

PRE-DIABETES -- USEFUL INFORMATION FOR YOU

This is an information sheet about Pre-diabetes. It tells you what the condition is and how it is diagnosed, why you may have developed it, and gives you lots of helpful tips about changes you can make to your lifestyle to manage it and even get rid of it altogether.

What is pre-diabetes?

Pre-diabetes is when your blood sugar ('glucose') is raised beyond the normal range, but not yet high enough to be classed as diabetes. Pre-diabetes is often described as the "grey area" between normal blood sugar and diabetic blood sugar levels.

How is pre-diabetes diagnosed?

The test to identify pre-diabetes is a blood test (HbA1c) which gives you a picture of your blood sugar levels over the past three months. Healthy adult levels are below 42, and a level of 42-47 indicates pre-diabetes. A level 48 or above indicates diabetes.

What causes pre-diabetes and who develops it?

Pre-diabetes develops for the same reasons as Type 2 diabetes. The risk factors include:

- Being overweight or obese, or having gained weight over time so that your current weight is more than what's "normal for you";
- Eating a "Western" diet (eating mainly processed foods, poor quality fats and foods with little fibre content);
- Doing little physical activity and/or having a sedentary way of life;
- Having other risk factors for cardiovascular disease, such as high blood pressure, high cholesterol levels or excess fat within the liver;
- Having family history of diabetes;
- Women that have polycystic ovary syndrome and are overweight;
- Women that had developed diabetes during pregnancy



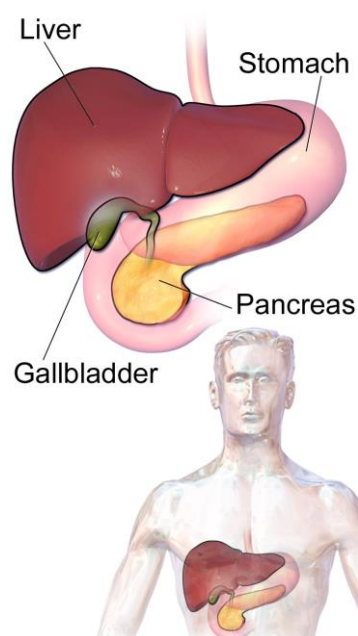
Pre-diabetes does not have symptoms

What are the risks when someone has pre-diabetes?

Pre-diabetes puts you at risk of Type 2 diabetes, which has symptoms that can affect your everyday life with the potential of causing serious problems to your eyes, heart, kidneys and nerves. In the UK, around 7 million people are estimated to have pre-diabetes and, **without changes to lifestyle, up to 3 in 4 people with pre-diabetes will go on to develop Type 2 diabetes within ten years.**

Pre-diabetes also puts you at risk of developing conditions including cardiovascular diseases like heart disease, peripheral arterial disease and stroke. People who have pre-diabetes are also more likely to have other risk factors for cardiovascular disease, including high blood pressure, raised cholesterol levels and being overweight.

Diabetes is caused by excess sugar that the body can't manage



What happens in the body that leads to increased sugar levels?

After every meal, the sugar ('glucose') level in your blood stream rises. The body, using insulin released by an organ called the pancreas, removes the glucose from the blood and stores it in the muscles and liver. Throughout the day and night, the liver releases just the right amount of glucose the body needs and the muscles use it for energy. But when the liver and muscles are full, any extra glucose has to find another home and the only way the body can store it is by turning it into fat. This fat will accumulate at first under the skin, but the extra fat has to be stored elsewhere and ends up in the stomach cavity and in the pancreas and liver. This can stop those two organs handling blood glucose properly after meals. Over time, the muscles stop responding to insulin and the pancreas is either exhausted from trying to handle all the excess glucose and can't produce enough insulin, or produces more than the muscles can respond to (**insulin resistance**). Glucose levels continue to remain high in the blood stream as the body is not able to manage the situation any more.

Pre-diabetes is a warning sign that you are at high risk of developing Type 2 diabetes. However there is good news! By making changes to your lifestyle through diet and exercise you can significantly improve your blood sugar levels and reduce your risk of developing Type 2 diabetes.

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Using lifestyle to manage and improve Pre-diabetes

What can I do to reduce my risk to develop diabetes?

If pre-diabetes is treated, it can help to prevent the development of type 2 diabetes and cardiovascular disease.

3 out of 5 cases of Type 2 diabetes can be prevented

The most effective treatment is lifestyle changes, including managing your weight, eating a healthy balanced diet, and doing regular physical activity.

Managing your weight

No matter what weight you are, you should **aim to lose 5-7% of your weight - this can help you reverse pre-diabetes.**

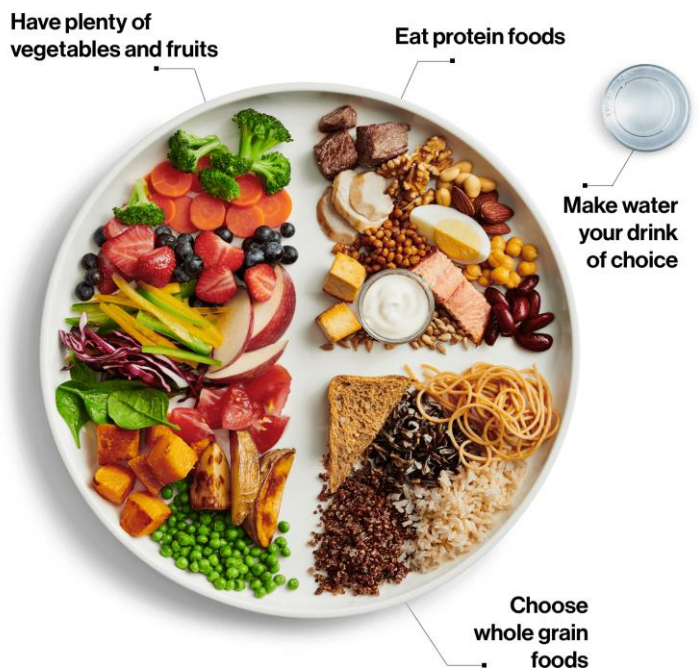
There are different ways of doing this, and it's about finding the way that works best for you. **Making healthier food choices and being more active** are both positive ways to start making these changes. Remember, weight isn't only about the number on the scales, but also the where in the body your weight is being carried e.g. on your tummy.

Research has shown that in developed countries, people tend to put on weight gradually over time by constantly eating more than their body needs. On average, people gain around 0.5kg per year, meaning that for every decade of life, a person can put on as much as 5kg (almost one stone). This change happens to all of us, not just people who are obese. Each of our bodies has a different threshold for how much stored fat it can handle, and this is one of the reasons why people who seem to be have a "normal" weight can have pre-diabetes and diabetes – they don't look overweight, but they have become **"too heavy for their own body"**.

Eating a healthy, balanced diet

While there is **no specific 'pre-diabetes diet'**, the food and drink we have every day is linked to our risk of developing Type 2 diabetes. There's no "one-size-fits-all" way of eating, but following a Mediterranean, vegetarian or vegan whole food diet has been linked to a decreased risk of developing Type 2 diabetes.

You don't have to stick to a specific "type" of diet like the ones listed above, but try to follow the advice in the next section about how to approach food and fluid consumption.



The New Canada Food Guide 2019

Using the Glycaemic Index to predict how fruit & veg affect blood glucose

Food Item	Glycaemic index	Serving Size g	How might each food affect blood glucose compared to one 4g teaspoon of table sugar
Potato boiled	96	150	9.1
Sweet corn	60	80	4.0
Frozen peas,	51	80	1.3
Cabbage	10	80	0.1
Raisins	64	60	10.3
Banana	62	120	5.7
Apple	39	120	2.3
Strawberry	40	120	1.4

Also salad leaves, broccoli, courgette, cauliflower...

As per calculations to be found in: It is the glycaemic response to, not the carbohydrate content of food that matters in diabetes and obesity: The glycaemic index revisited | Unwin | Journal of Insulin Resistance 2016 @lowcarbGP

Your risk of developing Type 2 diabetes increases if your diet is made up of food and drinks with high fat, low fibre and a high Glycaemic Index (GI).

The GI tells us whether a food raises blood glucose levels quickly, moderately or slowly. You should aim at consuming foods with a low GI. Slowly absorbed carbohydrates have a low GI rating (55 or below) and the table on the left gives some examples of higher and lower GI level foods.

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You can make simple changes to your diet that will have a positive impact on your pre-diabetes. The advice below sets out the healthy choices you can make, and the kinds of things you should avoid. You don't have to make all these changes, but the more you do, the more you can improve your pre-diabetes.

Replace "white stuff" (e.g. bread, past, rice) with wholegrain alternatives



Cut out or reduce refined sugars (e.g. biscuits, cakes, pastries, etc)



Eat plenty of non-starchy vegetables & salads

Make your plate colourful – the more colours, the more vitamins and minerals you are getting



Cut out or reduce starchy, carbohydrate-heavy foods – think of them as another form of sugar

Avoid high-sugar tropical fruits like bananas and mangoes



Avoid fruit juices and smoothies as these contain all the sugar of the fruit without any of the goodness of the fibre - Better to eat the fruit than drink it!

Choose lower-sugar fruits like berries, kiwis, apples, pears



Avoid drinks with artificial sweeteners



Avoid alcohol. It is essentially "liquid fat" and has a high GI (especially beer)



Aim at drinking 6-8 glasses of fluid daily.

Water, unsweetened tea and coffee are good choices

Eat healthier protein. This includes oily fish like salmon, tuna and mackerel, as well as eggs

Tofu and legumes (e.g. lentils and chickpeas) are great sources of non-animal protein



Avoid animal fat-based oils and manufactured fats like margarine



Only eat cheese in moderation

Reduce red meat consumption, **avoid processed meats** (e.g. bacon, ham)



Remember, **there is no fibre in meat and dairy**



Increase your fibre intake. Fibre helps the body to manage sugar and makes you feel full. Great sources include legumes, vegetables, fruits, nuts & seeds

Fat is fine if you make wise choices.

Some fats help your body to absorb essential vitamins and make you feel full.

Choose olive oil & vegetable oil-based spreads, and full-fat yoghurt.



Avoid snacking, especially on processed snacks (e.g. crisps, chocolate bars).



If you know you're going to need a snack during the day, **prepare some chopped vegetables.** Unsalted nuts (in moderation) are another good choice.

Be mindful of **portion sizes** and, if you're trying to lose weight, use a **smaller plate for your dinner.** Use cooking methods like **steaming, boiling and stewing.**

Being more active

Increasing your physical activity can help **lower your blood glucose levels** as well as **lose weight and maintain your weight loss** in the longer term. Being more active also helps **improve your mood** and can make you **feel more energetic**. The following tips can help you identify what kind of activity would be best for you and how to get started.



Photo by Ed Yourdon

Examples of moderate activity include brisk walking, water aerobics, riding a bike, dancing, hiking, while vigorous activities might include swimming fast, jogging, football, aerobics.

If you don't currently do much or any exercise, this might seem rather daunting, and you should **start with smaller achievable goals**, e.g. "this week I will go out for a 10 min brisk walk three times a week" and then gradually build upon that each week.

Reduce your time spent sitting or lying down and break up long periods of not moving with some activity.

Keeping active at home can be done by doing physical tasks like hoovering, gardening or DIY. You can also try workout DVDs or online classes appropriate to your level of fitness.

Keeping active at work can include walking up and down the stairs, standing instead of sitting while on a phone call or working, and taking a short walk after your lunch.



Photo by tejvanphotos

Do activities you enjoy! You don't have to follow the "traditional" idea of exercise (e.g. running, swimming, going to the gym). **Any form of movement can be beneficial**, and it is better to choose **activities you actually enjoy**, as this makes it more likely you will keep doing them. The general advice is to try and do at least 30 minutes of moderate physical activity at least 5 days a week or 75 minutes of vigorous activity weekly.



Photo by AleksandraNakic



Photo by be creator