

Gestational Diabetes

You were screened for gestational diabetes. This test (a Glucose Tolerance Test) was done to see if your sugar metabolism works as it should. The test showed one or more blood sugar levels out of the normal range. In this leaflet you can read more about this (temporary) condition, which treatment is possible, what it could mean for future pregnancies and your further life.

Diabetes mellitus

Sugar (carbohydrates) is an important source of energy and building material for the body, just like fats and proteins. Sugars are found in all sorts of foods. It is absorbed via the intestines and then enters the bloodstream. The liver also makes sugar and brings it into the bloodstream. This makes your blood sugar rise while you are not eating anything. The sugars are transported from the bloodstream to the body cells. This requires insulin. You can compare insulin to a key that opens the cell's lock. Due to a shortage of insulin the glucose cannot be absorbed by the cells. This increases the glucose level in the blood. When glucose levels in your blood become too high the glucose leaves the body unused through the urine. This requires a lot of fluids, so you can get thirsty and start drinking more. The cells in your body are in need of glucose: they are hungry.

What happens during pregnancy?

Due to hormonal changes during pregnancy, the cells in your body become less sensitive to insulin. This happens with each pregnancy. By producing more insulin the body can ensure that the blood sugar levels do not rise. The cells becoming less sensitive often occurs in the second part of the pregnancy. This is the reason that screening for gestational diabetes is generally only done in the second half of the pregnancy. Normally the body can handle a pregnancy properly but if the cells become very unresponsive and / or if the pancreas cannot sufficiently produce the extra insulin, the blood sugar levels may rise.

Gestational diabetes can occur without experiencing any signs or symptoms. It occurs in 1 to 20 pregnancies.

How high blood sugar levels can affect your pregnancy and baby

- The baby can grow too large for the gestational age. This could lead to difficulties during the delivery and increases the likelihood of possibly needing a Caesarean section;
- Increased volume of amniotic fluid, because the child pees more with increased blood sugars;
- A delayed lung maturation in the child;
- A greater risk of pre-eclampsia in the mother;
- Your baby developing low blood sugars after the birth.

Treatment for gestational diabetes

Gestational diabetes is treated by the diabetes specialist nurse or the diabetes nurse and the dietitian. The specialist nurse or diabetes nurse is responsible for properly regulating the blood sugar of the mother during and after the pregnancy. To begin with, we will attempt to regulate blood glucose levels by adjusting your diet. You will attend a group education class with the dietitian and the diabetes specialist nurse or the diabetes nurse. Furthermore, it helps to exercise more to lower your blood sugar.

To get a good picture of your blood sugar levels you will receive a blood glucose meter from the diabetes specialist nurse or diabetes nurse to test your blood sugar levels at home. If the blood sugars cannot be adequately controlled with the changes in diet alone, a different treatment must be started. We don't prescribe tablets to improve blood sugar levels in pregnancy, because the affects of this medication on the unborn child are not known. This means that insulin injection is the only way left to lower blood glucose levels. About a quarter of women with gestational diabetes require insulin treatment.

Gestational diabetes does not automatically mean that you have to give birth in the hospital. If your blood sugars adjust well enough with change of diet only you will be able to have a homebirth. If your baby is growing too fast an outpatient delivery is advised. And if we expect your baby is growing too large an induction between 38–40 weeks may be considered.

Future

- If you are planning for a new pregnancy your (fasting) blood sugar must be checked beforehand by your general practitioner.
- If you have had gestational diabetes before, the chances of recurrence in a subsequent pregnancy is 90%. Therefore we already test for gestational diabetes when you are 16 weeks pregnant.

- After the delivery, the increased blood sugar levels disappear, but the increased risk does not disappear. Having gestational diabetes means, according to the latest insights, that 40 to 50% of women with gestational diabetes develop type 2 diabetes within 10 years. That is why we advise you to have your fasting blood sugar checked once a year at the GP for the first 5 years after the delivery. After 5 years it is then tested once every 3 years. A healthy lifestyle and the avoidance of being overweight can help prevent or delay type 2 diabetes.

Nutritional advice

Good nutrition is of great importance during your pregnancy. The most important dietary advice is: eat varied, do not overeat and eat enough vegetables, fruit and bread.

The following overview shows what you need per day. This is a general guideline. Individual differences are possible.

Product	Quantity
Bread- and bread products	4-7 slices
Potato's (or rice, pasta and legumes)	3-5 pieces 1-3 serving spoons
Vegetables	3-4 vegetable spoons
Fruit	2 portions
Dairy products	3 glasses (total ± 500 ml)
Cheese	1-2 slices
Meat/fish/chicken/egg/tahoe/tempeh	± 75 gram s (cooked)
Cutlery	1-2 slices
Halvarine	5 gram per slice
Butter/margarine/fry- and roast products for the preparation of hot meals	15 gram
Drinks (fluids) inclusive dairy products	1,5-2 liter

What is meant by 'sugar'?

All substances from the diet that are converted into glucose (sugar) in the body are important here. We call these substances: carbohydrates. There are various carbohydrates, including starch, fruit sugar, milk sugar and sugar from the 'sugar bowl'.

- Starches are found in potatoes, fries, bread, legumes, rice and pasta;
- Fruit sugar is found in fruit and fruit juices;
- Milk sugar is found in milk and milk products (with the exception of cheese);
- Sugar from the 'sugar bowl' consists of pure sugar. This sugar is also processed in all kinds of foods, for example soft drinks, sweets, biscuits, pastries, chocolate and sweet spreads. The amount of carbohydrates varies per food. You can read this on the packaging.

What can you pay attention to?

- Having a healthy diet;
- Divide your meals (carbohydrates) throughout the day;
- Eat six smaller meals rather than three large meals;
- Do not add sugar to tea and coffee (you can add 1 sweetener per cup);
- Limit the use of sugary products;
- Avoid soft drinks/lemonade with sugar. Instead you can drink 'light' soft drinks (max. 2 of 3 glasses per day).

General tips

- After dinner you can have a dessert with sugar, for example a small bowl of custard or fruit yoghurt. Have the dessert preferably an hour after dinner. This ensures a better distribution of the carbohydrates.
- If you eat sandwiches limit the use of sugary spreads/fillings to 1 sandwich unless it's a light version which you can have two portions of;
- You can have a portion of fruit twice a day, spread throughout the day. You can also drink unsweetened fruit juice instead of fruit, fruit juice also contains fruit sugars;
- You can have a normal biscuit with tea or coffee. Avoid cookies, cake, pastry and pie or limit eating those in case of special occasions. They contain a lot of carbohydrates.

In order to see whether all advice is actually necessary and effective, it is advisable to check your blood sugars immediately when you wake up (sober) and 1.5 hours after the start of a meal and write them down in your diary. Please take notes of any details at high and low

blood sugar levels. Depending on those blood sugar levels and details we can adjust your diet if needed. This we usually discuss during a telephone consultation.

Self-monitoring of blood sugars

The specialist nurse or diabetes nurse will give you information and instruction about checking your blood sugar. This way we get a good picture of your blood glucose levels throughout the day. This benefits your further treatment.

In this same appointment we will refer you for a hba1c blood test. The results will tell us whether you probably already have diabetes type 2 or not.

How do you check your blood sugar?

By means of a finger prick with a specially designed lancing device you take a drop of blood from the side of your fingertip. This drop is absorbed by a test strip, which is placed in a blood sugar meter. This meter then indicates the blood glucose level after a few seconds. This operation takes you a few minutes each time and is relatively easy.

How often do you measure blood sugar?

In the first week, it is recommended to measure your blood sugar levels 5 times daily: immediately after waking up (F), 1.5 hours after the start of breakfast (AB), 1.5 hours after the start of lunch (AL), 1.5 hours after the start of dinner (AD) and before sleeping (BS). The levels and your consumed foods can be noted in the diary. On day 1 we ask you to write down what and how much you have eaten and on the following days what action you have taken at an increased glucose level.

Contact with a dietitian

After your first week you will be called by the dietitian to discuss your daily blood sugar patterns. She will discuss with you which day and at what time she will be calling again. This appointment is confirmed by e-mail. On the day of the teleconference, we ask you to take photos of the completed day pattern before 3 pm and to email them. You do this by answering the e-mail that you received earlier from the dietitian with the appointment confirmation and adding the photos as an attachment.

If your blood sugar levels are too high, the dietitian will advise you to spread the carbohydrates even more throughout the day. If your blood sugars are in range, the advice is to take your blood sugar 4 times a day 2 days a week: F, AB, AL and AD until the end of your pregnancy. The dietitian keeps in touch with you about the daily blood sugar patterns. The explanation and (telephone) guidance of the dietitian are covered by your main(basis) insurance, it is deducted from your 'own risk' if you have any left.

What happens if your blood sugar levels remain too high?

The blood sugar levels are too high if the fasting value is above 5.3 mmol/l and 1.5 hours after the start of the main meals or above 7.0 mmol/l. If this cannot be solved by spreading the carbohydrates, there is a possibility that you will have to inject insulin. Besides that we will monitor the growth of your baby with extra ultrasounds.

Medical checkup

After you have started self-monitoring your blood sugars an appointment is scheduled with the diabetes specialist nurse for a medical check-up. If possible this appointment could be combined with the appointment with the gynecologist. The diabetes specialist nurse discusses your personal situation by taking your medical history and will answer your questions. She also discusses the results of your HbA1c blood test. If you need insulin treatment, there will be an appointment with the diabetes specialist nurse during the pregnancy to check your injection sites. Four to six weeks after delivery you have a combined appointment with the gynecologist and the diabetes specialist nurse. On the day of the check, you measure a fasting blood sugar in the morning and you pass this level on to the diabetes specialist nurse. Your general practitioner will then be informed in writing.

Insulin treatment

If you need insulin treatment an appointment is made with the specialist nurse or diabetes nurse. She will teach you how to inject insulin. Insulin can only be applied by injection, one or several times a day. This depends on when you have increased blood sugar levels. These days injection materials are simple and easy to use. Insulin is provided in disposable pens, which connects to an extremely thin and short screw-on needle. This allows the insulin to be injected underneath the skin. Insulin is injected into the upper leg or into the abdomen. After the instruction, the diabetes specialist nurse or diabetes nurse will keep in touch with you to properly regulate your blood sugars until the birth. The telephone contact moments with the

dietitian will no longer be necessary. If you inject insulin before your meal, the dietitian will explain how to count carbohydrates.

Tools

You will receive the devices you need to take your blood sugar and/ or inject insulin the first time from the specialist nurse or diabetes nurse. She will arrange an authorization for the reimbursement of the materials through your health insurance. The medical aids are reimbursed from the basic insurance. However this will be deducted from your 'own risk'. You can keep the blood sugar meter. In case of a next pregnancy, you can use it again if it has been checked for accuracy by the specialist nurse or diabetes nurse. You can contact a mail order company OneMed Bosman or Mediq Direct yourself for the additional ordering of materials (see name on the starter package). A vial of test strips that has been opened can be used for up to 6 months after opening. An unopened vial can be kept until the date stated on the pot. The authorization for the test strips expires after the due date.

Finally

If you still have questions after reading this information, you can discuss this with your dietitian during the telephone appointment or with the nurse specialist during the medical check-up. In case of emergency questions you can call the central office of the Maas Hospital Pantein.

Important Phone numbers

Maasziekenhuis Pantein

Central Office Maasziekenhuis	0485-84 50 00
Outpatient clinic gynecology	0485-84 55 60
Dietician	06-31 00 56 33
Diabetes specialist nurse / diabetic nurse	0485-84 52 29

Phone Numbers for reordering materials

OneMed Bosman	0800-0662
Mediq Direct	0800-022 18 58

Information about gestational diabetes

<https://www.dvn.nl/Portals/1/OpenContent/Brochures/DVN%20Zorgwijzer%20Zwangerschap.pdf?ver=20>

Registration nutrition and blood glucose values

Name:

Date of Birth:

Day 1 we ask you to write down what you are used to eat:

Meal	Time	Food (number and portion size)	Quantity
Breakfast			
Snack			
Lunch			
Snack			
Dinner			
Snack			

Blood glucose day 1, date.....

Sober	1,5 hr after breakfast	1,5 hr after lunch	1,5 hr after dinner	before sleeping
Details (for example cause of or action at elevated blood glucose)				

Blood glucose day 2, date.....

Sober	1,5 hr after breakfast	1,5 hr after lunch	1,5 hr after dinner	before sleeping
Details (for example cause of or action at elevated blood glucose)				

Blood glucose day 3, date.....

Sober	1,5 hr after breakfast	1,5 hr after lunch	1,5 hr after dinner	before sleeping
Details (for example cause of or action at elevated blood glucose)				

Blood glucose day 4, date.....

Sober	1,5 hr after breakfast	1,5 hr after lunch	1,5 hr after dinner	before sleeping
Details (for example cause of or action at elevated blood glucose)				

Blood glucose day 5, date.....

Sober	1,5 hr after breakfast	1,5 hr after lunch	1,5 hr after dinner	before sleeping
Details (for example cause of or action at elevated blood glucose)				

Blood glucose day 6, date.....

Sober	1,5 hr after breakfast	1,5 hr after lunch	1,5 hr after dinner	before sleeping
Details (for example cause of or action at elevated blood glucose)				

