

Type 2 Diabetes

Diabetes mellitus is a condition in which the amount of glucose (sugar) in the blood is too high because of a lack or shortage of insulin or because the body cannot use insulin effectively.

Type 2 diabetes develops when the body can still make some insulin, but not enough, or when the insulin that is produced does not work properly (known as insulin resistance). It develops slowly and the symptoms may not be severe. Some people may not notice any symptoms at all. Insulin resistance is linked to being overweight.

Insulin is a hormone produced by the pancreas, that helps the glucose enter the cells where it is used as fuel by the body.

Glucose comes from the digestion of foods containing carbohydrate.

Type 2 diabetes is treated by:

- diet and exercise alone
- by diet, exercise and tablets
- or by diet, exercise and insulin injections.

The main aim of treatment is to achieve blood glucose and blood pressure levels as near to normal as possible. This, together with healthy eating and regular exercise will help to improve well-being and protect against long term damage to the eyes, kidneys, nerves, heart and major arteries.

What is a Balanced diet?

Foods can be divided into 5 main groups. To enjoy a balanced diet we need to eat foods from these groups in the right proportions:

- Fruit and vegetables
- Bread, rice, potatoes and pasta
- Milk and dairy foods
- Meat, fish, eggs beans and other non-dairy sources of protein
- Food and drinks high in fat and/or sugar

The picture on the next page shows a balanced diet. Following the guidelines at most meal times will help you achieve a healthy diet.

Action Plan

What do you want to work on?

Which aspects of my lifestyle affect this?

Which will I tackle first?

How will I do this?

What might stop me?

How may I overcome this?

How confident am I that I can do this?

Getting a Balanced Diet

Food groups:	1 portion equals to	How many portions a day?
Starchy Food such as bread, cereals, rice, pasta and potatoes	<ul style="list-style-type: none"> • 2-3 tbsp. cereal • 3 tbsp. cooked porridge • 2 tbsp. muesli • 1 medium slice of bread • 2-3 tbsp. cooked rice, pasta, couscous or mashed potato • 2 egg sized potatoes • 3 crackers, crispbreads or rice cakes 	<p>5-8 portions</p> <p>Aim to spread your carbohydrate into equal portions throughout the day</p>
Fruit and Vegetables	<ul style="list-style-type: none"> • A small banana or apple • A handful (10-12) of grapes or berries • 2 plums, satsumas or kiwis • A cereal bowl of salad leaves • 3 heaped tbsp. of vegetables • 1 tomato, 1/2 pepper, 1 medium carrot 	<p>5 or more portions</p> <p>Choose a variety of fruit and vegetables including fresh, frozen, dried or tinned in natural juice.</p>
Meat, fish & alternatives	<ul style="list-style-type: none"> • 2-3oz/60-90g cooked meat, poultry or vegetarian alternative • 4-5oz/120-150g cooked fish • 1-2 eggs • 1 tbsp. of nuts • 4 tbsp. of baked beans, butter beans, kidney beans or lentils • 4 tbsp. or soya, tofu or vegetable based meat alternative 	<p>2-3 portions</p> <p>Choose lower fat alternatives when possible and include more beans and lentils</p>
Milk and Dairy	<ul style="list-style-type: none"> • 1/3 pint/200ml of milk or milk alternative • 125g pot of yoghurt • 2 tbsp. of cottage cheese • 1oz/30g of hard cheese 	<p>2-3 portions</p> <p>Choose lower fat versions as often as possible</p>
Oils and Spread	1tsp/5g butter, spreads, oils or salad dressing	<p>Limit your intake</p> <p>Aim to have no more than 2 servings in a day. These foods add lots of calories and can lead to weight gain</p>

Further information:

Diabetes UK:

www.diabetes.org.uk

Norfolk Diabetes Patient Advisers - 0800 0320 087

A non-medical help line for people with diabetes run by people with diabetes

Diabetes videos:

www.nnuh.nhs.uk/videos/adulthooddiabetes

<http://videos.northernorfolkprimarycare.co.uk/diabetes>

Diabetes Audio Podcasts:

www.nnuh.nhs.uk/podcasts/adulthooddiabetes

Frequently Asked Questions

Q I need to lose weight. How much should I aim to lose now I am diabetic?

A Any weight loss if you are overweight will benefit your diabetes. Aim for 5-10% body weight loss as this will give great health benefits of lowering blood pressure, cholesterol and blood glucose levels. Be realistic and try to lose 1-2lb (0.5-1kg) per week.

Q Will my medication need changing?

A Over time medication may need changing in response to the progression of you diabetes and the effect of any lifestyle changes. Diet or exercise can help reduce your blood glucose levels.

Q I have been told I should eat a low GI diet. What is Glycaemic Index (GI)?

A Glycaemic Index is a measure of how quickly food is digested and sugars released into the bloodstream.

The rate at which foods are digested depends on the amount and type of carbohydrate they contain as well as their fat, protein and fibre content.

Choosing low GI foods as part of a healthy balanced diet can help to improve diabetic control

10 Steps to Healthy Eating

- 1. Aim to eat 3 meals per day.** Avoid skipping meals and space your meals out throughout the day e.g. breakfast, lunch and evening meal. This will help control your appetite and blood glucose levels.
- 2. At each meal include a starchy carbohydrate food** such as bread, potatoes, rice pasta or cereal. The amount of carbohydrate you eat will have the biggest effect on your blood glucose and therefore, having an idea about **carbohydrate portions** is important. A meal containing a large portion of carbohydrate will increase blood glucose much more than a meal containing a small amount. **The type of carbohydrate is also important** - choose slowly absorbed carbohydrates as these affect your blood glucose less. These include granary bread, porridge oats, new potatoes, or natural muesli, basmati rice or pasta.
- 3. Eat more fruit and vegetables.** Aim for a total of at least 5 portions per day to provide you with vitamins, minerals and fibre to balance the diet.
- 4. Include more beans and lentils** such as chickpeas, kidney beans, butter beans and red or green lentils into your diet. Added to stews soups, casseroles or salads they can help control blood fats and have less effect on your blood glucose.
- 5. Limit your salt intake to 6g or less per day.** Salt can raise blood pressure and lead to heart disease and stroke. Limit the amount of processed foods you eat as they are often high in salt and try flavouring food with herbs, spices or lemon juice.
- 6. Limit sugar and sugary foods.** This does not mean following a completely sugar free diet - a little sugar can be used in baking and as part of a healthy diet. Use sugar free or no added sugar squash or diet fizzy drinks as a way of reducing sugar intake.
- 7. Do not use diabetic foods or drinks** - they may still affect your blood glucose levels, contain fat and calories similar to the regular versions and may have a laxative effect.

10 Steps to Healthy Eating

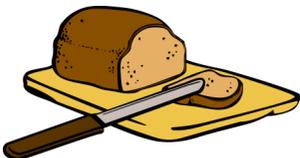
8. **Reduce the amount of fat you eat**, particularly saturated fats. You can do this by choosing low fat dairy products including reduced fat milk and cheese and diet yoghurts, having less butter or spread, use lean cuts of meat and use more fish. Choose unsaturated fats, especially monounsaturated, such as olive oil or rapeseed oil, as these are better for your heart. Fat is the greatest source of calories and eating less will help weight loss if necessary.
9. **Aim for 2 portions of fish per week**, of which one should be oily. Oily fish include salmon, trout, sardines, pilchards, herring, kippers, mackerel and fresh tuna (not tinned). They contain a beneficial fat called omega-3 which helps protect against heart disease.
10. **Drink alcohol in moderation** - the guidelines are the same for the general population.

Carbohydrates

Most of the food we eat is made up of carbohydrate and fat or a combination of these. Carbohydrate has the biggest effect on your blood glucose levels.

Carbohydrate is an important source of energy, fibre and vitamins and thus an essential part of the diet. It is important to understand more about carbohydrates because of the link between carbohydrate and blood glucose.

The amount of carbohydrate that the body needs will vary depending on your age, weight and activity levels. In general it should make up about half of your daily energy intake.



Frequently Asked Questions

Q Can I still have sugar in my diet?

A Yes, people with diabetes should follow a low sugar diet not a no sugar diet.

Q Can I use sweeteners?

A Yes, it is best to use a variety of sweeteners.

Q Is it true that I should not eat grapes or bananas?

A No, all fruit is good for you and a variety should be included in your diet, spread out over the day. However, care is needed with smoothies and fruit juice which should only be drunk in small quantities.

Q Can people with diabetes follow a vegetarian diet?

A Yes, a vegetarian diet can be healthy. However, care is needed with some foods high in fat such as cheese. Contact the Vegetarian Society (www.vegsoc.org).

Q Is it ok to take vitamin supplements now I have diabetes?

A A healthy varied diet should provide all your nutritional requirements. However, women who are planning for pregnancy should take a prescribable supplement of 5mg of folic acid and continue to take until the 12th week of pregnancy.

Q Does having diabetes mean I have to miss out on eating out?

A No, eating out, using the Eatwell plate model means you do not have to miss out. Occasional treats will not affect your blood glucose control long-term.

Q How should I manage my weight with diabetes?

A Weight control with diabetes is important as it can improve blood glucose levels and general health. Following a simple healthy eating plan rather than a faddy diet is the most effective way to weight control. It is important to think about reducing your fat intake, and not necessarily your carbohydrate intake.

100 Kcal can be used by:

18 minutes low impact aerobics	12 minutes digging the garden
25 minutes house cleaning	12 minutes slow swimming
28 minutes weeding	22 minutes hoovering
50 minutes ironing	25 minute slow walk
25 minutes gentle cycling	9 minutes climbing stairs

Losing weight is good for your diabetes and measuring how much weight you lose around your waist is another good way of measuring how well you are doing. The more weight you carry around your waist the higher risk to your health.

	Your health is at risk if you have a waist size of	Your health is at high risk if you have a waist size of
Men	Over 94 centimetres (about 37 inches)	Over 102 centimetres (about 40 inches)
Women	Over 80 centimetres (about 31½ inches)	Over 88 centimetres (about 34½ inches)
South Asian Men		Over 90 centimetres (about 35 inches)
South Asian Women		Over 80 centimetres (about 31½ inches)

Carbohydrate is found in many foods in the form of starch and sugar:

Starch	Sugar
Bread	Glucose (syrups, honey, molasses, fizzy drinks)
Pasta	Sucrose (table sugar, jam, chocolate, biscuits)
Potatoes	Fructose (fruit and fruit products)
Flour based products, e.g. cakes and biscuits, crackers and pastry	Lactose (milk, yoghurt and some soft cheeses)
Grains	
Breakfast Cereals	
Rice	

Starchy carbohydrates are healthy, naturally low in fat, filling and contain vitamins and minerals. These types of carbohydrates should be included in your diet. Opt for wholegrain varieties e.g. wholegrain breads, rice and pasta and low sugar cereals.

Sugary carbohydrates such as biscuits, cakes, jam, honey and sweets can be included in small quantities as part of a balanced diet.

All carbohydrates (both starches and sugars) are broken down into glucose (sugar) and therefore increase your blood glucose when you eat them. Sugars and products containing large amounts of sugar should be limited in the diet because they do not contain many useful nutrients.

Eating carbohydrates with a low Glycaemic Index has shown to improve the glycaemic control of people with Type 2 Diabetes

Wholegrain starchy carbohydrates tend to have a low glycaemic Index. If you would like more information please ask your nurse.

Fruit & Vegetables

Aim to eat at least 5 portions each day

Fruit and vegetables provide essential vitamins and minerals and have been shown to reduce the risk of heart disease and some cancers. They are also high in fibre. Fresh, frozen, raw and cooked varieties are included.

Fruit:

- All fruit contains natural sugar and should be spread throughout the day
- Unsweetened fruit juice is high in natural sugar and intake should be limited. Keep it to meal times and dilute with still or sparkling water or diet lemonade.
- Dried fruit is high in natural sugar and intake should be limited
- Eat one portion of fruit at a time

One portion is:

- 1 fresh fruit, such as medium apple, small banana, medium pear, medium orange
- 2 small fruits - 2 plums, 2 apricots, 2 kiwis, 2 satsumas
- 2 halves of canned peaches, 12 chunks of canned pineapple
- A handful of grapes, strawberries, berries
- 1 tablespoon of raisins, 2 whole dried apricots

Vegetables:

You can eat plenty of vegetables (not including potatoes).

One portion is:

- 3 tablespoons of raw or cooked vegetables, e.g. peas, sweetcorn carrots
- A small mixed salad (cereal bowl sized), 7 cherry tomatoes
- 2 broccoli florets
- A handful of raw vegetable sticks

Weight Management

There are many benefits of losing/maintaining a healthy weight.

Benefits include:

- Lower HbA1C
- Reduce insulin resistance
- Potentially delay the progression of diabetes
- Delay increasing of diabetes medication
- Delay developing of complications

Making sensible food choices and adapting your eating habits will help you manage your long term health. You should still be able to enjoy a wide range of foods. It is better to make small changes that you feel you can keep rather than completely altering your diet and keeping to it.

Small changes in daily intake or exercise can lead to a steady weight loss over a period of time. For example, eating 100 calories (Kcal) less per day can result in a stone (7kg) of weight loss over a year. Added to an increase of 100 calories burned in exercise and this can be increased to 2 stone (14kg) in a year). The 2 tables below will give you an idea of how to make 100Kcal saving or burn up to 100Kcal in additional exercise:

100 Kcal is contained in:

1½ digestive biscuits	½ hot cross bun
4 morning coffee biscuits	1 small packet of crisps
½ oz butter	2 small Yorkshire puddings
1 small roast potato	2 scoops ice-cream
1 tbsp. oil	½ pint beer or lager
1 fun size chocolate bar	1 small glass wine

Health Cooking Methods

Changing the way food is prepared can reduce the fat content. Try the following:

- Cutting all visible fat and skin from meat before cooking
- Grilling, poaching, steaming, microwaving, dry frying and dry roasting
- Cooking meats such as mince and draining off the fat before adding other ingredients
- Using very small amounts of strong cheese to flavour cheese dishes
- Adding extra vegetables to meat dishes and using less meat

Healthy Weight Loss

Changing the type of fat is healthy for your heart but unsaturated oils are still very high in calories. To aid weight loss:

- Choose a reduced fat spread (less than 40%) such as Flora Light, Gold low fat or Olive Light
- Use all spreads and oils sparingly
- Avoid high fat snacks such as crisps and nuts
- Avoid all fried foods
- Reduce portion sizes of meat and cheese
- Choose foods with less than 5% fat

Fibre

There are two types of fibre:

1. Soluble
2. Insoluble

Soluble Fibre

Slows down the breakdown of starch to sugar in the body and therefore reduces peaks in blood glucose levels after eating. Foods high in soluble fibre tend to have a low glycaemic index.

Sources include:

- Oats
- Pulses (peas, beans and lentils)
- Fruit
- Vegetables

Insoluble Fibre

Prevents constipation and can help you to feel full but has no direct effect on blood glucose control.

Sources include:

- Fruit
- Vegetables
- Wholemeal products, e.g. wholemeal or brown breads
- Wheat and bran based cereal, e.g. Weetabix, Bran Flakes and Shredded Wheat

If high fibre foods are disliked, low fibre (white) varieties of starchy foods should still be included as part of a healthy diet.

Salt

Reducing your salt intake can help control blood pressure and therefore reduce your risk of developing the complications of diabetes. The guidelines below will help you to limit your salt intake effectively.

Salt in your diet comes from:

- Salt used in cooking
- Salt added at the table
- Salt in processed/convenience foods

Ways to reduce your salt intake:

- Use very little salt in cooking
- Try not to add salt to food at the table, this includes all types of salt including table salt, sea salt, rock salt, celery salt and garlic salt
- Avoid salt substitutes such as Bio-Salt and LoSalt and any products containing these
- Try alternative flavourings such as garlic, herbs, lemon juice, pepper and spices to add extra flavour
- Cut down on processed/convenience foods
- Choose meals/sandwiches with less than 0.5g sodium (or 2.5g salt) per serving
- Choose other foods with less than 0.3g sodium (or 1.5g salt) per serving such as bread, cereals and snacks
- Read and compare food labels and choose lower salt alternatives

- **For yoghurts, fromage frais, milk puddings and mousses:**

There should be 10g total carbohydrates or less per 100g product.

Using the example, there are 18.8g total carbohydrate per 100g therefore, it would be considered high in sugar and not ideal.

Remember that 5g sugar = 1 level teaspoon

Fats

A little fat = 3g or less per 100g

A lot of fat = 20g or more per 100g

- **Saturated Fats (saturates)**

A little saturated fat = 1g or less per 100g

A lot of saturated fat = 5g or more per 100g

The example is moderate in fat total (15g per 100g) but is high in saturated fat (5g per 100g)

Fibre

A little fibre = 0.5g or less per 100g

A lot of fibre = 3g or more per 100g

The example is quite low in fibre (1g per 100g)

Salt

Low salt = 0.3g or less per 100g

A lot of salt = 1.5g or more per 100g

Salt can also be called sodium chloride. Food labels may list sodium or salt content or both.

To convert salt to sodium - divide by 2.5 (e.g. a packet of crisps with 0.5g salt will contain 0.2g of sodium)

To convert sodium to salt - multiple of 2.5 (e.g. a ready meal with 0.4g sodium per meal contains 1g salt)

Food Labelling Guidelines

NUTRITION INFORMATION		
TYPICAL VALUES (Cooked as per instructions)		
	Per SERVING	Per 100g
ENERGY	1462 k J.	975 k J.
	351 k cal	234 k cal
PROTEIN	9.0g	6.0g
CARBOHYDRATE	28.2g	18.8g
Of which sugars	3.0g	2.0g
Of which starch	25.2g	16.8g
FATS	23.3g	14.9g
Of which saturates	7.6g	5.1g
Of which monounsaturates	10.9g	7.3g
Of which polyunsaturates	2.7g	1.8g
FIBRE	1.6g	1.1g
SODIUM	0.6g	0.4g
PER SERVING	351 CAL	23.3g FAT

Sugar

A little sugar = 5g or less per 100g

A lot of sugar = 10g or more per 100g

For example, the label above is for a low sugar product (there are only 2g sugar in 100g)

- For cereals, biscuits and plain cakes:**

In general, sugar content should be one third or less of the total carbohydrate per 100g product.

Using the example, a third of 18.8g (total carbohydrate) is 6.2g, the sugar content is only 2g and therefore considered low sugar.

Sugar

Avoid	Alternative
Sugar	Low calorie sweetener e.g. Sweetex, Canderel, Hermesetas, Splenda
Large servings of jam, marmalade, honey or syrup	Small servings of jam or marmalade or reduced sugar varieties (e.g. 1tsp per bread slice), yeast extracts
Sweet coated breakfast cereals e.g. Frosties, Coco-Pops, sweetened muesli	Weetabix, Bran flakes, Unsweetened Muesli, Shredded Wheat, Porridge, Cornflakes, Rice Krispies
Ordinary fruit squash, fizzy drinks, mixers	Diet or sugar free squash, diet fizzy drinks, slimline mixers
Sugary cakes, biscuits and cereal bars	Tea-cakes, crumpets, scones, plain biscuits (e.g. Rich Tea, malted Milk), cream crackers
Fruit tinned in syrup, stewed fruits	Fruit tinned in natural juices or stewed without adding sugar
Ordinary fruit yoghurt, ordinary fromage frais	Yoghurt or fromage frais containing less than 10g carbohydrate per 100g (e.g. natural low fat, Onken Lite, Weight Watchers, Muller Light)
Sugary desserts	Reduced sugar desserts e.g. sugar free jelly, no added sugar instant custard, sugar free instant mousse or milk puddings made with sweetener
Chocolates and malted drinks made with sugar	Low sugary milky drinks e.g. hot milk, Cadbury's Highlights, Options Caley's Chococo, cocoa made with sweetener

Sweeteners, Sugar Substitutes and Diabetic Products

Artificial Sweeteners -

(e.g. Aspartame, Sucralose and Saccharin)

These contain no calories and have no effect on blood glucose. They are usually found in diet drinks, which provide a good alternative to the higher sugar versions.

Tablet Sweeteners	Granulated or Powder Sweeteners
These can be used in hot drinks and are easy to carry for use away from home	Can be added to cereal, stewed fruit and custards or milk puddings
<ul style="list-style-type: none"> • Canderel • Hermesetas Original • Hermesetas Gold • Saccharin • Sweetex • Splenda • Silver Spoon 'Nothing Comes Closer' • Own brand sweeteners - Tesco, Sainsbury's' Slendasweet, Boots' saccharin tablets 	<ul style="list-style-type: none"> • Canderel Granulated • Canderel Spoonful • Hermesetas Original Granulate • Hermesetas Gold Granulated • Silver Spoon 'Nothing Comes Closer' powder • Splenda • Own brand powder sweetener

Sugar Substitutes

Fructose - These do not cause a rise in blood glucose and therefore are often used in diabetic products. However, they do provide calories, have a strong laxative effect and are expensive.

Sorbitol, Maltitol and Isomalt

These can cause a rise in blood glucose but not as much as sugar. However, they do provide calories, have a strong laxative effect and are very expensive.

Points to remember about alcohol:

- Keep to normal strength beers
- Avoid low sugar beer, e.g. Pils and Salzenbrau, as they have a high alcohol content
- Avoid low alcohol beers, e.g. Barbican and Kaliber as they have a high sugar content
- Choose medium dry or dry wines and sherry
- Use diet mixers with spirits e.g. slimline tonic, diet lemonade, soda water
- Remember fruit juice is high in sugar
- Eat starchy food before and after drinking to help keep your blood sugars stable
- The symptoms of being hypoglycaemic can be confused with the side effects of too much alcohol



Alcohol contains a large number of calories and so can contribute to weight gain or make it harder to lose weight.

What is a unit?

Alcohol	Unit	Calories
A pub single measure of spirit (25ml) e.g. vodka, gin, whiskey, Archers	1	50-55
One pub measure (50ml) or sherry and vermouth	1	60-80
½ pint beer, ale, bitter, lager or cider (3.5%) Note - stronger versions will be 1½-2units per ½ pint and higher in calories	1	90-120
A pub measure of liqueur	1	65-80
A small glass of wine (125ml)	1½	85
A large glass of wine (250ml)	3	170
Alcopops (e.g. Bacardi Breezers, Hooch, Smirnoff Ice, VK) Note - Alcopops are higher in sugar so look for diet versions	1½	170

Information on units can also be found on bottle labels or other packaging or you can work it out using the following equation:

- Find out the alcohol percentage of your drink e.g. a bottle of wine = 12%
- Twelve is the number of units per 1litre of that drink
- One bottle of wine is 750ml, approximately ¾ of a litre
- Therefore, one bottle of 12% wine has approximately 9 units

- Sugar containing substitutes - blended with sweetener these will still raise blood glucose levels and contain calories, e.g. Silver Spoon Half Spoon Sugar, Sucron, Light Sugar
- Sugar Alcohols - often used in diabetic products and sugar free sweets. These can have a laxative effect as well as being expensive, e.g. Sorbitol, Manitol, Xylitol

If weight loss is not necessary, a small amount of normal sugar may be used in cooking or baking. Ideally use a mix of wholemeal flour with white flour and less sugar in baking cakes, biscuits and scones.

The Diabetes UK website has lots of good recipes for those wishing to reduce the sugar content of their diet. It can be found at www.diabetes.org.uk. Sweetener manufacturers produce their own recipe sheets, which you may also find useful.

Reducing Fat Intake

All fats and oils are equally high in calories however, some fats are better than others for our cholesterol levels. If you have diabetes and high cholesterol your risk of developing heart disease or stroke increases.

Cholesterol is a type of blood fat that is transported by the body by lipoproteins and it is these lipoproteins that are measured when you have a cholesterol test.

There are 2 main types of lipoprotein:

- High Density Lipoprotein (HDL) - usually referred to as 'good cholesterol' as it actually helps to protect the heart from developing problems
- Low Density Lipoprotein (LDL) - usually referred to as 'bad cholesterol' as it is this form of cholesterol that can build up in blood vessels

It is possible to reduce your risk of developing heart disease and strokes by making the following dietary and lifestyle changes:

- Eat more high-fibre food. Soluble fibre which is present in fruit, vegetables, lentils, pulses, nuts, soya and oats can reduce your total and LDL cholesterol by reducing the amount of cholesterol this is absorbed into the blood stream
- Follow a 'Mediterranean diet'. There is evidence that the Mediterranean diet can reduce the risk of heart disease. A Mediterranean diet is a healthy eating diet which includes a lot of fruit and vegetables, fish, grains, nuts, pulses and beans and less meat. It includes the use of unsaturated oils instead of saturated fats
- Drink alcohol sensibly
- Stop smoking
- Increase your daily physical activity
- Aim to be a healthy body shape and weight

Type of fat	Effect on cholesterol	Advice
Monounsaturated fat - <ul style="list-style-type: none"> • Olive and rapeseed oil • Avocado • Nuts and seeds (almonds, cashews, hazelnuts, peanuts and pistachios) • Spreads made from monounsaturated fats 	Can lower LDL level and the ratio of total cholesterol to HDL, when they replace saturated fats and trans fats. Can slightly increase HDL cholesterol and decrease triglycerides when they replace carbohydrates in the diet	Have in moderation in place of saturated fat
Polyunsaturated fat - <ul style="list-style-type: none"> • Corn, sunflower and soya oil • Nuts and seeds (walnuts, pine nuts, sesame/sunflower seeds) • Spreads made from polyunsaturated fats 	Essential part of the diet. Can help lower LDL cholesterol, lower the ratio of total cholesterol to HDL and reduce the risk of having a heart attack or stroke	Have in moderation in place of saturated fat

Alcohol

It is advisable to drink alcohol sensibly and responsibly.

New evidence showed that regularly drinking more than 14 units a week risks damaging your health.

Fourteen units is equivalent to six pints of average strength beer or 10 small glasses (125ml) of low strength wine.

We now have a better understanding of the link between drinking and some illnesses including a range of cancers and previously held thought that some level of alcohol is good for your heart has been changed.

If you drink most weeks, to reduce the risk of harming your health:

- Men and women are advised not to regularly drink more than 14 units a week
- Spread your drinking over at least three days if you drink as much as 14 units a week
- Have several alcohol free days
- Do not binge drink

Pregnant women or women trying to conceive should avoid alcohol altogether.

Never drink on an empty stomach as alcohol can make severe hypoglycemia (low blood glucose) more likely to occur with certain diabetes medication. Have some carbohydrates with your alcohol and before you go to bed if you have been drinking.

Oily Fish

Oily fish contain a special type of oil called Omega-3 that can keep your heart healthy. Oily fish include sardines, pilchards, mackerel, kippers, herrings, salmon and trout.

People with diabetes are encouraged to eat at least 2 portions of fish per week, once of which should be oily.

Because of pollutants in the fish, it is recommended that women who are pregnant or breastfeeding and women who are planning to have a baby in the future, eat no more than 2 portions (or 280g) of oily fish a week. Other women, men and boys can have up to 4 portions (560g) a week.

Fish oil supplements have not been shown to have the same benefits as eating oily fish.

However in people with type 2 diabetes who have high triglyceride levels, supplementation with 3 gram omega-3 marine fish oils (DHA and EPA) per day can improve blood triglyceride levels without adverse effects.

Other sources of omega-3 includes linseed (flaxseed), chia seeds and hemp seeds, dark leafy green vegetables, mung beans, red kidney beans and soya beans, cauliflower, broccoli and Brussel sprouts and winter squashes.

Type of fat	Effect on cholesterol	Advice
Omega-3 fat <ul style="list-style-type: none"> Oily fish (herring, mackerel, pilchards, sardines, salmon, trout and fresh tuna) 	Can help to reduce triglyceride levels in the blood and the risk of stroke and heart attack	Aim to have at least 1 portion a week
Saturated fat - <ul style="list-style-type: none"> Dairy products, butter, meat fat, meat products, palm, coconut and blended vegetable oils Processed foods 	Can increase total cholesterol and LDL cholesterol. LDL cholesterol increases the risk of fatty deposits developing in your arteries	Limit intake
Trans fat - <ul style="list-style-type: none"> Pastries, cakes, biscuits, crackers, fried foods, takeaways and hard margarines Foods that have 'hydrogenated oils or fats' or 'partially hydrogenated oils or fats' in the list of ingredients are likely to contain trans fats 	Trans fats can increase LDL cholesterol and lower HDL cholesterol	Limit intake
Cholesterol - <ul style="list-style-type: none"> Eggs, offal, shellfish 	Little effect on cholesterol	Can be included in moderation

Unsaturated fats are good alternatives to saturated fats to help keep your heart healthy. Limit cooking and spreading fats that are high in saturated fat and choose ones that are high in unsaturated fat instead.

However, unsaturated fats are as high in calories as saturated fats and should be used in moderation if you are trying to lose weight.

Cholesterol Targets

- Total cholesterol should be below 4.0mmol/l
- LDL levels should be less than 2.0mmol/l
- HDL levels should be 1.0mmol/l or above in men and 1.2mmol/l or above in women
- Triglyceride levels should be less than 1.7mmol/l

Reduce intake - choose less frequently and have smaller portions	Healthier options - choose more often
Cream, cream substitute, full fat yoghurt, full fat Greek yoghurt	Low fat natural yoghurt, low fat Greek yoghurt, low fat crème fraiche, low fat flavoured yoghurt (less than 10g CHO per 100g)
Whole, evaporated, jersey and condensed milk	Semi-skimmed or skimmed milk
Full fat hard cheese (e.g. cheddar)	Reduced fat cheese such as Delight, Shape and Weight Watchers half fat varieties, Edam cheese
Cream and blue cheeses	Light cheese spread e.g. Primula Light, Dairylea Light, Philadelphia Light, Cottage cheese
Fatty meat, meat products e.g. sausages, scotch eggs, corned beef, pork pie, pâté and battered fish	Small portion of lean meat or chicken, fish - all types, fresh or tinned in suitable oil or tomato
Meat pies (with pastry)	Potato topped pie e.g. shepherds pie or occasionally 1 crust pie
Gravy made with fatty meat juices	Gravy made with granules, or with meat juices after fat removed

Reduce intake - choose less frequently and have smaller portions	Healthier options - choose more often
Chips, roast potatoes, Yorkshire puddings, dumplings, garlic bread, egg fried rice, fried bread, pastry	Boiled, jacket, dry roast or roasting using minimal unsaturated oil. Oven chips occasionally. Mashed potato (with low fat milk and margarine). Pasta, boiled rice, noodles, plain bread
Creamy cooking sauces, mayonnaise and salad dressings	Tomato based sauces or low fat sauces (les than 5g fat/100g)
Convenience and frozen meals	'Low fat' or 'Healthy Eating' convenience meals
Cakes and biscuits	Plain biscuits. Occasional scone, fruit tea bread, crumpet, teacake, malt loaf
Nuts and crisps	Fruit, plain popcorn, occasional reduced/ low fat snacks

