

An introduction to Type 2 Diabetes

Track 1

Hello

Welcome to this CD which is an introduction to type 2 diabetes mellitus. The CD is split into sections which are separated by pieces of music. The sections included are:

Track 2, what is type 2 diabetes?

Track 3, blood sugar testing in type 2 diabetes

Track 4, the management of type 2 diabetes with diet

Track 5, the management of type 2 diabetes with exercise

Track 6, the treatments of type 2 diabetes with medicines and injections

Track 7, the complications of diabetes and regular screening tests

Track 8, illness and preventing illnesses with type 2 diabetes

Track 9, travelling with type 2 diabetes

Track 10, special occasions and type 2 diabetes

Track 2, what is type 2 diabetes?

Diabetes, or diabetes mellitus, is a condition where the amount of sugar, or glucose, found in the blood is higher than normal. Diabetes occurs when the body does not produce enough of a hormone called insulin. In people who do not have diabetes, the body produces insulin when food is eaten. The insulin then turns the sugar in the food into energy. In diabetes, the body no longer does this properly, leading to higher than normal levels of sugar in the blood.

When the blood sugar levels are higher than normal, you can have some or all of these symptoms:

- feeling thirsty**
- drinking lots of fluids**
- passing urine more frequently, especially at night**
- thrush**
- blurred vision**
- feeling tired**
- losing weight**

There are 3 main types of diabetes mellitus, these are:

- type 1 diabetes
- gestational diabetes.
- type 2 diabetes

All the types of diabetes mellitus can have the same symptoms. For all types of diabetes the aim of treatment is the same, to keep the blood sugar levels as near to normal levels as possible.

Type 1 diabetes

Type 1 diabetes is a lifelong condition occurring mainly in children and young adults. It is often discovered when the person is acutely ill, needing to go to hospital urgently. Treatment is with diet and insulin injections straight away. A person with type 1 diabetes usually has 2 or 4 injections of insulin daily. People with type 1 diabetes would die without the insulin injections as their body has stopped producing any insulin.

Gestational Diabetes

Gestational diabetes occurs only in pregnant women and requires women to have a strict diabetic diet and test their blood very frequently. If diet alone cannot control the blood sugar levels, pregnant women also need to use insulin injections throughout their pregnancy. It is important for the blood glucose levels to be kept within normal limits, to avoid complications with the baby, such as large babies and congenital abnormalities. Miscarriages are also more common in women with gestational diabetes and there is higher chance of having a caesarean section birth.

Once the baby is born, the diabetes may disappear. About 6 weeks after the birth, women who had gestational diabetes will have a glucose tolerance test to see if the diabetes has reversed.

Gestational diabetes is often a sign that a person will develop type 2 diabetes in later life, and so keeping to a healthy diet and the desired weight for your height is essential to reduce the risk of type 2 diabetes developing in the future. People who have had gestational diabetes should have screening for type 2 diabetes every 12 months and be aware of the symptoms of type 2 diabetes. Sometimes the diabetes will not reverse after the baby is born and these women have now developed type 2 diabetes.

Type 2 diabetes

Type 2 diabetes is a lifelong condition that occurs in about 7% of the Turkish population. Type 2 diabetes also occurs in families. This type of diabetes can often be undetected for several years, so if you have or know anyone with the symptoms of diabetes, it is important to get tested to see if the symptoms are caused by type 2 diabetes. The symptoms of diabetes are:

- thirst
- drinking lots of fluids,
- passing urine frequently, especially at night
- thrush
- blurred vision
- tiredness
- losing weight

In Type 2 diabetes the body still produces some insulin, but not enough for the body's needs. As people get older, the body produces less and less insulin. This means that type 2 diabetes is a progressive disease. As the diabetes progresses, people with type 2 diabetes will need different treatment regimes to keep their blood sugar levels within normal limits. These treatments are described in the following sections.

Track 3, blood sugar testing in type 2 diabetes

All people with type 2 diabetes should test their blood sugar levels, sometimes called blood glucose levels, regularly. This is so they know what their blood sugar levels are, and can help control their diabetes. The normal blood sugar levels in the blood are between 4 and 8 millimoles per litre. With the appropriate treatment almost all people with type 2 diabetes should be able to keep their blood sugar levels within near normal levels, between 4 and 10 millimoles per litre. If your blood glucose meter comes from Turkey, the normal range is 32 – 140 milligrammes per decilitre, and you should try to keep your blood glucose between 32 and 180 milligrammes per decilitre

Blood testing is usually done using a lancet device and blood glucose meter. Your nurse or doctor who provides your diabetes care should be able to provide you with a meter. Strips for the meter and lancets are available on a prescription from your GP. There are lots of different metres available, so it is important to know how to use your meter. Friends or family members who also have diabetes may not have the same meter, so do not swap strips or lancets.

The lancets and strips that you have used should be disposed of in a special box, known as a sharps box. These boxes are usually made of tough yellow plastic and are available from your GP on prescription. It is important to put used strips and needles in this box. When the box is full, you should either return the box to your nurse or doctor, or it will be collected by the council in a special waste collection service.

You should test your blood sugar levels at different times of the day. Some people will be asked to test their blood before meals, some before and after meals, some people will test before bed. Follow the guidance your nurse or doctor has given you. Remember that with each new box of strips, your meter may need calibrating. If you are unsure how to calibrate your meter, ask your nurse, pharmacist or doctor, who should be able to help.

If your blood sugar levels are not within the normal levels, so if they are lower than 4 or higher than 10, often, you should make an appointment with your nurse or doctor to see if you need a change in your treatment.

Your nurse or doctor will take blood samples from you regularly. These tests will include a test known as a HbA1c. This test shows the nurse or doctor your blood sugar control, also called glycaemic control, over the past 3 months. The HbA1c result should be less than 6.5% if your diabetes is well controlled.

Track 4, the management of type 2 diabetes with Diet

A healthy diet is the first treatment for all people with type 2 diabetes and the diet needs to be maintained for the rest of your life. The ideal diet for people with diabetes contains lower fat and lower sugar levels than usual. It is important to be aware of what you are eating and the contents of different foods, since many processed foods contain more added fat and sugar than expected. The diet recommended for people with diabetes will depend on each individual, but there are some foods that should be reduced by all people with type 2 diabetes. These include:

- reducing sugar and sugary products, such as white or brown sugar, honey, syrup, sweets and chocolates, baklava, Turkish delight
- reducing drinks with high sugar content, such as ordinary fizzy drinks, coca cola, 7up, Lucozade, ordinary squash drinks and concentrated fruit juice
- reducing all fats, especially saturated or hard fats, such as butter and hard margarine

There are alternatives to these foods that are better options for people with diabetes. These are a few ideas:

- instead of sugar, try using sweeteners, available in all supermarkets and chemists, such as Canderel, Splenda, Hermesetas, Sweetex
- instead of sugary drinks, try drinking water, or diet drinks, such as Diet Coke, 7up lite, tea, coffee and diet squash.
- instead of hard fats, use olive oil, rapeseed oil, sunflower oil, or margarines based on these oils. Try to reduce the amounts of oil and fat used for cooking

Many people with type 2 diabetes are overweight. If you are overweight, it is very important to lose weight. This will improve your blood sugar levels. As well as having a low sugar and low fat diet, you may need to reduce the size of your meals, if you currently eat large meals. It is best to lose weight gradually rather than very quickly, as it is more likely to STAY OFF. If you are trying to lose weight, remember that any weight you lose will benefit your health.

The diet for people with diabetes is very healthy, and is suitable for the whole family to follow. Having diabetes doesn't mean you have to cook special meals for yourself. Even if you are the only person with diabetes in your family, it is good for the whole family to make any changes with you. Type 2 diabetes runs in families, so it may help to prevent your family members developing type 2 diabetes if they join in with your diet, and maintain a healthy weight for their height.

If you have not seen a dietitian, ask your nurse or doctor to refer you for advice. You may want to take family members with you, so they will also understand the dietary changes suggested.

Track 5, the management of type 2 diabetes with exercise

Regular exercise is very important for everyone; especially people with type 2 diabetes. When you exercise your body uses some of the sugar in the blood, helping to reduce your blood sugar level and keep it within normal limits. Exercise also keeps you fit and helps to keep your heart healthy. Exercise may also help you to lose weight, if you are overweight.

If you do not do any exercise at the moment, ask your doctor or nurse what they suggest. They may be able to give you a “prescription” for exercise to help you start attending the local gym, exercise classes or swimming pool.

Walking is an excellent form of exercise and can usually be fitted into your daily routine. Try to think of times when you took the bus, a taxi or the car when you could have walked, for instance, taking children to school, going to see the doctor or nurse, going shopping, visiting friends or a community centre.

Your local sports centre or leisure centre will also have regular exercise classes, take a walk to your local centre and see if anything suits you and your lifestyle.

Track 6, the treatments for type 2 diabetes with medicines and injections.

Type 2 diabetes is a progressive disease. This means that for most people with type 2 diabetes, diet and exercise will not keep the blood sugar at normal levels forever, and some form of medicine will be needed. There are many different names of medication available and your doctor or nurse will try to choose one which is most suited to your lifestyle. Sometimes you will need more than one type of medicine to keep the blood sugar levels within normal limits.

There are five main types of tablets for type 2 diabetes, and they work in different ways.

Groups 1 - Sulphonylureas, most of these medicines have names beginning with the letter G

These tablets work by helping your body to produce more insulin, which helps to reduce the blood sugar levels by turning sugar into energy. These tablets are taken before meals, usually once or twice a day. These tablets can occasionally cause what is known as a “hypo”, or hypoglycaemic attack. This is when the blood glucose level is lower than 4 millimoles per litre.

Group 2 - Metformin or Glucophage SR

Metformin is a tablet that helps the body recognise its own insulin better, reducing blood sugar levels. It is taken with meals usually 2-3 times a day. Metformin does not cause “hypo” attacks

Group 3 - Acarbose or Glucobay

This tablet delays sugar being absorbed by the body in the gut. This slows down the increase in blood sugar levels after meals. It is taken with the first mouthful of food at each meal, usually 3 times a day. Acarbose does not cause “hypo” attacks.

Group 4 - Glitazones

These tablets also help to make the body recognise and use insulin better, helping to reduce the blood glucose levels. They are taken once a day at the same time of day. The time of day should be tailored to your lifestyle.

Group 5 - Post Prandial Regulators

These tablets are short acting and help your body produce more insulin when you eat a meal. These tablets are taken before each meal you eat, usually 3 times a day. If you miss a meal, you miss the tablet.

Insulin Injections

Insulin injections are often the best treatment for type 2 diabetes, and about half of people with type 2 diabetes will need insulin injections to keep their blood sugar levels within normal limits.

Insulin injections replace the insulin the body is missing, reducing the blood sugar levels to within normal limits. Injections are usually taken 1,2 or 4 times a day, depending on each person's lifestyle. Insulin injections are usually given before meals, but this will vary depending on the type of insulin. Insulin can occasionally cause “hypo” attacks. If you need insulin injections your nurse will explain what to do if your blood sugar levels are lower than normal.

Whichever treatment you take for your diabetes, it is important to take it regularly. It is also important to measure your blood sugar levels regularly, so you know if the treatment is working. If the treatment is working properly, your blood sugar levels will be between 4 and 10 millimoles per litre. If your blood sugar levels are not within normal limits, you should see your nurse or doctor for a review of your treatment.

Track 7, the complications of diabetes and regular screening tests.

The reason for the complex treatments for diabetes, all trying to keep blood sugar levels within normal limits is to avoid the complications of diabetes. These complications are caused by high blood sugar levels. The higher the blood glucose levels, the more likely it is that a person with diabetes will develop complications. Keeping blood sugar levels within the normal levels reduces the risk of complications.

The main complications of diabetes are:

**eye disease
kidney disease
foot problems
heart disease
and for men, impotence, or sexual problems.**

All people with diabetes should have regular appointments with the professional who looks after their diabetes, this is most likely to be either your general practitioner, practice nurse, district nurse or hospital clinic. Each year you should be screened for the complications of diabetes, in what is known as an Annual Review.

Eye screening

To test for diabetic eye disease you may visit your hospital clinic, a mobile van or an optician. The test will involve your eyes being dilated with drops, then photographs being taken. It is advisable that someone comes with you for this test, just in case you find it hard to see on your way home. Diabetic eye disease is one of the biggest causes of blindness. If you have regular eye screening, eye damage can be treated before the problems get too serious. If you need treatment for eye disease you will be referred to a specialist called an ophthalmologist.

Kidney screening

When you attend for your diabetic appointment, you will probably be asked to provide a urine specimen. This will be tested immediately for either microalbuminuria or proteinuria. Protein or albumin in the urine is an indication of kidney damage. You will also be asked to give a blood sample, and this is another test of your kidney function. If you have kidney problems you will be referred to a kidney specialist called a renal specialist or a nephrologist.

Foot screening

Examination of your feet should be part of your daily routine if you have diabetes, but a podiatrist, chiropodist or other trained professional should also examine your feet annually. They will test for feeling in your feet, as well as circulation. If you have any problems with your feet, you should see a professional as soon as possible. If you have a wound on your foot, you should be seen as an emergency by either your GP or podiatrist.

Some people with diabetes can lose the feeling in their feet. When this happens, injuries can occur to the foot without the person being aware. If a person with diabetes has an injured foot that they are unaware of, such as a blister from new shoes, or a cut on the foot, it may get infected. Infections in the feet of people with diabetes are hard to cure, so it is important to look after your feet if you have diabetes.

Heart screening

Heart attacks are far more likely in people with type 2 diabetes than the general population. Every year at the annual review, you will be asked to give a blood sample and this will be tested for cholesterol. You should also have your blood pressure measured regularly. People with type 2 diabetes often have high blood pressure too. If your blood pressure is high, you will be given medication to reduce it. It is common to need more than one medication to treat blood pressure.

Your heart disease risk will also be calculated and you may be started on preventative medicines, such as aspirin, a statin or an ace inhibitor. These medicines have all been shown to reduce the risk of heart disease. If you smoke you should try to stop. There are many different treatments available to help people stop smoking. Your nurse or doctor should be able to help, and will be able to provide nicotine replacement therapy and counselling services.

Sexual problems

Diabetes is one of the largest causes of impotence in men. This is a major cause of stress, anxiety and embarrassment for many men. If you have problems or know someone who has problems with sex, please tell your health professional at the annual review, they will be able to help. You should not feel embarrassed to tell your nurse or doctor, remember, they deal with these problems everyday and they will be able to help.

Track 8, illness and preventing illnesses with type 2 diabetes

Everyone with type 2 diabetes will become ill from time to time, with other illnesses, such as colds and flu.

When you are ill, your body tries to fight the illness. One of the things that happen when you are ill, is that your body releases sugar from its stores. This sugar will show when you test your blood, as the blood sugar levels will be higher than usual. You may also not feel like eating as much food as usual, which is OK for a few days.

When you are unwell, you should keep taking your medication and test your blood sugar levels more frequently. If you are ill and your blood sugar levels are very high, over 20 millimoles per litre, or very low, under 3 millimoles per litre every time you test your levels, you should telephone your nurse, doctor, or NHS direct. They will be able to give you some advice.

If you are using insulin injections, your nurse or doctor will give you special advice on what to do if you are unwell. You should always remember to take your insulin injections, even when you are unwell. It is usual to need more insulin than usual when you are unwell, even if you eat less food.

People with type 2 diabetes are more prone to get infections if their blood sugar levels are not well controlled. If you are getting recurrent infections your diabetes may not be well controlled and you should see your nurse or doctor.

To help prevent some infections, people with type 2 diabetes are advised to have annual flu vaccinations. These vaccinations help to prevent you getting flu. The vaccination is different every year and helps build up your protection against many types of Flu. Flu vaccines are available from your GP in October and November every year.

Another vaccine recommended for people with type 2 diabetes is the pneumococcal vaccination. This vaccine protects you from getting pneumonia, a very serious chest infection. This vaccine only needs to be given once and can be given at any time of the year. You may need a booster of pneumococcal vaccine after about 10 years. If you have not had a flu or pneumococcal vaccine, tell your nurse or doctor, who will be able to organise this for you.

Everyone who has type 2 diabetes should carry an identification card with them. This is to help people who you may come across in an emergency. Your nurse or doctor should be able to give you an identification card to carry with you.

Track 9, travelling with type 2 diabetes

Travelling for people with type 2 diabetes should be no problem, but it is important to plan your trip in advance.

If you are travelling, your meal times may vary from usual. Sometimes you may miss a meal, sometimes you will have more snacks. It is important to be aware of all the problems you may face whilst travelling.

You should always take your blood sugar meter with you when travelling, so if you feel unwell or have different meal times, you can test your blood sugar levels to check they are within normal limits. You should also carry with you your identification card and some sugar or sweets, just in case you have to miss a meal and your sugar levels are very low.

If you take medicines before or with meals, you should continue to do this. If you take insulin injections, you may have to have more or less injections whilst travelling.

When travelling abroad you will probably need travel vaccinations. These vaccines can prevent you suffering illnesses that are common abroad, but rare in the UK, such as hepatitis and typhoid. You should make an appointment with your nurse to have these vaccinations as soon as you know you will be travelling. This should be at least 2 weeks before you travel. Your nurse can also give you advice on how to manage your diabetes whilst travelling.

If you are travelling by air, you may need a letter from your nurse or doctor to say that you need to carry needles in your hand luggage. This is very important if you use insulin injections, because you will probably need to have an insulin injection before an in-flight meal. Insulin should never be put in your suitcase in the hold of the plane, as it may freeze. You must keep insulin in your hand luggage and keep it cool. You can buy special pouches that will keep the insulin cool for 2-3 days. You should also always request a meal suitable for people with diabetes in advance. Your travel agent should be able to help with this, but you should always tell the flight attendant on the plane as soon as you board.

Track 10, special occasions and type 2 diabetes

In all cultures and religions, there are celebrations and special occasions. At these times people often eat different foods, more food, or less food than is usual. This will have a direct effect on blood sugar levels in the body. On special occasions, meals are often taken at different times, so make sure you are able to test your blood sugar frequently. Also, have some emergency glucose tablets on hand, so if you have a long period between meals, you can avoid a Hypo attack by taking one or two.

Fasting days

Fasting is particularly important in some cultures/religions. Meals are often taken early in the morning and late in the evening during this time. It is important for all people with type 2 diabetes to be aware of this change in meal times, and the possible need to change medication times and doses.

It is important to test blood sugar levels frequently, as fasting for long periods can cause some people with diabetes to have very low blood sugar levels, known as a "Hypo". If this occurs you should break your fast by eating one or two glucose tablets, or drinking a glass of a sugary drink. This should be followed by a sandwich or meal, to ensure your blood sugar levels do not drop again.

Some people with type 2 diabetes find that during Fasting days their blood sugar levels are higher than normal. This is often due to eating more food than usual during the non-fasting hours. It is very important to be aware of how much food you have eaten and to test your blood sugar levels regularly.

To make sure you get the right advice for your situation, it is important to see your nurse or doctor before Fasting periods and get some advice tailored to your needs. If your diabetes is poorly controlled or you are on insulin injections, you may be advised that fasting is not suitable for you.

It is important to remember to return to your usual medication routine after Fasting, to ensure your blood sugar levels are under control.

Celebrations

Celebrations, such as weddings and parties, are usually events which happen occasionally during the year, and are not regular events. Planning meals is not in your control and you may need to be prepared for long periods without food, as well as eating more than usual. Try to have glucose tablets or fruit available in case of "hypo" attacks. Also, if buffet style food is available, try to choose foods which are more suited to a diabetic diet.

Alcohol

People with diabetes are advised to stay with the recommended normal limits for alcohol weekly intake. Some alcoholic drinks are very high in sugar and should be avoided. High alcohol consumption, however, can lower blood glucose levels and cause severe Hypo attacks. If you drink alcohol regularly, you should discuss this with your nurse or doctor, who can advise you on safe levels and drinks which are more suitable for people with diabetes.

Track 11

We would like to thank-you for listening to this CD, which has been developed by Anna-Marie Jesson and Di Gould who both work in East London

Please listen to the CD again, and if you have any questions, please ask the nurse or doctor who provides your diabetes care.

We recommend that all people with diabetes join Diabetes UK, the association for people with diabetes. They can provide you with more detailed information about diabetes. Contact details are available in the CD holder.

This CD has been produced with time and help from Andy Sellar, Matt Jesson