

Weighing in on Fat: supplemental information from LHAS Forum- September 27, 2012 – Obesity: An Introduction

Patient information: My child is overweight (The Basics)

How do I know if my child is overweight? — Your child’s doctor or nurse will tell you. He or she will measure your child’s height and weight and use those measurements to calculate a number called the “body mass index” or “BMI.”

The doctor or nurse will use your child’s BMI to tell if your child’s weight is healthy for his or her height. To do this, the doctor or nurse will compare your child’s BMI to the BMIs of other children of the same age and sex. If your child’s BMI is high compared to other children, he or she is overweight. When a child’s BMI is much too high, doctors sometimes use the terms “obese” or “obesity.”

Why is it important for my child to have a healthy weight? — It’s important to have a healthy weight, because children who are very overweight can have:

- Liver problems
- Asthma – This is a lung condition that can make it hard to breathe.
- High blood pressure
- Knee or back pain
- Sleep apnea – This is a condition that makes people stop breathing for short periods during sleep.

It’s also important that your child have a healthy weight so that he or she will have a healthy weight as an adult. Being overweight as an adult can lead to medical problems such as high blood pressure, diabetes (high blood sugar), heart attacks, and some types of cancer.

What causes children to be overweight? — Children can be overweight for different reasons. Some children simply gain weight more easily than other children. These children can become overweight by eating too much, eating unhealthy foods, or not getting enough exercise. When children gain weight very easily, they have to work extra hard to get to and stay at a healthy weight.

Although uncommon, some medicines and medical conditions can also make children gain weight more easily.

Will my child need tests if he or she is overweight? — Maybe. The doctor or nurse will talk with you and your child, and do an exam. He or she might do blood tests to check for:

- A condition that could be causing your child to gain weight easily
- Health problems that can happen when children are overweight

How can I help my child get to a healthy weight? — To help your child get to a healthy weight, you need to help him or her eat healthy foods and be more active. Making these lifestyle changes can be hard, especially at first.

To help you and your child start making lifestyle changes, think of the numbers 5-2-1-0. Each of these numbers stands for a goal you can try to reach every day to help your child be healthier.

- 5 – Have your child eat 5 servings of fruits or vegetables each day. Frozen fruits and vegetables count towards the goal, but fruit juice does not. A serving is usually 1 whole fruit (such as an apple or banana) or ½ cup of vegetables. If your child does not

- like vegetables or fruit, start slowly. Eat these foods yourself to set a good example, and have your child keep trying them.
- 2 – Limit your child’s “screen time” to 2 hours or less each day. Screen time includes watching TV, playing video games, or using the computer for things other than homework.
 - 1 – Have your child do physical activity for 1 hour or more each day. This can include doing a sport, dancing, or playing outside.
 - 0 – Your child should have 0 sugary drinks each day. Sugary drinks include soda, sports drinks, and all juices.

You and your child might not be able to meet all of these goals at first, but that’s OK. Choose 1 or 2 goals to try first. Later on, you can try to meet all of these goals.

Is there anything else I can do to help my child? — Yes. You can:

- Avoid bringing unhealthy food into your home. If you have unhealthy food in the home, your child is likely to eat it even if you tell him or her not to.
- Involve the whole family. Have everyone in the family eat healthier and be more active, even those who have a normal weight. Try to do physical activities as a family. This can be as simple as going to a playground or taking a walk.
- Tell your child that the goal is for him or her to be healthy and strong. Let him or her know that the way to be healthy and strong is to eat healthy food and be active.
- Get help if being overweight is causing your child to be sad, worried, or have a hard time in school. Ask the doctor or nurse for ways to get help for your child.
- Work with your child’s doctor or nurse. See him or her for regular check-ups, so that he or she can follow your child’s BMI over time. Let the doctor or nurse know if you are having trouble meeting the 5-2-1-0 goals. He or she can help you get started or give you some tips. He or she might also recommend that you talk with a dietitian (food expert). A dietitian can help you choose healthy foods and plan meals.

Patient information: Weight loss treatments (Beyond the Basics)

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INTRODUCTION — Obesity is a major international public health problem and Americans are among the heaviest people in the world. The percentage of obese people in the United States has risen steadily [[1,2](#)].

Many people find that although they initially lose weight by dieting, they quickly regain the weight after the diet ends. Because it so hard to keep weight off over time, it is important to have as much information and support as possible before starting a diet. You are most likely to be successful in losing weight and keeping it off when you believe that your body weight can be controlled.

This article discusses how to get started with a weight loss plan, including changes in your behavior, what you eat, and weight loss medications. Weight loss surgery is discussed in a separate article. (See "Patient information: Weight loss surgery (Beyond the Basics)".)

More detailed information about weight loss is available by subscription. (See "Overview of therapy for obesity in adults".)

STARTING A WEIGHT LOSS PROGRAM — Some people like to talk to their health care professional to get help choosing the best plan, monitoring progress, and getting advice and support along the way.

To know what treatment (or combination of treatments) will work best, determine your body mass index (BMI) and waist circumference (measurement). The BMI is calculated from your height and weight (calculator 1 and calculator 2).

- A person with a BMI between 25 and 29.9 is considered overweight
- A person with a BMI of 30 or greater is considered to be obese

A waist circumference greater than 35 inches (88 cm) in women and 40 inches (102 cm) in men increases the risk of obesity-related complications, such as heart disease and diabetes. People who are obese and who have a larger waist size may need more aggressive weight loss treatment than others. Talk to your health care professional for advice.

Types of treatment — Based on your measurements and your medical history, your doctor or nurse can determine what combination of weight loss treatments would work best for you. Treatments may include changes in lifestyle, exercise, dieting, and, in some cases, weight loss medicines or weight loss surgery. Weight loss surgery, also called bariatric surgery, is reserved for people with severe obesity who have not responded to other weight loss treatments. (See "Patient information: Weight loss surgery (Beyond the Basics)".)

SETTING A WEIGHT LOSS GOAL — It is important to set a realistic weight loss goal. Your first goal should be to avoid gaining more weight and staying at your current weight (or within 5 percent or five pounds). Many people have a "dream" weight that is difficult or impossible to achieve.

People at high risk of developing diabetes who are able to lose 5 percent of their body weight and maintain this weight will reduce their risk of developing diabetes by about 50 percent and reduce their blood pressure. This is a success.

Losing more than 15 percent of your body weight and staying at this weight is an extremely good result, even if you never reach your "dream" or "ideal" weight.

LIFESTYLE CHANGES — Programs that help you to change your lifestyle are usually run by psychologists, nutritionists, or other professionals. The goals of lifestyle changes are to help you change your eating habits, become more active, and be more aware of how much you eat and exercise, helping you to make healthier choices.

This type of treatment can be broken down into three steps:

- The triggers that make you want to eat
- Eating
- What happens after you eat

Triggers to eat — Determining what triggers you to eat involves figuring out what foods you eat and where and when you eat. To figure out what triggers you to eat, keep a record for a few days of everything you eat, the places where you eat, how often you eat, and the emotions you were feeling when you ate.

For some people, the trigger is related to a certain time of day or night. For others, the trigger is related to a certain place, like sitting at a desk working.

Eating — You can change your eating habits by breaking the chain of events between the trigger for eating and eating itself. There are many ways to do this. For instance, you can:

- Limit where you eat to a few places (eg, dining room)
- Restrict the number of utensils (eg, only a fork) used for eating
- Drink a sip of water between each bite
- Chew your food a certain number of times
- Get up and stop eating every few minutes

The types of foods we eat on a regular basis are related to whether we gain or lose weight over time. Whole grains, fruits, vegetables, nuts, and yogurt are associated with lower weight over four years, as contrasted with weight gain seen when eating french fried potatoes or chips, sugar-sweetened beverages, and red or processed meats [3].

What happens after you eat — Rewarding yourself for good eating behaviors can help you to develop better habits. This is not a reward for weight loss; instead, it is a reward for changing unhealthy behaviors toward healthy ones.

Do not use food as a reward. Some people find money, clothing, or personal care (eg, a haircut, manicure, or massage) to be effective rewards. Treat yourself immediately after making better eating choices to reinforce the value of the good behavior.

You need to have clear behavior goals and you must have a time frame for reaching your goals. Reward small changes along the way to your final goal.

Other factors that contribute to successful weight loss — Changing your behavior involves more than just changing unhealthy eating habits; it also involves finding people around you to support your weight loss, reducing stress, and learning to be strong when tempted by food.

- Establish a "buddy" system — Having a friend or family member available to provide support and reinforce good behavior is very helpful. The support person needs to understand your goals.
- Learn to be strong — Learning to be strong when tempted by food is an important part of losing weight. As an example, you will need to learn how to say "no" and continue to say no when urged to eat at parties and social gatherings. Develop strategies for events before you go, such as eating before you go or taking low-calorie snacks and drinks with you.
- Develop a support system — Having a support system is helpful when losing weight. This is why many commercial groups are successful. Family support is also essential; if your family does not support your efforts to lose weight, this can slow your progress or even keep you from losing weight.
- Positive thinking — People often have conversations with themselves in their head; these conversations can be positive or negative. If you eat a piece of cake that was not planned, you may respond by thinking, "Oh, you stupid idiot, you've blown your diet!" and as a result, you may eat more cake.
A positive thought for the same event could be, "Well, I ate cake when it was not on my plan. Now I should do something to get back on track." A positive approach is much more likely to be successful than a negative one.
- Reduce stress — Although stress is a part of everyday life, it can trigger uncontrolled eating in some people. It is important to find a way to get through these difficult times without eating or by eating low-calorie food, like raw vegetables. It may be helpful to imagine a relaxing place that allows you to temporarily escape from stress. With deep breaths and closed eyes, you can imagine this relaxing place for a few minutes.
- Self-help programs — Self-help programs like Weight Watchers®, Overeaters Anonymous®, and Take Off Pounds Sensibly (TOPS)© work for some people. As with all weight loss programs, you are most likely to be successful with these plans if you make long-term changes in how you eat.

CHOOSING A DIET OR NEW EATING PLAN — A calorie is a unit of energy found in food. Your body needs calories to function. The goal of any diet is to burn up more calories than you eat. (See "Dietary therapy for obesity".)

How quickly you lose weight depends upon several factors, such as your age, gender, and starting weight.

- Older people have a slower metabolism than young people, so they lose weight more slowly.
- Men lose more weight than women of similar height and weight when dieting because they use more energy.
- People who are extremely overweight lose weight more quickly than those who are only mildly overweight.

How many calories do I need? — You can estimate the number of calories you need per day based upon your current (or target) weight, gender, and activity level for women and for men [4].

In general, it is best to choose foods that contain enough protein, carbohydrates, essential fatty acids, and vitamins. (See "Patient information: Diet and health (Beyond the Basics)".)

Try not to drink alcohol or drinks with added sugar, and most sweets (candy, cakes, cookies), since they rarely contain important nutrients.

Portion-controlled diets — One simple way to diet is to buy packaged foods, like frozen low-calorie meals or meal-replacement canned drinks. A typical meal plan for one day may include:

- A meal-replacement drink or breakfast bar for breakfast
- A meal-replacement drink or a frozen low-calorie (250 to 350 calories) meal for lunch
- A frozen low-calorie meal or other prepackaged, calorie-controlled meal, along with extra vegetables for dinner

This would give you 1000 to 1500 calories per day.

Low-fat diet — To reduce the amount of fat in your diet, you can:

- Eat low-fat foods. Low-fat foods are those that contain less than 30 percent of calories from fat. Fat is listed on the food facts label (figure 1).
- Count fat grams. For a 1500 calorie diet, this would mean about 45 g or fewer of fat per day.

Low-carbohydrate diet — Low- and very-low-carbohydrate diets (eg, Atkins diet, South Beach diet) have become popular ways to lose weight quickly.

- With a very-low-carbohydrate diet, you eat between 0 and 60 grams of carbohydrates per day (a standard diet contains 200 to 300 grams of carbohydrates).
- With a low-carbohydrate diet, you eat between 60 and 130 grams of carbohydrates per day.

Carbohydrates are found in fruits, vegetables, and grains (including breads, rice, pasta, and cereal), alcoholic beverages, and in dairy products. Meat and fish do not contain carbohydrates.

Side effects of very-low-carbohydrate diets can include constipation, headache, bad breath, muscle cramps, diarrhea, and weakness.

Mediterranean diet — The term "Mediterranean diet" refers to a way of eating that is common in olive-growing regions around the Mediterranean Sea. Although there is some variation in Mediterranean diets, there are some similarities. Most Mediterranean diets include:

- A high level of monounsaturated fats (from olive or canola oil, walnuts, pecans, almonds) and a low level of saturated fats (from butter).
- A high amount of vegetables, fruits, legumes, and grains (7 to 10 servings of fruits and vegetables per day).
- A moderate amount of milk and dairy products, mostly in the form of cheese. Use low-fat dairy products (skim milk, fat-free yogurt, low-fat cheese).
- A relatively low amount of red meat and meat products. Substitute fish or poultry for red meat.
- For those who drink alcohol, a modest amount (mainly as red wine) may help to protect against cardiovascular disease. A modest amount is up to one (4 ounce) glass per day for women and up to two glasses per day for men.

Which diet is best? — Studies have compared different diets, including:

- Very-low-carbohydrate (Atkins™)
- Macronutrient balance controlling glycemic load (Zone®)
- Reduced-calorie (Weight Watchers®)
- Very-low-fat (Ornish)

No one diet is "best" for weight loss [5]. Any diet will help you to lose weight if you stick with the diet. Therefore, it is important to choose a diet that includes foods you like.

Fad diets — Fad diets often promise quick weight loss (more than 1 to 2 pounds per week) and may claim that you do not need to exercise or give up favorite foods. Some fad diets cost a lot of money because you have to pay for seminars, pills, or packaged food. Fad diets generally lack any scientific evidence that they are safe and effective, but instead rely on "before" and "after" photos or testimonials.

Diets that sound too good to be true usually are. These plans are a waste of time and money and are not recommended. A doctor, nurse, or nutritionist can help you find a safe and effective way to lose weight and keep it off.

WEIGHT LOSS MEDICINES — Taking a weight loss medicine may be helpful when used in combination with diet, exercise, and lifestyle changes. However, it is important to understand the risks and benefits of these medicines. It is also important to be realistic about your goal weight using a weight loss medicine; you may not reach your "dream" weight, but you may be able to reduce your risk of diabetes or heart disease. (See "Drug therapy of obesity".)

Weight loss medicines may be recommended for people who have not been able to lose weight with diet and exercise who have a:

- BMI of 30 or more (calculator 1 and calculator 2)
- BMI between 27 and 29.9 and have other medical problems, such as diabetes, high cholesterol, or high blood pressure

Only one weight loss medicine (orlistat) is approved in the United States for long-term use.

Other weight loss medicines (phentermine, diethylpropion) are available but are only approved for short-term use (up to 12 weeks).

Orlistat — Orlistat (Xenical® 120 mg capsules) is a medicine that reduces the amount of fat your body absorbs from the foods you eat. A lower-dose version is now available without a prescription (Alli® 60 mg capsules) in many countries, including the United States. The medicine is recommended three times per day, taken with a meal; you can skip a dose if you skip a meal or if the meal contains no fat.

After one year of treatment with orlistat, the average weight loss is approximately 8 to 10 percent of initial body weight (4 percent more than in those who used lifestyle with a placebo). Cholesterol levels often improve and blood pressure sometimes falls. In people with diabetes, orlistat may help control blood sugar levels.

Side effects occur in 15 to 10 percent of people and may include stomach cramps, gas, diarrhea, leakage of stool, or oily stools. These problems are more likely when you take orlistat with a high-fat meal (if more than 30 percent of calories in the meal are from fat). Side effects usually improve as you learn to avoid high-fat foods. Severe liver injury has been reported rarely in patients taking orlistat, but it is not known if orlistat caused the liver problems [6].

Dietary supplements — Dietary supplements are widely used by people who are trying to lose weight, although the safety and efficacy of these supplements are often unproven. A few of the more common diet supplements are discussed below; none of these are recommended because they have not been studied carefully and there is no proof that they are safe or effective.

- Chitosan and wheat dextrin are ineffective for weight loss and their use is not recommended.
- Ephedra, a compound related to ephedrine, is no longer available in the United States due to safety concerns. Many nonprescription diet pills previously contained ephedra. Although some studies have shown that ephedra helps with weight loss, there can be serious side effects (psychiatric symptoms, palpitations, and stomach upset), including death.
- There are not enough data about the safety and efficacy of chromium, ginseng, glucomannan, green tea, hydroxycitric acid, L-carnitine, psyllium, pyruvate supplements, St. John's wort, and conjugated linoleic acid.
- Two supplements from Brazil, Emagrece Sim (also known as the Brazilian diet pill) and Herbathin dietary supplement, have been shown to contain prescription drugs.
- Hoodia gordonii is a dietary supplement derived from a plant in South Africa. It is not recommended because there is no proof that it is safe or effective.
- Bitter orange (*Citrus aurantium*) can increase your heart rate and blood pressure and is not recommended.
- Human chorionic gonadotropin is a hormonal preparation similar to luteinizing hormone that is given by injection. There have been several studies showing that these injections are not any better than placebo injections and it is thus not recommended [7].

WEIGHT LOSS SURGERY — Weight loss surgery is discussed separately. (See "Patient information: Weight loss surgery (Beyond the Basics)".)

WHERE TO GET MORE INFORMATION — Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The following organizations also provide reliable health information:

- National Library of Medicine
www.nlm.nih.gov/medlineplus/weightcontrol.html
- National Institute of Diabetes and Digestive and Kidney Diseases
<http://win.niddk.nih.gov/publications/choosing.htm>
- The Hormone Foundation

www.hormone.org/Resources/Cardio/upload/bilingual_obesity.pdf, available in English and Spanish)^{8,9]}

REFERENCES

- 1 Yancy WS Jr, Olsen MK, Guyton JR, et al. A low-carbohydrate, ketogenic diet versus a low-fat diet to treat obesity and hyperlipidemia: a randomized, controlled trial. *Ann Intern Med* 2004; 140:769.
- 2 Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999-2008. *JAMA* 2010; 303:235.
- 3 Mozaffarian D, Hao T, Rimm EB, et al. Changes in diet and lifestyle and long-term weight gain in women and men. *N Engl J Med* 2011; 364:2392.
- 4 Hall KD, Sacks G, Chandramohan D, et al. Quantification of the effect of energy imbalance on bodyweight. *Lancet* 2011; 378:826.
- 5 Sacks FM, Bray GA, Carey VJ, et al. Comparison of weight-loss diets with different compositions of fat, protein, and carbohydrates. *N Engl J Med* 2009; 360:859.
- 6 US Food and Drug Administration. FDA Drug Safety Communication: Completed safety review of Xenical/Alli (orlistat) and severe liver injury, 2010. <http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm213038.htm> (Accessed on June 02, 2010).
- 7 Lijesen GK, Theeuwen I, Assendelft WJ, Van Der Wal G. The effect of human chorionic gonadotropin (HCG) in the treatment of obesity by means of the Simeons therapy: a criteria-based meta-analysis. *Br J Clin Pharmacol* 1995; 40:237.
- 8 American Gastroenterological Association. American Gastroenterological Association medical position statement on Obesity. *Gastroenterology* 2002; 123:879.
- 9 Snow V, Barry P, Fitterman N, et al. Pharmacologic and surgical management of obesity in primary care: a clinical practice guideline from the American College of Physicians. *Ann Intern Med* 2005; 142:525.

Patient information: Exercise (The Basics)

What are the benefits of exercise? — Exercise has many benefits. It can:

- Burn calories, which helps people lose weight
- Help control blood sugar levels in people with diabetes
- Lower blood pressure, especially in people with high blood pressure
- Lower stress and help with depression
- Keep bones strong, so they don't get thin and break easily
- Lower the chance of dying from heart disease

What are the main types of exercise? — There are 3 main types of exercise. They are:

- Aerobic exercise — Aerobic exercise raises a person's heart rate. Examples of aerobic exercise are walking, running, or swimming.
- Resistance training — Resistance training helps make your muscles stronger. People can do this type of exercise using weights, exercise bands, or weight machines.
- Stretching — Stretching exercises help your muscles and joints move more easily.

It's important to have all 3 types of exercise in your exercise program. That way, your body, muscles, and joints can be as healthy as possible.

Should I talk to my doctor or nurse before I start exercising? — If you have not exercised before or have not exercised in a long time, talk with your doctor or nurse before you start a very active exercise program.

If you are likely to have heart disease, your doctor or nurse might recommend that you have an exercise test before you start an exercise program. But most people do not need an exercise test before they start an exercise program.

When you start an exercise program, start slowly. For example, do the exercise at a slow pace or for a few minutes only. Over time, you can exercise faster and for longer periods of time.

What should I do when I exercise? — Each time you exercise, you should:

- Warm up — Warming up can help keep you from hurting your muscles when you exercise. To warm up, do a light aerobic exercise (such as walking slowly) or stretch for 5 to 10 minutes.
- Work out — During a workout, you can walk fast, swim, run, or use an exercise machine, for example. You should also stretch all of your joints, including your neck, shoulders, back, hips, and knees. At least 2 times a week, you can add resistance training exercises to your workout.
- Cool down — Cooling down helps keep you from feeling dizzy after you exercise and helps prevent muscle cramps. To cool down, you can stretch or do a light aerobic exercise for 5 minutes.

How often should I exercise? — Doctors recommend that people exercise at least 30 minutes a day, on 5 or more days of the week.

If you can't exercise for 30 minutes straight, try to exercise for 10 minutes at a time, 3 or 4 times a day.

When should I call my doctor or nurse? — If you have any of the following symptoms when you exercise, stop exercising and call your doctor or nurse right away:

- Pain or pressure in your chest, arms, throat, jaw, or back
- Nausea or vomiting
- Feeling like your heart is fluttering or racing very fast
- Feeling dizzy or faint

What if I don't have time to exercise? — Many people have very busy lives and might not think that they have time to exercise. But it's important to try to find time to exercise, even if you are tired or work a lot. Exercise can increase your energy level, which might even help you get more work done.

On days when you really can't find time to exercise, there are ways that you can be more active. For example, you can:

- Take the stairs instead of the elevator
- Park in a parking space that is farther away from the door
- Take a longer route when you walk from 1 place to another

What else should I do when I exercise? — To exercise safely and avoid problems, be sure to:

- Drink fluids during and after exercising (but drinks should not have caffeine in them)
- Avoid exercising outside if it is too hot or cold out
- Wear layers of clothes, so that you can take clothes off if you get too hot
- Wear shoes that fit well and support your feet