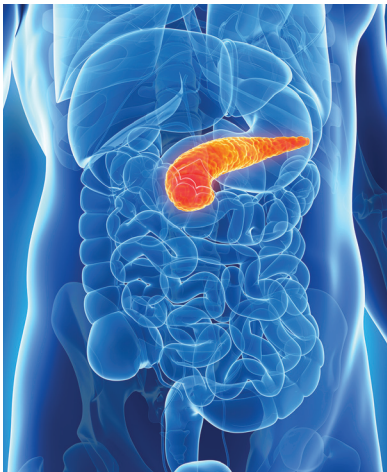


DIABETES & INSULIN

In diabetes, your body does not make enough insulin or use it properly. This causes your blood sugar to go too high. Oral medications, like metformin, may help your body to use insulin more efficiently. Other oral medications can help your body make more insulin. However, these medicines often work for only a few years.



When the oral medications stop working, you will need to give yourself background and/or mealtime insulin shots to help control your blood sugar. If you need insulin, it does not mean that you have failed. It is just a part of diabetes.

Background insulin can help control your blood sugar when you are not eating. However, it does not cover the carbs that you eat at meals.

If the dose of background insulin is raised to cover spikes in blood sugars that happen after you eat, your body will have too much insulin in between your meals and while

A Few Common Carbs

- Breads
 - Cakes
 - Cookies
 - Soda
 - Pasta
- Rice
 - Crackers
 - Potatoes
 - Candy
 - Fruit



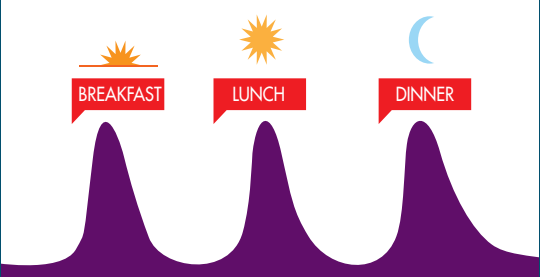
you sleep. This can cause your blood sugar to go too low. This is called hypoglycemia.

If you have high blood sugars after meals, this can cause tiredness, irritability, blurry vision, more frequent urination and thirst. Over time, high blood sugars can damage your feet, hands, and eyes.

By adding mealtime insulin you can better match the insulin to what your body would produce if you did not have diabetes. This will help prevent both low and high blood sugars so that you feel better and get less damage from the diabetes.

What is Insulin?

- Natural insulin is made from the pancreas to match what the body needs so your blood sugar stays in a normal range.
- The pancreas makes some amount of insulin all the time, called background or basal insulin.
- Background insulin helps to supply fuel to your muscles and controls the glucose that is released from your liver.
- Every time you eat, the pancreas releases a spike of insulin to match the amount of carbohydrates (carbs) you eat.
- Insulin helps process sugar that comes from the carbs and keeps the blood sugar from going too high.



Insulin Spikes When You Eat. Graph from adapted from Eli Lilly

WHICH MEALTIME INSULIN IS RIGHT FOR ME?



Please answer the following questions by circling your answers to help you and your doctor figure out which mealtime insulin might fit your situation the best.

1. How many meals do you eat each day?

I always eat 3 meals a day

I eat 2-3 meals a day

I eat 1 meal a day
2. Do you generally eat at the same time every day?

I eat at the same time most days

My schedule is sometimes unpredictable

No, my schedule is not predictable
3. Do you monitor your diet?

I eat whatever I want

I sometimes monitor my diet

I count carbs
4. How many insulin injections are you willing/able to take each day?

Only 1

2 - 3

Up to 4 or more
5. How often are you willing or able to check your blood sugar?

Once or twice a day

More than twice a day

As many as necessary
6. How difficult would it be for you to give yourself shots during the day or at work?

Very difficult most days

Somewhat concerning but I'm willing to try

I would be able to give shots during the day, before meals
7. How important is the medication cost/co-pay amount?

The most important

Somewhat important

Not the most important

If most of your answers are in this column, premixed insulin use is a possibility.

If most of your answers are in this column, adding rapid-acting insulin may be a better option.

If your answers mostly fall in the middle column, or have no clear pattern, talk to your doctor about what option would be best for you.

Rank the items listed below based on their importance to you. Use the range of 1 for most important to 5 for least important. If any of the factors are of equal importance to you, please rank them the same.

- ___ Cost/Co-Pay

___ Number of Injections

___ Having Flexibility
- ___ Being Able to Reach Goal/Best Control Possible
- ___ Avoiding Low Blood Sugar (Hypoglycemia)

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IS MEALTIME INSULIN RIGHT FOR ME?



WHAT TYPES OF INSULIN ARE THERE?

Different types of insulin are classified by how fast they work and how long they continue to work in the body. Many different types of insulin can be used to replace the insulin your body cannot make.

Background (Basal) Insulin	
Long-acting Insulin	Intermediate-acting Insulin (NPH)
<ul style="list-style-type: none">• Lasts about 24 hours• Absorbed slowly• Given once a day, sometimes twice	<ul style="list-style-type: none">• Lasts for 8-12 hours• Usually given twice a day• Appears cloudy and needs to be mixed by rolling vial/pen• Some people may be more prone to low blood sugar reactions than with long-acting insulin
Names:	Names:
<ul style="list-style-type: none">• Insulin glargine (Lantus)• Insulin detemir (Levemir)	<ul style="list-style-type: none">• Humulin N• Novolin N• Relion N
Mealtime (Bolus) Insulin	
Short-acting (Regular) Insulin	Rapid-acting Insulin
<ul style="list-style-type: none">• Lasts 6 hours or longer• Takes 30 minutes to start working• Tends to last longer than needed to cover a meal so some people are more likely to get low blood sugar	<ul style="list-style-type: none">• Absorbed quickly and last only for a few hours• Works faster than regular insulin and is used at mealtime to keep down the spike in blood sugar after you eat
Names:	Names:
<ul style="list-style-type: none">• Humulin R• Novolin R• Relion R	<ul style="list-style-type: none">• Insulin Lispro (Humalog)• Insulin Aspart (Novolog)• Insulin Glulisin (Apidra)
Premixed Insulin	
<ul style="list-style-type: none">• Used twice daily—before breakfast and dinner—and is cloudy	<ul style="list-style-type: none">• A mix of two types of insulin, either: rapid-acting & NPH or regular & NPH
Rapid-Acting & NPH	Regular & NPH
<ul style="list-style-type: none">• Humalog Mix 75/25• Humalog Mix 50/50• Novolog Mix 70/30	<ul style="list-style-type: none">• Humulin 70/30• Novolin 70/30• Relion 70/30

WHAT ARE MY CHOICES FOR MEALTIME INSULIN?

ADDING RAPID-ACTING INSULIN TO BACKGROUND INSULIN

- Adding rapid-acting insulin to the long-acting background insulin that you are already taking is a good way to make sure your blood sugar doesn't go too high after eating.
- You can start by adding a shot right before your largest meal, or the meal that causes the blood sugar to go the highest.
- Some people get their diabetes back into control with just this one extra shot.
- Others may need to add another shot before their second largest meal and third meal.

PROS

- You can adjust your insulin intake to fit less regular schedules and to more/less carb intake.
- It's an easier transition for many patients because they are already on basal insulin and they understand how insulin works.
- It can be used alone or with oral medicines.

CONS

- You need to carry the mealtime insulin with you.
- You may need to take 2-5 injections each day depending on how many meals need mealtime insulin.
- There are two co-pays. One co-pay is for the background insulin and one is for the mealtime insulin.

USING PREMIXED INSULIN

- Premixed insulin contains two different types of insulin in one shot: a rapid acting and intermediate acting insulin.
- Premixed insulin can control blood sugar levels after and between meals and works best if meals are on a regular schedule and fairly consistent in amount.
- It is usually used twice daily—before breakfast and before dinner.
- If injected before breakfast, the rapid acting part covers breakfast and the intermediate part covers lunch and between meals.
- If injected before supper, the rapid acting part covers supertime meal and the intermediate covers overnight.

PROS

- There's only one co-pay.
- You can take fewer shots (1-2 per day).
- It can be used alone or with oral medicines.

CONS

- You need to eat regular meals or you will get low blood sugar.
- There's a greater chance of low blood sugar at night.
- You cannot adjust one insulin without adjusting the other.



For more information,
visit www.AccurateInsulin.org