

Prescription Medications for the Treatment of Obesity

U.S. Department of Health
and Human Services

NATIONAL INSTITUTES OF HEALTH

NIDDK | NATIONAL INSTITUTE OF
DIABETES AND DIGESTIVE
AND KIDNEY DISEASES

WIN *Weight-control Information Network*

Obesity is a chronic disease that affects many people. To lose weight and maintain weight loss over the long term, it is necessary to modify one's diet and engage in regular physical activity. Some people, however, may require additional treatment. As with other chronic conditions, such as diabetes or high blood pressure, the use of prescription medications may be appropriate for some people who are overweight or obese.

Prescription weight-loss medications should be used only by patients who are at increased medical risk because of their weight. They should not be used for "cosmetic" weight loss. In addition, patients should have previously tried to lose weight through diet and physical activity.

Prescription weight-loss drugs are approved only for those with:

- A body mass index (BMI) of 30 and above.
- A BMI of 27 and above with an obesity-related condition, such as high blood pressure, type 2 diabetes, or dyslipidemia (abnormal amounts of fat in the blood).

BMI is a measure of weight in relation to height that helps determine if your weight places your health at risk. A BMI of 18.5 to 24.9 is considered healthy. A BMI of 25 to 30 is considered overweight, and a BMI over 30 is considered obese. (See WIN's brochure *Weight and Waist Measurement: Tools for Adults* for more information.)

Although most side effects of prescription medications for obesity are mild, serious complications have been reported. Also, few studies have evaluated the long-term safety or effectiveness of weight-loss medications. Weight-loss medications should *always* be combined with a program of healthy eating and regular physical activity.

The information in this fact sheet may help you decide if and what kind of weight-loss medication may help you in your efforts to reach and stay at a healthy weight. It does not replace medical advice from your doctor.

Weight-loss medications should *always* be combined with a program of healthy eating and regular physical activity.

Medications That Promote Weight Loss

Table 1 provides an overview of medications that may be prescribed for weight loss.

Table 1

Generic Name	Food and Drug Administration Approval for Weight Loss	Drug Type	Common Side Effects
Phentermine	Yes; short term (up to 12 weeks) for adults	Appetite Suppressant	Increased blood pressure and heart rate, sleeplessness, nervousness
Diethylpropion	Yes; short term (up to 12 weeks) for adults	Appetite Suppressant	Dizziness, headache, sleeplessness, nervousness
Phendimetrazine	Yes; short term (up to 12 weeks) for adults	Appetite Suppressant	Sleeplessness, nervousness
Orlistat	Yes; long term (up to 1 year) for adults and children age 12 and older	Lipase Inhibitor	Gastrointestinal issues (cramping, diarrhea, oily spotting), rare cases of severe liver injury reported
Bupropion	No	Depression Treatment	Dry mouth, insomnia
Topiramate	No	Seizure Treatment	Numbness of skin, change in taste
Zonisamide	No	Seizure Treatment	Drowsiness, dry mouth, dizziness, headache, nausea
Metformin	No	Diabetes Treatment	Weakness, dizziness, metallic taste, nausea

Food and Drug Administration-Approved Prescription Weight-loss Medications

Most of the U.S. Food and Drug Administration (FDA)-approved weight-loss medications are approved for short-term use, meaning a few weeks, but doctors may prescribe them for longer periods of time—a practice called “off-label” use. (See the box on the following page for more information about off-label use.) Orlistat is the only weight-loss medication approved for longer-term use in patients who are significantly obese. Its safety and effectiveness have not been established for use beyond 2 years, however.

Appetite Suppressants. Most available weight-loss medications approved by the FDA are appetite-suppressant medications. These include phentermine, phendimetrazine, and diethylpropion. Appetite-suppressant medications promote weight loss by decreasing appetite or increasing the feeling of being full. These medications make you feel less hungry by increasing one or more brain chemicals that affect mood and appetite. Phentermine is the most commonly prescribed appetite-suppressant in the United States.

NOTE: Amphetamines are a type of appetite suppressant. However, amphetamines are not recommended for use in the treatment of obesity due to their strong potential for abuse and dependence.

Lipase Inhibitors. In 1999, the FDA approved the drug Xenical (orlistat) as a prescription weight loss drug. Orlistat reduces the body's ability to absorb dietary fat by about one-third. It does this by blocking the enzyme lipase, which is responsible for breaking down dietary fat. When fat is not broken down, the body cannot absorb it, so it is eliminated and fewer calories are taken in.

In early 2007, orlistat was approved for over-the-counter (OTC) sale for adults age 18 and over. This means that the drug may be purchased without a prescription. The OTC version of orlistat is sold under the brand name alli. Alli is meant to be taken with

a reduced-calorie, low-fat diet, exercise, and a daily multivitamin. Its side effects are similar to those for prescription orlistat. Anyone considering taking alli should read information about side effects, drug interactions, and usage recommendations on the drug's packaging or website, <http://www.myalli.com>.

Other Medications

The following types of medication(s) are not FDA-approved for the treatment of obesity. However, they have been shown to promote short-term weight loss in clinical studies and may be prescribed off-label.

Drugs to treat depression. Some antidepressant medications have been studied as appetite-suppressant medications. While these medications are FDA-approved for the treatment of depression, their use in weight loss is an off-label use (see the box below). Studies of these medications have generally found that patients lose modest amounts of weight for up to 6 months, but that patients tend to regain weight while they are still on the drug. One exception is bupropion. In one study, patients taking bupropion maintained weight loss for up to 1 year.

Drugs to treat seizures. Two medications used to treat seizures, topiramate and zonisamide, have been shown to cause weight loss. Whether these drugs will be useful in treating obesity is being studied.

What is "off-label" use?

Although the FDA regulates how a medication can be advertised or promoted by the manufacturer, these regulations do not restrict a doctor's ability to prescribe the medication for different conditions, in different doses, or for different lengths of time. The practice of prescribing medication for periods of time or for conditions not FDA-approved is known as off-label use. While such use often occurs in the treatment of many conditions, you should feel comfortable about asking your doctor if he or she is using a medication or combination of medications in a manner that is not approved by the FDA. The use of more than one weight-loss medication at a time (combined drug treatment) is an example of an off-label use. Using weight-loss medications other than orlistat for more than a short period of time (i.e., more than "a few weeks") is also considered off-label use.

Until more information on their safety or effectiveness is available, using combinations of medications for weight loss is not recommended.

Drugs to treat diabetes. The diabetes medication metformin may promote small amounts of weight loss in people with obesity and type 2 diabetes. How this medication promotes weight loss is not clear, although research has shown reduced hunger and food intake in people taking the drug.

Drug combinations. The combined drug treatment using fenfluramine and phentermine (known as “fen/phen”) is no longer available due to the withdrawal of fenfluramine from the market after some patients experienced serious heart and lung disorders. (See the “Potential Risks and Concerns” section.) Little information is available about the safety or effectiveness of other drug combinations for weight loss, including fluoxetine/phentermine, phendimetrazine/phentermine, herbal combinations, or others. *Until more information on their safety or effectiveness is available, using combinations of medications for weight loss is not recommended, except as part of a research study.*

Potential Benefits of Medication Treatment

People respond differently to weight-loss medications, and some people experience more weight loss than others. Weight-loss medications lead to an average weight loss of about 10 pounds more than what you might lose with nondrug obesity treatments. Maximum weight loss usually occurs within 6 months of starting the medicine. Weight then tends to level off or increase during the remainder of treatment.

Over the short term, weight loss in individuals who are obese may reduce a number of health risks. Studies have found that weight loss with some medications improves blood pressure, blood cholesterol, triglycerides (fats), and insulin resistance (the body’s inability to use blood sugar). New research suggests that long-term use of weight-loss drugs may help individuals keep off the weight they have lost. However, more studies are needed to determine the long-term effects of weight-loss drugs on weight and health.

Potential Risks and Concerns

Research has yet to determine the long-term health effects of weight-loss drugs. To date, the longest study is a 4-year investigation of orlistat. Most other studies have lasted 6 to 12 months or less. In addition, research has not examined rare side effects (those occurring in less than 1 per 1,000 patients), and the optimal duration of treatment is unknown.

When considering long-term weight-loss drugs to treat obesity, you should consider the following areas of concern and potential risks.

Potential for abuse or dependence. Currently, all prescription medications to treat obesity except orlistat are controlled substances, meaning doctors need to follow certain restrictions when prescribing them. Although abuse and dependence are not common with nonamphetamine appetite-suppressant medications, doctors should be cautious when they prescribe these medications for patients with a history of alcohol or other drug abuse.

Development of tolerance and weight regain. Most studies of weight-loss drugs show that a patient's weight tends to level off after 6 months while still on the drug. Although some patients and doctors may be concerned that this shows tolerance to the medications, the leveling off may mean that the maximum amount of weight loss that the drug can produce has been achieved.

Studies examining the effects of weight loss drugs showed that after one year, patients receiving a weight loss drug lost more weight than patients in the placebo group. Findings also indicated that patients who continued treatment regained less weight compared with those who stopped treatment.

Reluctance to make behavioral changes while using prescription medications. Patients who are overweight or obese should be able to seek medical treatment to prevent health risks that can cause serious illness and death. Weight-loss drugs, however, are not “magic bullets” or a one-shot fix for this chronic disease. They should always be combined with a healthy eating plan and increased physical activity.

Side effects. Because weight-loss drugs are used to treat a condition that affects millions of people, many of whom are basically healthy, the possibility that side effects may outweigh benefits is of great concern. Most side effects of these drugs are mild and usually improve with continued use. Rarely, serious and even fatal outcomes have been reported. Some of the common side effects of the drugs are explained in this section.

Orlistat. Some side effects of orlistat include cramping, intestinal discomfort, passing gas, diarrhea, and leakage of oily stool. These side effects are generally mild and temporary, but may be worsened by eating high-fat foods. Rare cases of severe liver injury have been reported in patients using either Xenical or alli. Both drugs contain different strengths of orlistat. Xenical contains 120 mg, while alli contains 60 mg. Also, because orlistat reduces the absorption of some vitamins, patients should take a multivitamin at least 2 hours before or after taking orlistat. More information about orlistat (marketed as Xenical or alli) and liver injury is available at <http://www.fda.gov/Drugs/DrugSafety/Post-marketDrugSafetyInformationforPatientsandProviders/ucm213038.htm>

Because weight-loss medications are used to treat a condition that affects millions of people, the possibility that side effects may outweigh benefits is of great concern.

Because obesity is a chronic disease, any treatment, whether drug or nondrug, may need to be continued for years, and perhaps a lifetime, to improve health and maintain a healthy weight.

Other appetite suppressants. Phentermine, phendimetrazine, and diethylpropion may cause symptoms of sleeplessness, nervousness, and euphoria (feeling of well-being). People with heart disease, high blood pressure, an overactive thyroid gland, or glaucoma should not use these drugs.

Two appetite-suppressant medications, fenfluramine and dexfenfluramine, were withdrawn from the market in 1997. These drugs, used alone and in combination with phentermine (fen/phen), were linked to the development of valvular heart disease and primary pulmonary hypertension (PPH), a rare but potentially fatal disorder that affects the blood vessels in the lungs. There have been only a few case reports of PPH in patients taking phentermine alone, but the possibility that phentermine use is associated with PPH cannot be ruled out.

NOTE: In 2010, the FDA asked Abbott Laboratories to voluntarily remove Meridia (sibutramine) from the U.S. market. Abbott Laboratories agreed to remove the drug from the market. Sibutramine is a weight-loss drug that works to reduce one's appetite. Data from clinical trials showed an increased risk of heart attacks and strokes among patients using the drug. More information about sibutramine is available at <http://www.fda.gov>.

Commonly Asked Questions About Weight-Loss Drugs

Q: Can drugs replace physical activity or changes in eating habits as a way to lose weight?

A: No. Studies show that weight-loss medications work best when combined with a weight-control program that helps you improve your eating and physical activity habits. Ask your doctor about ways you can improve your eating plan and become more physically active.

Q: How do I decide which drug is right for me?

A: Choosing a weight-loss drug is a decision between you and your health care provider. You will consider the drug's side effects, your family's medical history, and your current medical conditions and medicines.

Q: What medical history, conditions, or medications might influence my decision to take a weight-loss drug?

A: Let your doctor know if any of the following applies to you, as these factors may affect which weight-loss drugs you can take, if any:

- History of drug or alcohol abuse.
- History of eating disorders.
- History of depression or manic depressive disorder.
- Pregnancy or breast-feeding.
- Migraine headaches requiring medication.
- Glaucoma.
- Diabetes.
- Heart disease or heart condition, such as an irregular heart beat.
- High blood pressure.
- Use of blood-thinning medication.
- Use of monoamine oxidase (or “MAO”) inhibitors or antidepressant medications.
- Plan to have surgery that requires general anesthesia.

Q: How long will I need to take weight-loss medications to treat obesity?

A: The answer depends upon whether the medication helps you to lose and maintain weight and whether you have any side effects. Because obesity is a chronic disease, nondrug treatment including diet changes and regular physical activity may need to be continued for years, and perhaps a lifetime, to improve health and maintain a healthy weight. However, like many other types of drugs, there is still little information on how safe and effective weight-loss medications are for many years of use. At least one study has shown that intermittent use (1 month on medication and 1 month off medication) may help some people lose and maintain weight, but more research is needed.

Q: Will I regain some weight after I stop taking weight-loss medications?

A: Probably. Most studies show that the majority of patients who stop taking weight-loss medications regain the weight they lost. Maintaining healthy eating and physical activity habits may help you regain less weight or keep it off.

Q: Can children or teens use weight-loss medications?

A: Prescription orlistat is currently approved for use in teens age 12 or above. Other weight-loss drugs are not approved for use in children under age 16, although studies in children and teens are ongoing. Metformin is a drug being studied in clinical trials. Early reports show it to be safe and effective, but more research is needed and it has not been FDA-approved for children or adolescents.

Q: Will insurance cover the cost of weight-loss medication?

A: Currently, many insurance companies will not pay for weight-loss drugs, but this is changing as insurers begin to recognize obesity as a chronic disease. Contact your insurance company to find out if prescription weight-loss medication is covered under your plan. A 1-month prescription can cost from 60 dollars to more than twice this amount. Ask a staff member at your pharmacy what a 1-month supply of the medication you are considering taking will cost.

Most patients should not expect to reach an “ideal” body weight using currently available medications. However, even a modest weight loss of 5 to 10 percent of your starting body weight can improve your health. Together, you and your doctor can make an informed choice as to whether medication can be a useful part of your weight-control program.

Additional Resources

Food and Drug Administration

Provides information about drug approvals, prescription drugs, OTC drugs, drug safety, clinical trials, public health alerts, and other topics.

5600 Fishers Lane
Rockville, MD 20857-0001
1-888-INFO-FDA (1-888-463-6332)
<http://www.fda.gov>

Mayo Clinic

Offers information about drugs and supplements.

<http://www.mayoclinic.com/health/drug-information/DrugHerbIndex>

National Center for Complementary and Alternative Medicine

Provides information on nonconventional therapies, such as herbal supplements and acupuncture.

9000 Rockville Pike
Bethesda, MD 20892
1-888-644-6226
TTY: 1-866-464-3615
<http://www.nccam.nih.gov>

National Library of Medicine

Offers information about drugs, supplements, and herbal products.

8600 Rockville Pike
Bethesda, MD 20894
1-888-FIND-NLM (1-888-346-3656)
<http://www.nlm.nih.gov/medlineplus/druginformation.html>

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Publications produced by WIN are reviewed by both NIDDK scientists and outside experts. This fact sheet was also reviewed by Myrlene Staten, Ph.D., Senior Advisor, Diabetes Translational Research; Division of Diabetes, Endocrinology, and Metabolic Diseases; NIDDK.

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