

# AT HIGH RISK OF TYPE 2 DIABETES

## Information Booklet

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Leicester Diabetes Centre



East Midlands  
Clinical Networks

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?

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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?

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

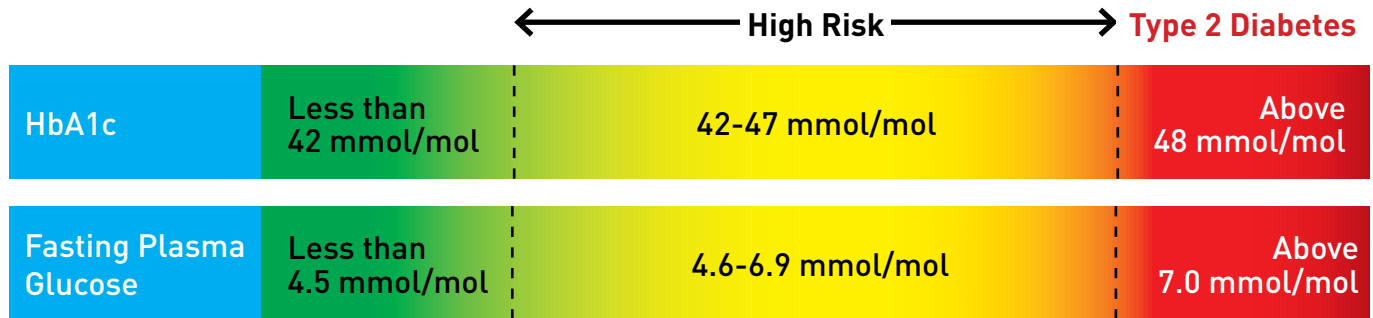
1. You may have a fasting blood glucose test. This measures how much glucose (sugar) is in the blood first thing in the morning after you have not eaten all night.

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 inches)  | 0 | 100 - 109 cm (39 - 42 inches) | 6 |
| 50 - 59 years   | 5 | 70 years or older      | 13 | 90 - 99 cm (35 - 38 inches)  | 4 | 110 cm (43 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                       | 5 |
| 3. How would you describe your ethnicity?   |   |                        |    | 25 - 29  | 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  | <b>Add up your score here:</b>   |   |                               |   |

\* See Resources box opposite

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Check your risk score:

**25 points or more = VERY HIGH RISK**

You have a **very 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 = HIGH RISK**

You have a **high** 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 =  
MEDIUM RISK**

You have a **medium** 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.

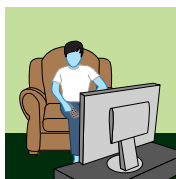
Find out more at:

[www.diabetes.org.uk/  
Riskscore/](http://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.



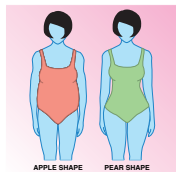
Being less active

Yes  No



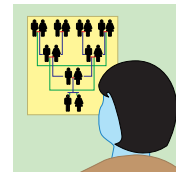
Depression/  
chronic stress

Yes  No



Obesity – weight around the middle (tummy)

Yes  No



Family history of diabetes

Yes  No



Diet high in saturated fat

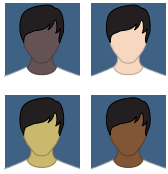
Yes  No



Getting older

Yes  No





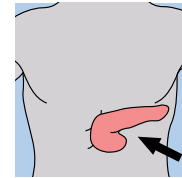
Ethnicity

Yes  No



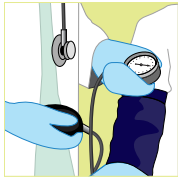
Abnormal  
blood glucose  
test

Yes  No



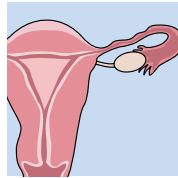
Pancreas  
damage

Yes  No



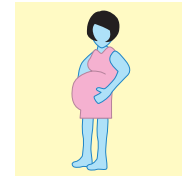
High blood  
pressure

Yes  No



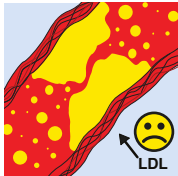
Polycystic ovary  
syndrome

Yes  No



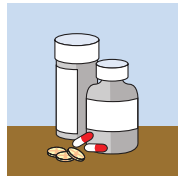
Diabetes in  
pregnancy  
(gestational)

Yes  No



High blood  
cholesterol  
(fat)

Yes  No



Steroids

Yes  No

## WHAT IS MY RISK?

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### 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 pass water often, especially at night
- Feeling thirsty
- More infections
- Blurred vision
- Weight loss

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



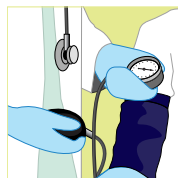
## HOW CAN BEING 'AT HIGH RISK' OF TYPE 2 DIABETES AFFECT MY FUTURE HEALTH?

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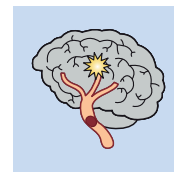
Being at high risk of developing Type 2 diabetes is associated with having heart problems such as heart attack, angina and stroke. Often those at high risk already have high blood pressure and high cholesterol (fats in the blood) levels. These are strong predictors of heart attack, stroke and angina.

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

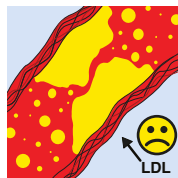
Smoking, like diabetes, is a significant risk factor for cardiovascular disease (such as heart disease and stroke) and should be addressed if possible.



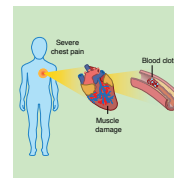
High blood pressure



Stroke



High cholesterol



Heart attack

## CAN I REDUCE MY RISK OF DEVELOPING TYPE 2 DIABETES?

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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 lifestyle changes are more effective than taking tablets in stopping the development of Type 2 diabetes.

For every 100 individuals who develop Type 2 diabetes over a given period of time, 90 cases may have been prevented by undertaking simple lifestyle changes.

These are:

- **Be more active**
- **Keep a healthy weight**
- **Eat less fat, especially saturated fat**
- **Eat more fibre**

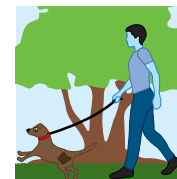


## HOW CAN BEING MORE ACTIVE BENEFIT ME?

### What is moderate activity?

Moderate activity refers to 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, shopping can all count as part of your daily activity. You will know if you are working at a moderate level as you will feel a little breathless but will still be able to talk.



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## What is the recommended amount of physical activity?

The recommended overall amount to achieve is at least 150 minutes per week of moderate to vigorous activity. An example of how you could achieve this could be 30 minutes per day, which can be broken down further into three 10-minute chunks or two 15-minute chunks.

## What if I can't do moderate activity?

Evidence suggests that even by sitting down less and being on your feet more throughout the day, you can gain 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.

The important message for everyone is that even if they are unable to be moderately active for 150 minutes a week, sitting less and being on your feet more can still be beneficial.

**EVERY LITTLE  
BIT HELPS!  
REMEMBER, THE  
MORE, THE BETTER.**

## BE MORE ACTIVE

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Being active has many health benefits such as:

- Reducing your risk of developing Type 2 diabetes by up to 50%
- Helping you to maintain a healthy weight
- Reducing your risk of having a heart attack by 30%
- Improving your blood cholesterol (fat) levels
- Reducing your blood pressure

- Helping keep your joints healthy
- Helping with stress and depression

150 minutes a week is the recommendation to gain health benefits. In general, some physical activity is better than no activity and the more you do, the greater the benefit.

Therefore, someone doing 45 minutes per day of moderate-intensity physical activity will gain a greater benefit than someone doing 30 minutes. However, doing 30 minutes is better than 15 minutes, and so on.



## WHAT CAN HELP ME TO BE MORE ACTIVE?

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### 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.

Activity trackers can be a useful tool to help you start to be more active and keep activity going. They measure your physical activity by counting how many steps you take.

There is a wide range of activity trackers available to buy and there are different types available. These range from simple pedometers to wrist-worn trackers (e.g. Fitbit), through to phone applications.

Things to consider:

- A pedometer that you wear on your waistband is the simplest form of tracker. It does not need charging and you can see your steps on the pedometer's screen
- More modern trackers are usually worn on the wrist like a watch (e.g. Fitbit) and will need internet access and/or a mobile phone to set up and access activity feedback
- Some modern activity trackers have a screen on the device itself so you can get immediate visual feedback on your activity. However, some do not and you will need to view activity feedback on a mobile phone app or on the internet

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- Some modern trackers may need charging every few days
  - Modern activity trackers measure a range of outcomes, for example: steps, duration of activity, active minutes
  - The most reliable and easiest method of setting goals is based on the number of steps



## WHAT SHOULD I DO IF I AM ALREADY ACTIVE?

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During a 30-minute, moderate-paced walk, most people will do around 3,000 steps. Therefore, to set yourself a healthy goal, work out your starting step count after you have worn the activity tracker for a day and then add 3,000 steps.

For example, if you find that you are currently walking 4,000 steps, then you should aim to walk:

✓ **4,000 + 3,000 =  
7,000 steps**

Increasing your steps gradually may be more achievable and sustainable than increasing 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.



## WHY SHOULD I BE MORE ACTIVE?

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### Recording your activity

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

### Can being more active be dangerous?

Doing moderate levels of activity like walking 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:  
[www.nhs.uk/livewell/](http://www.nhs.uk/livewell/)



## ACTIVITY DIARY

Activity trackers will record this information, 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?:                          |
|                            | Sun |                                |                        |                      |  |
| Starting steps:            | Mon |                                |                        |                      | If yes, will I continue with this goal or set myself a new one?: |
|                            | Tue |                                |                        |                      |  |
| My long-term goal is:      | Wed |                                |                        |                      | If no, what has stopped me?:                                     |
|                            | Thu |                                |                        |                      |  |
| My goal for this week is:  | Fri |                                |                        |                      | How can I overcome this?:  |
|                            | Sat |                                |                        |                      |  |
| <b>Total for the week:</b> |     |                                |                        |                      |  |

## BEING A HEALTHY WEIGHT

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### How can I lose weight?

Most of us know if we're overweight by looking in a mirror or by how our clothes feel. You may have had your Body Mass Index (BMI) taken, which measures your weight in relation to your height.

Your shape, as much as your weight, will increase your health risk. 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, simply 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.

For many people, this will be around where your tummy button is.

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



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

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

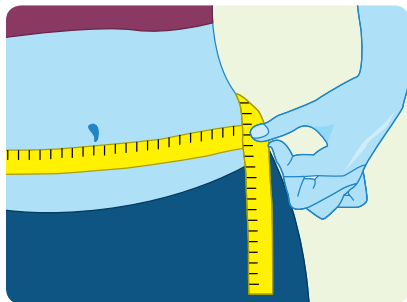


## BEING A HEALTHY WEIGHT

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### How can losing weight benefit me?

If your weight is putting you at risk, try to lose some weight and reduce your waist size. Losing 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 do activities

Losing weight can also help you to feel more energetic, and also get into the clothes you want to wear! When thinking about trying to lose weight, set yourself realistic targets that you know you will be able to follow.

Try not to be too ambitious with your goal, or you may be disappointed with the results.

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



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## 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.

## REDUCING TOTAL FAT AND SATURATED FAT INTAKE

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### How does a high fat diet put me at a higher risk of developing diabetes?

Eating a high fat diet can make you heavier. Extra weight around the midsection will put you at a higher risk of developing Type 2 diabetes and other health problems.

### What is the link between saturated fat and increased risk of developing diabetes?

Too much saturated fat in the diet can:

- Make it difficult for your body's insulin to do its job of managing blood glucose levels
- Raise your cholesterol levels



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## What is saturated fat and where is it found?

Saturated fat is a type of fat that can be found in many processed foods and in foods from animal sources.

Foods high in saturated fat include:

- Fatty meats: e.g. sausages/corned beef
- Butter/ghee/lard
- Cream/soured cream/full-fat mayonnaise

- Cakes/biscuits/chocolates
- Sandwich spreads: e.g. meat spread/full-fat cheese spreads
- Full-fat cheese
- Pastry-coated foods: e.g. pies/samosas
- Palm oil/coconut oil



## REDUCING TOTAL FAT AND SATURATED FAT INTAKE

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### What can I do to eat less total fat and less saturated fat?

Where possible try to:

- Choose lower fat products, as these will contain less total and saturated fat: e.g. low-fat margarine
- Cut off any visible fat on meat and take skin off chicken
- Cook using a non-stick pan, as you need only the tiniest amount of oil to cook with

- Swap butter for an oil such as olive oil/ sunflower oil when cooking (try to use only small amounts as these are still very high in fat)
- Measure the oil you use in cooking, to help you manage how much you use
- Grill, boil and dry-roast food where possible
- Try a spray oil, as this will help you to greatly reduce your fat intake
- Choose healthier snacks, such as fruit, if you are hungry in-between meals

### What can help me to make better food choices?

Looking at food labels can be a way for you to learn more about the food you are eating. Most products have nutritional information on the label. Many have a traffic light system on the front to help you to make healthier choices at a glance.

The traffic light colours tell you whether the product has low, medium or high amounts of fat, saturated fat, sugars and salt (see over).

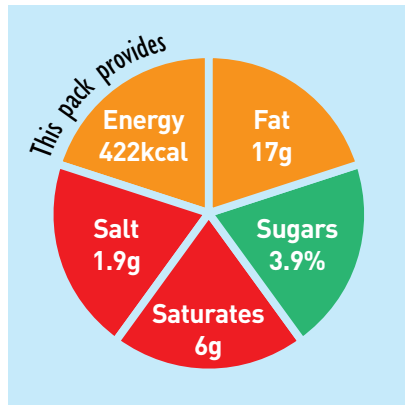
**Per half pizza serving – 170g**



% of an adult's reference intake

Typical values per 100g: Energy 1084kJ/ 259kcal

Most foods will either have a colourful grid or dial on the front of the packaging. Try to choose products with more green and amber and less red. You don't need to avoid all foods high in fat, sugar or salt – it's the overall balance in your diet that is important. Eaten occasionally, or in small amounts, foods with more red labelling won't affect your overall diet.



**Green = low**  
Choose these more often as they are a healthier choice.

**Amber = medium**  
When you have a choice, try to go for green.

**Red = high**  
Try to choose these less often or eat them in smaller quantities.

## REDUCING TOTAL FAT AND SATURATED FAT INTAKE

Below are some terms you may have seen when you have been to the supermarket:

Low fat

Food that contains less than 3g per 100g or 100ml of the product

Less than 5% fat or 95% fat-free

Food that contains less than 5g fat per 100g e.g. if a ready meal size was 400g then the whole meal would contain 20g fat or less

Reduced fat

Food must contain 25% less fat than a similar standard product. This doesn't mean the product is low fat – especially if the standard product is very high in fat



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Reading food labels can help you to work out whether a food has a lot or a little of something in it. Look out for products that are lower in fat.

| A little               | A lot                  |
|------------------------|------------------------|
| These amounts or less: | These amounts or more: |
| 2g of sugar            | 10g of sugar           |
| 3g of fat              | 20g of fat             |
| 1g of saturated fat    | 5g of saturated fat    |

For example, if a ready meal contains 30g of fat, it would contribute a lot of fat to your daily intake.

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## REDUCING TOTAL FAT AND SATURATED FAT INTAKE



Below is a guide to help you choose foods that are lower in total fat, saturated fat, sugar and salts. **Beware! Low fat options may still be high in sugar!**

|                          | Sugar              | Fat                | Saturated Fat       | Salt                  |
|--------------------------|--------------------|--------------------|---------------------|-----------------------|
| What is HIGH per 100g?   | Over 15g           | Over 20g           | Over 5g             | Over 1.5g             |
| What is MEDIUM per 100g? | Between 5g and 15g | Between 3g and 20g | Between 1.5g and 5g | Between 0.3g and 1.5g |
| What is LOW per 100g?    | 5g or less         | 3g or less         | 1.5g or less        | 0.3g or less          |



## EAT MORE FIBRE

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

Evidence suggests that fibre is protective to the heart and it 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



## EAT MORE FIBRE

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### 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 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

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Where possible, include a variety of starchy foods into your daily diet such as:

- Wholemeal/ wholegrain cereal
- Pasta
- Basmati or brown rice
- Granary bread (such as pumpernickel)
- New potatoes
- Porridge oats
- Flat breads (such as chapatti or naan)



## MY FOOD PLAN

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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?:

# 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 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.

**Further information on the NHS Diabetes Prevention Programme is available:**

**Website: [www.stopdiabetes.co.uk](http://www.stopdiabetes.co.uk)**

**Telephone: 0800 3213 150**

## YOUR NOTES

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**Want more information?**



Leicester Diabetes Centre



UNIVERSITY OF  
**LEICESTER**

**NIHR Leicester Biomedical  
Research Centre**

University Hospitals  
of Leicester



NHS Trust

 [www.leicesterdiabetescentre.org.uk](http://www.leicesterdiabetescentre.org.uk) |  @LDC\_Tweets |  leicesterdiabetescentre

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