

# Insulin (Human) (Isophane) / Insulin (Human) (Neutral)

Novomix/Mixtard is a premixed insulin. It is a mix of long- and short-acting insulins. It is used to reduce high blood sugar levels in patient with diabetes mellitus. The short-acting insulin helps to bring down the high sugar level after a meal, while the long-acting insulin helps to control your blood sugar levels throughout the day.

## What is this medication for?

Novomix/Mixtard is a premixed insulin. It is a mix of long- and short-acting insulins. It is used to reduce high blood sugar levels in patient with diabetes mellitus. The short-acting insulin helps to bring down the high sugar level after a meal, while the long-acting insulin helps to control your blood sugar levels throughout the day.

## How should I take/use this medication?

Use Novomix/Mixtard as instructed by your doctor. Novomix is given 15 minutes before meals whereas Mixtard is given 30 minutes before meals as an injection into the fatty tissue under the skin. Ensure that Novomix/Mixtard appears cloudy or milky. Do not use if any white insulin substance remains at the bottom of the container or penfill.

### How to select an injection site

- Insulin should be injected into the fatty tissue that is between the skin and muscle layer
- Where you inject is important as it affects the speed that insulin is absorbed by the body
  - Abdomen/Stomach area – Fastest to get absorb
  - Arm – Intermediate rate to get absorb
  - Thigh and buttock – Slowest to get absorb
- You should rotate the injection site within the same area to prevent your body from forming “fatty lumps” or “hollow areas”.
- Do not inject insulin in the areas that are actively used during exercise.

### How to inject insulin

- Clean the skin before injecting the insulin.
- Pinch your skin to form a fold.
- Insert the needle at 90 degrees, right angle to the skin.
- During the injection, inject the insulin by pushing the plunger all the way down slowly with your index finger, wait for about 10 seconds before removing the needle and releasing the pinched skin.
- Keep the plunger down until the needle has been taken out from the skin. This will ensure you get the full dose. Do not rub or massage the injection site.
- Throw the syringe or pen needle away properly in a container that cannot be punctured.

## What should I do if I forget to take/use this medication?

If you miss a dose, inject the next dose at the usual time. Do not inject two doses to make up for a missed dose.

If you forget to inject your insulin, your blood sugar may get too high (hyperglycemia). Check your blood sugar with a home blood sugar meter (glucometer). When your blood sugar is high for too long, you may experience increased urination, feeling thirsty, feeling sick (nausea or vomiting), feeling drowsy or tired, abdominal pain, flushed face and a fruity (acetone) smell of the breath. These may be signs of a very serious condition called diabetic ketoacidosis where there is a build-up of acid in the blood because the body is breaking down fat instead of sugar. Please see the doctor immediately if you have the above symptoms.

## What precautions should I take?

Inform your doctor if

- you are allergic to this medication or any of the other ingredients of this medication
- you drink alcohol often
- you are eating less than usual due to sickness/ changed diet as your dosage may need to be changed
- travelling across time zones as timing of your insulin may change
- you are pregnant or breastfeeding

If your doctor has informed you that you need to do a fasting blood test, do not inject insulin until after you have your blood taken and are ready to eat.

## What are some side-effects that I need to seek medical advice immediately?

See a doctor or go to the hospital immediately if your blood sugar level is always low and experience symptoms even after taking amounts of sugar (see instructions below for management of low blood sugar).

## What are some other side-effects of this medication?

### Low blood sugar (Hypoglycaemia).

The most common side effect with the use of insulin is low blood sugar (hypoglycaemia).

Low blood sugar may occur if you:

- you inject too much insulin;
- you do not eat on time, miss your meals or change your diet;
- you exercise or work too hard just before or after a meal;
- you do not eat well due to an infection or illness (especially diarrhoea or vomiting);
- you drink alcohol on an empty stomach while injecting insulin;
- there is a change in your need for insulin;
- you have trouble with your kidneys or liver which gets worse.

Alcohol and some medicines can also affect your blood sugar levels.

Symptoms of low blood sugar are weakness, dizziness, hunger, sweating, trembling, blurred vision, walking unsteadily or fast heartbeat.

If you experience any of these low blood sugar symptoms, do the following immediately:

Step 1: Check your blood sugar with a home blood sugar meter (glucometer) if available. If your blood sugar level is less than 4 mmol/L, take 15 grams of sugar such as:

- 3 glucose tablets or
- Half a glass of fruit juice or
- 3 teaspoons of sugar, honey or syrup

Step 2: You should feel better after 15 minutes. If you have a home blood sugar meter, you should check your blood sugar level again.

Step 3: If your blood sugar level is still less than 4 mmol/L or you still have symptoms of low blood sugar, you should take another 15 grams of sugar.

If your symptoms still do not get better, see a doctor or go to the hospital immediately.

### Other side effects

Some patients may also experience mild pain, redness, inflammation, bruising, swelling, shrinking or thickening of the skin at the injection site. Continuous rotation of the injection site within the recommended areas for injections will reduce the chances of developing such reactions. They also usually go away in a few days to a few weeks.

You may also gain weight with insulin injections. Thus, you are encouraged to exercise regularly (at least 3 times a week) while on this medication.

## What food or medication should I avoid when I take this medication?

Avoid taking alcohol with this medication.

## How should I store this medication?

Store unopened insulin in a refrigerator between 2 to 8 degrees Celsius. Do not freeze. Do not keep insulin in a hot place (e.g. in a hot, closed vehicle, on top of a television set) or expose it to heat or sunlight. Insulin that is exposed to direct sunlight for too long may give it a yellow-brown colour. Do not use the insulin if this happens.

Once the insulin is in use, it no longer has to be refrigerated, but should be thrown away after 4 weeks.

Keep this medication out of reach of children. Throw away all expired medicines.

## How do I handle this medication safely?

Please refer to the product insert which can be found in the medication box, for instructions for use of your specific insulin pen / penfill.

## How should I dispose of this medication safely?

If used at home, you may throw this injection away along with the used needles, into a metal tin, or glass jar or thick plastic container (e.g. detergent bottles) to prevent any needle stick injury.



## Disclaimers

If you take more than the recommended dose, please seek medical advice immediately. The information provided on this page does not replace information from your healthcare professional. Please consult your healthcare professional for more information.

*This article is jointly developed by members of the National Medication Information workgroup. The workgroup consists of cluster partners (National Healthcare Group, National University Health System and SingHealth), community pharmacies (Guardian, Unity and Watsons), Pharmaceutical Society of Singapore and Ministry of Health.*

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