Practical guide to diabetes: two insulin injections per day

Information for patients
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Diabetes mellitus, usually known simply as diabetes, is a chronic disease which is still incurable. In Belgium there are an estimated 250,000 people living with diabetes. This number is expected to double by 2025. The disease causes characteristic high sugar levels in the blood. Proper blood sugar control is only possible if you have a good understanding of your diabetes treatment. Our aim in this brochure is to help you with this. If you have any questions, do not hesitate to ask your doctor, diabetes nurse or diabetes dietician.

The diabetes team
WHAT IS DIABETES MELLITUS?

Our bodies use sugar or glucose as a fuel. This means that sugar is an energy source for our bodies. It has to get into every cell in our bodies so that it can be used as energy. Insulin is what allows sugar to enter into our cells. It is a hormone which is normally produced in just the right quantities by the pancreas, which is a gland located in the abdomen.

If you have diabetes, your body does not make any or not enough insulin, or sometimes your body becomes unable to use the insulin that is made properly. As a result, sugar cannot get into the cells in your body in the normal way, so it cannot be used as an energy source. You notice this because the sugar level in your blood rises and yet you feel tired and listless (short of energy). The treatment involves injecting insulin under the skin every day and measuring your blood sugar level by pricking a finger.

YOUR TREATMENT: TWO INSULIN INJECTIONS PER DAY

The treatment for diabetes often involves two injections of mixed insulin per day. There are two options: you may be treated with traditional mixed insulin or you may be treated with a mixed insulin analogue.
1. Traditional mixed insulin

This insulin is a mixture of fast-acting and slow-acting insulin: Humuline 30/70®. Thirty percent of this insulin works quickly and 70 percent works slowly.

This insulin must always be injected before breakfast and before your evening meal, preferably about twenty minutes before eating.

The amount of insulin is prescribed by your doctor. You must inject the same amount every morning and every evening.

Example:

• before breakfast: 12 units Humuline 30/70®
• before your evening meal: 16 units Humuline 30/70®

2. Mixed insulin analogue

This insulin is a mixture of super fast-acting insulin and slow-acting insulin: Novomix 30®, Novomix 50®, HumalogMix 50®. This insulin must always be injected before breakfast and before your evening meal. You must eat immediately after injecting. The amount of insulin is prescribed by your doctor. You must inject the same amount every morning and every evening.

Example:

• before breakfast: 12 units Novomix 30®
• before your evening meal: 16 units Novomix 30®
How to inject insulin using the insulin pen.

1. Mix the insulin by gently shaking the pen.
2. Check whether insulin is coming out of the pen: dial two units and flush them out over your hand. If no drops of insulin appear, dial two more units and flush them out. Repeat this process until drops of insulin appear.
3. Set the dose (quantity) of insulin that you want to inject.
4. Take a fold of skin.
5. Insert the needle directly into the fold of skin.
6. Inject the insulin.
7. Wait for five seconds.
8. Release the skin and remove the needle.

Replacing the needle

Use the needle on your insulin pen no more than four times. This means that you can use the same needle for two days. You have to buy these needles yourself from a chemist or from the Vlaamse Diabetes Vereniging (VDV – Flemish Diabetes Association). One hundred needles cost about 20 euros, and the standard length is 8 millimetres.

Do not put your needles in the bin after use. Use a sharps box instead. You have to buy the sharps box yourself from a chemist, from the VDV or from a “mediotheek” (medical supplies store). When your sharps box is full, bring it to a waste collection point or hand it in as small hazardous waste.

Where should you store insulin?

Store your spare insulin in the vegetable drawer of your refrigerator. Pens containing insulin should be stored at room temperature.

Where should you inject?

Always inject insulin into your tummy or your thigh. You should keep to your selected area. If you choose to have your morning injection in the tummy and your evening injection in the thigh, do this every day. You may also choose to inject insulin into your tummy every day (both morning and evening).

Make sure you do not always inject in exactly the same spot. You should use areas both left and right of the navel and both in the left and the right thigh for injections.
MEASURING YOUR BLOOD SUGAR VALUES

Why should you measure your blood sugar?

The aim of treatment with insulin is to achieve a normal blood sugar level. A normal blood sugar level means a value of between 80 and 150 mg/dL. You must measure your own blood sugar level regularly so that you know if it is too high or too low.

When and how often should you measure it?

Measure your blood sugar every five days. On that day, measure your blood sugar four times:

✗ before breakfast and before your insulin injection
✗ before lunch
✗ before your evening meal and before your insulin injection
✗ before you go to bed

Write down each blood sugar value in your diabetes diary. Always indicate the dose of insulin that you have injected.

How to measure your blood sugar

1. Wash your hands.
2. Prepare the measuring device: insert the strip into the device. Check the code number.
3. Prepare the lancing pen: replace the needle each day when you take measurements (in the morning). Load the spring.
4. Place the lancing pen against the side of your fingertip.
5. Prick your finger and then massage the blood towards your fingertip. Rub from the base of your finger towards the tip.
6. Once there is a large drop of blood, allow the strip in the device to absorb it.
7. Wait for a few seconds and read off the result.
8. Write down the results in your diabetes diary.

DIET

Eat a healthy, regular diet. Follow the rules of the food triangle (see next page). Have three main meals each day that contain carbohydrates.

A few general tips:

- Eat at regular times and do not skip meals.
- Have three main meals each day that contain carbohydrates.
- Include something from every layer of the food triangle in every meal (see next page).
- Respect the ratios in the food triangle.
- Use healthy fats such as olive oil, sunflower oil etc.
- Moderate your salt intake.
- Keep to a healthy body weight.
- Discuss your alcohol consumption with your doctor, diabetes nurse or dietician.
- Take plenty of regular physical exercise. Physical exercise promotes energy consumption and makes your body more sensitive to insulin.
- Drink plenty of fluids. You need 1.5 litres of fluids every day.
If your blood sugar level is too low, this is called hypoglycaemia or just a hypo for short. This is a blood sugar level lower than 60 mg/dL. If this happens you will feel unwell. Possible signs of a hypo include: trembling, sweating, dizziness, hunger, impaired vision, headache, paleness etc.
1. Respond immediately and do not wait until you think you have a hypo.
2. If you do not feel well, measure your blood sugar immediately if possible.
3. If your blood sugar is lower than 60 mg/dL, you must immediately have some sugar:
   a. a glass of ordinary cola (not diet cola)
   b. or two lumps of sugar
   c. or four glucose tablets
4. Wait ten to fifteen minutes.
5. Then eat a piece of fruit or a sandwich.
6. Make a note of the hypo and the time in your diabetes diary.

WHAT IF YOUR BLOOD SUGAR LEVEL IS TOO HIGH?

A single high blood sugar reading is not a reason to panic. If you notice that your blood sugar levels are regularly higher than 200 mg/dL, you should contact the diabetes nurse on 016 34 34 75.

WHAT IF YOU ARE UNABLE/NOT ALLOWED TO EAT?

If you are not allowed to eat, for example before an investigation or when you are too sick to eat, you should still inject insulin. However you should only inject half of your usual amount of insulin. You should not take any other medications that you take for your blood sugar.

On that day, measure your blood sugar before meals and before going to bed. Always write this down in your diary.

Make sure you always have glucose available. If your blood sugar is too low, take four glucose tablets. If you have to fast for more than a few hours, always contact your doctor and/or your diabetes nurse.

WHERE TO GET YOUR EQUIPMENT?

If you need an insulin injection at least twice a day and measure your blood sugar level regularly yourself, you are eligible to receive a reimbursement for the necessary equipment from your mutual health fund. You can request this reimbursement at this hospital or at a hospital closer to your home which is registered under the diabetes agreement. Please ask your diabetes nurse about this. The diabetes nurse will complete the application. We will send you a form, which you must sign, date and return to the hospital as soon as possible (a pre-addressed envelope and stamp are provided). You have to make a new application every year, and the diabetes nurses will take care of this, too.
To be eligible for reimbursement, you must

1. Attend the diabetes outpatient clinic regularly (depending on your diabetes regime)
2. Consult your GP regularly about your diabetes.
3. Have an overall medical record kept by your GP.
4. Have a diabetes passport or request one via your mutual health insurer.
5. Visit the ophthalmologist every year.
6. Bring a 24-hour urine collection to the diabetes outpatient clinic every year.
7. If you are admitted to hospital for more than one month, inform your diabetes nurse.

Make sure you have always been given a new appointment. If your insulin pen or measuring equipment are faulty, please contact the diabetes nurses.

Where can you collect your equipment?

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<th>Measuring</th>
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<tr>
<td>Strips</td>
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<tr>
<td>Lancet pen (for pricking your finger)</td>
<td>Diabetes team</td>
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<td>Buy yourself (dispensing chemist, VDV or medical equipment supplier)</td>
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<tr>
<td>Needles for lancet pen</td>
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<tr>
<td>Batteries for measuring device</td>
<td>Buy yourself</td>
<td>Sharps boxes</td>
<td>Dispensing chemist, VDV, healthcare suppliers etc.</td>
</tr>
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</table>

WHAT MUST YOU BRING TO YOUR OUTPATIENT APPOINTMENT?

- Diabetes diary!
- Measuring device
- Insulin pens
- List of medications you are taking
- Annual ophthalmologist’s report
- Annual 24-hour urine collection

WHY IS YOUR DIABETES TREATMENT IMPORTANT?

The aim of good blood sugar control is to prevent the complications of diabetes, including the long-term complications. If you control your blood sugar properly, the risk of having these complications will be low. These complications can be divided into three groups:

- Problems affecting blood vessels (heart, eyes, kidneys, legs, brain)
- Problems affecting nerves
- Infections and foot problems

We will now briefly discuss ways of preventing foot problems. Foot problems usually occur due to a combination of causes: poor circulation, reduced sensitivity due to problems affecting nerves and
slow wound healing due to high blood sugar levels. If you have an ulcer on your feet, you may not notice it immediately because there is less pain or no pain at all. The ulcer will also heal less quickly. Prevention is better than cure. You can do this by taking a number of simple measures.

- Inspect your feet every day (including the soles).
- If you have an ulcer, treat it immediately. If the ulcer does not heal after two days, contact your doctor or diabetes nurse. Do not delay!
- Wear appropriate footwear (not too tight).
- Have calluses removed early (preferably by a pedicurist).
- Do not cut toenails too short and cut them straight across. You should preferably visit a pedicurist once every six weeks.
- Rub your feet with moisturising cream every day before going to bed. Do not rub cream between the toes.

If you do have any foot problems and/or sores, contact the diabetes nurses or your GP immediately.

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**For cold feet**

**RIGHT**
- Wearing thermal socks

**WRONG**
- Taking a hot bath
- Exposure to high temperatures, max. 37°C duration max. 5 min.

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**To clean your feet**

**RIGHT**
- Bathing feet

**WRONG**
- Sitting in bath
- Exposing feet to water temperatures higher than 37°C

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**Sitting**

**RIGHT**
- Sitting with feet in the air

**WRONG**
- Sitting with feet immersed in the water

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**Wearing socks**

**RIGHT**
- Wearing thermal socks

**WRONG**
- Wearing normal socks

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**Buying shoes**

**RIGHT**
- Buying shoes for diabetes

**WRONG**
- Buying normal shoes
You have type 2 diabetes.

How can you benefit from a care pathway?

To be eligible for a care pathway you must meet a number of conditions. There are two types: medical conditions and other conditions.

Medical conditions

You can start on a care pathway if you have type 2 diabetes and:

- ✔ you are currently receiving insulin treatment involving one or two insulin injections per day;
- ✔ treatment with tablets is not sufficient: treatment with insulin should be considered.

You do not meet the conditions for a care pathway if:

- ✔ you are pregnant (or wish to become pregnant);
- ✔ you have type 1 diabetes;
- ✔ you cannot attend an outpatient clinic.

Other conditions

- ✔ Your overall medical record must be managed by your GP.
- ✔ You must consult your GP at least twice a year and your specialist at least once a year.
- ✔ You must sign a care pathway contract. Your GP is responsible for coordinating the care pathway. You can only collect equipment (glucose meter, strips and lancets) from your dispensing chemist with a prescription from your GP.

You should also visit www.zorgtraject.be.

MORE INFORMATION

If you have any further problems or questions… Please contact the diabetes nurses, preferably on Monday and Tuesday afternoons, on 016 34 34 75.

If you have an urgent problem and you cannot reach the diabetes nurses, please contact your GP or contact the endocrinology department on 016 34 64 20.

If you have questions or problems in relation to your diet, you can contact the diabetes dieticians at any time. They can be contacted every working day between 09.00 and 16.00 on 016 34 10 86 or 016 34 10 88.