

Gestational Diabetes



Acknowledgements

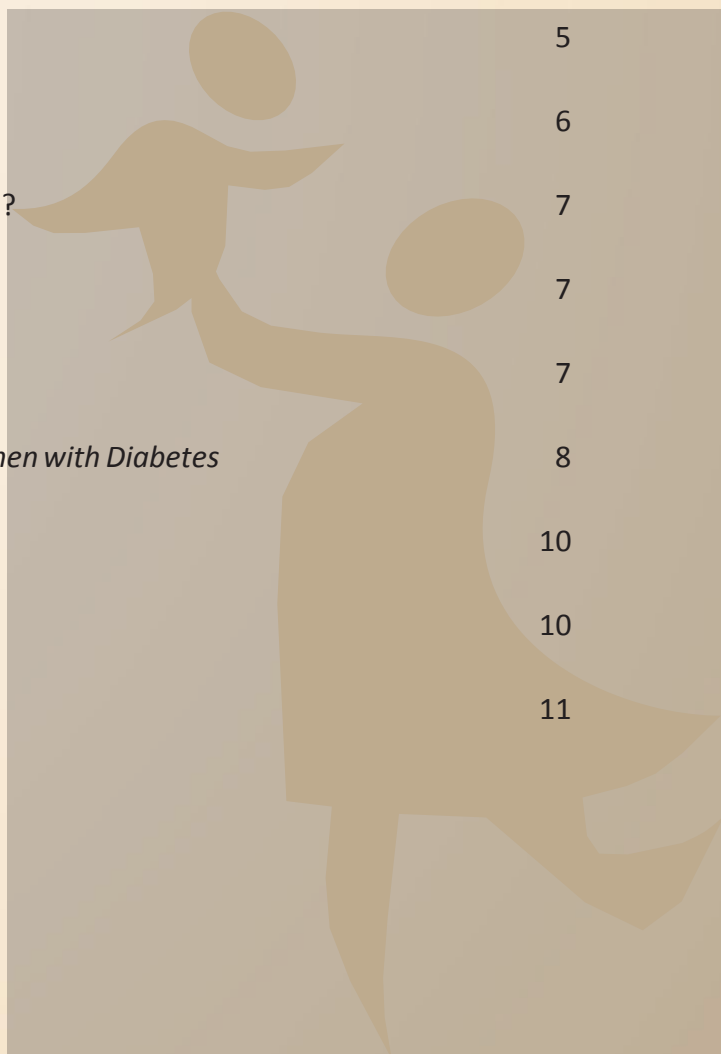
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Contents

Gestational Diabetes	1
What is diabetes?	1
Why isn't the insulin doing its job?	2
Why did I get gestational diabetes?	2
Is my baby at risk?	3
Will my baby have diabetes?	4
What about labour and delivery?	4
Will I have diabetes after I have my baby?	4
How can my gestational diabetes be managed to best protect my baby?	4
Understanding blood glucose level	5
Home Blood Glucose Monitoring	6
What makes your blood glucose go up and down?	7
Ketones	7
A Balanced Diet - What is it?	7
<i>General Dietary Guidelines for Pregnant Women with Diabetes</i>	8
What is physical activity?	10
What about the rest of my pregnancy?	10
What about after delivery?	11



Gestational Diabetes

Gestational Diabetes is a type of diabetes that occurs in women when they are pregnant. The word gestational means “during pregnancy.” If a woman develops diabetes or high blood sugar / glucose when she is pregnant, but she has never had it before, then she has gestational diabetes.

When you are pregnant, your body goes through a lot of changes. Now that you are pregnant and diagnosed with gestational diabetes, the insulin in your body cannot do its job properly. Your body cannot get sugar, in the form of glucose, to pass from the blood into your cells. Your cells need glucose to use for energy.

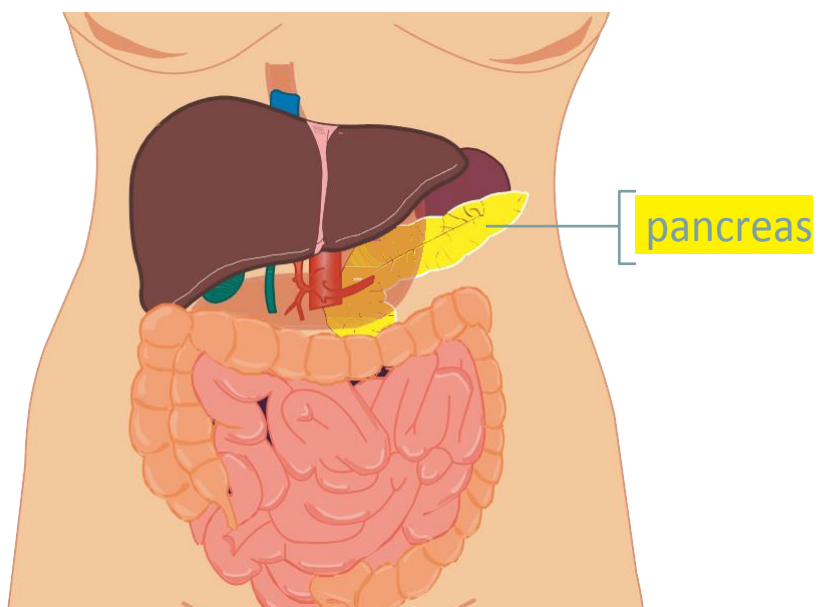
What is diabetes?

Diabetes develops when the body is either unable to produce any insulin (Type 1 diabetes) or can produce some insulin but not enough to meet your body’s needs (Type 2 diabetes).

Diabetes means that blood sugar levels in the form of glucose are too high.

Your stomach and intestines break down (or digest) much of the food you eat into a simple sugar called glucose.

Cells need insulin (a hormone made by the pancreas in the body) to get the glucose from the blood into cells. Cells need glucose for heat and energy. Insulin “opens” cells so that the glucose can get in. People without diabetes make enough insulin to move all the glucose smoothly from the bloodstream into cells so that only an essential amount (4 – 7 mmol/L) remains in the blood stream. People with diabetes need to help their bodies to move the glucose into cells by controlling the amount and rate sugars from food enters the bloodstream and help the cells to take it in.



Why isn't the insulin doing its job?

The placenta is a system of vessels that passes nutrients, blood and water from the mother to her unborn baby. It also makes certain hormones that prevent insulin from working properly. To keep your blood glucose levels normal during a pregnancy, your body has to make at least 3 times its normal amount of insulin to overcome the effect of hormones made by the placenta.

For most women, the body's extra insulin is enough to keep their blood glucose level in the normal range. But, for about 12 in every 100 pregnant women, even the extra insulin isn't enough to keep their blood glucose level normal. In the mid-part of pregnancy, these women end up with high blood glucose levels or gestational diabetes without knowing it i.e. they still feel well.

It takes time for insulin resistance (which is when your body cannot use the insulin you produce effectively) to affect your body in a way that can be measured. This is why you may not have any symptoms but on testing for gestational diabetes (usually done between the 24th and 28th week of pregnancy) you are diagnosed as having gestational diabetes.

Why did I get gestational diabetes?

The causes of diabetes are not yet known but some people have a higher risk of developing diabetes.

The risk factors for gestational diabetes are

- Age – older women are more at risk

- Being overweight
- Not taking regular physical activity
- Having a family history of diabetes i.e. parent or brother/sister
- Previously had gestational diabetes or a baby greater than 4500 grammes at term
- Some medical conditions, e.g. Polycystic ovarian syndrome (PCOS)
- Long term steroid use
- Non Caucasian
- Extra fluid around the baby
- Baby appears larger than expected on examination or scan.

Gestational diabetes is one of the most common health problems for pregnant women. If not treated, gestational diabetes can cause health problems for mother and her unborn baby.

The good news is that gestational diabetes can be treated. There are some things that women with gestational diabetes can do to keep themselves and their baby well and healthy. Controlling gestational diabetes is the key to a healthy pregnancy.

If not treated, gestational diabetes can lead to health problems, some of them serious. The best way to promote a healthy pregnancy if you have gestational diabetes is to follow the treatment plan outlined by your medical team.

Management Plan

Most women who have gestational diabetes give birth to healthy babies, especially when they:

- keep their blood glucose level under control
- eat a healthy diet
- get regular, moderate physical activity
- maintain a healthy weight.

Women with gestational diabetes are at higher risk of the following conditions:

- **Preeclampsia:** mostly develops late in pregnancy with sudden blood pressure increase and/or protein in urine. Management of preeclampsia may include starting on medication and/or early planned delivery may be necessary.
- **Urinary tract infections (UTI's):** As with all pregnant women, you are more at risk of getting UTI's. It is important to drink at least eight glasses of fluid each day.
- **Polyhydramnios:** refers to an excessive volume of amniotic fluid around the baby. Polyhydramnios may be suspected when uterine size is large. The diagnosis is made by ultrasound examination.

Other considerations

- **Foetal Movements:** It is important for you to be aware of your baby's individual pattern of movement throughout your pregnancy and you should seek immediate help if your movements are reduced or change from usual pattern. If you have any concerns, contact your maternity hospital.
- **Over the counter (OTCs) medications:** OTCs can affect your blood glucose levels e.g. antacids, lozenges etc. Check with your pharmacist for suitable alternatives.

Is my baby at risk?

Gestational diabetes usually does not cause birth defects or deformities. Most developmental or physical defects happen during the first

trimester of pregnancy, between the 1st and 8th week. Women with gestational diabetes usually have normal blood glucose during that period.

Poorly controlled gestational diabetes i.e. continued raised blood glucose levels, may cause any of the following risks to baby:

- **Macrosomia (large baby):** Because of the extra glucose and other nourishment in your blood crossing over the placenta into your baby's body, your baby grows larger than normal. Large babies can be harder to deliver.
- **Hypoglycaemia (low blood glucose):** For the first 24 hours after birth, the baby's blood glucose may become low. The baby will need to be fed early after birth and regularly for the first few days. Some hospitals will check your baby's blood glucose levels regularly for the first day after birth.
- **Jaundice (yellow discolouration):** After birth, your baby's skin turns yellowish; white parts of the eyes may also change colour slightly. When treated, jaundice is not a serious problem for the baby.
- **Respiratory Distress Syndrome (RDS):** Baby has trouble breathing. The baby after birth might need oxygen or other help breathing if he or she has RDS. This condition is easily treated.
- **Hypocalcaemia (low calcium level):** This condition once detected is easily treated.

Will my baby have diabetes?

The fact that you have gestational diabetes will not cause diabetes in your baby. But, your child is at higher risk of developing Type 2 diabetes, later in life. As your child grows, things like eating a healthy diet, maintaining a healthy weight, and taking regular, moderate physical activity may help to reduce that risk.

If your baby is greater than 4100 grams at birth, then he/she is at higher risk of childhood and adult obesity. Larger babies are at higher risk of developing Type 2 diabetes in adulthood and often get it at an earlier age.

What about labour and delivery?

The majority of women with gestational diabetes will make it to their due dates safely and begin labour naturally.

Will I have diabetes after I have my baby?

Once you have your baby, your body should be able to use its insulin more effectively. You will be tested six weeks after your baby is born to make sure your blood glucose levels have returned to normal.

If you have gestational diabetes, you are at higher risk for developing Type 2 diabetes later in your life. Type 2 diabetes, like gestational diabetes, occurs when the body can not produce enough insulin to meet its needs. Keeping your weight within a healthy range and keeping up regular, moderate physical activity after your baby is born can help lower your risk of developing Type 2 diabetes.

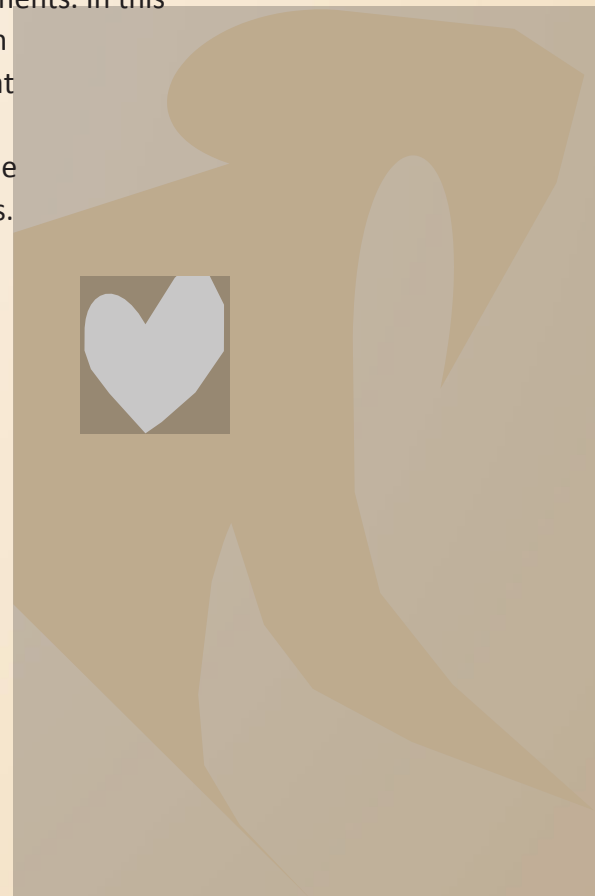
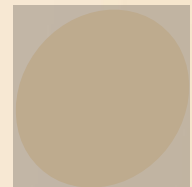
How can my gestational diabetes be managed to best protect my baby?

Many women with gestational diabetes have healthy pregnancies and healthy babies because they follow the treatment plan that their medical team set up for them.

Remember that the most important person in the plan is YOU.

This booklet supplements the talk you have had with your diabetes midwife. Your doctor, midwife and dietitian, together with you, will work out the best treatment options for you and your baby. You are the one who will be doing the work to keep yourself and your baby healthy. If you have any worries or questions talk to your doctor, midwife or dietitian.

One of the most important things you can do to help ensure a healthy pregnancy is to keep all your check up appointments. In this way, your medical team can catch problems before they become health issues.



Understanding blood glucose level

Your blood glucose level changes during the day, based on what foods you eat, when you eat, and how much you eat.

Your level of physical activity and when you do physical activities also affect your blood glucose levels.

Healthy blood glucose levels for pregnant women (these are lower than for non pregnant women)	
Time of blood glucose test	No higher than
Fasting (just after you wake up and before you eat)	5.0 mmols/L
Before eating	5.0 mmols/L
One hour after eating	7.0 mmols/L

You can help to keep your blood glucose levels close to the target levels set for you by eating balanced meals regularly and doing physical activity each day.

The next section is relevant for women who have been asked to monitor their blood glucose at home. If you are not testing at home, you should skip this section and proceed to - What makes your levels go up and down.



Home Blood Glucose Monitoring

The most important aspect of gestational diabetes is controlling your blood glucose level. Monitoring your blood glucose frequently each day provides you and your medical team with valuable information on how you are managing outside the hospital environment.

Your midwife has provided you with a blood glucose meter, demonstrated how to use it and asked you to test at specific times during the day. Register your meter with the company and follow the instruction booklet supplied for testing, quality control, safe storage and disposal of strips etc. Keep the literature with the meter and refer to it as required.

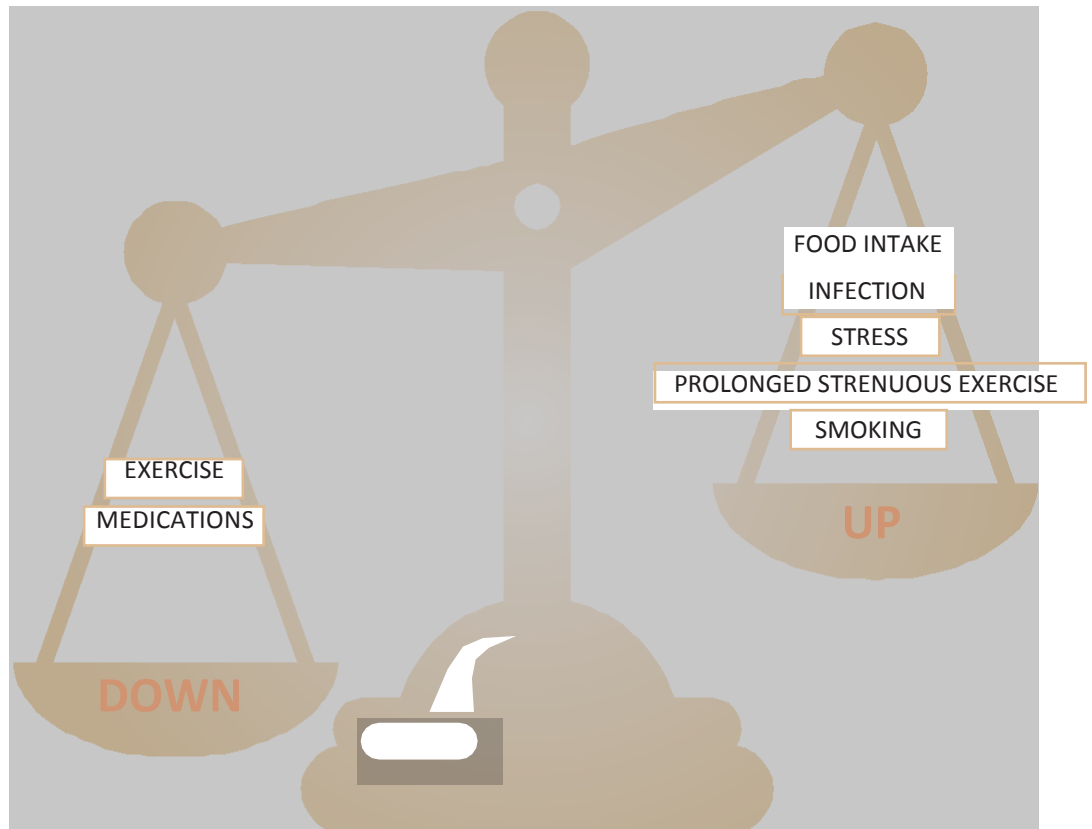
The blood glucose readings you get from your meter are similar to the minute hand in a clock – the level changes all the time but usually slowly. This is why readings need to be done throughout the day.

Record your results as instructed in the booklet provided and bring this to every medical appointment. You will have been told the target blood glucose you are aiming for and how this is affected by food intake and exercise.

Your blood glucose reading will tell you ...	
What amount or type of food you can have with a meal / snack	The number of servings you can safely have with your meal / snack
How specific foods affect your blood glucose level	Some foods are slower to have an effect on your blood glucose than others
Times when your blood glucose level is not controlled	Alerts you to times when your blood glucose is too high or too low
The effect of physical activity in keeping your blood glucose level in the target range	Does physical activity help to keep your blood glucose level within the healthy range?

The next sections will look at healthy eating and physical activity more closely, but remember that as your pregnancy progresses, your body will become more insulin resistant and you may need to have additional insulin as an injection.

What makes your blood glucose go up and down?



NOTE: *smoking or consuming alcohol may be harmful for everyone but during pregnancy is also harmful for your unborn baby*

Ketones

It is not unusual for ketones to be found in the urine of pregnant women after an overnight fast.

However, if you are testing your blood glucose at home, you may also be asked to check for ketones. Ketones are weak acids produced when a person (either with or without diabetes) is not consuming enough calories and their body burns fat instead of blood glucose for energy.

A Balanced Diet - What is it?

A healthy diet is one that includes a balance of foods from all the food groups, giving you the nutrients, vitamins and minerals needed for a healthy pregnancy. This also helps to control your blood glucose levels by slowing the rate of glucose entering your blood stream to a steady trickle all day. By slowing the entry of glucose into your blood stream, you are helping the insulin your body makes to work. Women with gestational diabetes need to pay attention to what, when and how much they eat.

General Dietary Guidelines for Pregnant Women with Diabetes

This booklet is not intended to replace a consultation with a dietitian but will provide basic information while you wait to be seen.

See EatingWell with Gestational Diabetes for more details on what you need to consider.

It is very important that you follow a healthy eating plan to help control your blood glucose levels for the rest of your pregnancy. You should continue to follow food safety guidelines too. See www.healthpromotion.ie for general recommendations on dietary guidelines during pregnancy or you could pick up a leaflet from your GP or hospital. Check with your dietitian if you have any queries.

Your eating plan should include breakfast, lunch/dinner and an evening meal with no more than 4-5 hours between meals. You may also need a snack (for example a piece of fruit or diet yoghurt or 2 wholegrain crackers) between meals. Your dietitian will assess your eating plan and give you advice about snacks.

The main source of glucose in many people's diet can come from sugars such as sweets, chocolates, cakes and sugary drinks. Carbohydrate foods can also increase your blood glucose levels and these include rice, pasta, bread, cereals and potatoes. Milk and fruit have natural sugars in them too.

The effect these foods have on your blood glucose level depends on which type of carbohydrate you chose and how much you eat at one time.

Foods high in fibre help to control your blood glucose levels because they are broken down at a slower rate.

Sources of Carbohydrates

All carbohydrate foods are broken down into glucose in your body. Carbohydrate comes

from starchy foods (e.g. bread, potatoes, pasta, rice, cereals), foods containing natural sugar (milk, yogurt, fruit) and free sugars (e.g. fruit juice, smoothies, sugary drinks, chocolate, honey, sugar).

Starchy Carbohydrate

You will need to include starchy high fibre foods in your meal plan to get energy and important nutrients for you and your baby. The effect these foods have on your blood glucose levels depends on the amount you eat and the types of these foods you choose.

- Try to choose wholegrain fibre rich foods. Fibre can help improve blood glucose levels and also help with constipation. They include wholegrain breads, brown rice and whole-wheat pasta.
- Spread starchy foods evenly throughout the day with at least one serving per meal.
- See page 8 of Eating Well with Gestational Diabetes on portion size.
- You should drink more when you increase fibre in the diet. Aim for 8-10 cups of fluid per day. All drinks must be sugar free.

Fruit, Vegetable and Salad Group

Fruit contains natural sugars and large portions will affect blood glucose levels. Vegetables and salad are a good source of fibre and help control your blood glucose levels and prevent constipation.

Discuss serving size for fruit and vegetables with your dietitian.

- Space out your fruit intake over the day taking no more than 1 piece, e.g. pear, plum, kiwi etc. at a time but not for breakfast.
- Do not drink any type of fruit juice or smoothies. Fruit juice affects your blood glucose too much and is not encouraged.
- Vegetables have little or no effect on blood glucose. Try to have extra vegetables at mealtimes.

Dairy Group

Calcium is important for strong bones, normal blood pressure and healthy muscles. It is very important during pregnancy.

Dairy products (milk, cheese and yogurts) are the best source of calcium within the diet. You will need three servings every day. Milk and yogurt contain natural sugars and can affect your blood glucose levels. Aim for less than 12gr carbohydrate per serving and talk to your dietitian about how to get the balance right. Have 3-5 servings daily.

1 serving = 200ml of milk or 125g pot of diet yogurt or 25g of cheese

- Sardines or tinned salmon are also good calcium-rich foods.
- Vitamin D helps you to absorb calcium. Vitamin D can be made in the body through the action of sunlight on the skin. It is also found in oily fish and fortified milk or margarine and eggs. Include some of these foods in your diet and take a Vitamin D supplement of 5-10 mcg daily (not cod liver oil).
- See also general pregnancy guidelines for additional advice on shellfish/tinned fish.
See www.safefood.eu for details.

Protein Group

This group supplies protein, which is important for growth and repair. Many foods in this group are also rich in iron.

1 serving = 50-75g of cooked meat or chicken or 100g cooked fish or 2 eggs or 3/4 cup lentils or beans or 40g unsalted nuts.

- It is recommended to have one serving at lunch/tea and two servings with the main meal.
- The most readily available iron is found in meat, fish or chicken (choose lean meats, trim fat off and remove the skin off chicken). Avoid processed meats such as burgers, sausages and chicken kiev's. They are often high in fat and low in nourishment. The crumb and batter will also affect your blood glucose.
- Iron in vegetables, cereals, pulses (peas, beans, lentils) and eggs is less well absorbed, but vitamin C helps you to absorb iron from these foods if taken at the same meal. Citrus fruits such as oranges and green or salad vegetables contain vitamin C. Tea affects iron absorption so when you have tea make it weak and try not to drink tea with meals.

Sugar and Fat Group

You should avoid sweet and sugary food and drinks. They will raise your blood glucose levels and do not give you or your baby any valuable nutrients.

Fats and oils do not have a direct effect on your blood glucose. However some high fat foods will also contain starch or sugars (crisps, chips and chocolate).

Your dietitian will advise you on your daily eating plan.

[For further information on healthy diet see Eating Well with Gestational Diabetes. -](#)

What is physical activity?

Physical activity is not the same as daily, routine activities, such as household chores. Women with gestational diabetes often need regular, moderate physical activity, such as walking, or swimming, to help control blood glucose levels. Physical activity improves your sensitivity to insulin (helps the bodies' insulin to work better).

Do not begin any new physical activity without talking to your midwife/doctor first.

The specific amount of physical activity that you need depends on how active you were before you were pregnant, and whether or not you have any other health concerns. Talk to your midwife about what activities you should do, how often, and for how long.

Women, who did not take part in regular physical activities before this pregnancy, should start with no more than 15 minutes of continuous exercise three times per week. Then, gradually increase to daily 30 minute sessions. Your target is to get 30 minutes of moderate activity each day. The 30 minutes can be in shorter sessions (3 x 10 minutes).

Remember the aim of being active is to stay fit and work your muscles so that they use your glucose rather than to reach peak fitness. It will take approximately 2-3 weeks for moderate activity alone to reduce your blood glucose levels.

What about the rest of my pregnancy?

Gestational diabetes tends to be treated through healthy eating and physical activity but some women may require more help to keep their blood glucose levels in the normal range. Oral medications (tablets) may be used but often insulin injections are needed.

Will I need insulin?

If you need to take insulin, you will have frequent consultations and educational sessions to balance the amount of insulin required and to support you in learning how to take it. Not everyone with gestational diabetes needs to take insulin. The daily records that you keep and the blood tests done in the hospital help your diabetes team decide when and if it's time to begin insulin.

If you need to take insulin, it does not mean that you didn't try hard enough or that you failed at taking care of yourself. It just means that your body needs some extra help to keep your blood glucose levels within the target range.

Taking insulin does not automatically mean you have Type 1 diabetes. People with Type 1 diabetes have to take insulin every day of their lives because their bodies don't make insulin.

An increase in the amount or dosage of insulin you need does not mean that your condition is changing, it is normal to need to alter doses. The goal is to keep your blood glucose under control, no matter how much insulin it takes.

What about after delivery?

Breast feeding is encouraged for all women with gestational diabetes. Your healthy eating plan and physical activity level along with breast feeding is good for you and your baby's health now and in the future. Breast feeding has been shown to reduce childhood obesity as well as having nutritional and immunological advantages.

All women treated for gestational diabetes have a diabetes check as part of their post natal check-up and most women will have "normal readings". This may be a 'once off' blood test or a series of blood glucose readings taken after a 'glucose load' usually a sugary drink.

At that check-up talk to your midwife/ practice nurse/GP about your current blood glucose levels and how to reduce future diabetes risk. Half of the women with gestational diabetes will go on to develop Type 2 diabetes within 5 years unless they make lifestyle changes.

It is important that you be checked for diabetes every year as Type 2 diabetes can develop slowly and you may not have any symptoms.

Having had gestational diabetes during this pregnancy also puts you at higher risk of developing gestational diabetes in future pregnancies. You can reduce your risk by reaching a healthy weight for your height before conceiving. While you are in your reproductive years (before the menopause) you should use reliable contraception and plan future pregnancies. It is very important to make sure your blood glucose levels are within the normal range before you get pregnant. Should you find yourself pregnant, it is vital that you have your blood glucose checked as soon as possible and book an immediate antenatal check-up.

Act now to reduce your risk of gestational diabetes in future pregnancies or developing Type 2 diabetes by taking action to reach a healthy weight for your height and staying physically active. The best way to do this is to watch your dietary intake, your physical activity level and monitor your weight. Build a 30 minute activity session into your daily life schedule – this can be indoors while watching TV. e.g. Treadmill, exercise bike etc.

See diabetes.ie for more information and advice.



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