



AT HIGH RISK OF TYPE 2 DIABETES

Information Booklet

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Leicester Diabetes Centre



**THIS BOOKLET HAS BEEN DESIGNED
TO HELP YOU TO UNDERSTAND:**

- **WHY YOU ARE AT HIGH RISK OF
TYPE 2 DIABETES**
- **WHAT YOU CAN DO TO LOWER YOUR
RISK OF DIABETES AND STAY HEALTHY**

WHAT DOES IT MEAN TO BE AT 'HIGH RISK' OF DEVELOPING TYPE 2 DIABETES?

Type 2 diabetes is a serious disease where the body cannot keep blood glucose (sugar) levels within a healthy range.

The number of people with Type 2 diabetes is increasing worldwide. Often, by the time people are diagnosed they already have a complication caused by their diabetes, such as eye or kidney disease.

We know that Type 2 diabetes develops over a period of time. There is a stage where blood glucose levels are higher than normal but not high enough to be classed as diabetes. People who are picked up at this stage are often told that they are at 'high risk' of developing Type 2 diabetes.

Until recently, you may have heard this stage called:

- prediabetes
- non-diabetic hyperglycaemia
- impaired glucose tolerance
- impaired fasting glucose

All of these names relate to someone having a higher risk of developing Type 2 diabetes than the general population.

HOW CAN I TELL IF I AM AT HIGH RISK OF DEVELOPING TYPE 2 DIABETES?

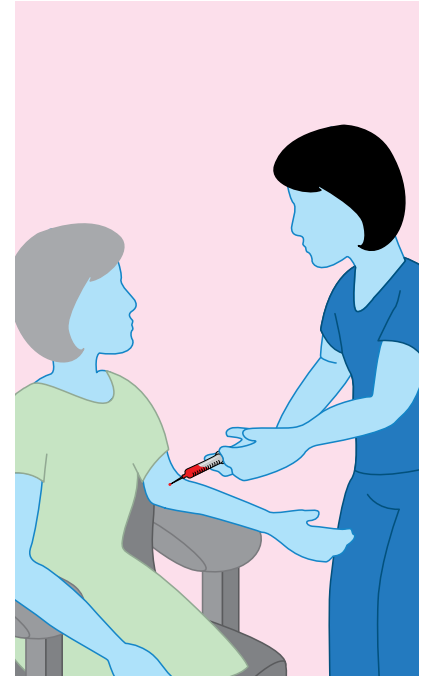
Complete The Type 2 Diabetes Risk Assessment on Page 6

Your GP may invite you to have one of two blood tests to measure how much glucose (sugar) you have in your blood:

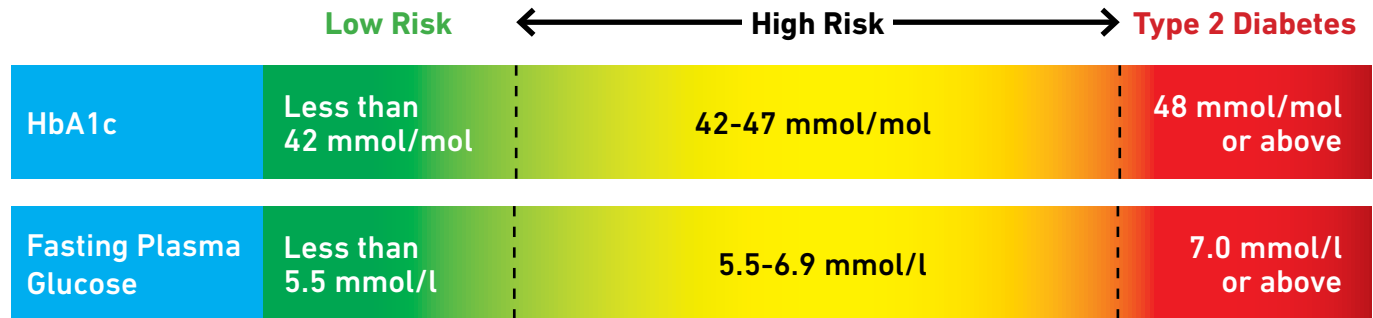
1. You may have a fasting blood glucose test. This measures how much glucose (sugar) is in the blood first thing in the morning after you have not eaten all night.

or

2. You may have a blood test called an HbA1c. This test measures what your blood glucose (sugar) levels have been like over the past 8-12 weeks.



Look at the chart below and see where your results sit:



If your blood glucose test(s) is/are in the:

Green = you are at low risk of developing Type 2 diabetes

Yellow = you are at risk of developing Type 2 diabetes

Red = you have Type 2 diabetes

TYPE 2 DIABETES RISK ASSESSMENT FORM

Work through this form to calculate your risk. For each question, tick one box. This number is your score for that question. When you have answered all the questions, add up your total score.

1. Which age group are you in?				5. Which waist size group are you in?*								
49 years or younger	☐	0	60 - 69 years	☐	9	Less than 90 cm (35.5 inches)	☐	0	100 - 109 cm (39.4 - 43.3 inches)	☐	6	
50 - 59 years	☐	5	70 years or older	☐	13	90 - 99 cm (35.5 - 39.3 inches)	☐	4	110 cm (43.4 inches) & above	☐	9	
2. Are you male or female?				6. Which Body Mass Index (BMI) group are you in?*								
Male	☐	1	Female	☐	0	Less than 25	☐	0	30 - 34.9	☐	5	
3. How would you describe your ethnicity?				25 - 29.9				☐	3	35 & above	☐	8
White European	☐	0	Any other Ethnic Group	☐	6	7. Have you ever been told by a doctor or nurse that you have high blood pressure?						
4. Do you have a parent, brother, sister and/or child with Type 1 or Type 2 diabetes? (Do not count step-relatives)				Yes				☐	5	No	☐	0
Yes	☐	5	No	☐	0	Add up your score here:						

* See Resources box opposite

Check your risk score:

25 points or more = HIGH RISK

You have a **high** chance of having Type 2 diabetes now or developing it in the future. You need to visit your GP surgery for a diabetes test.

16 to 24 points = MODERATE RISK

You have a **moderate** chance of having Type 2 diabetes or developing it in the future. You should discuss your risk at your GP surgery; you may need a diabetes test.

**7 to 15 points =
INCREASED RISK**

You have a **slightly increased** chance of having Type 2 diabetes or developing it in the future.

**0 to 6 points =
LOW RISK**

You are at **low** risk of developing Type 2 diabetes, if you follow a healthy lifestyle.

*** Resources:**

To correctly calculate your waist size and Body Mass Index (BMI), please use the Diabetes UK website.

Find out more at:

 www.diabetes.org.uk/Riskscore/

WHAT ARE THE RISK FACTORS FOR DEVELOPING TYPE 2 DIABETES?

There are many risk factors for developing Type 2 diabetes. Some of these risk factors can be changed, some cannot.

Tick the ones that you think can be changed.



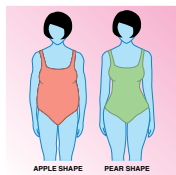
Being less active

Yes ☐ No ☐



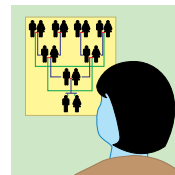
Depression/ chronic stress

Yes ☐ No ☐



Overweight

Yes ☐ No ☐



Family history of diabetes

Yes ☐ No ☐



Ethnicity

Yes ☐ No ☐



Getting older

Yes ☐ No ☐



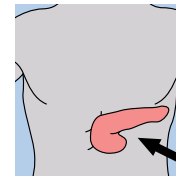
Steroids

Yes ☐ No ☐



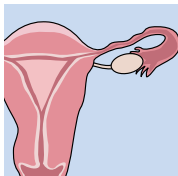
**Abnormal
blood glucose
test**

Yes ☐ No ☐



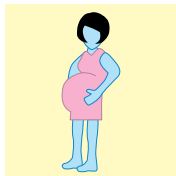
**Pancreas
damage**

Yes ☐ No ☐



**Polycystic ovary
syndrome**

Yes ☐ No ☐



**Diabetes in
pregnancy
(gestational)**

Yes ☐ No ☐

WHAT IS MY RISK?

What is my personal risk of developing Type 2 diabetes?

Your risk of developing Type 2 diabetes will depend on the type and number of risk factors that you have.

Research shows us that within the next ten years, up to half of the people who are at **high risk** of developing Type 2 diabetes will go on to develop it.

What are the symptoms of being at high risk of developing Type 2 diabetes?

There are no symptoms associated with being at high risk of developing Type 2 diabetes. Symptoms only occur when blood glucose levels are high enough to result in Type 2 diabetes.

Common symptoms of Type 2 diabetes are:

- ✓ Feeling tired
- ✓ Going to the toilet to pee often, especially at night
- ✓ Feeling thirsty
- ✓ More frequent infections
- ✓ Blurred vision
- ✓ Weight loss

Many people can have Type 2 diabetes for months or years without realising it.

This is because the symptoms of diabetes can quite easily be put down to other things like getting older.

By this time, some complications associated with diabetes such as heart problems, nerve damage, eye problems and foot problems may have already developed.



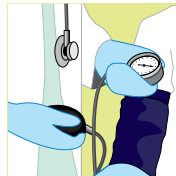
HOW CAN BEING AT HIGH RISK OF TYPE 2 DIABETES AFFECT MY FUTURE HEALTH?

Being at high risk of developing Type 2 diabetes is associated with having heart problems such as heart attack, angina and stroke.

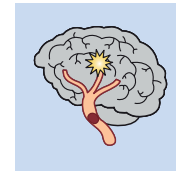
Often those at high risk already have high blood pressure and high cholesterol (fats in the blood) levels. These are strong predictors of heart attack, stroke and angina.

Reducing alcohol can help you to lose weight as well as improve general heart health.

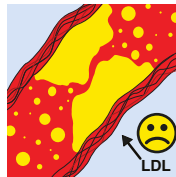
Smoking, like diabetes, is a significant risk factor for cardiovascular disease (such as heart disease and stroke).
Stop smoking if you can.



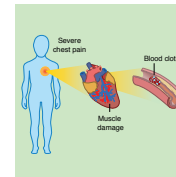
High blood pressure



Stroke



High cholesterol



Heart attack

CAN I REDUCE MY RISK OF DEVELOPING TYPE 2 DIABETES?

The answer is – yes you can!

The good news is that everyone at risk of Type 2 diabetes can do things to keep healthy and to slow down or even stop the development of Type 2 diabetes.

Recent studies have shown that changing your lifestyle is more effective than taking tablets in stopping people developing Type 2 diabetes.

For every 100 individuals who develop Type 2 diabetes over a given period of time, 50 cases may have been prevented by simple lifestyle changes.

These are:

- Be more active
- Keep a healthy weight
- Think about what you eat



PHYSICAL ACTIVITY: DEFINITIONS

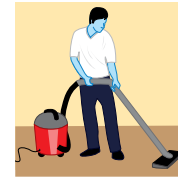
What is moderate or vigorous activity?

Moderate activity means any activity that makes you feel breathless and increases your heart rate.

As a rule of thumb, if you can sing whilst exercising, you are at light-intensity. If you can't sing, but can talk, you are at moderate-intensity. If you can't talk, you are at vigorous-intensity.

Many everyday activities may count as moderate activity. You do not have to go to a gym. Walking, hoovering, gardening and shopping can all count as part of your daily activity.

You will know if you are working at a moderate level if you feel a little breathless but are still able to talk. Vigorous activities usually require planned activities, such as hiking in the hills, jogging or playing sports.



What is resistance exercise?

Resistance exercises help keep your muscles, bones and joints strong. Exercises to improve your strength involve working against a resistance, for example lifting weights, using resistance bands or using your body weight.

Sometimes resistance exercises are challenging. Here are some examples that can be performed without extra support:

moving from a seated position to standing, press-ups against a wall, heel raises (seated or standing) or seated leg extensions.

What are strength and balance exercises?

Strength and balance exercises maintain muscle and prevent falls. Bowls, yoga and dancing are all good examples of activities you can do to improve your strength and balance.

What is sedentary time?

Sedentary time is the time you spend sitting or lying down whilst you are awake. Activities that involve a lot of sedentary time include watching TV, using a computer or driving.

Try to spend less time sitting or lying down, and break up your sedentary time by getting up regularly to move about.

PHYSICAL ACTIVITY: RECOMMENDATIONS

What is the recommended amount of physical activity?

The recommended amount to achieve is at least:

✓ **150 minutes of moderate physical activity**

or

✓ **75 minutes of vigorous activity per week.**

Activity does not have to be done all at once and can be spread out through the week in a way that suits you.

For example, by undertaking three 50 minute bouts, or ten 15 minute bouts of moderate activity.

150 minutes		
50 minutes	50 minutes	50 minutes

150 minutes									
15 mins	15 mins	15 mins	15 mins	15 mins	15 mins	15 mins	15 mins	15 mins	15 mins

Combine this with resistance exercise two days per week and reducing your sedentary time for maximum benefit:
 www.gov.uk/government/collections/physical-activity-guidelines

Every little bit helps!
Remember,
the more, the better!

In general, doing some activity is better than doing none, even when not meeting the recommendations.

Just doing 5 minutes extra walking every day has been shown to improve health. The more you do, the greater the benefits.



Can being more active be dangerous?

Doing moderate levels of activity like walking or lifting light weights is very safe and should not be a danger to your health. However, if you have a history of heart disease, or if exercising makes you feel dizzy or gives you pains in your chest, you should see your doctor for advice.

If you plan to start doing vigorous forms of exercise that involve running or lifting heavy weights, you may want to visit the NHS Choices website to help you to build up to vigorous activity safely: <http://www.nhs.uk/livewell>

SEDENTARY BEHAVIOUR

What about my sedentary behaviour?

Regularly breaking up periods of sitting by standing up and doing light movement every 30 minutes, just for a few minutes, has many positive health benefits.

So getting up during TV adverts, breaking up your sitting time and moving around a bit more will all help you to improve your health.



If your mobility is limited in a way that means you cannot stand or walk, move more in whatever way you can.

See the Department of Health website for more information.

**Why do I need to increase moderate activity as well as reducing the time I spend sitting by standing and moving more regularly throughout the day?
Can't I just focus on one?**

To gain the maximum health benefits associated with moderate activity as well those associated with reducing sedentary time, you must perform both activity types.

Unfortunately, a 30 minute walk in the gym does not undo all the health risks associated with too much sitting.



50%

**Health benefits
associated with
sitting less**

+



50%

**Health benefits
associated with doing
moderate activity**

=



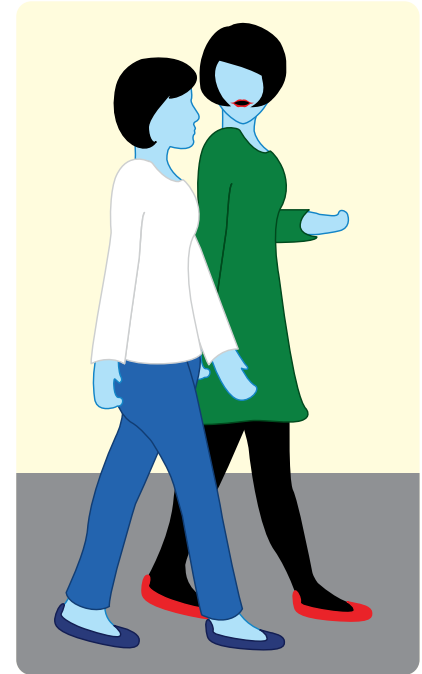
100%

Health benefits

IMPORTANCE OF PHYSICAL ACTIVITY: THE FACTS

Being active has many health benefits, such as:

- ✓ Halves your risk of developing Type 2 diabetes
- ✓ Helps you to maintain a healthy weight
- ✓ Reduces your risk of joint and back pain
- ✓ Reduces your risk of cardiovascular diseases by over a third (heart and blood vessel diseases)
- ✓ Improves your blood cholesterol (fat) levels
- ✓ Reduces your blood pressure
- ✓ Helps keep your joints healthy
- ✓ Reduces your risk of frailty and falls
- ✓ Helps with stress and depression – physical activity is as effective as taking anti-depressants for some
- ✓ Improves sleep
- ✓ Improves quality of life



WHAT CAN HELP ME TO BE MORE ACTIVE?

What can help me to become more active?

Being active can be difficult, especially as we live in a world of labour-saving devices, such as escalators, remote controls and cars.

Small wearable step counters (pedometers), activity monitors and smart watches can be useful tools to help you start to be more active and keep activity up by providing you with real time feedback on how

much activity you are doing. Pedometers measure your physical activity by counting how many steps you take.

Activity monitors record steps and provide more detailed activity information as well as providing reminders to move regularly. They can record the type of activity (e.g. walking, running, cycling), distance completed, activity intensity (light, moderate, vigorous activity) as well as standing breaks.

Smart watches provide similar feedback to activity monitors but tend to be more expensive.

There are a wide range of step and activity monitors available to buy. These range from simple pedometers to wrist-worn monitors (e.g. Fitbit, Mi Band), smart phones through to phone applications (apps).

Things to consider:

- A pedometer that you wear on your waistband is the simplest form of feedback monitor. It does not need charging (it contains a simple watch battery) and you can see your steps on the pedometer's screen.
- More modern activity monitors and smart watches are usually worn on the wrist like a watch (e.g. Fitbit). You can view your activity feedback via a screen on the monitor but you will also need internet access and/or a mobile phone to set up. These monitors usually need charging every few days or weeks depending on the monitor.
- Activity monitors and smart watches provide feedback on a range of outcomes, for example: steps, activity type (e.g. walking, running, cycling), distance, duration and how hard you worked. Some also provide vibration reminders to move regularly.

-
- Activity monitors and smart watches will store your activity so you can see your progress over days, weeks and months.



PHYSICAL ACTIVITY: USING THE POWER OF STEPS

People who record their activity levels are often more successful at starting activity and keeping it going than those who do not.

Whatever activity monitor you have access to, the simplest and easiest way to monitor your physical activity is through **counting steps**.



How many steps do you usually take each day?

You can work this out by recording the number of steps you take every day for one week (using any form of tracker as described above) and add them all together to get your weekly total. Divide this weekly total by seven to give you your average daily step count.

How many steps can you walk in 1 minute?

Record how many steps you can perform in 1 minute when walking at a brisk pace on a straight flat surface.

You can use a step or activity tracker or simply count your steps.

Is your 1 minute step count less than 100 or more than 100?

Daily dose:

Aim for at least **7500 steps on most days**

Pick up the pace:

Try and achieve at least **1000 of your daily steps** in brisk stepping by doing at least 100 steps/minute.

For example by going for a 10 minute brisk walk.





Increasing your steps gradually may work better for longer than if you increase your steps too quickly.

First, try increasing your daily steps by **500** by walking an extra **5 minutes** each day.

Once you are comfortable at this new level, try increasing by **another 500 steps a day** and so on, until you reach your final goal.

An increase of 500 steps per day can reduce the risk of heart and blood vessel diseases and even death.

Walking just an additional 500 steps in 5 minutes every day could even increase how long you live by up to ~4 years.

ACTIVITY DIARY

Activity monitors and smart watches will record this information for you, though some people still find it useful to write down themselves.

Date started:	What activity did I do today?:		How long did it last?:	Today's steps taken:	Have I achieved my goal for this week?:
Starting average daily steps:	Day 1				If yes, will I continue with this goal or set myself a new one?:
	Day 2				
	Day 3				
My long-term goal is:	Day 4				If no, what has stopped me?:
	Day 5				
My goal for this week is:	Day 6				How can I overcome this?:
	Day 7				
Total for the week:					

BEING A HEALTHY WEIGHT

How can I lose weight?

Most of us know if we're overweight by looking in a mirror or by how our clothes feel. We can also have extra fat inside our bodies that we can't see.

Carrying excess weight around your middle increases your risk of developing Type 2 diabetes and heart disease. You can find out if your weight is putting you at risk, by taking your

waist measurement. Find the bottom of your ribs and the top of your hips, and measure around your middle at a point halfway between these.

Use the chart below to check if your waist measurement increases your risk.

Male	Less than 94 cm Less than 37 inches More than 102 cm More than 40 inches
Female	Less than 80 cm Less than 31.5 inches More than 88 cm More than 34.5 inches

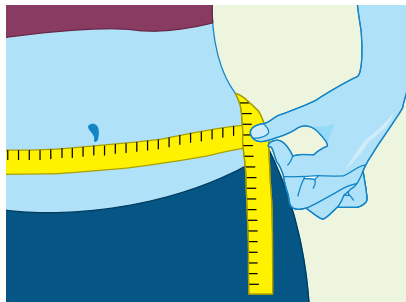
Your risk of developing
Type 2 diabetes is higher
if you are a:

- ✓ **White or Black male with
a waist measurement of
37 inches (94cm)
or above**
- ✓ **Asian male with a waist
measurement of
35.5 inches (90cm)
or above**
- ✓ **White/Black/Asian
female with a waist
measurement of
31.5 inches (80cm)
or above**



How can losing weight benefit me?

If your weight is putting you at risk, doing what you can to lose some weight and reduce your waist size can make a difference.



Losing **5-10%** of your body weight can reduce your health risks hugely, by:

- ✓ **Reducing your risk of developing Type 2 diabetes**
- ✓ **Reducing your risk of having a heart attack/stroke**
- ✓ **Lowering your blood pressure**
- ✓ **Lowering your cholesterol levels**
- ✓ **Improving your ability to move and perform activities**

Losing weight can help you to feel more energetic, and get into the clothes you want to wear!

When thinking about losing weight, set yourself realistic targets.

Start small and build on your success – being too ambitious with your goal, may leave you discouraged.

For many people, maintaining their current weight and not gaining more is an achievement in itself.

What can I do to lose weight?

Think about where you can make small changes to your food choices. These changes should be realistic and manageable, so that you can stick to them.

You may want to focus on:

- **How much food you put on your plate.**
Large portions of healthier foods such as bread, potatoes, pasta and rice can still make you heavier if you eat them in excess.
- **Whether you snack in between your meals.**
Regular snacking will add extra calories to your diet, which may make it difficult for you to lose weight.
- **The type of snack you choose.**
Some snacks will be higher in calories than others. Try to choose lower calorie snacks where possible, such as fruit.
- **How you cook your food and whether your meals are often ready-made.**
Cooking your food in any type of oil, or having ready-made foods, can provide you with lots of calories due to their high fat content

If you are able to make changes to one or more of these and keep them going, this is a good starting point. Don't worry if you have a day where your diet doesn't go to plan, try to get back on track the next day.

THINK ABOUT WHAT YOU EAT

How do food and drink choices put me at risk of diabetes?

Eating a variety of foods and including fibre will help you stay healthy.

Having foods high in calories (kcal) even in small amounts can lead to weight gain.

Foods high in fat, sugary drinks and drinks with alcohol can be high in calories.



HOW CAN I TELL WHAT TO CHANGE?

1. What do I eat/drink now?

The first step is to work out what you eat and drink now.

- Write down or record on an app, what you eat and drink for a few days.

2. Check the variety

Do you have a good variety of foods and drink?

Some of each of these:

- fruit and vegetables
- dairy or alternatives e.g. soya
- carbohydrates, like pasta and rice
- beans, pulses, fish, eggs, meat or plant-based protein
- unsaturated spreads or oils



3. What do I have lots of?

Now look at what you have had:

- What do you have at each meal?
- Are there regular snacks/drinks?
- Do you have big portions?
- Do you buy something regularly while you are out?

4. What has lots of calories?

Look at the labels to see how many calories there are. There are books, apps and websites that you can also use to look up foods and drinks and check calories. They can also tell you how much fat, protein, carbohydrates and sugar, and even alcohol there is in what you have.



MAKE SMALL CHANGES

By recognising what you eat and drink you can then decide how to make changes. There are some examples and suggestions below.

Now

Lots of rice, bread or potatoes every day.

Sugary drinks like cola or lemonade every day or regularly each week.

High calorie snacks like chocolate, biscuits, sweets or crisps.

Takeaways/home deliveries of fast food a few times a week.

High calorie add-ins to meals e.g. cream, mayo, cheese sauce, salad dressing.

Options

These are all carbohydrate foods. We need a little carbohydrate every day. But you can still reduce your portion size or have less often.

Switch to no sugar alternatives.

Switch to low calorie versions or smaller portions.

Choose lower calorie options from the menu, smaller portions, healthy options like salad or have them less often.

Go for lower calorie options, choose to eat meals without these add-ins, or have them less often.

DIET DIARY

Date started:	What did I eat and drink today?:						
My small changes to diet are:	Day 1						
	Day 2						
	Day 3						
	Day 4						
	Day 5						
	Day 6						
	Day 7						

DIET DIARY

Date started:	What did I eat and drink today?:						
My small changes to diet are:	Day 1						
	Day 2						
	Day 3						
	Day 4						
	Day 5						
	Day 6						
	Day 7						

How does eating more fibre reduce my risk of developing Type 2 diabetes?

Evidence suggests that fibre helps protect the heart and can also help to minimise the rise in blood glucose levels after eating.



Which foods are high in fibre?

Good sources of fibre include:

- ✓ fruit
- ✓ vegetables
- ✓ wholegrain cereals
- ✓ wholegrain bread
- ✓ brown rice and pasta
- ✓ oats
- ✓ peas
- ✓ beans
- ✓ lentils
- ✓ grains



How can I make sure I get enough fibre in my diet?

Try to include 5 portions of fruit and vegetables in your diet every day. The list below outlines what makes a portion:

- One piece of medium-sized fruit, such as an apple, peach, banana or orange
- One slice of fruit, such as melon, mango or pineapple
- A side salad
- One small glass (150 ml) of unsweetened fruit or vegetable juice. Juice counts as a maximum of one portion per day regardless of how much you drink.
- A smoothie containing all of the edible, pulped fruit and/or vegetable may count as more than one portion but this depends on how it's made. Smoothies count as up to a maximum of two portions per day.
- A small (200g) tin of fruit
- One heaped tablespoon of dried fruit
- One handful of grapes or two handfuls of cherries or berry fruits
- Three tablespoons of fruit salad or stewed fruit
- One portion of canned fruit equates to one piece of fresh fruit
- A serving (roughly 80g) of vegetables, such as frozen or mushy peas, carrots or broccoli
- Cooked dishes that contain significant amounts of vegetables may also count.

MY FOOD PLAN

If you plan to make some changes to your food choices, you may want to record your thoughts below:

To improve my diet I will:

(be specific – what will you do, how much will you reduce by, how often, when will you do it?)

How can I overcome this?:

What might stop me from making these changes?:

What support might I need?:

YOUR NOTES

YOUR NOTES

HEALTHIER YOU

NHS DIABETES PREVENTION PROGRAMME

If you have had a blood test within the last 12 months indicating that you are at high risk of developing Type 2 diabetes, you are eligible to attend the **Healthier You: NHS Diabetes Prevention Programme**.

This education programme is available free of charge*. You will receive tailored support to help you to make positive changes to your diet, weight and the amount of physical activity you do, to significantly reduce your risk of, or even prevent you from, developing Type 2 diabetes.

If you would like to attend the NHS Diabetes Prevention Programme, please ask your GP or Practice Nurse to refer you.

* To be eligible for referral to The National Diabetes Prevention Course (NDPP), you should have a HbA1c reading between 42-47 mmol/mol (6.0%-6.4%) or Fasting Plasma Glucose reading between 5.5-6.9 mmols/l within the last 12 months.

Want more information?



Leicester Diabetes Centre



NIHR | Leicester Biomedical
Research Centre



 www.leicesterdiabetescentre.org.uk |  @LDC_Tweets |  leicesterdiabetescentre

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