



Insulin Injection, Rapid-Acting

IN-su-lin

Illustration of how to give a subcutaneous shot with a syringe

What are other names for this medicine?

Type of medicine: antidiabetic

Generic and brand names: rapid-acting insulin aspart, injection; rapid-acting insulin lispro, injection; NovoLog PenFill; NovoLog; NovoLog FlexPen; Humalog Cartridge; Humalog; Humalog KwikPen; Humalog Pen

What is this medicine used for?

This medicine is given by injection (shots) to treat diabetes mellitus. It helps maintain the proper amount of sugar in the blood.

It may be used for other conditions as determined by your healthcare provider. It may also be given by insulin pump.

What should my healthcare provider know before I take this medicine?

Before taking this medicine, tell your healthcare provider if you have ever had:

- an allergic reaction to insulin
- adrenal or pituitary gland problems
- diabetic ketoacidosis (DKA)
- diabetic neuropathy (nerve problems)
- hypoglycemic episodes (low blood sugar)
- kidney or liver disease
- thyroid problems

Tell your healthcare provider if you get sick or injured, or if you are scheduled to have surgery.

Females of childbearing age: Tell your healthcare provider if you are pregnant or plan to become pregnant. Do not breast-feed while taking this medicine without your healthcare provider's approval.

How do I use it?

This insulin is available in:

- bulk vials (usually 10 mL bottles). You must purchase sterile disposable insulin syringes with needles to give the shots. Your pharmacist can help you choose the proper syringes and needles.
- disposable pens (insulin delivery devices), which include insulin cartridges
- prefilled disposable syringes ready for use.
- reusable pens with disposable prefilled cartridges (Cartridges should only be used with the pen supplied by the manufacturer.)

This type of insulin should look clear. Do not use it if it is cloudy or has particles in it.

This type of insulin acts quickly for a short time, so it may be used with a longer-acting insulin or with a diabetes medicine taken by mouth.

If you mix this type of insulin in a syringe with a longer-acting insulin, always draw this insulin into the syringe first, before drawing in the longer-acting insulin.

This medicine is usually injected 5 to 15 minutes before eating. Follow your healthcare provider's instructions exactly.

If you use an insulin pump, do not mix with other types of insulin. Replace the insulin in the reservoir as directed by your healthcare provider.

Check the label on the medicine for directions about your specific dose. Your healthcare provider will adjust your dosage based on your blood sugar levels. Measure your dosage very carefully to avoid an overdose (insulin shock), which can lead to a coma. Do not stop taking this medicine without your healthcare provider's approval.

Follow exactly any instructions that are supplied with the product your healthcare provider has prescribed. If you do not understand how to use the injection devices or disposable insulin syringes, ask your healthcare provider or pharmacist to demonstrate. Be sure you understand how to set your correct dosage.

These shots are given in your abdomen, upper arm, or thigh. Follow your healthcare provider's instructions carefully regarding dosage and times of injection.

Most people with diabetes give themselves these shots or have someone at home give them. Be sure you know how and when to give them and how much medicine to use. Follow these steps to inject the insulin from a syringe. Use sterile, disposable syringes and needles. Use them only once and dispose of them safely, following your healthcare provider's instructions.

Wash your hands before using this medicine. Follow these steps to give yourself the shots:

1. Choose a site on your abdomen around the belly button but not in the belly button (or in the thigh, upper arm, or other sites). Each day, choose a different spot for the shot to lessen irritation.
2. Use an alcohol swab to clean the skin where you will give yourself the shot.
3. Gently pinch up the skin and insert the needle into the skin at a 45° to 90° angle. After you insert the needle completely, release your grasp of the skin.
4. Inject all of the solution by gently and steadily pushing down the plunger.
5. After you have given yourself the shot, withdraw the needle and syringe and press the alcohol swab at the spot where the shot was given.
6. Discard the syringe, needle, and drug vial when empty. Use the syringes and needles **ONLY ONCE**. Throw them away after use. Put used needles in rigid puncture-resistant containers with lids or caps, such as heavy plastic bleach bottles with screw caps. **DO NOT** throw needles directly into garbage cans or dumpsters.

If you are not sure of how to give yourself the shots, ask your healthcare provider or pharmacist for help.

There are several types, strengths, and brands of insulin. Never change the type, strength, or brand of insulin without your healthcare provider's approval.

What if I miss a dose?

Ask your healthcare provider what to do if you miss a dose.

What if I overdose?

If you or anyone else has intentionally taken too much of this medicine, call 911 or go to the emergency room right away. If you pass out, have seizures, weakness or confusion, or have trouble breathing, call 911. If you think that you or anyone else may have taken too much of this medicine, call the poison control center. Do this even if there are no signs of discomfort or poisoning. The poison control center number is 800-222-1222. Symptoms of an acute overdose may include: extreme weakness, blurred vision, sweating, fruity breath odor, tremors, stomach pain, confusion, seizures, coma.

What should I watch out for?

Follow the diet and exercise program prescribed by your healthcare provider. Eat regular meals and avoid skipping meals, even when you travel or are sick. Your dosage of insulin is based on your food intake. If you do not follow the meal or exercise plan, you may have too much or too little insulin in your blood. Have your blood sugar tested

regularly. If your healthcare provider wants you to test your blood sugar at home, follow his or her directions carefully. Depending on the severity of your diabetes, your healthcare provider may want you to check your blood sugar daily using a machine. Follow your healthcare provider's advice exactly.

Alcohol may affect your response to medicine and food. Do not drink alcohol unless your healthcare provider approves.

Low blood sugar (hypoglycemia) can occur if you miss or delay meals, drink too much alcohol, take too much insulin, or exercise more than usual. Symptoms of low blood sugar include confusion, irritability, shaking, weakness, strong hunger, cold sweats, headache, nausea, vision problems, fast heartbeat, and feeling faint. Treat the condition quickly by eating or drinking something with sugar in it such as candy, juice, or nondiet soda. Taking glucose tablets or gels (available in drug stores) is another quick way to treat hypoglycemia.

Contact your healthcare provider if you develop the signs of high blood sugar. Some of the signs of high blood sugar are increased thirst, drowsiness, fruity-smelling breath, flushing, increased urination, and loss of appetite. This can occur if you do not take enough insulin, skip a dose, or do not follow your diet.

If you need emergency care, surgery, or dental work, tell the healthcare provider or dentist you are taking this medicine. Wear some form of ID stating that you are a diabetic (such as a Medic Alert bracelet). If you become unconscious, the ID tells emergency healthcare providers that you are a diabetic and need special care.

What are the possible side effects?

Along with its needed effects, your medicine may cause some unwanted side effects. Some side effects may be very serious. Some side effects may go away as your body adjusts to the medicine. Tell your healthcare provider if you have any side effects that continue or get worse.

Life-threatening (Report these to your healthcare provider right away. If you cannot reach your healthcare provider right away, get emergency medical care or call 911 for help): Allergic reaction (hives; itching; rash; trouble breathing; tightness in your chest; swelling of your lips, tongue, and throat).

Serious (report this to your healthcare provider if these symptoms happen often): Symptoms of hypoglycemia (confusion, shaking, weakness, strong hunger, cold sweats, headache, nausea, vision problems, and feeling faint), seizures, fast or irregular heartbeat, swelling of hands or feet, vision changes.

Other: Redness or skin thickening at the spot where an injection has been given, minor rash or itching, weight gain.

What products might interact with this medicine?

When you take this medicine with other medicines, it can change the way this or any of the other medicines work. Nonprescription medicines, vitamins, natural remedies, and certain foods may also interact. Using these products together might cause harmful side effects. Talk to your healthcare provider if you are taking:

- ACE inhibitors such as benazepril (Lotensin), captopril, enalapril (Vasotec), fosinopril, lisinopril (Prinivil, Zestril), moexipril (Univasc), ramipril (Altace), and quinapril (Accupril)
- acetazolamide (Diamox)
- alcohol
- androgens such as methyltestosterone (Methitest) and testosterone (Androderm)
- angiotensin receptor II blockers such as candesartan (Atacand), eprosartan (Teveten), irbesartan (Avapro), losartan (Cozaar), olmesartan (Benicar), telmisartan (Micardis), and valsartan (Diovan)
- antibiotics such as ciprofloxacin (Cipro), isoniazid, levofloxacin (Levaquin), moxifloxacin (Avelox), norfloxacin (Noroxin), ofloxacin (Floxin), pentamidine (Pentam), and tetracycline
- antiseizure medicines such as fosphenytoin (Cerebyx) and phenytoin (Dilantin)
- antipsychotic medicines such as clozapine (Clozaril), olanzapine (Zyprexa), quetiapine (Seroquel), and ziprasidone (Geodon)
- antiretroviral (AIDS) drugs such as indinavir (Crixivan), nelfinavir (Viracept), ritonavir (Norvir, Kaletra), and saquinavir (Invirase)
- aspirin and other salicylates
- beta blockers such as atenolol (Tenormin), betaxolol (Kerlone), bisoprolol (Zebeta), carteolol, metoprolol (Lopressor, Toprol XL), sotalol (Betapace), nadolol (Corgard), pindolol, propranolol (Inderal), and timolol
- birth control pills and estrogens such as Premarin, Estinyl, Estratab, and Estrovis
- cholesterol-lowering medicines such as fenofibrate (TriCor) and gemfibrozil (Lopid)
- clonidine (Catapres)
- corticosteroids such as betamethasone (Celestone), cortisone, dexamethasone, fludrocortisone (Florinef), hydrocortisone (Cortef), methylprednisolone (Medrol), prednisolone (Orapred), prednisone, and triamcinolone (Aristospan, Kenalog)
- danazol
- diuretics such as bumetanide, chlorothiazide (Diuril), chlorthalidone (Thalitone), furosemide (Lasix), hydrochlorothiazide (Microzide), and torsemide (Demadex),
- disopyramide (Norpace)
- fluoxetine (Prozac)
- growth hormone (somatropin, Genotropin, Humatrope, Nutropin)

- natural remedies such as alfalfa, aloe, bilberry, bitter melon, chromium, fenugreek, garlic, ginseng, ginger, St. John's wort, stinging nettle, and willow bark
- lithium (Lithobid)
- MAO inhibitor antidepressants such as isocarboxazid (Marplan), phenelzine (Nardil), selegiline (Eldepryl, Emsam), and tranylcypromine (Parnate) (Do not take this medicine and an MAO inhibitor within 14 days of each other.)
- niacin (Niaspan, Slo-Niacin)
- octreotide (Sandostatin)
- oral medicines for diabetes such as acarbose (Precose), glipizide (Glucotrol), glyburide (DiaBeta, Glynase), metformin (Glucophage), miglitol (Glyset), nateglinide (Starlix), pioglitazone (Actos), repaglinide (Prandin), and rosiglitazone (Avandia)
- phenothiazines such as chlorpromazine, prochlorperazine, thioridazine, and trifluoperazine
- reserpine
- sulfa medicines such as sulfadiazine, sulfisoxazole, and sulfamethoxazole/trimethoprim (Septra, Bactrim)
- sympathomimetics such as albuterol (Proventil, Ventolin), epinephrine, and terbutaline (Brethaire, Brethine)
- thyroid medicines such as levothyroxine (Levothroid, Levoxyl, Synthroid, Unithroid), liothyronine (Cytomel), liotrix (Thyrolar), and thyroid USP (Armor Thyroid)

Ask your healthcare provider or pharmacist if medicines you are taking are in any of these groups.

Many nonprescription products contain sugar, alcohol, or other ingredients that may interfere with this medicine or increase your blood sugar. Check product labels for warnings for diabetics or ask your healthcare provider or pharmacist for advice.

If you are not sure if your medicines might interact, ask your pharmacist or healthcare provider. Keep a list of all your medicines with you. List all the prescription medicines, nonprescription medicines, supplements, natural remedies, and vitamins that you take. Be sure that you tell all healthcare providers who treat you about all the products you are taking.

How should I store this medicine?

Refrigerate unopened vials but do not freeze them. Take insulin out of the refrigerator and allow it to warm to room temperature before using it. Do not expose insulin to very hot temperatures, such as direct sunlight or leave it in a closed, hot car.

Always check the expiration date for insulin. Insulin may be stored at room temperature for up to 28 days or per the package instructions. Mark the bottle with the date it was opened. Discard it after 28 days or per the package instructions, even if the bottle is not empty. Check the package instructions for the proper storage information.

Insulin delivery devices, such as prefilled pens, may be stored in the refrigerator until you use them. Do not let the insulin freeze. Once it is used, keep the device at room temperature. Do not refrigerate the device or pen once it has been used. After you use the insulin delivery device or pen for the first time, it will last for only a certain number of days at room temperature and must then be discarded. Check the package instructions for the proper storage information.

Talk with your healthcare provider or pharmacist if you have any questions about how to store your insulin.

This advisory includes selected information only and may not include all side effects of this medicine or interactions with other medicines. Ask your healthcare provider or pharmacist for more information or if you have any questions.

Ask your pharmacist for the best way to dispose of outdated medicine or medicine you have not used. Do not throw medicines in the trash.

Keep all medicines out of the reach of children.

Do not share medicines with other people.

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