

## WHAT ARE SEMAGLUTIDE AND TIRZEPATIDE?

Semaglutide and Tirzepatide are glucagon-like peptide-1 (GLP-1) receptor agonists used as adjuncts to a reduced-calorie diet and increased physical activity for chronic weight management in adults whose initial body mass index (BMI) is outside the healthy range. These medications work by mimicking the effects of the naturally occurring hormone GLP-1, which plays a vital role in regulating insulin production, glucagon secretion, appetite, and food intake. By modifying the molecular structure slightly, these medications are designed to remain active in the body for weeks, whereas the natural hormone is active for only minutes. This prolonged activity aids in consistent weight management and blood glucose control.

## HOW DO SEMAGLUTIDE AND TIRZEPATIDE WORK?

Semaglutide and Tirzepatide facilitate weight loss and glucose control through several mechanisms:

- **Delayed Gastric Emptying:** They slow down the rate at which the stomach empties food into the intestines, promoting a feeling of fullness and satisfaction after smaller meals.
- **Reduced Intestinal Motility:** By slowing down intestinal movement, these medications prolong the sensation of fullness after eating.
- **Lowered Blood Glucose Levels:** They reduce glucose production in the liver, thereby lowering blood sugar levels.
- **Increased Insulin Secretion:** They stimulate the pancreas to secrete more insulin in response to elevated blood sugar, helping to maintain better glucose control.

## BENEFITS OF SEMAGLUTIDE AND TIRZEPATIDE

- **Reduced Appetite and Cravings:** These medications help in curbing hunger and reducing the desire for food, aiding in weight loss.
- **Weight Loss:** Patients often experience significant weight loss as a result of the combined effects on appetite and food intake.
- **Improved Blood Glucose Control:** These medications assist in stabilizing blood sugar levels, particularly beneficial for those with type 2 diabetes.

## SIDE EFFECTS AND CONTRAINDICATIONS OF SEMAGLUTIDE AND TIRZEPATIDE

While Semaglutide and Tirzepatide are effective for weight management and glucose control, they may cause side effects, some of which can be serious:

- **Possible Thyroid Tumors, Including Cancer:** Inform your healthcare provider immediately if you notice a lump or swelling in your neck, hoarseness, difficulty swallowing, or shortness of breath. These could be symptoms of thyroid cancer. In animal studies, Semaglutide, Tirzepatide, and similar medications have been associated with thyroid tumors, including cancer. It is not yet known if these risks apply to humans.
- **Gastrointestinal Issues:** Common side effects include nausea, diarrhea, vomiting, constipation, abdominal pain, dyspepsia (indigestion), and bloating.
- **Hypoglycemia:** Especially when used with other antidiabetic medications, there is a risk of low blood sugar, which can lead to symptoms like dizziness, sweating, and confusion.
- **Acute Gallbladder Disease:** These medications may increase the risk of gallbladder-related issues, such as cholecystitis or gallstones.
- **Injection Site Reactions:** Subcutaneous injections may cause reactions such as itching, redness, or burning at the injection site.
- **Pancreatitis:** There is a risk of pancreatitis, a serious condition that requires immediate medical attention if symptoms such as severe abdominal pain, nausea, or vomiting occur.
- **Renal Impairment:** These medications may worsen kidney function, particularly in those with pre-existing renal conditions.
- **Allergic Reactions:** Although rare, serious allergic reactions may occur, including symptoms like swelling of the face, lips, tongue, or throat, difficulty breathing, and severe rashes. Immediate medical attention is necessary if any of these symptoms occur.
- **Vision Changes:** Patients with type 2 diabetes may experience changes in vision. Report any such changes to your healthcare provider.
- **Mental Health Effects:** Depression or suicidal thoughts can occur. It is important to monitor any changes in mood or behavior and report them to your healthcare provider.

## CONTRAINDICATIONS

Do not use Semaglutide or Tirzepatide if:

- You or any of your family members have ever had medullary thyroid carcinoma (MTC) or Multiple Endocrine Neoplasia syndrome type 2 (MEN 2).
- You have had a serious allergic reaction to Semaglutide, Tirzepatide, or any other GLP-1 receptor agonist.
- You are pregnant or planning to become pregnant while taking these medications.

- You are diabetic and on medications to lower blood sugar, especially insulin, without consulting your endocrinologist, as there may be an increased risk of hypoglycemia.
- You have a history of pancreatitis, gallbladder disease, or severe kidney impairment.

## **WHILE USING SEMAGLUTIDE AND TIRZEPATIDE**

To maximize the benefits and minimize the risks while using these medications:

- **Diet and Exercise:** Follow a reduced-calorie meal plan rich in fiber and protein, and increase your physical activity. Avoid high-fat foods, as they can be difficult to digest while on these medications.
- **Hydration:** Drink at least 32 oz of water daily to prevent constipation.
- **Limit Alcohol Intake:** Alcohol can lower blood pressure and interact with the medication, so consumption should be minimized.
- **Avoid Other GLP-1 Agonists:** Do not use other medications containing Semaglutide or Tirzepatide, or other GLP-1 receptor agonists, to prevent adverse effects.
- **Medication Interactions:** Consult your healthcare provider before taking any over-the-counter or herbal weight-loss products, as their safety and efficacy in combination with Semaglutide or Tirzepatide are not well known.

**We reserve the right to refuse service as well as discontinue service.**

## **Phentermine as a short-term weight loss tool, in combination with healthy lifestyle changes for long-term success.**

While eating a well-balanced, reduced-calorie diet and exercising regularly are the cornerstones of weight loss, certain drugs can serve as powerful adjuncts.

One such drug is phentermine — one of the most popular weight loss drugs in the world.

It has been proven effective for short-term weight loss when used alongside a reduced-calorie diet and exercise.

However, using phentermine for weight loss is not without risks and side effects.

### **What Is Phentermine?**

Phentermine is a prescription weight loss medication.

It was approved by the FDA in 1959 for short-term use of up to 12 weeks for people older than 16 ([1Trusted Source](#)).

In the 1990s, phentermine was combined with other weight loss drugs. This drug combination was commonly called fen-phen.

After reports of significant heart problems in users, the FDA pulled the other two drugs used in the treatment — fenfluramine and dexfenfluramine — from the market ([2Trusted Source](#)).

Phentermine goes by the brand names Adipex-P, Lomaira, and Suprenza, or you can find it in combination medications for weight loss, such as Qsymia.

It's a controlled substance due to its chemical similarities to the stimulant amphetamine — making it available only with a prescription.

Your doctor may prescribe phentermine if you're obese, meaning that your body mass index (BMI) is greater than or equal to 30.

It may also be prescribed if you're overweight with a BMI greater than or equal to 27 and have at least one weight-related condition, such as high blood pressure, high cholesterol, or type 2 [diabetes](#) ([3Trusted Source](#), [4Trusted Source](#), [5Trusted Source](#)).

### **How Does It Work?**

Phentermine belongs to a class of drugs called “anorectics,” also known as appetite suppressants.

Taking phentermine helps suppress your appetite, thereby limiting how many calories you eat. Over time, this can lead to weight loss.

While the exact mechanisms behind the appetite-reducing effects of phentermine remain unclear, the drug is thought to act by increasing neurotransmitter levels in your brain ([6Trusted Source](#), [7Trusted Source](#)).

Neurotransmitters are your body's chemical messengers and include norepinephrine, serotonin, and dopamine.

When your levels of these three chemicals increase, your feeling of hunger decreases.

However, you may build a tolerance to the appetite-suppressing effects of phentermine within a few weeks. In that case, you should not increase your dose of the drug but stop using it altogether.

### **Effective for Weight Loss**

Several clinical studies have proven that phentermine can boost fat loss.

The expected average weight loss with phentermine use is 5% of your initial body weight. Yet, over 12 weeks, it can be as high as 10%. This equates to a weight loss of 10–20 pounds (4.5–9 kg) for a 200 pound (90.7 kg) person ([8Trusted Source](#)).

In a meta-analysis of six studies, people who took the average dose of 27.5 mg of phentermine for 13 weeks lost an average of 13.9 pounds (6.3 kg) compared to 6.2 pounds (2.8 kg) in placebo groups ([9Trusted Source](#)).

While phentermine has been shown to be effective for weight loss, it may work better when combined with topiramate ([10Trusted Source](#)).

Topiramate is a drug that has been used on its own to treat seizures but — like phentermine — also has appetite-reducing properties ([11Trusted Source](#), [12Trusted Source](#), [13Trusted Source](#)).

Topiramate and phentermine is a combination medication sold under the brand name Qsymia.

Compared to three other commonly prescribed drugs for weight loss, the combination of phentermine and topiramate was associated with the highest odds of losing at least 5% of the initial body weight ([14Trusted Source](#)).

What's more, research suggests that the phentermine and topiramate combination is the most effective weight loss medication to date — with people achieving an average weight loss of 21.6 pounds (9.8 kg) after taking the maximum dose for one year ([15Trusted Source](#)).

In users, this weight loss has translated to a significant decrease in waist circumference, improved insulin sensitivity, and blood sugar control, as well as favorable effects on triglyceride and cholesterol levels ([16Trusted Source](#), [17Trusted Source](#)).

## May Be Helpful for Certain Eating Disorders

The combination of phentermine and topiramate may help reduce binge eating in people with binge eating disorder (BED) and bulimia nervosa.

BED is characterized by eating large amounts of food, often quickly and to the point of discomfort. It's also associated with a feeling of losing control during the binge, as well as feelings of shame or guilt afterward ([18Trusted Source](#)).

Bulimia nervosa involves the same binge-eating behavior as with BED, but includes behaviors, such as self-induced vomiting, in an attempt to compensate for the effects of binge eating ([18Trusted Source](#)).

In a small 12-week study in obese or overweight people with BED, the phentermine and topiramate drug combination was associated with significant reductions in weight, BMI, and binge-eating episode frequency ([19Trusted Source](#)).

In another 12-week study, people with BED or bulimia nervosa were randomized to receive the drug combination or a placebo.

Over 28 days, treatment with the phentermine and topiramate combination decreased the participants' number of binge-eating days from 16.2 to 4.2. The same results were not observed in the placebo group ([20Trusted Source](#)).

By reducing bingeing episodes, the drug combination may help the estimated 40–80% of people with BED or bulimia nervosa who are overweight or obese lose weight while improving mood and a sense of control with eating ([20Trusted Source](#)).

## Dosage and Forms

Dosages for phentermine vary depending on its form and concentration.

### Phentermine

Prior to 2016, the available doses of phentermine were 15, 30, and 37.5 mg.

However, since it's recommended that doctors prescribe the lowest effective dose, the FDA approved an 8-mg formulation in 2016, which can be taken up to three times daily.

You should avoid taking the last dose too late in the day to prevent insomnia or difficulty falling or staying asleep.

## Side Effects and Precautions

Phentermine alone is designed for short-term use only, as there are no long-term studies on its safety.

However, the FDA has approved phentermine in combination with topiramate for long-term use, since the dosage of the two ingredients is lower than the maximum doses of the individual drugs ([22Trusted Source](#)).

While serious adverse effects are rare, studies report several side effects of the phentermine and topiramate combination ([15Trusted Source](#)).

The most commonly reported side effects include ([1Trusted Source](#), [3Trusted Source](#), [23Trusted Source](#)):

- Dry mouth
- Sleeping problems
- Dizziness
- Heart palpitations
- Flushing of the skin
- Fatigue
- Constipation
- Irritability

You shouldn't take phentermine if you have heart disease, hyperthyroidism, glaucoma, or if you're pregnant or nursing ([24Trusted Source](#)).

Phentermine should also not be prescribed in combination with monoamine oxidase inhibitors (MAOIs), a class of medications used to treat depression.

Your medical provider will determine whether phentermine is appropriate and safe for you.

### Healthy Ways to Promote and Maintain Weight Loss

While phentermine can be a powerful weight loss aid, the only proven way to shed weight — and to keep it off in the long term — is cultivating healthy lifestyle behaviors ([4Trusted Source](#)).

Without making the proper changes, it is likely that you'll gain back the weight you lost — and possibly more — once you stop taking phentermine.

A comprehensive lifestyle change includes:

- **A reduced-calorie diet:** If you have excess weight to lose, eat 300–500 fewer calories per day. A registered dietitian can help you tailor this range based on your preferences and goals ([4Trusted Source](#)).
- **Prioritize nutrient-dense foods:** Nutrient-dense foods — such as fruits and vegetables — are relatively low in calories and high in nutrients, such as fiber, vitamins, and minerals.
- **Increase physical activity:** Guidelines recommend a minimum of 150 minutes per week of moderate aerobic exercise, such as brisk walking or running ([4Trusted Source](#), [25Trusted Source](#)).

- **Behavioral strategies:** Behavior changes includes regular self-monitoring of food intake, physical activity, and your weight, plus making adjustments as needed ([4Trusted Source](#)).

Making these lifestyle changes can be difficult and shouldn't happen all at once. It will take an investment of your time and energy — but the outcome will be long-term weight loss and overall better health.

### **The Bottom Line**

Phentermine is a prescription-only appetite suppressant and weight loss pill, approved for short-term use.

The combination of phentermine and topiramate appears to be even more effective and tolerable than phentermine alone.

Side effects include dry mouth, dizziness, fatigue, irritability, and constipation.

The weight loss benefits of phentermine and topiramate also expand to people with BED and bulimia nervosa.

While phentermine can be a useful short-term weight loss tool, you must make healthy lifestyle changes for long-term success.

Credits: Written by Gavin Van De Walle, MS, RD.



## Can Vitamin B12 Help You Lose Weight?

Vitamin B12 shots and supplements are popular among those looking for a quick fix for weight loss.

In fact, some even claim that increasing your intake of vitamin B12 can help fight fatigue, boost energy levels, and speed up your metabolism.

However, research on the potential effects of vitamin B12 on weight loss has turned up mixed results.

### What is vitamin B12?

Also sometimes referred to as cobalamin, vitamin B12 is a water-soluble vitamin that's essential for several aspects of health.

This vitamin is involved in forming DNA and red blood cells, as well as necessary for brain function, heart health, energy production, and more ([1Trusted Source](#)).

It's found naturally in many animal products and sometimes added to fortified foods ([1Trusted Source](#)).

Vegans, vegetarians, older adults, and people with digestive issues that can interfere with nutrient absorption may be at a higher risk of vitamin B12 deficiency and need to supplement ([2Trusted Source](#)).

### Effects on body fat and metabolism

Although research in humans is still very limited, some studies suggest that vitamin B12 could affect body fat and metabolism.

One review concluded that vitamin B12 plays a key role in fat metabolism, noting that a deficiency could be linked to increased fat accumulation and [obesity](#) ([3Trusted Source](#)).

Another animal study found that severe vitamin B12 deficiency led to a significant increase in body fat percentage and cholesterol levels in pregnant mice ([4Trusted Source](#)).

What's more, one animal study showed that administering B vitamins to rats fed a high fat diet reduced weight gain and increased levels of several enzymes that influence metabolism, compared with a control group ([5Trusted Source](#)).

However, current evidence is lacking, and additional high quality studies are needed to determine how vitamin B12 may affect metabolism and body fat in humans.

### Low levels may be linked to obesity

Interestingly, several studies have found that having adequate vitamin B12 levels may be associated with a lower risk of weight gain and obesity.

According to one large study in 9,075 people, having higher blood levels of vitamin B12 was associated

with a lower risk of obesity ([6Trusted Source](#)).

Similarly, another study in 976 people showed that having low levels of vitamin B12 was linked to a higher risk of overweight or obesity ([7Trusted Source](#)).

What's more, a study in 256 children showed that children with lower levels of vitamin B12 tended to have a higher body mass index (BMI), which is a measure of body size determined by height and weight ([8Trusted Source](#)).

However, keep in mind that while these studies show an association between vitamin B12 status and body weight, they don't take other potentially contributing factors into account.

Therefore, it can't be concluded that vitamin B12 causes weight loss. More research is needed to determine whether vitamin B12 directly affects body weight or BMI.

### **Signs of vitamin B12 deficiency**

A vitamin B12 deficiency can lead to megaloblastic anemia, a condition characterized by a low number of red blood cells that are larger than normal ([9Trusted Source](#)).

Megaloblastic anemia can cause a variety of symptoms and side effects, including ([10Trusted Source](#)):

- shortness of breath
- headache
- heart palpitations
- fatigue
- poor balance
- memory loss

That said, being low in vitamin B12 doesn't always lead to megaloblastic anemia, and many people may only experience mild symptoms like fatigue ([11Trusted Source](#)).

Furthermore, while a deficiency in vitamin B12 may not cause weight gain, it can decrease energy levels and contribute to fatigue, making it harder to stay active and manage your weight.

Conversely, some studies show that a deficiency in vitamin B12 may cause appetite loss, potentially leading to weight loss if left untreated ([12Trusted Source](#), [13Trusted Source](#)).

If you're low or deficient in B12, your healthcare provider will likely recommend oral vitamin B12 supplements or injections to increase your blood levels ([10Trusted Source](#)).

### **Sources of vitamin B12**

Vitamin B12 is found naturally in various food sources, including animal products like meat, fish, poultry,

eggs, milk, and milk products ([1Trusted Source](#)).

It's also added to many fortified foods, such as breakfast cereals and plant-based milk like almond, soy, or hemp milk ([1Trusted Source](#)).

Vitamin B12 supplements are also available in several forms, including tablets, capsules, liquids, and lozenges.

It's often found in many multivitamin supplements as well.

Those who don't regularly consume animal products rich in vitamin B12 may want to consider adding fortified foods to their diet or taking a supplement to ensure that their nutritional needs are met.

### **The bottom line**

Vitamin B12 is an important water-soluble vitamin that plays a central role in several aspects of health, including brain function, heart health, and the production of red blood cells and DNA.

Studies show that having adequate blood levels of vitamin B12 may be linked to a lower risk of obesity in children and adults. Plus, animal research suggests that vitamin B12 may affect body fat and metabolism.

Increasing your intake of vitamin B12 through foods or supplements can help prevent deficiency, which may improve side effects like low energy levels and fatigue.

However, if you're already getting enough vitamin B12 in your diet and don't have a nutrient deficiency, it's unclear whether increasing your intake of vitamin B12 will have much of an effect on weight loss.

Credit: Written by Rachael Link, MS, RD - Medically reviewed by Jillian Kubala, MS, RD