unhealthy fats, not total fats, affects disease. Unhealthy fats increase the risk for cardiac diseases by increasing total cholesterol, especially LDL. Although cholesterol is important for hormone and cellular production, it is made within the body and is not required from dietary sources like egg yolks or salmon. The best diets limit unhealthy saturated fats and trans fats and have higher percentages of healthy unsaturated fats instead.

Saturated fats, which increase LDL to a 1:2 ratio, are concentrated in animal products,
such as whole-fat dairy, meats with skins and any processed meats, and lard. Highly processed oils like palm or coconut oil are also high in saturated fat. Trans fats are at least as unhealthy and are typically man-made solid fats, such as stick margarines or partially hydrogenated shortenings useful for baking. They are frequently used to make pastries and fried foods and are substantial ingredients in packaged cookies and crackers. Trans fats increase LDL and reduce HDL over time, especially when they are the primary fat source in a diet.

Plant sterols and unsaturated fats are alternatives to unhealthy fats. Plant sterols are increasingly common additives in oils, margarines, and some dairy products. They block cholesterol absorption after digestion, which results in lower LDL concentrations, particularly when 2 grams per day or more of sterols are ingested regularly. Replacement of saturated fat products with unsaturated alternatives improves LDL and total cholesterol levels even if the day’s total fat percentage remains steady, because unsaturated fats are comparatively less likely to accumulate as LDL in the bloodstream.

Two unsaturated fats, omega 3 and omega 6 essential fatty acids, contribute to proper functioning of the heart, brain, eyes, and more. Also known as monounsaturated and polyunsaturated fats, they moderate insulin use and lower cholesterol and heart disease risks. Natural sources of monounsaturated fats include olive and canola oils, nuts, seeds, and select fish. Omega-3 fatty acids are polyunsaturated fats found in soy, flaxseed, walnuts, salmon, tuna, and mackerel; other nuts and seeds like sunflower (as well as their oils) are common sources of omega 6 fatty acids. Eating unsaturated fats in place of unhealthy ones, rather than eliminating fat entirely from the diet, is a proven way to support cardiovascular and metabolic health while dieting.

U.S. Dietary Guidelines in 2010 recommend <10 percent of total calories per day from saturated fats and <300 mg/d of cholesterol intake for anyone older than 2 years of age. They especially emphasize minimal trans fat intake even if total fat, when combined with unsaturated sources, approaches 20–30 percent of the day’s calories. Contrasting with these guidelines, American diets today contain up to 35 percent of daily calories from solid (trans) fats and added sugars. People who already experience adverse cardiovascular health as a result of high saturated and trans fat intake can still counter long-term disease risks by changing their diets to <7 percent saturated and trans fats each day and to <200 mg/d of cholesterol intake. Detrimental fats are best reduced by replacing them with monounsaturated and polyunsaturated fats as well as with plant sterol options.

**Carbohydrates**

Food sources of carbohydrates include starches, sugars, and fibers, but carbohydrate health distinctions are not as simple. Traditional labels of simple or monosaccharide (such as sucrose-containing products like candies) and complex or polysaccharide (such as starches like potatoes, corn, and rice) carbohydrates do not account for variance in the quality of carbohydrates found in fruits, vegetables, grains, and legumes. AHA basic nutritional guidelines recommend <100 kcal/d from added simple sugars for women. Other carbohydrates, however, are nutrition essentials, such as fibers and whole wheat, and cannot be eliminated from a diet. In fact, U.S. Dietary Guidelines in 2010 suggest up to 45–65 percent of daily calories should be from healthful carbohydrate foods.

Fiber in particular is crucial to digestive and overall health. Fiber remains in the digestive tract, where it blocks fat and cholesterol absorption, encourages intestinal motility, and reduces hunger. Soluble fibers modulate insulin use by preventing excessive glucose absorption; examples include apples, oats, kidney beans, citrus fruits, and barley. Insoluble fibers act as roughage and pass through the tract with other undigested materials. Whole wheat, popcorn, broccoli, bran, carrots, and green beans are examples of insoluble fibers that maintain bowel health. The U.S. Dietary Guidelines, for the first time in 2010, set a recommended daily fiber allowance for everyone ages 4 years or older of 25 g/d, with a range of 22–28 g/d emphasized for women; most get half that with existing diets.

To identify the most healthful carbohydrates, today’s research focuses on the importance of carbohydrate
effects on glucose and insulin in the body, especially because excessive insulin production is associated with increased rates of obesity, cardiac diseases, and diabetes mellitus, as well as a metabolic syndrome that connects all three morbidities with each other and with increased mortality.

Proponents of qualitative carbohydrate evaluation rely on a food’s glycemic index (sometimes abbreviated “GI”) to select the healthiest food sources for weight loss and disease prevention. The glycemic index of a food describes the carbohydrate’s effect on glucose response; a higher glycemic index food causes greater amounts and rates of glucose absorption, which triggers a similarly spiked insulin release. Oral glucose is assigned an arbitrary glycemic index of 100, and other foods are measured against it on specialized charts, which differ slightly according to ingredients tested for inclusion by each research institution. For example, a starch like white bread has a glycemic index of 73, whereas bran cereal is 38, on a chart designed by Oregon State University (available at http://lpi.oregon-state.edu/infocenter/foods/grains/gigl.html). Low glycemic index foods, such as green vegetables and legumes, are sometimes called slow carbs, because they are absorbed more slowly into the bloodstream. These foods also trigger glucose absorption but provide a low, sustained source of energy that encourages more subtle, less damaging insulin fluctuations and that delays hunger. Distinct problems come into play, though, when evaluating entire meals for glycemic index content and when quantities of other nutrients, such as saturated fats, are not taken into account along with the glycemic effects.

Weight loss could be enhanced by selecting low glycemic index foods, which are typically healthful and unprocessed options. These foods have the potential to reduce hunger, and thus food intake, and optimize the body’s energy use because of the slower glucose absorption rates and more appropriate insulin use. Although the true effects of the glycemic index and carbohydrate intake on weight loss and disease risks remain unclarified, the choice to replace refined sugars from candies and alcohols with slowly absorbed, complex grains and fruit sources is nutritionally sound and should be encouraged.

Proteins
The importance of proteins on weight loss, disease risk, and diet adherence has emerged in a new role in the 21st century. Proteins are found in animal products, particularly meats, eggs, and dairy, and some vegetable sources; they contribute to muscle strength and bone growth and are also important sources of iron. The 2010 U.S. Dietary Guidelines suggest that up to 35 percent of daily calories should be obtained from proteins. However, as with the other two macronutrients, healthy plant sources are preferred over fatty meats. Due to their saturated fat content, proteins from animal sources such as red meats increase heart disease risks and should be eschewed in favor of more healthful plant alternatives, such as nuts, hummus, lentils, beans, and soy products.

Higher lean protein is frequently balanced by lower amounts of carbohydrate and fat intake, which may lower cholesterol, blood pressure, and blood glucose. Small protein-heavy snacks, such as hummus and whole-grain pita or carrots, in midmorning and midafternoon, can reduce lunch and dinner portion sizes better than many processed snack options that contain saturated fat. Energy-promoting cereal bars are increasingly prevalent as alternatives to processed foods such as crackers or cookies. Such snack bars can provide a healthful protein boost along with high fiber in one low-calorie option, and they can be tucked into a purse or briefcase for busy days. However, some protein-rich pre-packaged bars remain surprisingly high in fats, so even these products require careful selection for the best weight loss and health benefits.

Although the quantities of proteins that impact disease and health are still uncertain, their effect on diet and weight loss is decidedly positive. In a 2010 crossover study by Larsen et al of glycemic index and protein variances on a diet intended to maintain weight lost with caloric restriction diets, the high-protein/low-glycemic index diet best supported weight maintenance in 773 patients for 26 weeks. Higher protein prevented weight re-gain over time. Proteins require longer digestion and thus delay gastric emptying more than most carbohydrates, and
more than any fats. Therefore, protein in the diet has the largest effect on satiety: proteins are the most filling foods. Diets with increased daily percentages of healthy proteins reduce hunger and lower food intake and calories; similarly, they improve the likelihood of diet adherence, because they avoid the feeling of deprivation. Protein helps maintain weight after diet goals are met through similar mechanisms.

A WELL-ROUNDED APPROACH: DIET PRINCIPLES AND EXAMPLES

Principles
Optimal percentages of fats, carbohydrates, and proteins are highly debated regarding their effects on nutrition, weight management, and disease. Guidelines set forth by individual organizations, such as the AHA and the American Diabetes Association (ADA), vary on recommended macronutrient ranges. The U.S. Dietary Guidelines are updated every five years to incorporate the latest research about food intake. The latest, 2010, guidelines suggest a wide carbohydrate range of 45–65 percent with greater fiber intake, high lean protein content of 35 percent for satiety, and a relatively narrow fat range of 20–35 percent from mostly unsaturated sources for any diet.

By incorporating balanced, healthful choices within each nutrient type, such as by consuming more grains and fewer sugars or refined foods, effective weight control can be reached regardless of the exact percentage intake of macronutrients each day. The CDC reiterates the concept that focusing on one macronutrient does not help lower calories overall and can increase the risk of nutrient deficiencies. For example, in a New England Journal of Medicine report that compared four diets touting cardiovascular health with varying percentages of macronutrients, persistence and mental outlook were positively correlated with diet success. Carbohydrate intake ranged from 35–65 percent; fats, from 20–40 percent; and proteins, from 15–25 percent. After two years, weight loss and personal satisfaction were similar among all four diets in >800 people with BMIs of 25 kg/m² or greater who completed the programs. Higher protein diets were more often associated with positivity and adherence, and the converse was true for higher fat diets. All diets, regardless of macronutrient composition, shared qualities identified as beneficial aspects to a weight loss approach: 8 percent or fewer calories from saturated fats; 20 grams of fiber each day; a caloric deficit of 750 calories from baseline that fostered weight loss; and group participation.

To encourage weight loss in people who are overweight or obese, the National Heart, Lung, and Blood Institute (NHLBI) provides realistic, guided goals for any diet. Initial goals of 5–10 percent weight reduction over six months are considered sufficient for most people. Weight loss at this rate holds a multitude of benefits toward reduced disease risk without deficiencies or unhealthy habits. Weight Watchers reports that a small, 10 percent body weight loss from any baseline instills confidence to continue. Additionally, slow weight loss allows the body time to adjust, so the pounds are kept off more easily. According to one-year observational data on the Look AHEAD study, metrics of cardiovascular disease risk in people with BMIs of 25 or greater and existing diabetes all improved with only a 5–10 percent weight loss. Positive results included A1c reduction by 0.5 percent points, blood pressure reduction by 5 mmHg, HDL increases by 5 mg/dL, and triglyceride reduction by 40 mg/dL. Changes were even greater with 10–15 percent weight loss, and benefits were noted from any weight baseline.

The NHLBI recommends that additional weight loss be considered for obese people only after the initial 10 percent body weight reduction has been maintained for six months. This approach both ensures safety and reinforces positive assessments of body image and long-term goals. Continued, slow, weight loss not only allows time for new habits to develop, it also is the most likely method to avoid yo-yo dieting. Calories represent energy from food, and approximately 3,500 kcal equals one pound of body fat. To achieve a 5–10 percent weight loss in the recommended six months initially or as a continual effort, just 1–2 pounds per week is usually necessary. Loss of just one pound per week is attainable by reducing calories by 500 kcal/d. For women who prefer to count calories, a maximum of 1,200 per day is recommended by the CDC for steady weekly weight loss, and up to
1,600 kcal per day is acceptable for women who weigh >165 pounds or for athletes who expend more energy. On a 2,000-kcal/d diet, high-calorie foods are considered those with at least 400 kcal; moderate, 100 kcal; and low, 40 kcal per U.S. Dietary Guidelines. Regardless of total caloric intake, nutritionists advise a daily fluctuation of 100 to 200 calories to avoid rigidity and negative feedback.

**Examples: Mediterranean**

Although no single diet works for everyone, the Mediterranean diet approaches the latest AHA-recommended diet program and has research-backed efficacy at minimizing the onset of diabetes in at-risk populations. The diet is based on traditional lifestyles in countries near the Mediterranean Sea, which incorporate large amounts of moderate exercise throughout the day. All variants of the diet rely on fresh foods, cereals, and oils and share the following healthy eating characteristics: large quantities of vegetables and fruits (such as 7–10 servings/d) and of legumes, grains, and cereals; moderate dairy intake as cheese, not cream; low to moderate animal proteins, primarily from lean fish instead of fatty red meats; high amounts of unsaturated fats (such as olive oil) compared with saturated fats (such as butter); and modest amounts of red wine (such as one 4-ounce glass for women) each day. The total fat typically does not exceed 30 percent, and the saturated fat component always remains at or below 8 percent.

Extra protein comes from nuts and seeds. Beans and potato products round out carbohydrates and egg intake is fewer than four per week. Compared with U.S. diets, the Mediterranean diet is substantially lower in saturated fats that increase cholesterol and, ultimately, mortality, despite high total fat intake. When the Mediterranean diet was compared with a low-fat diet in people with cardiovascular risk factors, the number of new diabetes diagnoses was halved in the Mediterranean diet group because of its extremely low saturated fat intake.

**Examples: TLC**

Understandably, choosing and observing a diet is complex for patients, especially because recommendations continually change. The Institute of Medicine Food and Nutrition Board suggests that consumers experience high levels of confusion about terms used to describe foods, such as “trans fat free,” “low glycemic index / low GI,” or “all natural.” By focusing consumer education on grains and fresh foods that are nutrient filled rather than calorie heavy, organizations such as the ADA hope to encourage durable habits, not just weight loss diets. An example of such a durable program put forth jointly by the AHA and ADA through the CDC is the Therapeutic Lifestyle Changes (TLC) plan. TLC is part of the NCEP Adult Treatment Panel initiative on diet, weight, and physical activity for heart disease prevention. A component of TLC targets reduced LDL as a primary goal; secondary end points of TLC are lower triglycerides, increased HDL, lower blood glucose, lower blood pressure, and weight loss.

TLC as a diet plan appears quite similar to the Mediterranean diet by favoring unprocessed carbohydrates, unsaturated fats, and fish for lean protein. TLC identifies fat intakes by type of fat and emphasizes a goal of <7 percent of the dietary fat per day from saturated or trans sources. Within a 25–35 percent fat range, polyunsaturated fats should account for up to 10 percent, while monounsaturated fats can contribute 20 percent. An additional 2 g/d of plant sterols is suggested.

Proteins in the TLC diet comprise 15–25 percent of a day’s calories, and carbohydrates can reach up to 50–60 percent of daily calories. However, whole grains, fresh fruits and vegetables, and cereals are the largest recommended, non-refined carbohydrates. TLC also quantifies a fiber goal, unlike many diet programs or recommendations. Fiber intake of 20–30 g/d matches the 2010 U.S. Dietary Guidelines recommendation and likely contributes extensively to weight management and digestive health.

As with other successful weight loss programs, TLC requires some calorie restriction, to 1,200 calories per day, to achieve energy balance. However, the program acknowledges that people typically ingest consistent amounts of food each day, regardless of caloric content. In addition to terminology concerns, consumers struggle to maintain diets that require strict calculation efforts. The TLC diet program outlines...
an alternative approach that uses energy density, or kcal/g, to make appropriate food choices. Energy density can be calculated and precisely adapted to a diet, but it often can be estimated with practice. Energy density is defined as calories per given weight of food. Low-density foods are low in calories, so larger portions are allowed in the diet. Foods with low energy density add fewer calories, despite maintaining the same quantity of daily food intake, which promotes eating without large weight gain. Diets like tLc that incorporate low-calorie foods, or those with low energy density, are easy to follow because they do not restrict eating; thus, they provide positive reinforcement to continue a diet until it becomes a lifestyle.

Substituting lower-density foods for higher-density options is mentally easier than eliminating a food type or group entirely; replacement without explicit calorie counting encourages eating instinctively, until sated. Low-energy-density foods as first courses can lower consumption of higher-calorie main courses, and mixing low-density foods such as broths or vegetables into high-energy-dense foods like casseroles also stretches the food intake and ultimately lowers the energy density of the entire meal.

Low-energy-dense foods often are healthful food choices that are high in fiber, vitamin A, vitamin C, and folate. Conversely, high-energy-dense foods include crackers, cookies, chips, bacon, and margarines—all of which contain saturated or trans fats and are over-consumed easily because they do not assuage hunger. More specific examples of low-energy-dense foods include zucchini, celery, carrots, and spinach. Fiber is quite low in density, at 1.5 to 2.5 kcal/g. Carbohydrates and proteins, at approximately 4 kcal/g, are moderately dense; fats have the highest energy density, at 9 kcal/g. Density of any food can be calculated by dividing calories per serving by the grams per serving size.

Weight Management After Loss
A weight maintenance strategy differs from a weight loss program in its goals, methods, and durations, although both rely on lifestyle change, variety, and incorporation of physical activity for the best results. Unfortunately, lifestyle changes and moderation are challenging to initiate and sustain, especially alone. Behavioral interventions that support the consumer along a pathway of goals increase the likelihood of success for weight loss, weight maintenance, and disease prevention. Dieters and maintainers need distinctly different reminders, habits, approaches, and guidance.

BEHAVIOR CHANGE TIPS FOR DIETERS AND MAINTAINERS

For Dieters
Dieters depend upon regimented efforts toward one large goal, even with multiple interim goals. Steady, confidence-boosting weight loss is even more likely to succeed when dieters plan for stressors or diet setbacks.

The AHA encourages dieters to anticipate difficult periods and pre-plan accordingly, ideally addressing barriers to healthy habits with professional guidance and support. They suggest small steps toward early change: begin with a one-week food diary to document hidden calories, identify behaviors that foster overeating, and prepare for barriers against change. The AHA suggests reassessment every six weeks, not sooner, to identify what changes worked and to incorporate variety. A food diary can also expand into a lifestyle journal that reveals more than just food intake. Such a journal can document three steps crucial to lifestyle change: eating triggers (such as time, place, actions that are associated with foods); eating surroundings (such as areas associated with food intake, number of chews taken and speed of meals); and why a person eats and how they react to food (treating food as a reward).

Techniques to support a diet without requiring measurements or scales and to support incremental changes ease the dieting experience as well. Evaluating weight once weekly instead of daily more reliably reflects the effects of eating patterns maintained over seven days and is more likely to reflect successes toward a weight-loss goal.

During any diet, estimating appropriate portion sizes helps prepare the dieter for long-term weight maintenance. With practice, women can learn to identify healthy portion sizes of different foods instead of restricting or...
avoiding them entirely. AHA recommendations to foster this approach include keeping portions generally smaller than fist size to reduce overeating and keeping meat portions at one-half fist size to limit fat intake.

**For Maintainers**

Maintenance of a healthy weight, unlike dieting, is a way of life, not a one-time goal. Weight maintenance is quite frequently omitted from diet programs, but it is often the greater challenge. Avoiding the issue of how to maintain weight loss and habits learned often leads to weight rebound, repeat dieting, and the yo-yo effect. Weight loss programs should not be sustained indefinitely, though; instead, solid nutrition principles and a physical activity plan can maintain success without reaching for more loss and risking nutrient deficits.

Weight maintenance requires new goals: the ability to not regain six to seven pounds over two years after a successful weight loss of 10 percent; and maintenance of a waist circumference two inches smaller than the original baseline circumference, for example. One key component of weight maintenance is implementation of a nutrition plan that does not restrict calories extensively but that does retain healthy habits from dieting (such as portion control, meal and snack preparation). Instead of focusing on calorie counting or food avoidance, maintenance eaters need to establish and continue habits; these are most likely to become lifelong changes if they include variety, accountability, and positive feedback from families or support groups.

As with dieting, maintenance eating should be enjoyable and not repetitive. Maintenance eaters who falter should reassess and consider their well-being, not the numbers on a scale, to instill positive habits and goals. AHA recommendations for maintenance eaters include continued avoidance of high-fat food options (such as full-fat dairy), increased low-energy-dense vegetable intake to lessen hunger without additional calories, and routinely high fiber intake to slow digestion.

Planning for stressors or social excursions continues beyond avoidance associated with popular diets and involves freezing smaller meals and treats, carrying healthful snacks while away from home, and selecting restaurant appetizers instead of entrees to reduce portion sizes. Maintenance relies heavily on self-imposed nutrition choices, including more whole fruits and veggies, grains, legumes, and greens; less fat and sugar; and smaller portions.

Numerous barriers exist to prolonged behavior change, including the extra time, effort, and cost required to continue healthy habits. Involving peers, family, or community groups greatly minimizes these barriers. Goals are better achieved and maintained when families eat well together and when everyone is involved in meal planning, writing shopping lists, and recipe development, to lessen the burden of weight loss on one individual.

Maintenance of weight loss also depends on continued incorporation of physical activity, working toward a long-term goal of 30–60 minutes per day.Activities or workouts with a partner help to avoid procrastination or skipping sessions, positive encouragement with pedometers to document progress, and exercise variety and periodic reassessments are beneficial. By choosing active options within an individual’s lifestyle (such as stairs in place of elevators), physical activity goals are better achieved.

**Encouraging Behavior Change**

Daily food diaries and journals associated with food choices contribute to successful weight management. In 2009, Canadian researchers took the concept further and demonstrated the efficacy of cognitive behavior therapy (CBT) for weight maintenance by using a workbook to improve healthy outlook and minimize obsession with weight on a scale. CBT is a psychological treatment process used to improve coping skills through better comprehension of a situation and work toward interim and long-term behavior change goals. For example, cognitive behavior programs that aim to reduce overeating as an ultimate goal will provide short-term supports to identify and avoid eating triggers, replace foods with healthful options, and educate the patient about choices and results.

In the Canadian study, a cognitive behavior workbook for weight management was developed to encompass all aspects of sound dieting and maintenance principles. Study participants
used worksheets for individual food planning and exercise ideas. They received encouragement of new habits, and positive rewards for spotting and avoiding food triggers. More important, though, the workbook educates dieters in plain language about the combined roles of genes, activity, and lifestyle choices in the development and dangers of obesity—both to reduce negativity and to explain why a small change in activity and food selection both have great benefits toward disease prevention.

The workbook also stresses the importance of weekly, not daily, check-ins with groups or health providers to monitor permanent changes and periodically assess and adjust goals. The book—which has been published in the United States as “The Cognitive Behavioral Workbook for Weight Management: A Step-By-Step Program” by Michele Laliberte, Randi E. McCabe, and Valerie Taylor—discusses when and for whom more drastic weight loss efforts, like medication, are warranted. Although the book is best used with professional guidance, individual use is acceptable and can be successful with self-motivation.

PHARMACY PROGRAMMING: PERCEPTIONS AND SUCCESSES

Americans are gaining weight and developing chronic diseases rapidly without acknowledging these conditions. Health professionals have a duty to encourage open discussion about obesity and its link to diseases such as hypercholesterolemia and diabetes. However, only 20 percent of physicians counseled patients with existing cardiovascular disease, high cholesterol, or diabetes about their diet or nutrition in 2007, according to Healthy People 2020. Obesity directly correlates with cardiovascular disease and stroke: 22 pounds of extra weight can increase cardiovascular disease risk 12 percent. High cholesterol increases proportionally with increasing BMI as well, starting at only 25 kg/m², and the NHANES III study reports a greater likelihood of this morbidity in women than in men.

Only 3–5 minutes of conversation with a patient can motivate him or her toward weight loss and nutrition changes. Education about the numerous food labels, as well as patient-friendly language like “extra weight” instead of “morbid obesity” or “body fat” provide positive associations about food discussions and health care among patients and their health providers.

As medication therapy management (MTM) programs expand, the public perception of pharmacists as purveyors of health information and wellness can likewise grow and improve public health outreach. Consumer interest and pharmacist confidence, followed by program development and subsequent compensation for professional services, are vital components but also current barriers to community weight loss programs.

Basic Metrics

Pharmacists should first evaluate whether a person requires weight loss by evaluating BMI, weight in pounds, and waist circumference as well as comorbid diseases and potential primary causes of obesity (such as thyroid disease). BMI is most accurately measured by weighing a person with minimal clothing and measuring height to the nearest quarter inch. Results can be referenced against BMI tables provided by the CDC and other health organizations that have completed the calculations already. BMI, though an indirect correlate of body fat composition, has become the gold standard for obesity care and is an independent marker for stroke, heart disease, diabetes, and high cholesterol. Fat collects around the waist, so its circumference, as an efficient indirect measure of abdominal fat, is particularly recommended to identify cardiovascular risks. Using a flexible tape measure, the pharmacist can measure around the waist just over the navel. An initial goal waist circumference per the AHA is <35 inches in overweight or obese women.

For patients with BMI or waist circumference greater than normal, nutrition evaluation and goal setting are good first steps toward healthy habits. If a patient has a baseline BMI of 25 kg/m² or greater, a starter weight loss goal of 10 percent can be attempted with diet and exercise. Only patients with morbid obesity (such as BMI of 40 kg/m² or greater), or with obesity and chronic diseases after failure of concerted lifestyle and diet efforts, should be referred to physicians for OTC prescription treatments or surgery.
Medication Considerations
Medications are infrequently indicated for weight loss. Their use should be guided by BMI and should supplement diet and exercise when these have not succeeded alone. People with BMI greater than 27 kg/m² and with high risk of (or who have existing, uncontrolled) cardiovascular disease or diabetes, or anyone with BMI of 40 kg/m² or greater, are candidates for medication treatment. Medication goals must be as realistic as the weight loss program goals. For example, because medication use often involves chronic disease prevention, small goals include reducing risk markers for these diseases (such as LDL or blood pressure) instead of reaching an ideal weight.

However, medication options are limited, in part because their high rates of safety concerns discourage companies from sustaining research into new treatments. In addition, off-label use of serotonergic or antiepileptic medications to control weight often begins when weight loss is identified during clinical or postmarketing studies for an indicated use. These treatments are infrequently evaluated for obesity indications and can carry cardiovascular risks alone or in combination as well. The need for safe medications is high and unmet.

The only approved OTC option for weight control is orlistat, a drug that blocks fat absorption from the gastrointestinal tract to induce weight loss of up to 5–10 pounds within six months of use. The drug’s fat-purging effect teaches fat avoidance, especially with >30 percent of fat intake per meal. However, fat soluble vitamins A, D, E, and K are also blocked, and oily stools are a serious concern for patients. Orlistat 60 mg OTC or 120 mg as a prescription, taken up to three times daily with a fatty meal, can lower blood pressure, glucose, and cholesterol as well as induce significant weight loss of 8–10 percent at one year. However, many people cannot tolerate orlistat because of its 10–15 percent rate of gastrointestinal side effects.

Changing Perceptions
Weight loss programs in the pharmacy are slow to take hold, despite recent successes in select community settings. A significant reason is that consumers in the United States and worldwide expect to receive drug information, not lifestyle or nutrition advice, from their pharmacists. They view behavioral interventions as potential distractions from traditional dispensing efforts, as well. However, consumer confidence about medication-related interventions by pharmacists, such as nicotine replacement counseling, approaches confidence in physicians.

Public health interactions are not expected but are rated highly when they are provided, regardless of the topic (such as osteoporosis, diabetes). Positive interactions after participation in a clinic approach 80–98 percent for a wide range of services. Performing interventions increases the likelihood of support; for example, opinions of pharmacists as disease management experts and confidence in the pharmacist ability increased 24 percent after polled consumers attended a diabetes clinic. Consumers are generally positive about pharmacists and pharmacies for health efforts, and satisfaction with established programs is quite high. The broader demand, though, appears quite low, because consumers do not expect new efforts or realize their usefulness.

Community pharmacy settings are potentially ideal for weight management initiatives, because they are open and accessible to all ranges of people. Pharmacists must be invested and confident about the programs. In an evaluation of nearly 70 papers, successes and peer attitudes about pharmacist involvement in public health incorporation identified professional reticence when medications are not the focus. Many pharmacists did not think they were adequately trained to have or to use knowledge about behavioral interventions for smoking, weight, or contraception. Pharmacists, when polled, agreed upon several barriers to establishing and continuing a weight loss clinic in their community settings. Practical concerns, as anticipated, included a lack of private space for discussions or evaluations as well as insufficient staffing, time with patients, and insurance reimbursement. More professional concerns center on a lack of training and knowledge foundation about weight loss programs and popular products. Pharmacists appear well-versed in the effects of excess weight and...
fat on chronic disease and health; however, education on particular weight loss regimens or specific optimal programs is lacking both for pharmacists and for public health care providers in general.

Documented successes at weight loss intervention efforts are expanding, though. One example, as demonstrated in a college community in 2007, is the Healthy Habits Program, which enrolled nearly 300 student patients on a college campus. BMI, percent body fat, and diseases related to obesity were measured. Nearly one-third of patients reduced their BMI category (such as from obese to overweight), more than one-quarter lowered their disease risk statuses, and the mean weight loss from baseline reached the 10 percent benchmark. The program not only improved health, it also increased public awareness of the pharmacy as a resource and attracted more patients to the pharmacy as a business.

Implementation of new weight management services is a sound long-term business strategy, and examples such as this should be used as a backbone for introducing new programs. Pharmacist self-confidence can be improved with training to encourage a positive outlook that is crucial to the likelihood of clinic and patient success.

**CONCLUSION**

In their continual attempts to achieve or maintain weight loss, women consistently rotate through advertised programs, supplements, and fads—often without professional guidance. This repeated flux in weight and nutrient intake, instead of establishing long-term healthy habits, only encourages the difficulty of weight loss as women age and negatively reinforces body image while contributing to the development of chronic diseases.

Weight loss programs that moderately restrict calories without eliminating or severely restricting a specific food group are generally the safest diets and most effective means of shedding pounds. Maintaining new habits, allowing small calorie fluctuations, and including high-protein snacks to curb hunger are successful approaches to maintain a healthy weight and avoid habits like binge or social eating.

Pharmacists must be able to counsel patients, when approached, about diet and weight loss products. More than that, though, pharmacists should increase their own knowledge of nutritionally sound alternatives so as to proactively engage consumers about the best weight loss and weight maintenance goals and products for them. Ultimately, pharmacists can promote health with a multifaceted clinic approach or simply through the counseling window when physical and mental barriers to weight management and business practices are addressed and limited.

The ultimate goal of providing trusted health resources to the public to prevent chronic disease goes hand in hand with improving pharmacist confidence and public perceptions of the pharmacist as a health professional, not just a dispenser. Much like diabetes care clinics, weight loss interventions can introduce a new standard for public health care in the United States and become a door to optimal care of chronic cardiovascular and metabolic diseases.

**CASE RESOLUTION**

Because this is D.G.’s initial weight management consultation, you should begin with a needs assessment: does she require weight loss or weight maintenance? Her BMI reflects an overweight, but not yet obese, status. Her hypertension, but not her waist circumference, indicates potential long-term cardiovascular risks that could increase morbidity and mortality together with her increased weight. She is a candidate for weight loss counseling but not for medication or surgery at this time.

On the basis of her current weight, a 10 percent weight loss goal of approximately 15 pounds over six months (to a goal of 137 pounds and a BMI of approximately 24 kg/m2) is reasonable and approaches normal weight status on the CDC chart. D.G. can be referred to a dietician for full nutritional evaluation and counseling, but you are aware of the U.S. Dietary Guidelines and can start her on a nutritional path toward weight loss.

By reducing her daily calorie intake to 1,600 kcals (a reduction of 500 kcals), D.G. can lose one pound a week and meet NIH safe weight loss recommendations.
without extreme restriction. You can provide D.G. a food diary to track types of food, portion sizes, and eating habits each day. Similarly, your nutritional instruction will outline means of increasing protein for midmorning and midafternoon snacks, increasing fiber to at least 22 g/d, and minimizing saturated and trans fats to at least <10 percent of total daily calories (and ideally to <7 percent because of her existing hypertension). If D.G. relies on carbohydrates for much of her food, a discussion about glycemic index or “slow carb” choices is warranted, and incorporation of low-energy-dense foods can reduce hunger and extend her meals.

D.G. should revisit your clinic regularly to assess improvements in weight, BMI, waist circumference, and blood pressure during this initial six-month weight loss period. After this time, a full re-evaluation can identify future weight loss or weight management needs and can introduce additional long-term strategies to continue nutritionally sound diet plans. a

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CONTINUING EDUCATION QUIZ

Select the correct answer.

1. What percentage of adults in the United States admit to using over-the-counter weight loss supplements in addition to prescription weight loss medications?
   a. 17 percent
   b. 34 percent
   c. 50 percent
   d. 75 percent

2. Body mass index and waist circumference are best described how?
   a. Direct measures of excessive fat intake
   b. Direct measures of overall weight
   c. Indirect measures of excessive fat intake overall and around the abdomen, respectively
   d. Indirect measures of excess weight overall and around the abdomen, respectively

3. Why is yo-yo dieting ultimately detrimental to weight loss attempts?
   a. Repeated weight loss can lead to malnutrition.
   b. Excessive fat burning followed by weight gain can confuse the body.
   c. Metabolism slows over time as the body adapts to repeat dieting by storing extra nutrients and fat.
   d. Metabolism can be sped up only for incremental benefits.

4. How many obese and overweight adults in the United States have hypertension and/or high cholesterol?
   a. Nearly 25 percent
   b. Nearly 40 percent
   c. Nearly 60 percent
   d. Nearly 70 percent

5. Which type of eating behavior is most common?
   a. Restrictive eating
   b. Over eating
   c. Instinctive eating
   d. Both A and B

Editor’s Note: For the list of references used in this article, please contact America’s Pharmacist Managing Editor Chris Linville at 703-838-2680, or at chris.linville@ncpanet.org.
11. How do insoluble and soluble fibers differ?
   a. Insolubles remain in the tract; soluble absorb into the bloodstream.
   b. Both fibers act as roughage, but insoluble fibers require water for activity.
   c. Soluble fibers prevent glucose absorption while insoluble fibers contribute to motility.
   d. Soluble fibers include popcorn and carrots; insoluble fibers are in oats and citrus fruits.

12. Which products contain healthful fat choices?
   a. Tuna
   b. Canola oil
   c. Margarine made primarily from plant sterols
   d. All of the above

13. In what ways does protein intake contribute to weight control?
   a. Slows gastric emptying and reduces hunger
   b. Provides the most calories to reduce hunger
   c. Is the easiest snack option
   d. All of the above

14. For a 40-year-old woman who has a BMI of 24 kg/m² and a goal of weight maintenance, which of the following are useful recommendations?
   a. Calorie maintenance based on activity level, between 2,000 to 2,400 kcal/d
   b. 500 kcal/d restriction to maintain weight
   c. Maintain nutrition and weight with fiber intake around 25 g/d and fat <10 percent of daily calories
   d. Starting the Zone diet to reduce carbohydrate intake and increase protein intake

15. Why is the Mediterranean diet likely beneficial to heart health?
   a. It eliminates unsaturated fats.
   b. It incorporates the greatest levels of physical activity of any diet.
   c. It relies heavily on olive oil instead of solid butter.
   d. It emphasizes high intake of fresh meats instead of processed meats.
16. Energy density is useful for weight loss in what ways?
   a. It reports another interpretation of standardized calorie intake.
   b. It identifies foods that can be eaten in large quantities without exceeding the day’s caloric intake.
   c. It provides ways to lose weight by restriction intake of every macronutrient equally.
   d. Both B and C

17. Portion control is best put into effect by which of the following?
   a. Keeping all food to half-fist (1/2) portion sizes
   b. Ordering dessert only at restaurants in social settings
   c. Freezing smaller portions of every meal and snack
   d. Eating six small meals each day

18. Which patient qualifies for prescription medication to treat obesity?
   a. BMI of 22 kg/m2 and high cholesterol
   b. BMI of 35 kg/m2 and family history of hypertension
   c. BMI of 35 kg/m2 and waist circumference of 36 inches
   d. BMI of 42 kg/m2 and no history of cardiovascular disease

19. Orlistat’s gastrointestinal effects are known for which of the following?
   a. Occurring especially with meals that contain >30 percent fats
   b. Causing diarrhea
   c. Lowering digestive gas
   d. Blocking fiber effects

20. True or false: The majority of pharmacists feel confident in their abilities to provide behavioral, not just medication, counseling?
   a. True
   b. False

Women’s Weight Loss Wellness: Effective and Safe Diet Techniques
September 3, 2012 (expires September 3, 2015) • Activity Type: Knowledge-based

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Quiz: Shade in your choice

Quiz: Circle your choice

21. Is this program used to meet your mandatory C.E. requirements?
   a. yes b. no

22. Type of pharmacist: a. owner b. manager c. employee

23. Age group: a. 21–30 b. 31–40 c. 41–50 d. 51–60 e. Over 60

24. Did this article achieve its stated objectives?
   a. yes b. no

25. How much of this program can you apply in practice?
   a. all b. some c. very little d. none

How long did it take you to complete both the reading and the quiz? ______ minutes