A weighty matter

Overweight and obesity in today’s world and associated health problems

By Tamara Mitchell

We can no longer afford to tiptoe around the issue of overweight and obesity. Every year research indicates further health-related problems associated with excess fat, yet doctors and other health practitioners avoid discussing the problem with patients while most people eat too much and exercise too little. There is research backing the observation made many years ago by ergonomists that there is an increased risk of Repetitive Strain Injuries (RSI) in overweight individuals, not to mention all the other well-known health risks associated with extra pounds.

Our intention for this article is to be non-judgmental and pragmatic. The terminology associated with excess weight can be very painful, especially when someone is determined to be obese. It is a terrible label, but it is one that is used throughout the research and scientific literature on body fat. If you fall into this range, do not take this terminology personally. Try to accept that you are beyond “pleasingly plump” and that it is time to get really serious about weight loss and about maintaining a healthy weight once that extra weight is off. We hope you can look beyond the terminology as you read this article and understand the reasons we are worried about your health.

Do you have a weight problem?

Before we discuss the health problems associated with overweight and obesity, you can determine your weight category by using the Body Mass Index (BMI). It is more highly correlated with body fat than any other indicator of height and weight. BMI is calculated by dividing your weight by the square of your height. Use the calculator at: https://insider.sri.com/services/ehs/ergo/articles/bmi.html or multiply your weight in pounds by 730, divide that number by your height in inches, and then divide that number by your height in inches again. You can also refer to Table 1 on the last page of this article.

Be aware that this measure is not completely accurate and there are some authorities who feel that it classifies far too many people as overweight who are actually obese. In one study, which utilized a body scan (dual-energy X-ray absorptiometry or DEXA), almost 4/10 of the people scanned were identified as overweight in the BMI computation, but they were actually obese by the more accurate body scan. You can still use BMI as a good guideline to determine where you stand, but be aware that if you fall in the overweight category, you may actually need to lose a few more pounds than indicated to be healthy.

The accepted BMI ranges are:

- Underweight: BMI < 18.5
- Normal weight: BMI 18.5 to 24.9
- Overweight: BMI 25-29.9
- Obese: BMI > 30

Overweight nation

Americans spend $33 billion annually on weight-loss products, but statistics show that we are not winning the battle of the bulge. Since the mid 1970’s, Americans have really lost control of their weight. Today, the average American is 23 pounds heavier than their ideal body weight. In 1962, less than half
(about 46%) of adults in the U.S. were overweight, obese, or extremely obese. By 2010, about 75% of U.S. adults were overweight, obese, or extremely obese, with the most dramatic increase in the obese category shown in the chart below. In fact, men are 74% overweight or obese and women slightly less at 64%, but only 4% of the men were extremely obese and 8% of women were extremely obese.

Self-reported obesity among adults vary by state throughout the U.S., though no state had less than 20% prevalence of obesity.
There are probably a few factors at play in this finding.

1. First, there are regional differences in the style of cooking and the types of foods eaten in various parts of the country.
2. Second, exercise may not be a part of the lifestyle of the people in that area. Fewer people walk or bike in rural areas. The map below shows similarities to the map on regional weight.

![Map showing regional weight](image)

Some states are doing better than others. Overeating and lack of exercise go hand in hand and it’s the overall balance of energy input (in the form of food) to the energy output (in the form of exercise) that determine whether people will be able to maintain a healthy weight over time. Planning communities that encourage walking and biking as an alternative to driving or public transportation is important as well as providing safe public places for physical activity, playgrounds, parks, walking/jogging paths, and community centers. Enhancing physical education in schools and child care facilities helps children to be active, learn to enjoy physical activity, and combat our current problem with overweight children.

3. Third, being overweight seems to be the “new normal” in the U.S., so people don’t see themselves as different from the rest of the population. Although this is true throughout the country, it is likely even more true on a fairly local level. If everyone you see in your community is overweight or obese, you compare yourself to the people around you. Researchers have found that weight gain spreads in social networks. You are 57% more likely to become obese if you have a friend who becomes obese and 40% more likely if you have a sibling who becomes obese.

4. Fourth, manufacturers support weight gain by modifying sizing of garments and other products so people don’t realize they are expanding. A size 10 dress is larger today than it used to be, chair manufacturers are making seats wider to accommodate larger derrieres, and even school furniture is being enlarged to accommodate today’s overweight kids. Airlines are holding out on seat size and actually squeezing more seats into planes because every seat means profit, though today’s larger travelers are often uncomfortable.

5. Fifth, portion sizes have exploded. People today probably don’t realize how much larger portions have gotten over the years. The chart below shows examples of how things have changed over 20 years and it is quite surprising. We’re so used to seeing supersized portions, a normal portion seems
pretty tiny these days. The National Institutes of Health calls this “portion distortion”. We get used to eating until we’re stuffed and that is leading to the epidemic of weight gain in our society. Even when we eat at home, we are used to loading up the plate and eating far more than we need to be healthy and to survive. In fact, the size of dinner plates has increased dramatically over the decades, so when we fill our plate and eat everything on it, we’re eating a whole lot more food. Plates in the 1960’s and prior were 7-9 inches in diameter. By the 1980’s dinner plates measured about 10 inches. By 2000, the average dinner plate was 11 inches in diameter. Today dinner plates can measure 10-12 inches or larger, especially in restaurants that serve very large steaks. A normal portion would look truly puny on today’s dinner plates! A simple switch to smaller plates can help you get back to serving normal sizes. Use the salad or bread plate for your entrée and starch, but use the dinner plate for a generous portion of salad. Or go to a thrift shop or yard sale and find some lovely antique dishes to use. There are various guides online to help decide what a normal portion is, but Reference 16 is an excellent one with photographic representations for you to envision and PDF guides at the bottom of the web page for wallet or refrigerator-sized printable guides. Most likely, portions are a lot smaller than what you’re used to eating!!

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<td><strong>20 Years Ago</strong></td>
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<td>Spaghetti w/meatballs 1 cup sauce 3 small meatballs</td>
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<td>Soda 6.5 ounces</td>
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<td>Blueberry muffin 1.5 ounces</td>
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Overweight world
America is not alone in the trend toward extra pounds. In just 4 years, the prevalence of adults who are overweight has increased worldwide. One of the healthiest cuisines backed by research is the diet of people in the Mediterranean region, but as Westernized eating habits have infiltrated this area, weight has steadily increased as shown in the maps below over just 4 years.
Overweight kids

Roughly 17% of children aged 2-19 are obese and a total of 31.8% are considered to be either overweight or obese. An amazing 18.6% of boys and 15% of girls ages 2-19 are obese...not just overweight. The good news is, younger children, aged 2-5 years, are significantly less obese than in previous years: 8.4% in 2011-2012 compared to 13.9% in 2003-2004. If children start life overweight, it is difficult for them to change their dietary and exercise habits later on, predisposing them to a lifetime struggle or a lost battle with their weight. It is the responsibility of the parents and other adult role models to set an example of good eating habits, to maintain a healthy weight, and to make sure their kids understand the importance of healthy nutrition and exercise. Encouragement, honesty, and compassion, not shame and embarrassment are what help kids want to lose weight.

There are lots of ways to help kids make healthy food choices.

- Focus on a whole diet of whole, minimally processed foods.
- Kids imitate their parents and adults around them so choose healthy foods and have them around the house.
- Cook more meals at home rather than eating fast food or at restaurants. It’s lower in fat, starch, and sugars.
- Get kids involved in shopping, preparing meals, and growing a vegetable garden. Go to farmer’s markets.
- Keep healthy snacks available...lots of fresh fruit and veggies, dried fruits or leathers, water, milk, homemade popsicles, unsweetened yogurt, and pure fruit juice. Don’t completely ban sweets completely, but make them an occasional treat.
• Limit portion sizes.
• Make meals a social occasion where you can focus on things other than just the food. It’s a great time to just chat about the day and the good and bad things that may have happened.

**Health problems associated with excess weight**

*Repetitive Strain Injuries/Cumulative Trauma Disorders.* Many studies clearly show that weight is a significant factor in developing RSI. A study in Malaysia looked at obesity and exercise and other factors in the occurrence upper limb disorders. Subjects who were obese were over 19 times as likely to have upper limb disorders than non-obese subjects, while lack of regular exercise was associated with almost 6 times the occurrence of upper limb disorders than those who exercised regularly.\(^{21}\)

Atlas Injury Prevention Solutions analyzed 913 people working in a call center. The data showed that discomfort increased as BMI increased.\(^{2}\)

Levels of weight in the following charts are:
- Normal Weight: BMI 18.5 to 24.9
- Overweight: BMI 25 to 29.9
- Class 1 Obese: BMI 30 to 34.9
- Class 2 Obese: BMI 35 to 39.9
- Class 3 Obese: BMI 40 or greater

The following graphs show the dramatic increase in problems experienced by overweight workers with regard to discomfort experienced in the elbow, hand and wrist.

![Graphs showing discomfort](Illustrations courtesy of Reference 2)

*Structural load problems.* Some of the most obvious health problems associated with being overweight are a result of the extra burden placed on the structure of the body. Research has shown that low back discomfort and arthritis is more prevalent in the overweight population.

The graphs below show a much greater percentage of problems experienced in the lower body by overweight and obese people.
Illustrations courtesy of Reference 2

Low back discomfort. Obesity causes increased weight on the spine. Pressure on the discs often causes back pain. A major reason for this pressure is the fact that people who sit most of the day have inadequate back support due to inappropriate chair structure and minimal available adjustments. Overweight and obese people need additional features that are not available in standard chairs.
Other health problems.
There are almost no parts or systems in the body which do not undergo strain and disorders when a person is overweight or obese. Extra weight puts more demands on the body to try to function normally. There is increased risk of developing one or more serious medical conditions which decrease quality of life and shorten life span. Losing any amount of weight is helpful.5,17

- Arthritis
- Heart disease
- High blood pressure and other vascular problems
- Stroke and other brain disorders
- Diabetes – type 2
- Many types of cancer
- Decreased immune function
- Gallbladder disease
- Gout
- Liver disease
- Sleep apnea, hypoventilation, asthma, and pulmonary embolism
- Problems with pregnancy
- Disorders of the muscles, bones, and cartilage
- Skin problems including lymphedema, acne, and slow wound healing
- Gastroesophageal reflux disease
- Hernias
- Urological disease

Inflammation, genetics, and types of fat. Adipose tissue (body fat) is an important endocrine organ that produces and secretes a number of peptides and other factors.22 As obesity increases, adipose tissue becomes more and more dysfunctional.23 Problems include increased pancreatic insulin secretion, decreased insulin sensitivity in muscle and liver, increased liver enzymes, lymph system dysfunction, and production of pro-inflammatory agents.23 There are different types of fat that are stored in specific parts of the body, they have unique characteristics, and they have different roles in survival.22 White adipose tissue stores energy for times when there is future demand such as during starvation or exercise and it tends to accumulate under the skin, around various organs, on the abdomen, butt, and thighs. Fat that accumulates in the abdomen is associated with increased risk for metabolic complications while fat accumulation in the butt, legs, and thighs is associated with lower risk and may actually be protective.23
Brown adipose tissue is more closely related to skeletal muscle, it stores and releases energy in the form of heat, and it is stored deep in the neck close to the muscles.\textsuperscript{22,23} White adipose tissue appears to develop as a result of a high-fat diet while brown fat develops as a result of exposure to cold temperatures.\textsuperscript{24}

A third type of fat is called beige, which more closely resembles brown fat and the shift from generating white fat to beige fat is accomplished through cold acclimation.\textsuperscript{22} Brown fat and beige fat help protect against obesity, diabetes, liver disease, and other white-fat related maladies. Genetics play a very big role in how much fat you store, what type of fat, appetite regulation, and energy balance.\textsuperscript{4,22,25} Some ethnic groups even appear to have a reduced ability to store subcutaneous fat.\textsuperscript{22} Studies of identical twins raised apart do show that genetics has a strong influence on what a person weighs.\textsuperscript{25}

Resveratrol, a natural compound found in the skins of red or purple grapes, blueberries, raspberries, blackberries, and cranberries, has been shown to improve glucose tolerance and insulin sensitivity in obese mice, humans, and rhesus monkeys, though it appears that the improved insulin sensitivity may be specific to visceral white adipose tissue, not subcutaneous white adipose tissue.\textsuperscript{26,27} So, taking resveratrol may help you with inflammation if you are obese and it might help you deal with insulin insensitivity, but in the meantime, you should work reduce your intake of food and exercise more. Research has not yet narrowed down a reasonable dosage of resveratrol for humans in supplement form, but including these fruits in your diet is a healthy choice and perhaps a bit of red wine if you are able to drink alcohol.\textsuperscript{27}

Genetics may not be in your favor, but that doesn’t mean you should give up. Any weight reduction is good if you are overweight or obese.

**Ergonomic Considerations for an Overweight Society**

Manufacturers and ergonomists need to help the overweight population with the challenges their size presents and to help them create working environments that do not cause further injury.

Due to body width, large individuals have a natural carrying angle of the shoulders in a flared posture.\textsuperscript{2} In order to use a standard keyboard, such workers need to deviate their wrists, arms and shoulders into a non-neutral posture, which can cause significant problems in the upper body.\textsuperscript{2} Split keyboards or even keyboards with separated right and left halves are usually necessary to accommodate overweight individuals.\textsuperscript{2}

Chair manufacturers have responded to the increasing size of workers by producing Big and Tall lines. Many of these chairs do not take into account the physical changes that occur with increased body fat.\textsuperscript{2} The lumbar support of the typical chair adjusts from 7-11 inches above the seat pan, but this is usually not high enough for the obese individual. The fat in the buttocks and thighs raise the person up, so the lumbar support needs to extend up to 14” above the seat pan.\textsuperscript{2} A deeper lumbar support may also be needed to support greater curvature of the spine.\textsuperscript{2} If this is not accommodated, the person may tend to flatten their back against the chair which results in a forward head posture.\textsuperscript{2}

Most Big and Tall chairs are made with a broader and longer seat pan. The width is generally required, but added depth can be a problem, especially for shorter females.\textsuperscript{2} Many manufacturers have to reduce chair functionality in order to meet strength requirements of the larger worker. Specifically, independent adjustment of seat back and seat pan tilt are generally not available.

**How To Lose Weight**

The diet that works best for you is the one you should follow. Unfortunately, many people are able to lose some weight, but they gain it right back and often gain more than they lost.\textsuperscript{17} One of the quickest ways to make enemies is to propose a plan that is different from the theory or practices of someone who is avid about their eating habits, however we are going to go out on a limb and offer our suggestions for
those who are seeking a way to lose weight and keep it off. There are certainly many ways to accomplish
the same end result, so if there is a healthy, well-balanced plan that appeals to you more, please feel free
to pursue that and we hope you are successful! If you have tried many diet plans and failed, you might
want to try this suggestion.

A healthy diet that has proven itself over time and that is backed by countless research studies is the
Mediterranean Diet. It’s a balanced diet that can be maintained for a lifetime and it has proven to be more
successful in weight loss than a low fat diet by several controlled research studies. It is also much more
successful than a low fat diet in decreasing other health-related risks such as stroke, cardiovascular
disease and associated risk factors, type 2 diabetes, and metabolic syndrome.

Illustration courtesy of Reference 28

Although weight loss is initially higher for a low carbohydrate diet, over time, people tend to gain weight
back with the low carb diet and the difference between the Mediterranean diet and the low carbohydrate
diet is about the same. Both the low carb and the Mediterranean diets are more successful than a low fat
diet.
Seven Countries Study.
In a major study of diet and lifestyle and their role in heart disease, Ancel Keys and a team of international scientists conducted research in seven major countries worldwide starting in 1958. They actually went into people’s homes to see what people were eating, sent food samples to the lab to analyze, observed lifestyles, and measured blood pressure and blood cholesterol of more than 12,000 healthy middle-aged men. They followed up after 5, 10, 15, and 20 years. The seven countries were Greece, Italy, Japan, Finland, the Netherlands, Yugoslavia, and the United States. The men in Finland did the worst. Within 10 years, 28% of these men developed heart disease and saturated fats were about 24% of their total calorie intake. The men who fared the best were men on the Greek island of Crete. Their diet was not the lowest in fat, however. The Japanese had the lowest level of fat, but 5% of the men still developed heart disease after 10 years even though their diet consisted mostly of rice and vegetables. The men on Crete were eating 30-40% of their daily calorie intake from fat, but half of their fat intake was in the form of olives and olive oil, a monounsaturated fat. These men had the lowest levels of blood cholesterol of any group studied. The lowest rate of death from all causes at all ages was in the Mediterranean regions. The heart-healthy diet developed by Keys was based on the foods eaten by the working class people in Naples, Italy in 1952. Little meat or dairy was eaten by these people because it was expensive, but the diet is delicious, nutritious, and based on fresh available foods.

Today, primarily due to affluence, the diet in the Mediterranean region has become a lot more unhealthy and Westernized with much more meat, dairy, and saturated fat. Weight gain and the associated health problems are become widespread in that region and the old ways of cooking and recipes are falling into disuse or are modified with unhealthy ingredients. If you plan to follow a Mediterranean diet for weight loss and maintenance, it’s important to pattern your eating habits after the traditional working-class diet rather than today’s Mediterranean eating habits. The original Seven Countries Study didn’t include Africa, South or Central America, India, the Middle East, or most Asian cuisines, so we really don’t know how these country’s cuisines measure up in terms of health benefits.

The Mediterranean Diet.
We suggest that you consult Reference 17 for an introduction to this type of eating and then broaden your cooking horizons with Reference 29 and other cookbooks Paula Wolfert has authored because she has focused her life on documenting traditional (not modern-day) recipes from the entire Mediterranean region. That includes not just Italy, France, Greece, or Spain, but also Turkey, Tunisia, Egypt, Lebanon, Algeria, Morocco, Israel, Syria and others. All of these cuisines tend to be based largely on vegetables, olives and olive oil, whole grains, lentils, beans, and the hefty use of herbs and spices that impart unique and satisfying flavors as well as health benefits.
lentils). This phase is a lot like a low carb diet and it facilitates fairly rapid weight loss while retraining
your eating habits and palate to crave lots of healthy fruits, vegetables, and proteins rather than fats,
starches, and sugars. The second phase of the diet is for weight maintenance. After a person reaches their
desired weight, the maintenance phase reintroduces whole grains and whole grain products as well as
some cheese and yogurt, but it still emphasizes healthy choices. The Mediterranean diet is delicious,
highly nutritious, and doesn’t feel like a diet in the sense than so many people associate with deprivation,
cravings, and measuring or weighing portions. It does require a person to retrain their preference toward
fresh, unprocessed foods, and away from foods that contain lots of sugar, butter, saturated fats, and
refined starches. But, hunger is rarely a problem as long as you reach for fresh fruits, veggies, and protein
rather than processed fatty, starchy, or sugary treats.

It’s also possible to take the lessons learned from all the research on the Mediterranean diet and apply
them to other cuisines. Olive oil does appear to be one of the secret ingredients in the Mediterranean diet,
but if you prefer another cuisine, you can use the guidelines to create almost any type of food you desire.
Olive oil actually blends very well with the flavors of other cuisines. Dr. Andrew Weil suggests a diet
called the Anti-Inflammatory Diet which is based on the rules of the Mediterranean Diet, but modifies it
to include specific categories for soy products, Asian mushrooms, and eliminates meats entirely. The
Paleolithic/Caveman/Stone Age/Primal Blueprint diet has recently been very popular. It resembles the
diet phase of Dr. Acquista’s Mediterranean diet in that it eliminates carbs and dairy, and it emphasizes
lean meats and fish, fruits, vegetables, nuts and seeds, and healthier fats, but it allows red meat and the
diet never progresses to a phase where you are allowed carbs and dairy. There are some problems with
this type of diet. Whole grains supply folic acid, B vitamins, calcium, and Vitamin D, so supplements are
required. Secondly, the diet is very expensive because of its heavy reliance on meat and fish proteins,
so for people on a tight budget, it’s fairly prohibitive. Thirdly, it’s not practical from the standpoint of
being sustainable for the planet with our expanding population. Grains play an important role in the diet
and provide much less expensive and earth-friendly way to consume energy for survival. There are
countless diets proposed and marketed today and throughout history and we cannot discuss them all.

No specific ingredient in the Mediterranean diet has been shown to be the key to its success. The whole
is greater than the sum of its parts, and it is important to note that at the base of the whole pyramid is
exercise and enjoying meals with friends and family. Those things are critical to the functioning of the
whole plan. If you are single and tend to eat alone while standing in the kitchen or in front of the TV,
you are not really savoring your food and you are not making meals an enjoyable social part of your day.
You are “scarfing”. We suggest that you try to incorporate friends into your main meal of the day. There
are local groups on Meetup.com and Facebook that can connect you with others that are trying to lose
weight and have similar diet plans if you have nobody to connect with. Can’t find one? Start one! You
will not be eating alone for long, you’ll have fun preparing meals together, and you will meet some great
new people.
The illustration above is fairly close to what Dr. Acquista recommends, however he suggests that fish, poultry, eggs, and lean meat be consumed only weekly and saturated fats and sweets consumed monthly.\textsuperscript{17}

\textbf{Lessons for a healthy diet and lifestyle.}

\textit{Heavy on the fruits and veggies.} Most graphics of the Mediterranean diet show fruits and vegetables at the base of the pyramid and taking up a large portion of the pyramid because that is the primary source of nutrition in this diet.
Boost fiber.
A study of 74,091 U.S. female middle-aged nurses in generally good health found that those who ate more fiber, whole grains, or whole grain products tended to weigh significantly less than nurses who ate refined grain products. In addition, over a ten year period, the women with the highest intake of dietary fiber had a 49% lower risk of major weight gain than women who ate the least dietary fiber.

Go small. Reduce the amount of food you eat to lose weight. Fill your bowl or plate with a little less food at every meal. To get an accurate idea of what a reasonable serving is, use measuring cups and a food scale. For instance, the recommended serving of rice is half a cup; a serving of beef, pork or chicken is 3.5 ounces. When you eat out, split a meal with someone or take half home. Supersizing is the norm and restaurants serve far too much food for one person!

Timing matters. For years many of us have heard that it doesn’t matter when we eat. Total caloric intake is all that matters. That turns out not to be true. A fairly large controlled study of obese people found that eating the main large meal before 3 pm resulted in quicker weight loss and greater weight loss than people who ate their main meal later in the day. The first 5 weeks of intervention were almost identical, but after that, the early eaters lost more weight than the late eaters. The timing of breakfast and light evening meal did not have an effect on weight loss nor did gender, age, appetite hormones, chronotype (internal biorhythms) and sleep duration. Total daily energy (caloric) intake was the same for both groups with 40% of the daily intake at the mid-day meal. Late eaters tended to eat less breakfast or skip it. The diet used in this study was the Mediterranean diet.

Keep track. Keeping a food, exercise, and weight journal is the best way to increase awareness of what and how much you eat, how much you exercise, and to see your success. A piece of paper works great, or it can be a Smartphone app or online program. There are many to choose from, but they often require tedious information input. Maybe just a chart near the scale to map your weight loss and a small notepad to carry with you and record every meal, snack, and workout will work or maybe you prefer a high tech solution. Whatever works for you is great.

Be active. To make up for the lack of activity in our automated world, regular activity is essential. Cardiovascular workouts burn body fat and calories; muscle-building exercise, such as strength training, helps crank up a sluggish metabolism. For every pound of muscle you build, your body will burn around 50 extra calories a day. If you are trying to recover from RSI, aerobic exercise and fitness is critical. Age, menopause, and pregnancy all lead tend to lead to weight gain that is tough to lose, so cutting back
portion sizes and getting more exercise is important as we lose muscle tone with age or try to lose weight after having a baby.\textsuperscript{25}

The recommended guideline for adults has remained about the same for several years: at least 150 minutes a week of moderate intensity exercise OR 75 minutes of vigorous-intensity aerobic exercise of at least 10 minute increments spread throughout the week (not one killer workout).\textsuperscript{10} More benefit is gained by increasing this time to 300 minutes of moderate or 150 minutes of high-intensity exercise. All adults should also do muscle-strengthening activities of moderate or high intensity that involve all major muscle groups on 2 or more alternating days every week.\textsuperscript{10}

**Recognize emotions.** 75\% of overeating is triggered by emotions.\textsuperscript{4} Many of us use food to satisfy a feeling rather than a growling stomach and stress increases the tendency to eat sugary, fatty “comfort foods”.\textsuperscript{4,25} Hormones produced when you are under stress cause the body to conserve fat, especially in the midsection. Before taking a bite of anything, question why you are eating it. Are you bored, avoiding doing something you don’t want to do, stressed or upset about something? Distract yourself with other activities in you don’t really feel hungry, but can’t stop thinking about food. Read your favorite novel or magazine, take the dog for a walk, or work on a hobby, but don’t reward yourself with food when you’re done.\textsuperscript{3} Walking at a brisk pace (2 mph) for an hour burns somewhere between 200-300 calories.\textsuperscript{Mayo} That doesn’t really add up to very much food and it’s counterproductive to cancel out your refreshing walk with something fattening! But, if you are truly hungry, then sit down and enjoy eating something nutritious and healthy!

**Take a rest.** Research has found that lack of sleep increases the risk of obesity.\textsuperscript{25} People who sleep fewer hours tend to prefer foods that are higher in calories and carbohydrates.\textsuperscript{25} Sleep helps maintain healthy levels of hormones that make you feel hungry or full (ghrelin and leptin), and it also affects how your body reacts to insulin, the hormone that controls your blood glucose level.\textsuperscript{25} Lack of sleep results in higher blood levels of insulin that can increase the risk of diabetes.\textsuperscript{25}

**Weight loss programs and groups**

Losing weight and maintaining it is facilitated when people get some sort of social support probably because often guidelines are supplied, there is camaraderie and support from friends, and there is accountability to other people for progress or lack of it. Research has supported this, whether it’s an exercise buddy, a diet buddy, a group, or all of these things.\textsuperscript{38,39} Group size doesn’t seem to matter according to studies.\textsuperscript{39} In fact, research doesn’t show that one weight loss group is better than another when comparing Curves, Weight Watchers, Atkins, Jenny Craig, Nutrisystem, and SlimFast.\textsuperscript{40}

- **Weight Watchers vs. self-help.** Research has found that participants who attended Weight Watchers meetings lost almost 3 times as much weight as people who received a session of counseling with self-help materials and were on their own to lose weight.\textsuperscript{41} After 2 years, the self-help group gained back all the weight they had lost, the Weight Watchers group gained back about half the weight, but participants in the Weight Watchers group who continued to attend 78\% or more of the meetings, gained back virtually no weight.\textsuperscript{41} Weight loss was modest for all of the participants with the most successful group of Weight Watcher attendees losing about 11 lbs.\textsuperscript{41}

- **Social support vs. no social support.** Enlisting the help of family and friends may help. Research has found that people who enrolled in a weight-loss program with friends were more successful in keeping weight off after the program ended and they gained additional social support over and above what the group itself offered. \textsuperscript{2/3} of the people who enrolled with friends maintained their weight loss 6 months after the meetings ended and only \textsuperscript{1/4} of the people without social support were that successful.\textsuperscript{37}

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Table 1: Body Mass Index Lookup

Table courtesy of Reference 2 Ergonomics
This article and all of our articles are intended for your information and education. We are not experts in the diagnosis and treatment of specific medical or mental problems. When dealing with a severe problem, please consult your healthcare or mental health professional and research the alternatives available for your particular diagnosis prior to embarking on a treatment plan. You are ultimately responsible for your health and treatment!

REFERENCES:
4. *Why We’re Gaining Weight And How To Stop It Now.* Shape Magazine, [http://www.shape.com/weight-loss/tips-plans/why-were-gaining-weight-how-stop-it-now](http://www.shape.com/weight-loss/tips-plans/why-were-gaining-weight-how-stop-it-now)


