



Xanax (alprazolam)

Generic name: Alprazolam

Available strengths: 0.25 mg, 0.5 mg, 1 mg, 2 mg tablets;
0.5 mg, 1 mg, 2 mg, 3 mg extended-release tablets;
1 mg/mL oral solution

Available in generic: Yes, except extended-release tablets

Drug class: Benzodiazepine/anxiolytic; sedative-hypnotic

General Information

Xanax (alprazolam) is a benzodiazepine indicated for management of anxiety disorders or short-term relief of symptoms of anxiety and for the treatment of panic attacks. The use of a drug for its approved indications is called its *labeled use*. In clinical practice, however, physicians often prescribe medications for *unlabeled* (“off-label”) uses when published clinical studies, case reports, or their own clinical experiences support the efficacy and safety of those treatments. Physicians may use Xanax outside its approved indications to treat social phobia, depression, and premenstrual syndrome. As with other benzodiazepines, Xanax is associated with dependence and abuse and is regulated as a controlled substance by state and federal laws.

Xanax’s effectiveness for treating anxiety may be explained by its pharmacological action in the brain at specific receptor sites. *Receptors* are specific sites on the nerve cell membrane that receive a signal from a neurochemical called the **neurotransmitter**. Once a neurotransmitter locks in on the receptor, the neurochemical signal is changed to an electrical or another chemical signal and travels down the neuron. The receptor sites in which benzodiazepines elicit their action are found in various regions of the brain, and the specific receptors are also known as **benzodiazepine receptors**. The coupled reaction of benzodiazepines to the receptors facilitates the inhibitory action of the neurotransmitter **γ -aminobutyric acid (GABA)** in that region of the brain. Benzodiazepines’ action on GABA receptors appears to produce their anxiolytic, sedative, and anticonvulsant actions. Xanax is an effective anxiolytic and hypnotic medication.

Dosing Information

The usual starting dosage for Xanax in treating anxiety disorders is 0.25–0.5 mg three times a day. The dosage may be gradually increased to a therapeutic range of 1–4 mg/day. The maximum dosage should not exceed 4 mg/day.

For treatment of panic disorder, higher dosages may be required. The initial dosage is 0.5 mg three times a day, with increases at intervals of 3–4 days in increments of no more than 1 mg/day. The average dosage for treating panic disorder is approximately 6 mg/day, but some patients may require dosages of up to 8 mg/day to achieve a successful response. Xanax is also available in extended-release tablets that may be taken once a day.

Common Side Effects

The most common side effects reported with Xanax are sedation and drowsiness, especially shortly after initiation of therapy. Other frequent symptoms are impaired concentration and memory, feeling of dissociation (“spacey”), and impaired coordination.

Adverse Reactions and Precautions

Xanax affects alertness and coordination, and patients should exercise caution when driving or performing other tasks requiring alertness while taking this medication. Seniors may be more adversely affected, because it may affect their coordination and reflexes and lead to falls and injury. Taking Xanax with other central nervous system (CNS) depressants such as alcohol, narcotics, and barbiturates may compound these CNS effects.

Prolonged use of benzodiazepines can lead to dependence, particularly with Xanax, which is associated with abuse. When the medication is abruptly withdrawn, symptoms of withdrawal may occur. Withdrawal symptoms include headache, vomiting, impaired concentration, confusion, tremor, muscle cramps, and seizures. In patients who have received Xanax for more than several months or at high dosages (e.g., 4 mg/day or greater), abrupt discontinuation of the medication should be avoided because they may be susceptible to withdrawal symptoms. Xanax has also been associated with seizures after abrupt withdrawal. The risk of seizures appears to be greatest 24–72 hours after discontinuation. Gradual tapering of the daily dosage reduces the risk of withdrawal symptoms and seizures. One recommended tapering schedule is to decrease Xanax by no more than 0.5 mg every 3 days. If withdrawal symptoms emerge, the patient should be placed back on the previous dosage. Some patients may require a much slower dosage reduction over several months or longer.

Benzodiazepines are centrally acting depressants, and they can depress respiration. This is particularly problematic for patients with chronic obstructive pulmonary disease and emphysema. Patients with sleep apnea—a sleep disorder in which respiration is interrupted by long pauses during the sleep cycle—should not take Xanax or other benzodiazepines. The respiratory depressant effect of benzodiazepines may further suppress the respiratory drive in these patients and put them at risk for respiratory depression and death.

Benzodiazepines may induce paradoxical *reactions* in susceptible individuals. Instead of the expected depressant effects, the medication produces excitement, aggression, anger, uninhibited behavior, and rage in susceptible individuals. These reactions are more likely to occur in seniors, people with brain damage, and individuals with personality and impulse-control disorders.

Possible Drug Interactions

A number of drug interactions have been reported with Xanax; these are summarized in the table below.

Central nervous system (CNS) depressants (e.g., alcohol, narcotics, barbiturates, hypnotics), antihistamines, kava (herbal supplement)	Combination of Xanax with another CNS depressant or an antihistamine may impair coordination and breathing and increase sedation.
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Tagamet (cimetidine), Serzone (nefazodone), erythromycin, Biaxin (clarithromycin), TAO (troleandomycin), oral contraceptives, Antabuse (disulfiram), Prozac (fluoxetine), Luvox (fluvoxamine), isoniazid (e.g., INH), Diflucan (fluconazole), Nizoral (ketoconazole), Sporanox (itraconazole), Cipro (ciprofloxacin), protease inhibitors (e.g., Crixivan, Norvir, Fortovase), grapefruit juice

When any of these medications, as well as grapefruit juice, are taken concurrently with Xanax, they can inhibit the metabolism of Xanax and increase its levels. This may enhance the adverse effects (e.g., sedation, drowsiness, respiratory depression) of the benzodiazepine. If the medication is administered concurrently with Xanax, a dosage reduction for Xanax may be necessary.

Antacids (e.g., Maalox), Tegretol (carbamazepine), theophylline (e.g., Theo-Dur), St. John's wort

The combination of any of these medications may decrease the therapeutic effect of Xanax.

Patients taking Xanax should not consume alcohol because the combination may increase sedation and drowsiness.

Use in Pregnancy and Breastfeeding: Pregnancy Category D

Benzodiazepines and their metabolites are known to cross the placenta and accumulate in the fetal circulation. They have been associated with increased risk of congenital malformations when used during pregnancy, causing cleft lip and heart deformities in the fetus. Benzodiazepines should be avoided during pregnancy, particularly in the first trimester. The use of benzodiazepines during pregnancy should be considered only when the need for the medication outweighs its risk and alternative therapies have failed.

Nursing mothers should not take Xanax, because it will pass into breast milk and be ingested by the baby. If stopping the drug is not an alternative, breastfeeding should not be started or should be discontinued.

Overdose

Overdoses from oral ingestion of benzodiazepines alone are generally not fatal. Most fatalities reported with benzodiazepines involve multiple medication ingestion, particularly the combination of a benzodiazepine with another CNS depressant, such as alcohol, narcotics, or barbiturates.

Mild symptoms of benzodiazepine overdose include drowsiness, confusion, somnolence, tiredness, impaired coordination, clumsiness in walking (ataxia), and slow reflexes. Benzodiazepine overdose, when these agents are taken alone, is rarely fatal. When multiple medications are implicated in benzodiazepine overdose, severe symptoms include difficulty breathing, slowed heart rate, low blood pressure, loss of coordination, and loss of consciousness leading to coma and, potentially, death.

Any suspected overdose should be treated as an emergency. The person should be taken to the emergency department for observation and treatment. The prescription bottle of medication (and any other medication suspected in the overdose) should be brought as well, because the information on the prescription label can be helpful to the treating physician in determining the number of pills ingested.

Special Considerations

- If you miss a dose, take it as soon as possible, but if it is close to the next scheduled dose, skip the missed dose and continue on your regular dosing schedule. Do not take double doses.

