



Prozac, Prozac Weekly, and Sarafem (fluoxetine)

Generic name: Fluoxetine

Available strengths: 10 mg, 15 mg, 20 mg, 40 mg capsules or tablets;
90 mg delayed-release capsule (Prozac Weekly);
20 mg/5 mL oral solution

Available in generic: Yes, except Prozac Weekly

Drug class: Selective serotonin reuptake inhibitor
antidepressant

General Information

Prozac (fluoxetine) was approved by the U.S. Food and Drug Administration (FDA) for the treatment of major depressive disorder, obsessive-compulsive disorder (OCD), bulimia nervosa (a binge eating and vomiting disorder), and premenstrual dysphoric disorder (PMDD). In clinical studies, the use of fluoxetine in children and adolescents (ages 7–17) was found to be safe and effective for treating OCD and major depression. Fluoxetine was recently approved by the FDA in this population for treatment of OCD and major depression. The use of a medication 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. Prozac may be used to treat other psychiatric disorders, including panic disorder, generalized anxiety disorder, social anxiety disorder, and posttraumatic stress disorder.

Prozac was the first selective serotonin reuptake inhibitor (SSRI) approved by the FDA for the treatment of PMDD. The symptoms occur during a specific phase of the menstrual cycle just prior to menstrual bleeding, and the woman typically presents with labile mood, anger, irritability, and depression. Fluoxetine is marketed under the brand name Sarafem specifically for PMDD.

Prozac is a **serotonin**-specific medication that works by blocking the reuptake of the neurotransmitter serotonin back into brain cells, thereby increasing its levels in the brain. Depression and other mental disorders may be caused by abnormally low levels of serotonin. This abnormality may in turn produce changes in affected areas of the brain, resulting in psychiatric symptoms such as depression or anxiety. The presumed action of Prozac and other SSRIs is to increase serotonin levels, which may help to restore those areas of the brain to normal functioning.

Dosing Information

The usual starting dose of Prozac in depression is 20 mg (capsule or tablet), taken once a day in the morning. In treating young and lower-weight children, the recommended starting dosage is 10 mg/day. If no improvement is seen after 3–4 weeks, the dosage may be increased in increments of 10 mg to a maximum dosage of 60 mg/day. If the patient's symptoms are stable with a 20 mg/day dosage, the dosage may be switched to 90 mg of the delayed-release Prozac Weekly once a week for dosing convenience, with similar therapeutic effect. Seniors and people with severe or chronic medical conditions may require a lower starting dosage. Generally, higher dosages of Prozac are required for treatment of other psychiatric disorders. Treatment of OCD, for example, may require a dosage of 80–100 mg/day for the average adult and 20–60 mg/day for children and adolescents. For treatment of PMDD, Prozac is marketed under the brand name Sarafem, which merely contains Prozac. For patients who cannot take a tablet or capsule, Prozac also comes in liquid form.

For most people, it may take as long as 3–4 weeks to experience the optimal effects of the medication. The duration of medication treatment depends on the individual's personal psychiatric history and family history. For instance, the length of medication treatment will be longer for those who have had two or more previous episodes of major depressive disorder. For most people, the medication may be tapered 6 months after their depression responds to treatment. However, a small percentage of patients will continue to have depressive symptoms after their antidepressant is reduced or stopped. These individuals may benefit from continuing to take Prozac for 1 year or longer.

Common Side Effects

The most common side effects reported with Prozac are nervousness, jitteriness, nausea, and insomnia. There is a high rate of sexual dysfunction in individuals taking Prozac. The most frequent sexual side effects reported were delayed or lack of orgasm in women and retarded ejaculation in men. Some people may experience decreased desire or lack of interest in sexual drive. Occasionally, individuals report headaches, sleepiness, changes in appetite, excessive sweating, stomach cramps, diarrhea, and constipation with Prozac.

Patients should discuss these side effects with their physician, especially if they continue to be bothersome 3–4 weeks after the medication is started. If a rash or any other severe symptoms develop, patients should contact their physician immediately.

Adverse Reactions and Precautions

Prozac may cause drowsiness in some people. Patients should not drive or operate machinery until they are certain that their alertness or coordination is not affected by the medication. Patients with a known allergy to Prozac or who have experienced a severe reaction after taking it should not take Prozac.

Use in Pregnancy and Breastfeeding: Pregnancy Category C

Prozac has not been tested in women to determine its safety in pregnancy. The effects of the medication on the developing fetus in pregnant women are unknown. However, newborn babies exposed to antidepressants such as SSRIs late in the third trimester developed complications requiring prolonged hospitalization, respiratory support, and tube feeding. Women who are pregnant or may become pregnant should discuss this with their physician. Some women may experience a recurrence of their depression when they stop their antide-

pressant. In these circumstances it may be necessary to restart the medication or seek an alternative medication or treatment.

Nursing mothers should not take Prozac because small amounts 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.

Possible Drug Interactions

Prozac may increase the levels of other medications by inhibiting their metabolism in the liver. This interaction may result in higher levels of the inhibited medication and thus increase its potential for toxicity. The clinically significant drug interactions with Prozac are summarized in the table below.

Coumadin (warfarin)	Prozac may increase Coumadin levels and its anticoagulant effects, resulting in bleeding. This interaction is less likely than with other SSRIs, but Coumadin therapy should be monitored closely when starting any SSRI.
Tricyclic antidepressants (TCAs)	Prozac may increase the levels of TCAs and the potential for toxicity.
Valium (diazepam)	Prozac may elevate levels of diazepam and diazepam-like medications, enhancing sedation and impairment of coordination.
Anticonvulsants	Prozac may elevate levels of anticonvulsants such as Dilantin (phenytoin), Tegretol (carbamazepine), and Depakote (divalproex sodium), increasing the potential for toxicity.
Antipsychotics	Prozac may elevate levels of antipsychotic medications, including Haldol (haloperidol), Clozaril (clozapine), thioridazine, and Risperdal (risperidone), possibly increasing their side effects.

Other medications, including herbal supplements (such as St. John's wort), that boost serotonin may result in excessive levels of that neurotransmitter when combined with Prozac and produce a toxic syndrome known as **serotonin syndrome**. The early signs of serotonin syndrome are restlessness, confusion, tremors, flushing, and involuntary muscle jerks. If the medications are not stopped, the individual may develop more life-threatening complications resulting in muscle disorders, high fever, respiratory problems, clotting problems, and destruction of red blood cells that may lead to acute renal failure. Patients taking Prozac should be alert to the possible signs of serotonin syndrome, which require immediate medical attention and discontinuation of the serotonin-boosting medications.

Antidepressants known as **monoamine oxidase inhibitors** (MAOIs) should not be taken together with Prozac, because the combination may potentially produce a toxic reaction that includes elevated temperature, high blood pressure, and extreme excitation and agitation. Patients should consult their physician or pharmacist before taking any new medications, including over-the-counter medications and herbal supplements, with Prozac.

Patients taking Prozac should avoid alcohol or should consume it in moderation because the combination may worsen depression.

Overdose

Like other SSRIs, Prozac is much safer in overdose than the older TCAs and some of the newer antidepressants. However, unlike the other SSRIs, Prozac has a very long duration of action, and therefore it takes much longer to eliminate Prozac from the body. Deaths from massive overdoses of Prozac have been reported. Usually, Prozac was combined with other medications in cases of fatal outcomes. The most common symptoms associated with Prozac overdose include somnolence, confusion, nausea, vomiting, rapid heart rate, and seizures.

Any suspected overdose should be treated as an emergency. The person should be taken to the emergency room 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

Most cases of major depression can be treated successfully, usually with medication, psychotherapy, or both. The combination of psychotherapy and antidepressants is very effective in treating moderate to severe depression. The medications improve mood, sleep, energy, and appetite while therapy strengthens coping skills, deals with possible underlying issues, and improves thought patterns and behavior.

In general, antidepressants alone help about 60%–70% of those taking them. Although a few individuals may experience some improvement from antidepressants by the end of the first week, most people do not see significant benefits from their antidepressants until after 3–4 weeks, and it can sometimes take as long as 8 weeks for the medication to produce its full effects. Thus it is critical that patients continue to take their antidepressant long enough for the medication to be beneficial and that patients not get discouraged and stop their medication prematurely if they do not feel better immediately.

In short-term studies, antidepressants were found to increase the risk of suicidal thinking and behavior in children and adolescents with major depression and other psychiatric disorders. The FDA requires the prescriber to warn of this risk in children and adolescents when starting antidepressant therapy. According to the FDA findings, the risk of suicidal thoughts and behaviors associated with antidepressants is age-related. This phenomenon tends to occur in the younger population and is most likely to occur early in the course of treatment. In adults over 24 years of age, there did not appear to be an increased risk of suicidality with antidepressants compared with placebo. In patients over age 65, the findings showed that antidepressants had a “protective effect” against suicidal thoughts and behavior. Other studies have found that when more people in a community are taking antidepressants, the suicide rate is lower.

The risk of suicide is inherent in depression and may persist until the individual responds to treatment. After starting or changing antidepressant therapy, the person, especially a child or adolescent, should be closely observed for worsening signs of depression, and the family or caregiver should communicate any concerns to the physician.

- **Warning:** Always let your physician or a family member know if you have suicidal thoughts. Notify your psychiatrist or your family physician whenever your depressive symptoms worsen or whenever you feel unable to control suicidal urges or thoughts.
- Do not discontinue Prozac abruptly. Your dosage should be tapered gradually to prevent discontinuation symptoms.
- If you miss a dose, take it as soon as possible, within 2–3 hours of the scheduled dose. 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.
- Prozac may be taken with or without food.
- Store the medication in its originally labeled, light-resistant container, away from heat and moisture. Heat and moisture may precipitate breakdown of your medication, and the medication may lose its therapeutic effects.
- Keep your medication out of reach of children.

If you have any questions about your medication, consult your physician or pharmacist.

