

# NIH News in Health

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## Healthy Weight Control Balancing Eating and Exercise

Keeping off weight during the holiday season can be tough. But there are many reasons to maintain a healthy weight all year round. A healthy weight lowers your risk for chronic diseases, like diabetes, heart disease, and certain cancers. It can also help you stay more mobile as you age.

Excess weight comes from taking in more energy, or calories, than your body needs. Some extra energy may be stored as fat. Many factors influence your risk for weight gain. These include poor diet, lack of sleep, and not getting enough physical activity. **Genes** can also play a role. Certain medications affect weight gain, too.

“In the U.S., we all live in an obesity-promoting environment to some degree,” says Dr. Susan Yanovski, an NIH expert on obesity and eating disorders. “We are constantly tempted with low-cost, high-calorie foods. And, we’re expending a lot less energy than we used to in everyday life. Many jobs are sedentary, and even household activities like washing dishes take less energy to do now. You throw them in the dishwasher. We have to work hard to incorporate activity into our everyday life.”



Taking steps toward a healthy lifestyle—even small ones—can help you get on a path to a healthy weight.

### Calculating a Healthy Weight •

The definitions of overweight and obesity are based on body mass index, or BMI. BMI is based on your height and weight. Overweight for adults is a BMI between 25 and 29.9. Obesity is a BMI of 30 or greater. NIH has a tool to help you calculate your BMI (see [bit.ly/3CtcTeh](https://bit.ly/3CtcTeh)).

“BMI is quick and easy to obtain, but it’s not perfect,” Yanovski says. A high BMI is usually caused by extra body fat. But it can also come from extra muscle, bone, or water.

If your BMI is high because of extra body fat, aim to lose about one to two pounds per week. “Some people might think losing weight quickly is the best strategy,” says Dr. Alison Brown, a nutrition scientist at NIH. “But really, the safer and more sustainable weight loss is gradual.”

To lose weight, you need to burn more calories than you take in.

“Combining both calorie restriction plus physical activity tends to be most effective for weight loss,” Brown says.

**Cutting Down Calories •** To lose weight, experts suggest taking in about 500 fewer calories than you burn per day. This should get you to about one pound per week of weight loss, Yanovski says.

The NIH Body Weight Planner can help you calculate exactly how many calories you need for your weight loss goals (see [bit.ly/3rQXQGj](https://bit.ly/3rQXQGj)). The tool takes your age, sex, and level of physical activity into account.

Experts recommend limiting less healthy foods that are high in calories, saturated and trans fats, refined carbohydrates, or sugar. “But there’s not one recommended diet for weight loss,” Yanovski says.

“The best diet is the one that you can stick with,” explains Brown. “It should be balanced and provide a variety of fruits and vegetables, whole grains, lean meats, and low-fat dairy or dairy alternatives.” For more about a healthy diet, see [www.dietaryguidelines.gov](https://www.dietaryguidelines.gov).

Creating an eating plan based on your likes and dislikes can help you

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### Definitions

#### Genes

Stretches of DNA you inherit from your parents that define features, like your risk for certain diseases.

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stick with it. You can use nutrition labels to estimate how many calories a food has. But be sure to check the serving sizes. Learn more about nutrition labels at [bit.ly/3NfX8fS](https://bit.ly/3NfX8fS).

“It is easier than it’s ever been to try to figure out what you’re actually taking in with all the trackers and food labeling,” says Yanovski. “But, of course, you have to be honest with yourself.”

A registered dietitian or a weight management program can also help you create a healthy eating plan.

**Getting More Activity** • Physical activity helps you burn off the calories you consume. Studies have found that it’s critical for maintaining a stable weight.

Experts recommend that adults get at least 150 minutes of moderate-intensity aerobic activity each week. Aerobic activity is anything that gets your heart rate up and gets you breathing harder. Examples of moderate-intensity activities include brisk walking (faster than 2.5 miles per hour), swimming, and dancing.

If you’re able, start increasing your physical activity. Doing so slowly can help prevent injuries. Even light

activity burns more calories than being sedentary. Start small. Take the stairs instead of the elevator. Break up your day with short walks.

You can also break up moderate-intensity activity into short sessions. Every minute counts toward your weekly goal!

Don’t forget to do muscle-strengthening activities, like lifting weights. Experts recommend adults do them at least two days a week.

**Staying on Track** • Creating new habits can help you lose and maintain your weight. Weigh yourself regularly to see if you’re meeting your weekly goals. You can use an app or journal to track your physical activity and food intake. Some devices can automatically track and record your activity.

Calculate whether you’re burning more calories than you’re taking in.

Getting social support can help keep you motivated. Apps and social media sites may connect you with other people who support your goals.

“But often, people differ in terms of what they consider supportive,” notes Dr. Laurie Friedman Donze, a clinical psychologist at NIH. “So it’s important to communicate with your support system and let them know what you feel is helpful or unhelpful.”

“Trying to keep your stress under control and getting enough sleep are also good for preventing weight gain,” says Donze. “Stress can affect food cravings. Often, people will eat to reduce stress or as a way to comfort themselves. Not getting enough sleep may also increase your appetite or cravings for high-fat foods.”

“No matter what your weight loss goal is,” says Brown, “it takes time. Be patient with the process.”

It can be difficult to lose or keep weight off. Some people may benefit from medication or surgery in addition to lifestyle changes. If

you’re struggling with losing weight or maintaining weight loss, ask your health care provider if medications or surgery may be helpful for you.

“An NIH study, called POWERS, is studying why some people struggle over time to maintain weight loss and why some are going to find it easier,” says Yanovski. “We hope to come up with better strategies for people who struggle with obesity and to individualize solutions for keeping lost weight off.” ■



## Wise Choices

### Aim for a Healthy Weight

Tips to help make healthy lifestyle changes:

- **Calculate how many calories you need for your weight goals.** For help, visit NIH’s Body Weight Planner ([bit.ly/3rQXQGj](https://bit.ly/3rQXQGj)).
- **Record your daily food intake and physical activity** using an app on your phone or a journal.
- **Weigh yourself** every day, or at least once a week.
- **Set specific goals.** For example, walk 30 minutes, five days a week. Be realistic about your time and abilities.
- **Choose healthy meals and physical activities you enjoy.** You’re more likely to stick with ones you like.
- **Plan physical activities with friends or family.**
- **Identify temptations.** Learn what may be keeping you from meeting your goals. Plan ways to stay on track.
- **Learn from your slips.** Find out what triggered the slip and restart your eating and physical activity plan.
- **Be patient.** Changing lifestyle habits takes time.

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## Web Links

For more about weight control, see “Links” in the online article: [newsinhealth.nih.gov/2022/12/healthy-weight-control](https://newsinhealth.nih.gov/2022/12/healthy-weight-control)

# Wipe Out Whooping Cough

## Recognize and Prevent This Serious Illness

Whooping cough, also known as pertussis, is a serious **respiratory disease** that easily spreads between people. It can cause rapid and strong coughing fits that may be followed by a “whooping” sound as the person tries to breathe in. Pertussis can affect people of all ages. But babies less than a year old are especially at risk.

Pertussis was once a leading cause of childhood death. But a vaccine developed in the 1940s led to a dramatic drop in cases worldwide. Still, outbreaks of pertussis occur in the U.S. That’s because the current vaccine’s protection can gradually

wane. So, it’s important to know how to recognize the signs of pertussis, and make sure that you and your loved ones are properly vaccinated.

Pertussis is caused by bacteria that infect the lungs and airways. Coughing when infected with pertussis creates airborne droplets of bacteria that can infect others.

The illness usually begins with mild symptoms, like sneezing and gentle coughs. A week or two later, a severe coughing phase begins. This phase can last for many weeks.

“Pertussis is sometimes called the 100-day cough. The illness can last that long,” says Dr. Kathryn M. Edwards, a pediatrician and vaccine researcher at Vanderbilt University.

Coughing spells in children can be so severe that they’re unable to eat. “They can stop breathing because of the cough, and it can cause strain on the heart and the lungs,” she adds.

The recovery phase may last weeks or more. And, the severe coughing spells can return if the person gets another respiratory disease, even months later.

Infants under 2 months old are too young to be vaccinated against pertussis. But studies have shown that you can protect newborns by getting the vaccine during pregnancy. The vaccine boosts pertussis-fighting **antibodies**. These get transferred through the placenta to the baby.

“The vaccine protects the mother against getting whooping cough and also protects the newborn baby,” Edwards says.

Today’s pertussis vaccine is given as part of a combination vaccine. The one given to babies is called DTaP, for diphtheria, tetanus, and pertussis. The booster shot for older children and adults is called Tdap.



It has a lower dose of the diphtheria and pertussis components.

Since 1997, all pertussis vaccines in the U.S. are “acellular” vaccines. That means they’re made of pieces of pertussis bacteria. This type of vaccine has fewer side effects than the original vaccine, which was made of the whole, killed bacteria. But researchers have found that the acellular vaccine’s protection fades more quickly than the original whole-cell vaccine.

Researchers are looking for ways to improve the current vaccine. But, Edwards says, “when the current vaccines are given as recommended, they markedly reduced pertussis disease.” ■



### Wise Choices

#### Preventing Pertussis

Vaccines are the best way to protect against pertussis (whooping cough). CDC’s vaccine recommendations are based on a person’s age:

- **Babies and children** should get five shots of the DTaP vaccine between ages 2 months and 6 years.
- **Older children** should get one shot of the Tdap booster between ages 11 and 12 years.
- **Pregnant people** should get Tdap during the 3rd trimester of each pregnancy. This helps protect newborns before they’re able to get their own vaccinations, starting at the age of 2 months.
- **All adults** who never received Tdap should get one. Adults should also get a booster of diphtheria and tetanus (Td) or Tdap every 10 years.
- **Ask your health care provider** if you have questions about when you or your children should get the DTaP or Tdap vaccine. To learn more, visit [bit.ly/3g7VYXx](https://bit.ly/3g7VYXx).

Adapted from the U.S. Centers for Disease Control and Prevention



### Definitions

#### Respiratory Disease

A type of disease that affects body parts that help you breathe, including your nose, throat, and lungs.

#### Antibodies

Germ-fighting molecules made by the body.



### Web Links

For more about whooping cough, see “Links” in the online article: [newsinhealth.nih.gov/2022/12/wipe-out-whooping-cough](https://newsinhealth.nih.gov/2022/12/wipe-out-whooping-cough)





## Health Capsules

For links to more information, please visit our website and see these stories online.

### Popular Diabetes Drugs Compared in Large Trial

Type 2 diabetes occurs when your body has trouble controlling blood glucose, also called blood sugar. High blood glucose levels can cause problems throughout the body. It can lead to nerve damage, heart disease, and other concerns.

Health care professionals often recommend a healthy diet, exercise, and a drug called metformin as an early approach to treating type 2 diabetes. A second drug is sometimes added if blood glucose becomes hard to control.

A recent clinical trial compared four common diabetes drugs to see which would be best to add. The

study enrolled more than 5,000 people. Participants received metformin along with another drug. The second drug was either sitagliptin, liraglutide, glimepiride, or insulin glargine U-100.

After about five years, all four drugs improved blood glucose levels when added to metformin. Liraglutide and insulin glargine improved blood glucose levels slightly better than the others. However, nearly three of every four study participants were still unable to maintain their blood glucose targets by the end of the study.

There were also slight differences

in the medications' effects on blood glucose, heart disease, and other conditions. For instance, the liraglutide or insulin glargine groups maintained their target blood glucose levels for the longest time. But the liraglutide group was more likely to have digestive issues.

"This study was designed to provide health care providers with important information on how to guide the long-term management of type 2 diabetes," says the study's NIH project scientist, Dr. Henry Burch. "These results can now be used in the decision-making process for each individual patient." ■

### Lung Health and Our Environment

Breathe in and out. We all know how important it is to keep our lungs healthy and our breathing smooth. The health of our lungs depends in large part on our surroundings. Researchers are studying how we can protect lung health by improving our environment and lifestyle choices.

NIH funds research to understand how genes and the environment affect lung disease. The studies are looking for new ways to prevent and

treat lung disease.

Some studies have found that long-term exposure to air pollution can raise the risk of developing asthma, emphysema, lung cancer, and other breathing-related diseases. Other research has shown that when air pollution improves, lung function improves and asthma symptoms decline.

Inhaled mold spores can trigger allergic reactions and worsen asthma

symptoms, especially in young children. Other studies have found that exposure to tobacco smoke or e-cigarettes can damage the lungs and weaken disease-fighting cells.

Scientists have also studied the health effects of wildfires, radon, and more. Learn more about lung health, the environment, and related research at [www.niehs.nih.gov/health/topics/conditions/lung-disease](http://www.niehs.nih.gov/health/topics/conditions/lung-disease). ■



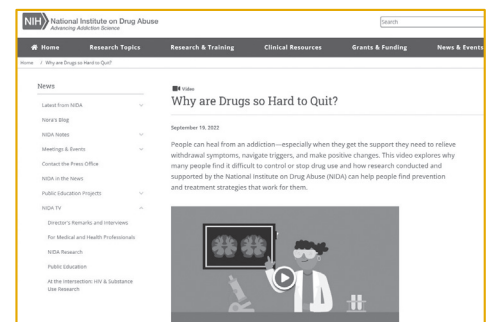
### Featured Website

#### Why Are Drugs So Hard To Quit?

[nida.nih.gov/videos/why-are-drugs-so-hard-to-quit](http://nida.nih.gov/videos/why-are-drugs-so-hard-to-quit)

This new video shows why many people find it hard to stop using drugs. Substance use disorders are complex medical conditions that

involve changes to the brain. Learn how researchers are developing better ways to prevent, manage, and treat substance use disorders.



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