



# Obesity:

## *An American Epidemic*

*Karen L Chambers, CST*

America is facing an epidemic of enormous proportions: obesity. Defined as the state of being above one's normal weight,<sup>13</sup> a person once had to be diagnosed as being more than 20 percent of their ideal weight to be considered obese. In the present day, the National Institute of Health (NIH) states that a person with a Body Mass Index (BMI) of 30 and above (which relates to 30 pounds) is now considered obese.<sup>12</sup> A person's height, age, sex and build help establish their ideal weight.

**O**besity is a condition in which excess body fat has accumulated to such levels that a person's health can be negatively affected. The US Centers for Disease Control and Prevention (CDC) have ranked obesity as the number one health threat in America, with an estimated 400,000 deaths annually.<sup>3</sup> (Smoking causes an estimated 440,000 deaths annually.<sup>19</sup>) Being simply overweight is not as dangerous as being obese. An overweight person can easily lose a few pounds by monitored diets and exercise, and usually regains a healthy body and mind. Obese people cannot accomplish this as easily, no matter how much effort is exerted.

Obesity not only affects an individual's lifestyle, it also leads to low self-esteem, which leads to depression and discomfort. Negative emotions, such as boredom, sadness, stress and anger, can also jump-start bad eating habits. These and other psychological factors may bring people to use food as medicine.

Numerous research studies have confirmed that poor eating habits, lack of exercise and a sedentary lifestyle are the prime contributors to obesity.<sup>10</sup> Because of on-the-go lifestyles, fast food consumption and microwave meals, people have sacrificed their

### LEARNING OBJECTIVES

- ▲ Examine the long-term health risks associated with obesity
- ▲ Compare and contrast the different types of weight-loss surgery
- ▲ Assess the risks and benefits of each surgical option
- ▲ Evaluate the different nonsurgical methods of weight loss
- ▲ Explain the significance of America's increasing rate of obesity

health. Instead of eating pure, wholesome foods, many people opt to eat a diet of packaged, processed and refined foods.

In 1993, endocrine researchers discovered that leptin, a hormone secreted by fat cells, not only controls food intake, but also impacts other functions that are affected

A normal person should not consume more than 65 grams of fat or 2000 calories a day. One meal from Burger King® (a hamburger and french fries), has 50 grams of fat and 2000 calories, which is practically the entire allotment for fat and calories permitted for a day!<sup>11</sup>

by energy balance that could relate to obesity.<sup>6</sup> High leptin levels trigger growth and readiness for re-accumulation of leptin in the blood. However, obese patients respond poorly to leptin, which suggests the presence of leptin resistance. With this deficiency, an individual will never feel the urge to stop eating, which leads to overeating. Meals that are high in fat and sugar (*ie* fast food) have excessive amounts of calories, more than the body can burn in a single day. Those calories become stored fat, causing the person to gain more weight.

Through technological advances, food is now produced in mass quantities, lasts longer and tastes better. Unfortunately, the highly-processed and refined products that pack our supermarket shelves are loaded with sugar, hydrogenated oils, and many ingredients that most of us have never heard of. Many of the meals served at fast food restaurants, while convenient, contain practically no nutritional value. While the selections are inexpensive, fast and appealing to many, the saturated fats, highly-refined carbohydrates, high sodium and sugar are the hidden ingredients

Studies, conducted by researchers at the University of North Carolina, Chapel Hill, examined three large, nationally representative surveys on food consumption conducted from 1977 to 1998. The survey collected data on what more than 63,000 people said that they ate. Salty snacks (crackers, chips, pretzels) increased from 1 ounce to 1.6 ounces, adding 93 calories. Mexican food (burritos, tacos, enchiladas) went from 6.3 ounces to 8 ounces, up 133 calories. The studies concluded that people consumed larger portions of one third of the 107 foods analyzed, which included bread,

cookies, cereal, fries, coffee, wine and fresh juices. Also calculated was the average amount of beer consumed by men over 40 years of age, which went from 23 ounces to 32 ounces, an increase of 100 calories. This research was concluded in 1998, so it is quite likely that portions have increased.<sup>20</sup>

Americans are gaining weight at a frightening rate. Fifty nine million people are obese, and that number is likely to increase to 65 million over the next few years.<sup>8</sup> Medical experts now believe obesity to be at epidemic proportions.

Cynthia Ogden, PhD, a CDC epidemiologist, published the results of a study of weight in the United States. The results were startling: 31 percent of adults are obese and 15 percent of children from the ages of 6-19 are obese.<sup>8</sup> This increase will adversely affect the health of these children as they approach adulthood. Childhood obesity is a fast-growing problem. Although Ogden stresses that obesity is a problem for all groups and genders, it is particularly severe among certain ethnic groups, for example, 50 percent of all non-Hispanic black women are obese.<sup>12</sup>



People are eating larger portions of fries, chips and burgers and drinking more soda than they did 20 years ago. According to new research, they are consuming more than 100 extra calories daily than needed!<sup>11</sup>

## BY THE NUMBERS

- ▲ 1500 of us die from cancer every day
- ▲ 1 in 3 women and 1 in 2 men will have cancer in his or her lifetime
- ▲ 1 in 8 American women will be diagnosed with breast cancer
- ▲ Heart disease kills more women than breast cancer
- ▲ 1.3 million Americans have a heart attack each year
- ▲ 23 percent of Americans have hypertension
- ▲ Americans spend \$330 billion per year on heart disease
- ▲ 64 percent of US adults are overweight or obese
- ▲ Diabetes will increase by 165 percent over the next 50 years, with 29 million Americans diagnosed
- ▲ 33 percent of Americans suffer from arthritis
- ▲ Cancer kills more children than any other disease
- ▲ By age 3, children have fatty deposits in their arteries
- ▲ By age 12, 70 percent have developed beginning stages of hardening of the arteries
- ▲ 1 in 4 children is obese
- ▲ Obesity has doubled in the last 20 years
- ▲ Nearly 50 percent of obese adolescents remain obese as adults
- ▲ In the last 20 years, type 2 diabetes has increased 10-fold
- ▲ More than 8 million children have asthma, up 232 percent in the last 40 years
- ▲ Less than 7 percent of children and adolescents consume the recommended 2 servings of fruit and 3 servings of vegetables per day<sup>11</sup>

### MEDIA/DIETS

The seemingly contradictory reports in the media about what people should and should not be eating confuse the issue. For instance, proponents of protein diets argue that all of the accepted wisdom about eating a low-fat diet is wrong.<sup>10</sup> Most experts do not agree with them, but protein diets are being evaluated in studies now. One thing mainstream nutritionists and protein diet proponents do agree on is that the low-fat recommendations of the 1990s did not work.

“People took the low-fat message and decided that it meant that as long as they ate things that were low fat, they could eat as much as they wanted,” says William Dietz, MD, PhD, director for the division of nutrition and physical activity in the National Center for Chronic Disease Prevention and Health Promotion at the CDC. “However, that is not the case, since calories add up, regardless of what form they come in. Even worse, many of the low-fat snacks that companies developed actually contained more calories than their regular fat equivalents,” Dietz observes.<sup>12</sup>

According to food-maker Nestle®, the media has a tendency to report results of scientific studies out of context.

It argues that the relative stability of the dietary and fitness recommendations over the years to eat less fat, more fruits and vegetables and exercise regularly do not interest people as much as exciting stories about radical diets or the effects of particular miracle foods or vitamins.<sup>6</sup>

Fad diets, pills and liquids, all sold as a quick fix to fit into those “skinny jeans” or new designer clothes just do not work. They are tools to help the market and the retailer make more money with little regard for the potential public harm. Americans must focus on the obesity problem and concentrate on what we should do to be healthy, stay fit, and accept the fact that this is a problem.

We are a great country in many ways. We are also great at pointing fingers to place the blame elsewhere. We blame the over-abundance of fast food chains, work and school for not allowing us to eat a healthy meal. We blame

television and video games for corrupting our children – not allowing them to get out and get the proper exercise they need.

We never blame ourselves for not limiting the children’s TV time or video game usage; for not encouraging the children to go out and run around outside for a couple of hours every day; for being too lazy to prepare healthy meals; for a lack of determination to stay healthy and fit. The real significance of being overweight is not just a cosmetic issue. The emergence of obesity-related diseases and disabilities is the real threat.

### OBESITY-RELATED CONDITIONS

Medical conditions that affect obese individuals include hypertension, blood clots, diabetes, renal failure, sleep apnea, cardiac failure, fatigue, and breast, colon and prostate cancer.<sup>5</sup> Obesity also leads to mental health conditions, such as depression and low self-esteem. Not only does obesity affect the major arteries and organs, but the state of mind as well!

People with an excessive amount of body fat have higher levels of triglycerides and low-density lipoprotein cholesterol, as well as lower levels of HDL cholesterol in the blood,

which may cause inflammation and an increased risk for developing types of cardiovascular diseases, including heart attacks, congestive heart failure, sudden cardiac arrest, angina, and abnormal heart rhythm.<sup>5</sup>

More than 80 percent of overweight people have type 2 diabetes.<sup>5</sup> According to data from the CDC's National Health and Nutrition Examination Survey, "two thirds of adult men and women in the United States diagnosed with type 2 diabetes have a Body Mass Index (BMI) of 27 or greater, which is classified as overweight and unhealthy. Obesity complicates the management of the type 2 diabe-

The average child sees more than 10,000 food ads on TV each year, most of which are high-calorie, high-fat, and high-sugar meals.<sup>11</sup>

tes by increasing insulin resistance and glucose intolerance, which makes the drug treatment for diabetes ineffective. In addition, hypertension is twice as common in obese adults versus individuals who maintain a healthy weight.<sup>6</sup>

A number of state and local governments are trying to fight the current weight gains in children and adolescents, particularly in the schools. Members of some state legislatures are drafting and adopting laws that reinforce physical education while teaching the importance of nutrition and health in their curriculum.<sup>10</sup> In Texas and California, the struggle to eliminate junk food and soda from being sold in the public school system eventually succeeded.

In 1990, Arnold Schwarzenegger was named chair of the President's Council on Physical Fitness, a program geared toward educating children on the choices they need to make regarding their health with respect to food choices and exercise. These actions to take control over what our children consume are beginning to reach school systems nationwide, but this war is not over.

The trend of being overweight is related to many cultural, economic and environmental factors. The primary concern should be one of health and not appearance. For example, all expectant mothers should be educated about the many benefits that breast fed babies receive, among them that they are less likely to become overweight as they grow older. Breast feeding will also benefit the mother, who returns to her pre-pregnancy weight more quickly.<sup>3</sup>

## TREATMENT OPTIONS

The most common treatment for weight loss is nonsurgical: diet and exercise. Eating fewer calories while increasing physical activity is the best way to lose weight. For most adults, a low-calorie diet of 1200-1500 calories per day for women, and 1500-1800 calories per day for men is recommended. It has been proven that limiting calories, not the types of foods that are consumed, causes more weight loss.<sup>7</sup> For example, cutting only carbohydrates or fat will not cause any more weight loss than a healthful and balanced low-calorie diet.

Exercise helps burn more calories. One of the best ways to increase activity levels is walking. Most people can walk safely and routinely alone or with family members, friends, co-workers or pets. It is usually easy to work it into a busy daily schedule. When possible, keep track of steps with a pedometer. Wearing the step counter motivates an individual to walk more during the day.

Supplemental weight loss drugs, such as sibutramine, orlistat and phentermine, promote the feeling of fullness, reduce appetite or limit the amount of fat absorbed.<sup>7</sup> However, without a diet and exercise plan, the weight returns as soon as the medicine is stopped.

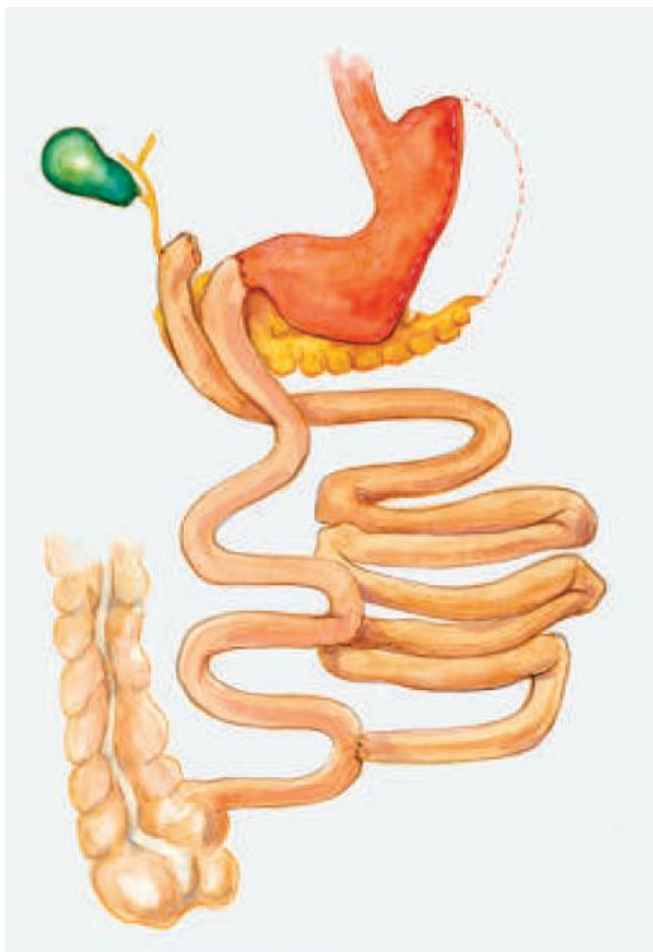
## OPTION 2

Medical science and surgery is the second option. Doctors have developed devices and surgical procedures that can help certain candidates with losing weight. These obese candidates have found that their bodies did not respond to the first option of diet and exercise. Doctors today have developed a strict diet and exercise program to be followed after the surgical intervention to keep the weight off.<sup>5</sup>

Obesity surgery is recommended only for patients with a BMI (body mass index) of 40, or a BMI of 35 - 39.9 combined with other serious obesity-related medical conditions.<sup>5</sup> It is important that patients understand all of the risks and benefits associated with these surgical procedures.

## PROCEDURES

*Liposuction* removes fat from deposits located underneath the skin by using a cannula attached to a vacuum, which collects the fat. This procedure is performed quickly. Formerly, general anesthetics or heavy IV sedation were utilized, but with advances in medicine, it can now be done on a lunch break using a local anesthetic. Although liposuction is a quick and easy procedure, it is not in any way a permanent means of weight loss. Those who opt to have this done must still work to keep the weight off.



*Malabsorptive: Biliopancreatic diversion with duodenal switch.*

**Mesotherapy** is a common sculpting treatment, which involves the injection of fat-melting drugs into fatty tissues like the buttocks, love handles, back, arms and abdomen.

**Bariatric Surgery:** There are three kinds of bariatric surgery.

- ▲ Restrictive bariatric surgery decreases food intake and makes the patient feel full after meals.
- ▲ Malabsorptive bariatric surgery reduces absorption of calories, nutrients, and proteins.
- ▲ A combination of both restrictive and malabsorptive is also available.

Bariatric surgeries can be performed open or laparoscopic. After the surgery, the patient must learn not to eat certain foods, such as those high in fat and cholesterol, and to raise their metabolism. The daily routine of changing portion sizes will be a shock, but the patient must adapt to the smaller portions and not revert to old habits.

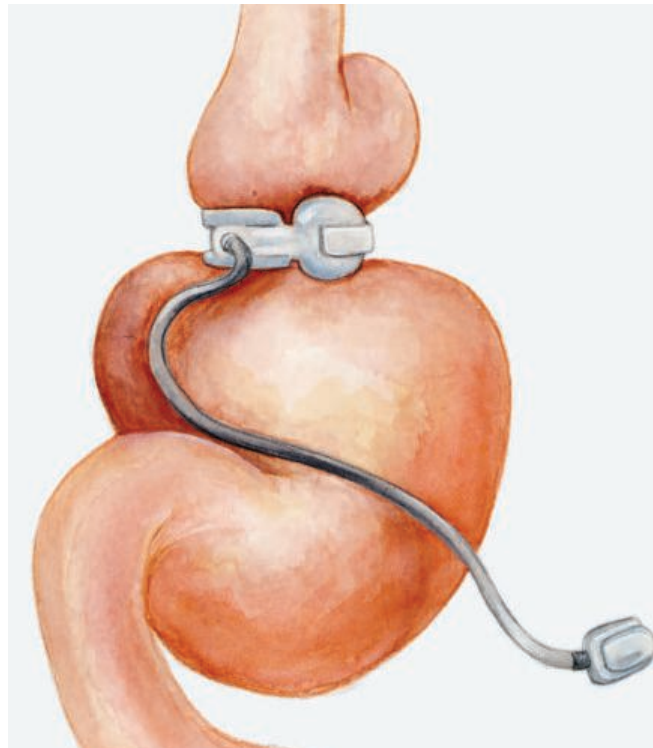
### VERTICAL BANDED GASTROPLASTY (STOMACH STAPLING)

The size of the stomach is surgically reduced. Both a band and staples are used to create a small stomach pouch. In the bottom of the pouch is a 1 cm hole, approximately, through which the pouch contents can flow into the remainder of the stomach and then into the remainder of the gastrointestinal tract. Stomach stapling is more effective when combined with a malabsorptive technique, in which part of the digestive tract is bypassed, reducing the absorption of calories and nutrients.

This type of procedure results in less weight loss compared to other surgeries. It is also less commonly used today because of poor long-term prognosis. After stapling, the stomach is still able to stretch past the staples and the person can regain the weight. It was developed in the 1970s as a safer alternative to the Roux-en-Y gastric bypass, which introduced a mechanical stapler to the surgical site.

### GASTRIC BANDING

Laparoscopic adjustable gastric banding (LAGB) is a restrictive procedure that uses a gastric band made of silicone and an inflatable balloon. Because it is done laparoscopically,



*Restrictive: Adjustable band gastroplasty*



Roux-en-Y gastric bypass

### ROUX-EN-Y GASTRIC BYPASS

This is the most popular weight loss procedure today.<sup>1</sup> It is simply known as gastric bypass. Similar to the gastric band, the procedure limits food intake, but unlike the band, the surgeon will divide the small bowel about 18 inches below the lower stomach outlet and rearrange it into a y-configuration. This enables the flow of food from the small upper stomach pouch.

The distal version of this procedure moves the y-connection further down the gastrointestinal tract, closer to the distal end of the small bowel, which also reduces the absorption of food, fats, starches, various minerals and fat-soluble vitamins. The unabsorbed starches and fats pass instead through the large intestine, causing some bacterial actions allowing them to produce irritants and malodorous gases, increasing the weight loss. To be fully successful, these procedures must be accompanied by diet and exercise. Lean muscle must be built up to make up for the loss of fat.

The gastric bypass procedure, while one of the most effective and common procedures, comes with a drastic change in lifestyle. Portion control makes the patient eat less than normal, and imposes restrictions on smoking and alcohol consumption. About 140,000 gastric bypass procedures were performed in 2005 in the United States alone.<sup>1</sup>

Restrictive operations lead to weight loss in almost all patients, but they are less successful than malabsorptive operations, which achieve substantial long-term weight loss. About 30 percent of those who undergo vertical banded gastroplasty achieve normal weight, and about 80 percent achieve some degree of weight loss. Studies reveal that 10 years after surgery, only 10 percent maintained the weight

there is minimal to no scarring. The balloon connects to a small reservoir placed under the skin of the abdomen. The diameter of the band can also be adjusted. When the balloon is inflated, it increases weight loss and when deflated, it reduces weight loss. This procedure has a lower risk of complications and discomfort compared to an open procedure. The advantage of the LAGB is that the procedure is adjustable, allowing the doctor to make changes during each follow-up examination, depending on the results of the diet. After banding, the stomach can only hold approximately one ounce of food. In some cases, the band may erode into the stomach, or there may be some esophageal dilation, resulting in failure to lose weight. On average, LAGB leads to approximately a 40 percent loss of excess weight.<sup>2</sup>

Considered the least invasive and safest weight loss surgery, the procedure can be reversed if necessary. It has a low complication rate. The most common problem after surgery includes nausea and vomiting. The risk of death is 1 in 2000. It does not interfere with food absorption. For this reason, vitamin deficiencies are rare after gastric banding.

### BILIOPANCREATIC DIVERSION

Initially in this procedure, a reduced stomach is created, and then the digestive juices are diverted into the small intestine. The first part of the duodenum is bypassed, because that is where most of the calories are absorbed. The section with the bile and pancreatic juices is anastomosed to the small intestine further down.

**While obesity rates have increased nationwide, it has increased more dramatically in specific areas of the country.**

REGION OF THE US	1991 %	2000 %
New England	9.9	16.95
Middle Atlantic	12.7	18.41
East North Central	14.1	21.00
West North Central	12.2	19.82
South Atlantic	11.1	19.52
East South Central	13.1	23.05
West South Central	13.1	22.20
Mountain	9.6	17.10
Pacific	10.0	19.10

Source: CDC Behavioral Risk Factor Surveillance System 1991-2000

## FACT VS. FICTION

**MYTH #1** People only become obese and overweight because they do not engage in physical activity and have unhealthy eating habits.

**FACT #1** It is important to remember that obesity is not always a behavioral issue. Physical activity and eating habits are major contributors, but there needs to be a balanced combination of behavior and medical evaluation and intervention.

**MYTH #2** Once committed to a weight-loss regimen, obese individuals should attempt to lose a large amount of weight as quickly as possible.

**FACT #2** Rapid weight loss (3 or more lbs per week) will increase risk of developing gallstones. 2 lbs per week over time is more sustainable.

**MYTH #3** Weight gain in women over time is healthy and part of a natural aging process.

**FACT #3** Although metabolism may change over time, weight gain of more than 20 pounds is not a normal part of the aging process. In fact gaining more than 20 pounds between age 18 and midlife increase risk of disease.

**MYTH #4** Osteoarthritis only develops when an individual gains a large amount of weight over a short time period.

**FACT #4** Timing is not a major factor in the development of osteoarthritis. For every two-pound increase in weight, the risk of developing arthritis is increased by 9-13 percent.

loss of at least 50 percent of their total excess weight at the time of the surgery.<sup>2</sup>

Some common bariatric surgery complications include pneumonia, infections, incision hernias, and leaks at the surgical site, bloating and diarrhea after eating, and mortality.

Obesity surgery is not a miracle cure and the pounds do not come off by themselves. A weight loss of two to three pounds a week after the surgery is possible, but one pound a week is more likely. Losing weight too quickly creates a health risk and can lead to other problems. The main goal is to have a weight loss that prevents, improves or resolves health problems connected with morbid obesity.

### OBESITY'S IMPACT NATIONWIDE

America is home to the greatest number of obese people in the world. According to the CDC, obesity in adults has increased by 60 percent in the last 20 years, and obesity in children has tripled in the past 30 years. Native Hawaiians have alarmingly high rates of obesity, diabetes and heart disease. The number of Hawaiian children suffering from obesity is double that of children throughout the nation. In 2001, the University of Hawaii Kinesiology and Leisure Science Department, along with the Brigham Young University

Exercise and Sport Science Department, conducted a local study and found that more than 20 percent of Hawaiian children were overweight.<sup>15</sup> According to Kelly Brownwell, phd, an expert on American diet and health, a study was conducted with the Pima Indians in Mexico and Arizona. It found that the Pima Indians who live in Arizona experienced a much higher rate of obesity than their counterparts living in Mexico, even though both groups shared the same genetic and ethnic backgrounds. This is also true for many migrants to the United States, who demonstrate a much higher obesity rate than their relatives back home.<sup>15</sup>

In Alabama, the US State of Alabama Employees Insurance Board approved a controversial plan to charge obese workers a monthly \$25 fee, if they do not make the effort to reduce their weight and improve their health. These measures are set to take effect in January 2010, and apply to those with a BMI of 35 or more, who failed to make improvements in their health after one year.

### CONCLUSION

Although the history of American obesity is relatively brief, the outlook for the future seems like a much longer struggle. It appears that the obesity problem in adults will continue to grow. In addition, it has been observed that obese parents



greatly increase the chances of obese children,<sup>11</sup> so it is likely that obesity will be a blemish in American society for more generations to come. However, this does not mean that measures are not being taken to free America from this burden.

As one of the richest, most progressive countries in the world, America should also be one of the healthiest. The sad truth is that Americans are some of the most unhealthy people in the world. The good news is that obesity can be reversed. Whether through exercise, diet or surgery, the solution is available. All that is required is sound advice, guidance, a strong will, discipline and most important, support.

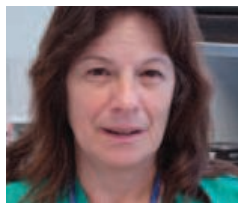
Media, health care, government and the food industry should join forces to promote health and fitness through responsible education. Parents should make greater efforts to get their children away from the TV and video games and engage themselves in active play. Parents should take active roles in putting their children on strict diets and overseeing a sound exercise regimen. The proper food intake, quality and quantity, plus the right amount of good physical activity will soon show positive results.

The US Government has spent billions trying to find a cure for heart disease, cancer, and other diseases. Their conclusions: disease is easier to prevent than it is to cure! Our government tells us to eat seven to 13 servings of fresh, raw fruits and vegetables everyday; increase your physical activity with wholesome exercise. This is the way obesity will be conquered.

We all must learn to help ourselves in this fight against obesity!

#### ABOUT THE AUTHOR

Karen L Chambers, CST, has been an AST member since 1998 and is the recipient of its 2005 Educator of the Year Award. She currently chairs the surgical technologist and sterile processing technician programs at Dover Business College in New Jersey.



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