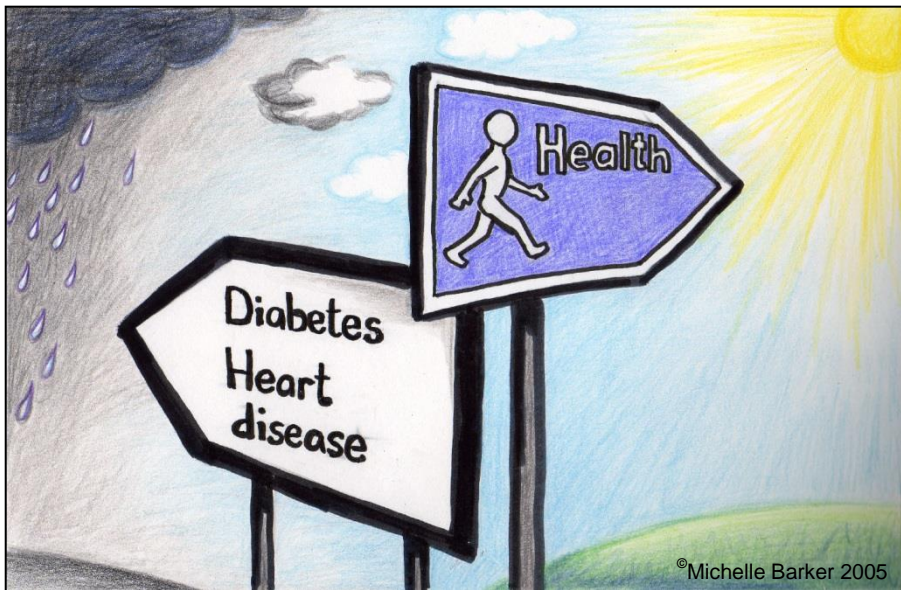


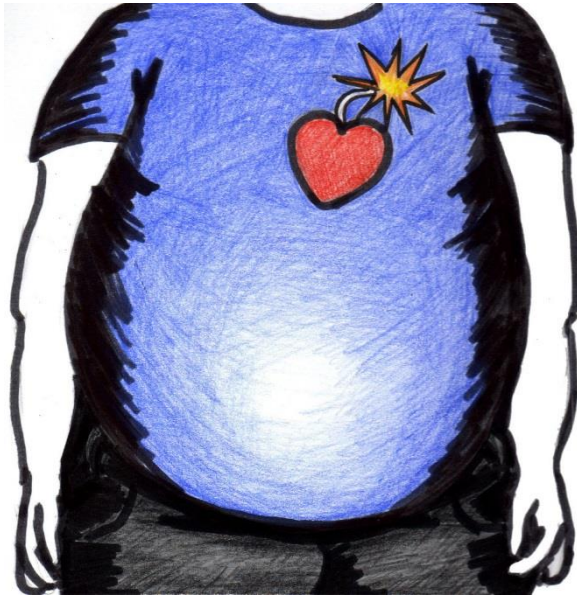
So you have Pre-Diabetes?



Important Messages

This booklet contains three key messages for patients. These are:

1. **Pre-diabetes is a serious condition with a high risk of progressing to diabetes and heart disease.**
2. **The good news is that these risks are often preventable.**
3. **To prevent progression, patients need to make lifestyle changes in terms of healthier eating (losing weight) and increased physical activity.**



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What is diabetes?

As you may know, diabetes comes in two types (type 1 and type 2). Type 2 diabetes is more common and is more likely to develop as you get older - around **6 out of every 100 people** develop it. People with type 2 diabetes have something called 'insulin resistance'. This means that their body does not respond normally to insulin (a hormone produced by the pancreas gland). Insulin controls the level of sugar (glucose) in your blood. Over time, if your blood sugar is high, this damages your blood vessels and your heart. Diabetes becomes harder to control as time goes on and often requires tablets and later, injected insulin.

So what is pre-diabetes?

Some patients have a blood sugar level which is higher than normal but not high enough to be called diabetes. This is called **pre-diabetes** and can be identified by blood sugar (glucose) tests. Technically, pre-diabetes may result from one of three conditions called Impaired Fasting Glycaemia, Impaired Glucose Tolerance and Increased Glycated Haemoglobin. However, the effect is the same - **it means raised blood sugar and a higher risk of getting diabetes and heart disease**. Making changes to your lifestyle can delay or even prevent the development of type 2 diabetes and reduce the risk of heart disease too. This has been shown to reduce new cases of diabetes by about 50%.

People with pre-diabetes do not usually have any symptoms. It can be diagnosed by your practice nurse or general practitioner using a blood test.

Over-working your system

'I was having six sugars in a cup of tea and as [my doctor] said, he said "you might find that six sugars", I think he said "your pancreas activity [whistling from higher to lower notes] shoots to try and offset that". I didn't realise that that sudden impact of six sugars suddenly made something, an organ, work extra fast you know, to deal with that'. (Man with pre-diabetes)

How did I get pre-diabetes?

There are three main things that contribute to developing pre-diabetes, and the progression to diabetes:

1. **What you eat:** Being overweight affects the body's ability to process sugar in the blood.
2. **What you do:** Long periods of inactivity (e.g. watching television all evening) reduce the ability of insulin to deal with sugar in the blood. By the same token, being physically active increases the efficiency of the insulin.
3. **The genes you inherit** also contribute to the development of pre-diabetes.

You can't change your genes, but you can do something about your eating habits and your physical activity. It is important to realise that dealing with pre-diabetes or diabetes **is not simply about eating less sugar**. The body's ability to process sugar depends on the action of insulin in the bloodstream. This in turn depends on your level of activity as well as what you eat.

Other illnesses are also related to what you eat and physical activity (high blood pressure, heart disease), and these often occur alongside pre-diabetes. An under-active thyroid can also be linked to pre-diabetes, as this makes it difficult to keep to a normal weight.

Can medications cause pre-diabetes?

Some drugs such as steroid tablets, and some drugs for schizophrenia and AIDS, may increase your risk of developing diabetes. Your GP will be aware of this and can discuss these issues with you.

How serious is pre-diabetes?

Pre-diabetes is a serious problem, which means that you are at increased risk of progressing to diabetes and to heart disease.

Heart risk:

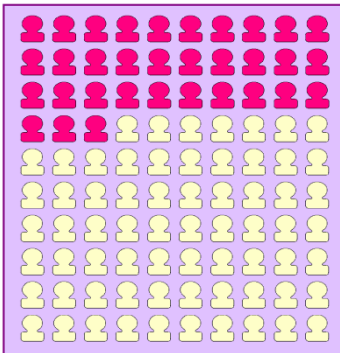
- ☀ People with pre-diabetes often have high blood pressure and **are twice as likely to develop cardiovascular disease** (e.g. angina, heart attack and stroke).
- ☀ Your personal risk will depend on a number of other things as well such as smoking, blood pressure, physical activity, and age.

Diabetes risk:

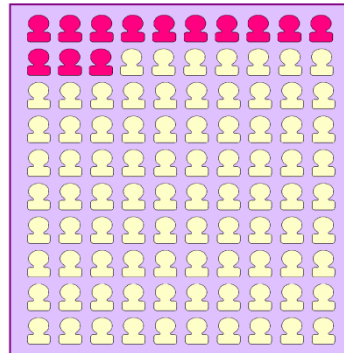
- ☀ If no action is taken, 33 out of 100 people with pre-diabetes (a third) will develop type 2 diabetes within 6 years.
- ☀ Doctors consider this to be a high level of risk and it is over ten times the risk of the average person getting type 2 diabetes.
- ☀ **The risk you have now** of getting diabetes is about the same as you pulling the short straw out of three straws offered to you.

Out of 100 people with pre-diabetes . . .

Risk of diabetes if
no action taken



Risk reduces with
lifestyle change



People who will go on to get diabetes are shown in red (👤)

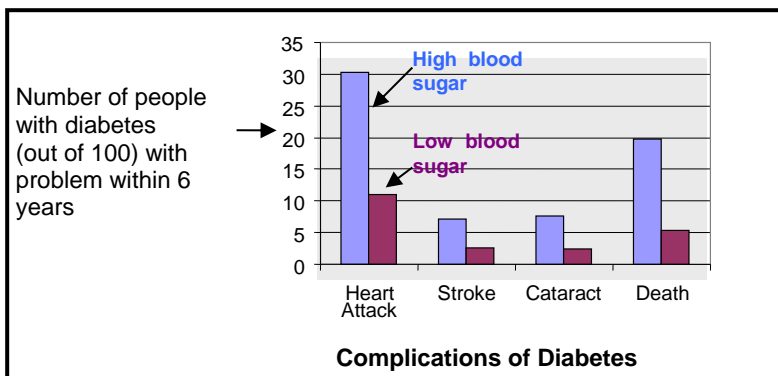
'I think that it's just cumulative, isn't it, so if you're pre-diabetic and you've got high blood pressure then your chances of having heart disease have got to go up'. (Lady with pre-diabetes who recently progressed to diabetes)

Why is it important to avoid diabetes?

Diabetes is a serious illness. It can be treated with tablets or insulin injections, but even with treatment, the condition usually gets worse over time.

- ✿ The risk of developing heart disease or stroke is around **3 times greater** in people with diabetes than in the rest of the population.
- ✿ Around **two-thirds of people with diabetes** die from heart disease or stroke.
- ✿ Many people with diabetes **develop serious complications** such as impaired eyesight, kidney failure, neuropathy and cataracts.
- ✿ Diabetes is the leading cause of amputation in the UK and a chief cause of blindness in middle-aged people.

As you can see, preventing diabetes is highly desirable. If you go on to develop diabetes, control of blood pressure and blood sugar is still very important, and the chart below shows the powerful effects of raised blood sugar (glucose) on your health.



Adapted from Stratton et al. British Medical Journal, 2000

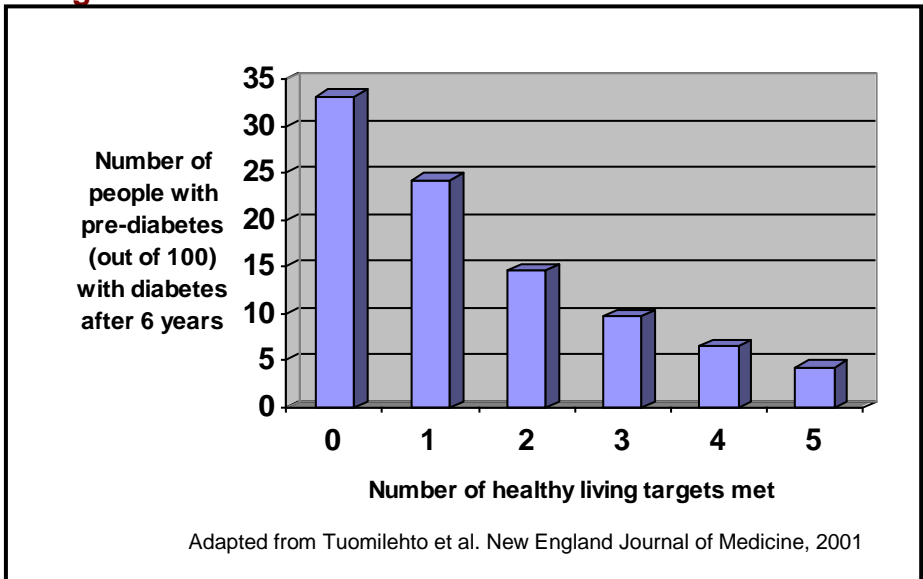
What can I do to reduce my chances of getting diabetes and heart disease?

The good news!

The good news is that for many people with pre-diabetes, **diabetes can be delayed or prevented** by increasing your physical activity, making changes to what you eat and by losing weight. Keeping these changes going over time improves your overall health and reduces your heart disease risk too. Out of 100 people with pre-diabetes who make 'healthy lifestyle' changes, only 13 will develop diabetes (compare this with 33 out of 100 if no action is taken!).

The more changes you can make the better. The chart below shows how the risk of developing diabetes reduces dramatically (to as few as 5 in 100) as people achieve more and more healthy eating and physical activity targets. These figures come from a large research study, where the healthy living targets were: **moderate weight loss (5% of weight) increased physical activity; reduced fat intake; reduced saturated fat intake; and increased fibre in the diet.** Even small changes resulted in a lower risk!

The good news chart



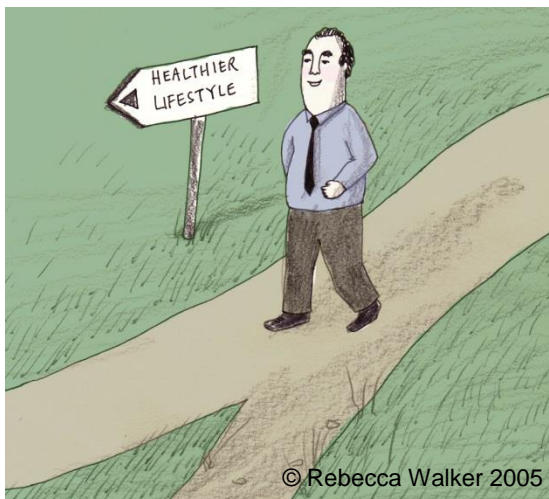
How do I know if I will go on to get diabetes?

No one can be sure whether or not you will go on to get diabetes, heart disease or stroke. However, we do know that people who are overweight and spend long periods being inactive are more likely to go on to develop these conditions.

Changing your lifestyle can have other great benefits too!

Any amount of weight loss, healthier eating or increases in physical activity can provide other strong benefits for your health. These include:

- Reduced risk of heart disease and stroke
- Lower blood pressure and cholesterol
- More energy
- Stronger bones, muscles and joints
- Physical activity can relieve stress and depression
- Sleeping better
- Reduced risk of some forms of cancer



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My life: What can I do?

Look at the areas of your life that may affect your chances of developing diabetes or heart disease and whether you might consider making changes. Perhaps ask yourself some questions:

- ❖ Do I feel overweight?
- ❖ Do I eat a healthy variety of food each day?
- ❖ Do I manage to take some physical activity every day?
- ❖ Are there any of these areas that I feel I can improve?

Perhaps keep a diary of what you eat and what activity you take over the next few days, so that you can look at what you are doing at the moment. Make a list of the pros and cons of making some changes. Think about how you might add into your daily routine some extra activity or a change in your eating habits. Talk to your partner or someone close to you: are they keen to make changes too?

Am I ready to change?

Although you may have identified areas of your life that you feel you need to change, most people still find it difficult to take the first steps and to make useful and lasting changes to their life. So it is important that you think carefully about whether you feel ready to try to change and consider what help and support is at hand. If the idea of change seems daunting, try thinking about making small steps to start with.

Setting achievable goals

Don't bite off more than you can chew! Try to build up activity or weight loss gradually over time. For example if you do not currently take any exercise, why not start with a brisk 10 minute walk around the block two or three times a week? If you already do regular activity, why not try to increase it a little? The Goal Table (overleaf) gives some examples of setting goals and recording how you achieve these over time. Try completing your own activity goal chart. If you find achieving a goal too difficult, start with something easier and build up to it.

Goal Table: An example of planning activity changes

What activities do you currently do, and what changes might you make?	Current daily activity	Goal for activity (month1)	Goal for activity (month3)
Current: Car lift to work Change 1: Walk to bus stop (and back) Change 2: Cycle to work	0 mins	8 mins	12 mins
Current: Take lift up and down at work (4 times a day) Change 1: Walk up and down stairs each time Change 2: As above and do a 5 minute brisk walk around the block at lunchtime	0 mins	10 mins	15 mins
Current: Walk to the canteen and back Change 1: Walk to the canteen and take detour around outside of building on the way back with a work colleague	2 mins	5mins	5 mins
Current: Bus from home to the supermarket (once per week) Change 1: Get off one stop earlier, walk briskly Change 2: Get off two stops earlier	0 mins	2 min (per day)	4 mins
Current: Sit and watch TV with kids (daily) Change 1: Take a 5 min brisk walk: Change 2: Play a lively game with the kids <u>or</u> go for a brisk 15 min walk or swim	0 mins	5 mins	15 mins
New: Go to the park, or cycle by river at weekends (e.g. with kids) 90 mins /week.	0 mins		13 mins*
New: (Alternative idea) Join a local walk and talk group.			
Total minutes of exercise per day	2 mins	30 mins	64 mins

* Remember to work out the daily amount (90 mins /wk is 13 mins per day)

Making changes to reduce the risks

Key ways to reduce your risk!

1. **Activity!** Aim for 30 minutes of activity at least 5 days per week (this should be something that makes you breathe faster or your heart beat faster). Try 20 minutes on 3 days per week in the 1st month.
2. **Lose weight!** Aim for 5% weight loss over several months. Try to lose 5 pounds or 2.5kg in 2-3 months at first. Be realistic about your target weight, and do it in gradual steps.
3. **Eat healthy food!** Replace fat (especially saturated fat) with healthier options. Build up to 5 portions of fruit and vegetables each day over some months.
4. **Try to stop smoking!** Start by seeking professional advice and make a clear plan before setting a firm date to stop.
5. **Even making small changes** can help to lower risks.

Don't despair!

Remember, it often takes several attempts to change lifestyle habits, so don't be put off if you don't succeed at first – instead, try to learn from the experience, figure out what went wrong, then plan how to do it better. Try and try again!

'You're dealt a set of cards in this life I think and then you try to make the game better you know'. (Man newly diagnosed with pre-diabetes)

Time for action

1. Increasing activity

The importance of physical activity is not just to help you lose weight. Being more active in your daily work or home life is also good for your heart and your general health. Being active helps your insulin to work to control your blood sugar. Going to the gym can be fun, but is not for everyone. It is important that you make changes for life, not just for a few months, and so think about how you can make extra activity part of your daily routine. Doing the housework, taking a brisk 30 minute walk at lunchtime, joining a dance or yoga class, swimming with the kids, or taking up a hobby all add to your activity levels. Try to find something which is going to be fun or is somehow useful to you (e.g. gardening, dancing, playing with your children). If you currently do very little activity, aim to gently increase the amount you do at the start. **Remember, becoming more active is probably easier (and more important) than changing what you eat.**

Step counters are a useful way of measuring your activity

You might consider buying yourself a **pedometer** (a small step-counting gadget you clip to your belt or pocket). This measures the number of steps you take each day. Aim to increase this level over the coming weeks and months. There are also 'Walk and Talk' groups in many areas.

How can I increase activity if I have difficulty walking or taking exercise? It might be necessary to go back to your doctor or nurse and discuss what opportunities there are to help you keep active (e.g. chair based exercise or 'EXTEND' programmes).

2. Losing weight

Losing weight can be difficult. However, we know that losing even a small amount can reduce your chances of going on to get diabetes. Research has shown that losing around 5% of body weight makes a big difference. Look at the 5% weight chart below which gives examples of how much you may need to lose.

5% weight chart: How much weight do I need to lose?

Kilograms								
Weight	70kg	80kg	90kg	100kg	110kg	120kg	130kg	140kg
Loss needed	3.5kg	4.0kg	4.5kg	5.0kg	5.5kg	6.0kg	6.5kg	7.0kg
Stones and pounds								
Weight	11st	12st 8	14st 5	15st 10	17st 5	19st 2	20st 6	22st
Loss needed	8lb	9lb	10lb	11lb	12lb	13lb	14lb	15.5lb

You are more likely to keep weight off if you lose weight slowly (e.g. 2 or 3 pounds per month), only making changes to your diet which you are likely to be able to stick with for the rest of your life.

3. Healthy eating

The eating advice here is the same as the advice for all adults, including those with diabetes and heart disease.

People with pre-diabetes should eat food that is **high in fibre** (e.g. vegetables, wholemeal foods), **low in sugar**, **low in saturated fats** (i.e. fats found in meat, butter, dairy products) and **low in salt**, and have a **high daily fruit and vegetable intake**. It is also important to restrict the **amount** you eat. Many packaged foods are high in fat, salt or refined sugar (or all three) and it is important to look at the food labels before buying, if possible. Fish in batter or breadcrumbs is often high in fat and calories, whereas grilled fresh fish will be much lower.

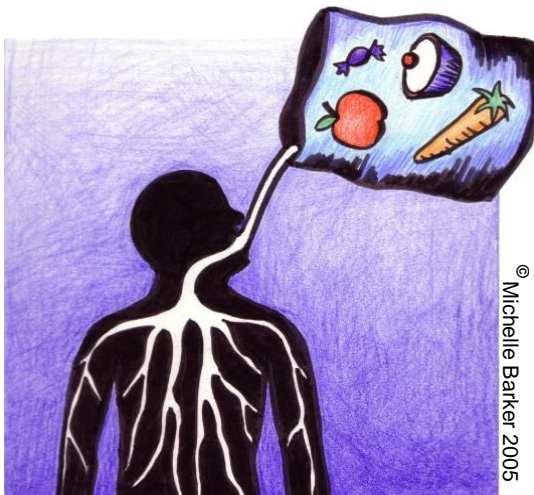


If you need to lose weight, try replacing one or two high calorie items (e.g. crisps or biscuits) with fruit. Looking at books that include recipes for healthy eating may help to give you ideas. Many of the websites listed on the back pages of this booklet also provide information on how to make your diet healthier.

Sugar

Most food contains some sugar (even carrots and potatoes) and so it is impossible to avoid it altogether. However there are different types of sugar in food, and eating foods that release sugar more slowly can also help you to lose weight. Some types of sugar (simple carbohydrates found in sweets, chocolate, sugary drinks and cakes) will raise the blood sugar higher and more quickly than others. This causes the need for insulin to rise immediately. Sugars found in foods like brown bread, potatoes, rice, pasta, cereals and beans are called complex carbohydrates and will raise the blood sugar more slowly. These are better for you. Fruits contain natural sugar and these are also healthier than sugars found in simple carbohydrates. Also, the sugar in brown rice, brown pasta and brown wholemeal bread is broken down more slowly than sugar in white bread, white rice and white pasta. **Alcohol** contains sugar (beer more than wine) and can also raise the blood sugar quite quickly.

The body usually manages your blood sugar for you by producing insulin. However, insulin works less well if you are physically inactive or overweight. The best way to manage your blood sugar is therefore to get yourself fit and lean, and let your body do it naturally.



A note about popular diets and pre-diabetes

Several diets are currently popular to help people lose weight, and some of these may also be helpful for some people with pre-diabetes. However, you should discuss this with your doctor first, as the effect of many of these diets on pre-diabetes and heart conditions is uncertain. There is increasing evidence to suggest that eating foods with a **low Glycaemic Index (GI)**, for example wholegrain bread and nuts may help prevent the onset of diabetes by reducing the sudden increase in blood sugar and insulin in your blood after a meal. Eating smaller quantities of food and more low GI foods may also help you lose weight and reduce the risk of cardiovascular disease and some cancers. All sugary and starchy foods (carbohydrates) can be ranked according to their Glycaemic Index and several books are available to help you do this. You should be aiming to change your diet for life, and not just for a short while, so think about what changes you will be able to maintain.

4. Smoking

Smoking not only causes lung cancer, but greatly increases the risk of stroke and heart disease for people with pre-diabetes too. There is a great deal of support available for people who want to stop smoking. The green booklet *'Giving up for life'* provides practical advice, contact details for support groups and telephone help lines. Even cutting down your smoking is helpful.

What if I do nothing?

If you choose not to make changes, your blood glucose (sugar) will probably continue to rise over time. At some point you may develop diabetes or heart problems.

'He isn't exactly very motivated but he doesn't really understand the cliff that he's moving towards'. (Doctor discussing a patient)

How can my doctor or nurse help?

Supporting your changes

When you are ready to start making changes to your lifestyle, your doctor or practice nurse can guide you and give you further support. They may want to discuss your lifestyle plans, and may refer you to a dietician, a specialist nurse or for exercise sessions. Your doctor or nurse can also give you leaflets and information about healthy foods, weight loss, physical activity and smoking. If you think it will help, **ask your partner or close relative to come with you** so that they can learn more about the sort of changes that are needed in your lifestyle (it may spur them on to change theirs too!). Practice nurses in particular are very well-informed about healthy eating, so book an appointment if you want more information.

Monitoring your condition

Your doctor or nurse may ask to see you regularly (e.g. once or twice a year or more often at first) to monitor your condition, by testing your blood sugar. They may also want to check your weight, your blood pressure, or take some blood for testing (e.g. for cholesterol) so that they can check your risk of heart disease. Go back for another appointment if you find making changes difficult. Don't forget, your doctor or nurse is keen to know how you're getting on, so let them know how you're doing!

Join a group or form a group!

Many people are trying to change aspects of their lifestyle, whether it is for their physical health, for their future well-being or for their children. Joining a group of people (e.g. walking, slimming or dancing groups) can be one way that can help provide you with the support you need in your own community. You could even think about starting up a group yourself!

Can my blood sugar return to normal?

In many cases, your blood sugar may well return to normal if you manage to make permanent changes. However, you would need to be monitored to ensure that it remains low.

Don't Panic!

Being told you have pre-diabetes can be an alarming experience. It is true that having this condition increases your risk of heart disease and stroke, and your risk of getting diabetes. This needs to be taken very seriously. However, the good news is that at this early stage, the condition is often reversible through making relatively simple changes to your lifestyle. Hence, although you should not be unduly anxious at this stage, you should see this as an important 'wake-up' call to take action.

If having this condition is causing you high levels of anxiety (such as difficulty sleeping, intrusive worrying thoughts, or panicky feelings), then you should contact your GP or practice nurse to discuss these feelings further.

What if I don't succeed?

Even if you take all the advice given and make quite dramatic changes to your lifestyle, you may still go on to get diabetes. This is because the way the illness develops is partly down to lifestyle (which you can change) and partly down to your genes (which you can't). So, if you still go on to develop diabetes, this is not necessarily your fault. As long as you have done your best, that's all you can do, and it is no use blaming yourself or dwelling on what you might have done differently.

Remember that whatever lifestyle changes you make will benefit you whether you get diabetes or not. Any increase in physical activity and loss of weight will reduce your risk of heart disease and improve your general health. If you do progress to diabetes, your GP will be able to treat it, and regular monitoring will ensure that any problems are dealt with early.

Further information

Useful websites

Pre-diabetes is a recently recognised condition, and websites, books or leaflets that deal with pre-diabetes are being developed. There are also a number of good websites with information on preventing diabetes, and the lifestyle advice for people with diabetes and those at risk of heart problems is also relevant for those with pre-diabetes.

American Diabetes Association - <http://www.diabetes.org/?loc=logo>

This American website has very good detailed information to help you learn about pre-diabetes, ideas about exercise, recipes, diet and losing weight.

British Heart Foundation - <http://www.bhf.org.uk/heart-health/conditions/diabetes.aspx>

Information on how diabetes is linked to coronary heart disease. There is also a lifestyle online shop.

Diabetes UK website - <http://www.diabetes.org.uk> - General information on diabetes with summaries of recent research, detailed information on eating well, getting active, meal planning (see under 'managing diabetes'). Also links to local diabetes websites.

Losing weight -

<http://www.nhs.uk/LiveWell/loseweight/Pages/Loseweighthome.aspx> - Helpful advice and tips on how to lose weight and maintain a healthy, balanced diet.

Other contact information:

Diabetes UK produce leaflets for people with diabetes and run local groups for information, activities etc. Contact your local office to find out details of activities in your area. Tel: 0845 120 2960 and ask for your local office number, or go to http://www.diabetes.org.uk/In_Your_Area/

NHS Smoking Helpline provides support and counselling for people planning or trying to stop smoking: Tel: 0800 169 0169 <http://smokefree.nhs.uk/> Provides a wide variety of information and guidance to support attempts to stop smoking.

Walking groups - Joining a walking group is a good way of taking exercise as well as meeting up with others. There are various levels: flat short walks for those who currently do little or no physical activity, or who have restricted mobility. Longer walks for those who currently do a small amount, but need to increase their activity level, and more challenging walks for those who are more experienced. Your GP or nurse may be able to provide further details. The **Walking for Health** website - <http://www.walkingforhealth.org.uk/> - explains more about walking for health, including information about local walking schemes.

Diabetes books – A good way to find a range of books is to search book-selling websites. An example is “**Diabetes: A Practical Guide to managing your health**”, by Rosemary Walker and Jill Rodgers (2004), published by Dorling Kindersley and Diabetes UK: An excellent and readable guide.

Many recipe ideas for patients with diabetes are available at http://www.diabetes.org.uk/Guide-to-diabetes/Food_and_recipes/Recipes/

This space has been left for your surgery to insert information about local facilities (e.g. exercise classes, walking, dancing, slimming groups, swimming pools, health groups etc).

Complete this part with your doctor or nurse

<i>Date</i>	<i>Glucose test name e.g. HbA1c, FPG</i>	<i>Normal range</i>	<i>Your result</i>	<i>Your weight</i>

<i>Date set</i>	<i>Goals discussed e.g. weight loss</i>	<i>Date reached</i>

