



# Ritalin, Ritalin-SR, and Ritalin LA (methylphenidate)

Generic name: Methylphenidate

Available strengths: 5 mg, 10 mg, 20 mg immediate-release tablets;

20 mg sustained-release tablet (Ritalin-SR);

10 mg, 20 mg, 30 mg, 40 mg extended-release capsules (Ritalin LA)

Available in generic: Yes, except Ritalin-SR

Drug class: Stimulant

## General Information

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**Ritalin (methylphenidate), Ritalin-SR (methylphenidate sustained release), and Ritalin LA (methylphenidate extended release)** are psychostimulants, better known as stimulants. Ritalin is used primarily in treating attention-deficit/hyperactivity disorder (ADHD) and narcolepsy, a condition characterized by daytime somnolence in which the patient periodically falls into a deep sleep during the day. Narcolepsy is a disorder of the sleep-wake control mechanisms within the brain that interferes with both daytime wakefulness and nighttime sleep.

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. Ritalin is often used to augment antidepressants in treating refractory depression. For patients with chronic treatment-resistant depression, for example, Ritalin in combination with antidepressants can provide symptomatic relief and improvement beyond that experienced with antidepressants alone.

In numerous clinical studies and decades of clinical experience, Ritalin has clearly demonstrated improvement in outcome for children with ADHD. Ritalin increases the child’s ability to concentrate, extends attention span, and decreases hyperactivity. Adults with ADHD also benefit from therapy with Ritalin. Ritalin helps them concentrate and remain focused on their tasks, increases their attention span, and decreases impulsivity and hyperactivity.

Ritalin comes in an immediate-release tablet that lasts 2–5 hours and should be administered two or three times a day for consistent daytime response. Ritalin-SR, a sustained-release tablet, has a duration of approximately 6–8 hours and can be taken once a day in the morning in place of regular Ritalin. A single tablet provides a duration of effect corresponding to the total daily dosage of regular Ritalin. The disadvantage of the SR tablet is that it takes about 2–3 hours before peak clinical effects are seen, which may be problematic, es-

pecially for school-age children. Ritalin LA, a dual action preparation, overcomes this drawback. Ritalin LA provides both immediate and extended release of the stimulant. The LA capsules contain methylphenidate incorporated into two types of beads: one type releases the medication immediately after ingestion, while a second type provides gradual release of methylphenidate lasting up to 8 hours. The stimulant in the body decreases by evening, so that by bedtime the medication should not interfere with sleep.

Because Ritalin, Ritalin-SR, and Ritalin LA are stimulants, they are closely regulated controlled substances. The physician must write a new prescription each time they are dispensed, and a prescription cannot be refilled.

## Dosing Information

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For adults, the recommended starting dosage of Ritalin is 5 mg twice a day, and the dosage is adjusted based on the individual's response. The average dosage is 20–30 mg/day, administered two or three times daily. The maximum dosage should not exceed 60 mg/day. Immediate-release Ritalin may be converted to once-a-day dosing with the Ritalin-SR tablet by replacing the total daily dosage of Ritalin with an equivalent dose of Ritalin-SR. The SR tablet should be swallowed whole and not chewed or crushed.

Individuals new to methylphenidate may initially take 20 mg of Ritalin LA once a day in the morning. The dosage may be increased in weekly intervals by 10 mg, based on response, up to a maximum dosage of 60 mg/day. The medication of individuals who are currently taking Ritalin or Ritalin-SR may be converted to Ritalin LA by substituting the daily dosage with the nearest equivalent dosage of the LA capsule. For example, the dosage of an individual taking 20 mg of Ritalin two times a day (40 mg/day) may be converted to a single dose of 40 mg of Ritalin LA once a day.

Ritalin-SR tablets and Ritalin LA capsules should be swallowed whole and not chewed or crushed. The LA capsules may be opened and sprinkled over a spoonful of applesauce and swallowed without chewing.

## Common Side Effects

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The common side effects associated with taking Ritalin are rapid heart rate, palpitations, nervousness, restlessness, insomnia, dry mouth, constipation, nausea, diarrhea, loss of appetite, weight loss, and elevation of blood pressure.

## Adverse Reactions and Precautions

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Ritalin has a high potential for abuse. Individuals with a history of alcohol and substance abuse may be at risk for abusing stimulants. Individuals who abuse Ritalin develop tolerance and psychological dependence that may result in addiction. With long-term abuse of Ritalin and the resulting sleepless nights, the individual may develop psychotic symptoms.

Ritalin may increase blood pressure. Individuals with a history of high blood pressure or heart disease should be cautious about taking Ritalin because it can exacerbate these conditions. Uncontrolled high blood pressure can have serious consequences, including stroke and heart attack. Patients taking Ritalin should routinely check their blood pressure.

Individuals with a history of seizure disorder should be cautious while taking Ritalin, because it can lower the seizure threshold and increase susceptibility for seizures.

In children and adolescents who are still in their growth period, Ritalin can suppress linear growth. Physicians commonly interrupt treatment on weekends and holidays when children are not in school, for growth catch-up. Children and adolescents taking Ritalin require close monitoring for growth suppression and periodic measuring of their height. This effect is not a concern in the adult population.

Ritalin may make tics worse in individuals with a tic disorder (i.e., twitching of a muscle group, especially in the face).

Ritalin should be avoided, or used with caution, by patients with a diagnosis of schizophrenia or bipolar disorder. Stimulants are frequently abused in this population, and high doses of Ritalin may trigger psychosis and mania.

## Use in Pregnancy and Breastfeeding: Pregnancy Category C

Ritalin 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. Women who are pregnant or may become pregnant should discuss this with their physician.

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

## Possible Drug Interactions

Ritalin should not be taken in combination with a group of antidepressants known as **monoamine oxidase inhibitors** (MAOIs). The combination may precipitate increases in blood pressure. This and other significant drug interactions reported with Ritalin are summarized in the table below.

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| Monoamine oxidase inhibitors (MAOIs)<br>(e.g., Parnate, Emsam, Nardil, Marplan) | MAOIs should not be taken with methylphenidates or dexamethylphenidate (e.g., Concerta, Ritalin, Focalin). The combination may precipitate dangerous elevation of blood pressure.  |
| Weight-loss medications (e.g., Meridia)   | Weight-loss medications, prescription and non-prescription, should not be taken with methylphenidates or dexamethylphenidate. The combination may increase blood pressure or cause irritability, insomnia, and other adverse reactions from excessive stimulation. |
| Coumadin (warfarin)   | Methylphenidate and dexamethylphenidate may increase the anticoagulant action of Coumadin.   |

## Overdose

The severity of Ritalin overdose depends on the amount ingested. The individual may experience a progression of the following symptoms from an acute overdose: restlessness, agitation, irritability, insomnia, hyperactivity, confusion, elevated blood pressure, rapid heart rate, delirium, hallucinations, irregular heart-beat, convulsions, coma, circulatory collapse, and death.

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.

