

# HEALTH & FOOD TECHNOLOGY HIGHER



## FOOD FOR HEALTH

Iron deficiency  
anaemia

CHD – Angina

CHD – Heart attack

Dental caries

Diverticulitis

Hypertension

Obesity

Osteomalacia

Osteoporosis

Type 2 diabetes

## BOOK 3 DIETARY RELATED DISEASES

DIETARY RELATED DISEASES

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## Dietary diseases

### Iron-deficiency anaemia

- A shortage of iron is one cause of anaemia – a disorder in which your body has too little **haemoglobin** in the blood.
- Iron is a vital part of haemoglobin, the pigment in red blood cells that binds with oxygen in the lungs and carries it to all parts of the body.
- If you become too short of iron you start making red blood cells containing less haemoglobin. That means your body has to work harder to supply you with enough oxygen. This extra work can leave you feeling weak, constantly tired and short of breath – all of these are symptoms of **iron-deficiency anaemia**.
- Resistance to infection is reduced and there may be poor regulation of body heat.
- Extra iron that is not needed for haemoglobin is stored in the liver, spleen or bone marrow, ready to be used if there is a shortage in the diet. You only become anaemic if these stores run out, although you can start to suffer some of the symptoms before you reach that stage.

### Prevention of iron-deficiency anaemia

To prevent anaemia, the following are necessary:

- The daily food intake must include sufficient iron to maintain the normal level of haemoglobin in the blood. Eggs, red meat, fortified bread and breakfast cereals, dried fruit, beans, lentils and leafy green vegetables all contain iron.
- Eat foods rich in vitamin C alongside these iron-rich foods to help absorption of iron.
- Iron from food sources not linked with non-starch polysaccharides (NSP) or phytates is more easily absorbed by the body.
- A course of iron tablets may also be taken to make up for a shortage of iron.

### Reasons why iron may be lacking in the diet

- Snacking and grazing throughout the day rather than traditional meals could reduce iron intake.
- If people are not aware of nutrition or are lacking in the skills to prepare iron-rich foods then sufficient iron may not be included in their diet.
- Less red meat may be eaten for health, moral or religious reasons.
- Dark-green vegetables can be unpopular, particularly with younger age groups.
- If a good supply of fruit and vegetables, supplying vitamin C, is not eaten, then absorption of iron will be affected.

### How much iron is needed?

Most people lose about 1 or 2 mg of iron a day from their bodies. But to replace that you need to eat foods containing a greater amount – about 8 to 15 mg – because only a small proportion of the iron in food is absorbed by our bodies.

Certain groups of people may be more likely to suffer from iron deficiency anaemia:

**Adolescent girls and women who are menstruating.** It is estimated that 30 mg of iron is lost during menstruation and this will be more if periods are heavy and prolonged.

**Pregnant women.** During pregnancy, a total of about 400 mg of iron is supplied to the unborn child and the actual birth causes the loss of a further 250 mg. However, the increased needs of pregnancy for iron should be met without a further increase, as menstruation has stopped and the mother's store of iron can be used. Dietary supplements may be needed by mothers with low iron stores, eg teenage mothers.

**Babies** are born with an iron store, which is needed because milk has a low iron content. This store will only last about 4 months so it is important to introduce iron-rich foods quite soon (at about 4 months) to prevent anaemia. This can be done by giving enriched cereals, pureed vegetables, minced meat, etc.

**Teenage boys** require plenty of iron because during growth the volume of blood increases. There has been quite an increase in the number of teenage boys suffering from anaemia, particularly during the 'growth spurt' period. As their bodies grow so does the volume of blood required. They may also require extra iron for muscle growth.

**Elderly.** The main reasons for anaemia in the elderly are either that they cannot afford iron-rich foods or they may be living alone and lose interest in preparing proper meals. Also the high consumption of tea can be a factor, as the tannin in tea prevents absorption of iron.

**Vegetarians** may have difficulty in obtaining enough iron as they do not eat red meat and other good sources are perhaps those that are slightly less popular, eg green leafy vegetables, dried fruits, etc, and more of these are required to give the same quantity of iron, which can make diets bulky.

**Vegans** may absorb less iron due to the high phytic acid content of NSP rich foods.

**Athletes** may have a higher loss of iron from the body due to muscular activity

**Too much iron.** Too much iron can be more harmful than too little, but our bodies regulate the amount of iron, so for the great majority of people there is no risk.

## Coronary heart disease

Coronary heart disease is the term used to describe the gradual narrowing of the coronary arteries. These arteries supply blood and oxygen to the heart muscle. The arteries usually narrow because of a build-up of a fatty-type substance (**cholesterol**) within the inner lining of the coronary artery and this slows down blood circulation and the amount of oxygen that reaches the heart. This build-up is usually caused by an increased concentration of cholesterol in the blood.

There are two types of coronary heart disease:

- In one, the blood flow is reduced to the point where the increased demand of hard work cannot be met and this results in **angina**.
- In the other, the coronary artery becomes completely blocked, usually by a clot, and this is **coronary thrombosis**.

### **Angina**

The pain is usually linked to exertion and forces the patient to stop; subsequently it passes away within a few minutes. The pain is a result of not enough oxygen and nutrients being supplied to the heart muscle and so the muscle becomes starved.

### **Coronary thrombosis (heart attack)**

Deposits of cholesterol are found in the lining of the arteries. These deposits may be quite thick, roughening the interior of the arteries and making the risk of blood clots more likely. If the clot formation blocks the coronary artery then part of the heart muscle is deprived of blood and oxygen. This may lead to heart failure and the patient dies. Some heart attacks only cause a small amount of damage to the heart muscle and people can recover quite quickly. A heart attack is usually accompanied by severe pain. Obstruction of an artery to the brain is one of the causes of a **stroke**, ie cerebral thrombosis.

**Dietary factors which may contribute to coronary heart disease include the following:**

**Obesity caused by over-eating**

- Being overweight is a major risk factor.
- Being overweight leads to problems such as high blood pressure or diabetes, both of which are risk factors that can lead to heart disease.

**Too much saturated fat intake**

- Mainly from animal origin – increases the level of cholesterol in the blood. Cholesterol is made in the liver in our bodies using the fat we eat, especially saturated fats. High blood cholesterol is thought to be one of the risk factors in the development of heart disease.
- Cholesterol is ferried around the bloodstream by proteins called lipoproteins. LDL stands for **low density lipoprotein**. It is often branded **bad** cholesterol because high levels of LDL increase the risk of heart disease. This is because it tends to form fatty deposits on artery walls, increasing the risk of blood clots and blockage of the artery.

**Too much trans fatty acids**

- These increase blood levels of LDL cholesterol and may reduce levels of good cholesterol and so increase the risk of heart disease.

**Too much total fat intake**

- Eating too much fat in total can cause obesity, which is a contributory factor in heart disease.

**Too few polyunsaturated fats**

- Omega-3 is the name given to a type of polyunsaturated fatty acid that is found mainly in oily fish such as mackerel, sardines and pilchards. Omega-3 reduces the risk of blood clots forming, so reducing the chance of a heart attack.

**Too much salt**

- Eating too much salt may cause high blood pressure. If blood pressure is too high for too long, the arteries can be damaged. This can make them brittle and liable to clog with cholesterol. If this happens in one of the arteries that supplies the heart with blood, the result could be a heart attack.

**Too little NSP**

- Soluble NSP found in oats, fruit, lentils and peas has been shown to reduce blood cholesterol levels.
- NSP lowers the level of cholesterol in the blood by binding the bile salts, which are made from cholesterol, and thus preventing re-absorption.

### **Too little fruit and vegetables**

- Fruit and vegetables are good sources of antioxidant vitamins – the ACE vitamins. The antioxidant vitamins neutralise free radicals, which may damage cells and tissues within the body and this gives us some protection against heart disease.
- ACE vitamins slow down the rate at which LDL cholesterol is deposited on the artery walls, so helping to prevent heart disease.

### **Too much sugar**

- If too much sugar is eaten then this can result in obesity, high blood pressure and heart disease.
- Dietary sucrose can also cause disturbances in the body that are characteristics of type-2 diabetes. Coronary heart disease is a common cause of death in people with diabetes.

### **Cigarette smoking**

- Smoking causes the blood to thicken, so increasing the tendency to clot.
- Smoking constricts (narrows) the arteries, so reducing the blood flow to the heart.
- The nicotine in tobacco smoke increases the pulse rate and raises the blood pressure. The carbon monoxide content of cigarette smoke cuts down the oxygen in the blood so the heart has to work harder.
- Smokers need a high intake of ACE vitamins as smoking increases the number of free radicals in the body. Free radicals damage cells and tissues, increasing the risk of heart disease.

### **Heredity**

- Some families may inherit high-risk factors, such as a liking for fatty foods, and this will increase the risk of heart disease. Poor eating practices developed in childhood often create bad habits that are carried on into adulthood.
- Genetic conditions may produce high blood cholesterol levels.

### **High alcohol intake**

- This can cause high blood pressure, which can contribute to heart disease.

### **Lack of physical exercise**

- Regular exercise benefits the heart by increasing stamina and strengthens the heart muscle, making it more efficient.
- Regular exercise reduces stress and lowers blood cholesterol levels – both of which can contribute to heart disease.
- Exercise helps weight loss and so prevents obesity.

### **Emotional stress**

- People who are tense, impatient and anxious may be more likely to suffer from heart disease as blood pressure tends to rise under stress.

## **Gender**

- More men than women tend to have heart disease, but it is affecting an increasing number of women.
- Women under 40 years may be protected from heart disease by their hormone, oestrogen. After the menopause, when oestrogen levels are reduced, cholesterol levels rise and the risk of heart disease increases.

## **Dental caries**

Foods that contain a high proportion of sugar are reduced to a very sticky mixture when they are chewed and mixed with saliva. Even after swallowing, sugary particles are left sticking to the teeth. If the teeth are not thoroughly cleaned afterwards, traces of very sticky foods, such as toffees, may be detected clinging to the teeth as long as 24 hours later. Bacteria that are normally present in the mouth attack the sugary residues and change them to acids. The acids gradually dissolve small areas of the teeth's protective covering, the enamel. This is the way tooth decay begins.

Theoretically, sugar in any form will cause tooth decay, but in practice sugars contained naturally in foods, eg fruit, have less effect. **Sucrose** is the sugar that contributes most to dental decay. It is the frequency and amount of non-milk extrinsic (NME) sugars – mainly confectionery, soft drinks and table sugar – that are the main causes.

The most effective means of reducing dental caries that is available to the individual is to control the sugar intake. The most important factor is not the total amount of sugar that is consumed but the number of times that sugar enters the mouth. Sugar eaten at meals is not as damaging as sugar eaten between meals as snacks. The main aim in sugar control for the prevention of decay is to persuade people to limit their consumption of food and drinks containing sugar to meal times.

## **Prevention of dental caries**

### **Diet**

- Foods rich in calcium, phosphorus and vitamin D must be eaten to give teeth their hardness.
- Vitamin C must be included in the diet to keep the gums healthy.
- Crunchy foods, like apples and carrots, should be eaten regularly to exercise the gums and prevent infection.
- Eating too much salt/sodium could lead to extraction of calcium from the bone, thereby weakening the teeth.
- Saliva plays an important part, in that the flow of it over the teeth not only assists cleaning but helps to neutralise the acid. This is why foods that require a lot of chewing and are not sticky are better because they increase saliva production.
- 'Diet' drinks lower the intake of sugar but are a major cause of tooth erosion (tooth wear) due to the acidity of the drinks. Water should be the preferred drink.
- Reduce NME sugar intake by:
  - limiting consumption of sugar, sugary foods and drinks, which cause a build-up of plaque, which in turn attacks the enamel
  - avoiding sugary and sticky snacks between meals as this prolongs exposure to the acid, which causes a build-up of plaque
  - becoming aware of the foods with 'hidden' sugar – read the labels on food products
  - increasing the use of fresh or dried fruit as sweetening agents on breakfast cereals, in baking and also as a snack food. These are intrinsic sugars that do not produce the same amount of acid in the mouth
  - avoiding grazing on biscuits and juice – continual contact with sugar
  - avoiding sweet foods last thing at night
  - not missing breakfast – more sweets may be eaten as snacks to compensate for a missed breakfast
  - choosing low sugar options
  - eating fresh fruit and vegetables as snacks
  - not giving children sweets when they have been upset or hurt themselves or as a reward as this will encourage a sweet tooth in later life.

### **Good oral hygiene**

- Effective brushing is essential for healthy teeth and gums; brush after each meal when possible, but at least twice a day.
- Use a fluoride toothpaste to strengthen the enamel of teeth.
- Visit the dentist twice a year to have teeth checked.
- Ask the dentist to demonstrate the correct way to brush teeth.
- Toothbrushes should be in good condition and renewed every 3 months.
- Use dental floss to clean between teeth to prevent a build-up of food wedged between the teeth. If not removed, this will infect the gums.

## **Diverticulitis**

If extra strain is put on the muscular walls of the small intestine, then diverticular disease may develop. This can be caused by constipation or if the faeces are small and hard due to a lack of NSP and water – the muscular walls of the intestine have to work harder to move the faeces along. This results in increased pressure in the intestine and pouches of the bowel lining are forced through weak spots in the intestinal walls to form small pockets, called diverticula.

- Diverticula usually occur in the lower part of the large intestine. They may start to harbour bacteria that are usually excreted.
- Symptoms are acute abdominal pain, flatulence, constipation and diarrhoea.
- Diverticulitis usually only appears in people who have a diet low in NSP and are less active.
- An increase in consumption of refined and convenience foods also contributes to this condition.

## **Hypertension (high blood pressure)**

Everyone has blood pressure. The pressure is created by the heart's constant pumping of blood around the body. Exercise, excitement, anger or anxiety all make the heart beat faster and increase blood pressure temporarily.

High blood pressure is often called hypertension. It is usually caused by narrowed or damaged blood arteries – this means that the heart has to work harder to pump blood around the body. When blood is forced through arteries at high pressure it is more likely to damage artery walls.

Many factors contribute to high blood pressure:

- being overweight
- poor diet
- lack of exercise
- excessive alcohol
- stress
- age – as people get older, blood pressure rises a little as the artery walls become less elastic
- certain drugs and medicines
- family history – high blood pressure is more likely if it is common within families
- smoking.

High blood pressure does not usually have any symptoms and is sometimes referred to as the 'silent killer', especially if it goes unnoticed over a long period of time. It is one of several risk factors which increase the chance of having a stroke, heart attack or kidney failure.

To reduce the risk of high blood pressure, the following are recommended:

- Avoid obesity – keeping weight at a satisfactory level helps keep blood pressure down.
- Reduce alcohol intake, if necessary, to no more than 21 units per week for a man, or no more than 14 units for a woman (1 unit equals a half pint of ordinary beer, a small glass of wine or a single measure of spirits). Alcohol is high in calories and can increase blood pressure.
- Add less salt to food and cut down on salty foods. This will not help everyone with hypertension but those who take a lot of salt may well benefit from cutting down. Research has shown that there is a link between sodium intake and high blood pressure.
- Regular physical exercise helps control stress and helps keep blood pressure normal.
- Stop smoking. Smoking temporarily raises blood pressure. It also adds to the damage that high blood pressure may cause to the heart and blood vessels.
- People who suffer from hypertension should avoid stressful situations whenever possible.
- It should also be noted that reducing fat intake, particularly saturated fat, is recommended because cholesterol found in saturated fats can narrow arteries and so restrict blood flow.
- Potassium tends to reduce blood pressure, so a diet which is high in cereals, fruit and vegetables, ie high in potassium, will have a beneficial effect on blood pressure.

## **Obesity**

A major dietary problem in the UK today is obesity. Obesity caused by excess body fat is a hazard to health. There are no exact figures to tell us what an individual of a given height, with a certain bone structure, should weigh. Tables which have recommended weights give a good guide, and it is always clear when a person is so grossly overweight that they become obese. Usually, obesity is caused by long-term overeating. Your energy requirement dictates what you can eat and this varies from person to person, and becomes less as you grow older.

### **Dietary factors that cause obesity**

#### **High-sugar diet**

- Sweets contain high quantities of fat or sugar, which can contribute to weight gain, especially if eaten daily between meals or instead of meals.
- Drinks with added sugar, eg sweetened fruit drinks or fizzy drinks, can contribute to weight gain.

#### **High-fat diet**

- Fast foods and snacks are both high in fat. These are particularly popular with teenagers and have a high fat and energy content.

#### **Reluctance to eat fresh fruit and vegetables**

- Some people prefer to snack on high-fat and sugar foods rather than fruit and vegetables.
- There may be limited availability of fresh fruit and vegetables in the home due to cost or lack of knowledge about how to prepare these foods.

#### **A diet too high in energy – fat and/or sugar**

- If energy intake from food is more than energy output over a period of time then this leads to obesity.

#### **Increased consumption of pre-prepared convenience meals in the home**

- There is an increasing tendency for these meals to be used in the home as an alternative to home-made meals. These foods can be high in fat and sugar.

#### **Huge increase in range of convenience food and fast-food eating outlets**

- More takeaways are eaten by families, especially teenagers, and these can have a high energy value.

#### **Diet low in NSP and total complex carbohydrates**

- These are both filling and are therefore less likely to lead to snacking on high-fat and sugar foods, which may cause obesity.

### **Lack of sensible eating habits**

- Poor eating habits may have developed from childhood.
- Snacks eaten in preference to regular meals, increased 'grazing' between meals.

### **Social reasons that cause obesity**

#### **Lack of exercise and physical activity due to the following factors:**

- Increased use of cars by all members of the family, eg teenagers do not walk to school.
- Lack of sports facilities locally or the cost may be too high.
- An increasing number of teenagers just watch TV or play computer games.
- Parents may be inactive and do not encourage teenagers to take part in sports outside school.
- Parents may be concerned about the safety of children outdoors.

### **Advertising and media**

- These promote snack foods and often high-fat and sugar foods which appeal to children and teenagers.

### **Family income**

- Where income is limited, cheaper, poorer-quality foods may be bought in quantity – often high-fat and sugar foods – in preference to more expensive protein foods or fruit and vegetables.
- Higher income may mean more disposable income being given to teenagers which, in turn, may provide them with greater opportunity to buy snacks and fizzy drinks.
- Higher income may lead to more convenience-type foods being bought to accommodate a busy lifestyle. These foods are often high in fat or sugar.

### **Poor eating habits**

- Eating habits and food fads are developed in childhood and are difficult to change.
- High-fat or sugar diet in childhood leads to problems such as obesity in later life.
- Increased 'grazing' between meals.

### **Lifestyle**

- Lack of time for shopping – hence the preference for quick-to-prepare meals which require little food preparation and cooking. Convenience foods are often high in fat and sugar.
- Increased ownership of microwaves and freezers make convenience-type foods very useful for busy families.
- The huge increase in convenience foods and available eating outlets can lead to people eating too many convenience or takeaway foods, which again often have a high energy value.

### **Psychological factors**

- If a person is anxious, depressed, bored or lonely she/he may find eating a great comfort and do so to excess.

### **Parental influence**

- Poor eating habits tend to be passed down through families.
- Lack of food-preparation skills leads to a reliance on convenience foods, which may be high in fat or sugar and low in fruit, vegetables or NSP.

### **Health problems associated with obesity**

- Problems with hip, knee and back joints and arthritis as extra weight is placed on muscles and skeleton, if overweight.
- Overweight people place a greater strain on their heart and so are more likely to develop high blood pressure, which can lead to coronary heart disease as the heart has to work harder to supply the extra oxygen and nutrients needed by tissues.
- Overweight people are more likely to suffer from varicose veins, high blood pressure, diabetes mellitus and gallbladder stones.
- More chance of digestive glands being overworked or ceasing to function.
- Greater risk of having high blood pressure.
- Breathless during exertion as heart and lungs have to work harder to maintain oxygen supply. Likely to tire more easily.
- Psychological problems, such as low-self esteem or lack of confidence, can result from obesity. Unwillingness to take part in exercise due to body size, which then makes the problem of obesity worse.
- Overweight people often suffer from psychological disorders such as depression and anxiety.
- Dental caries if obesity is caused by eating a high-sugar diet.
- Complications can occur during surgery/operations because of obesity.
- People who are overweight can experience difficulties during pregnancy and childbirth.

## **Weight reduction**

The only way to reduce your weight is to use up excess fat. This means that daily food intake must be reduced so that the excess body fat can be used to meet the body's needs for energy. While on a reducing diet meals must still be well balanced; although the energy intake is reduced the essential nutrients must be provided.

To reduce weight:

- Decrease kilojoule (kj) intake and increase bodily activity.
- Cut down on fat and carbohydrate intake – reduce intake of energy-rich foods.
- Do not cut down on essential body-building foods such as protein but watch that excess protein is not eaten, as this will contribute to weight gain if not used up as energy.
- Eat plenty of fresh fruit and vegetables to provide bulk in the diet without providing excessively high kilojoule intake.
- Establish a good eating pattern of three to four meals per day.
- Try not to miss a meal, as hunger may increase the likelihood of unhealthy snacking.
- Avoid eating between meals – if hungry, nibble an apple, carrot, etc.
- Avoid frying as a method of cooking – choose to grill foods instead.
- Do not go on a crash diet, as a steady weight loss is much healthier.
- Avoid 'gimmick' diets – these do not establish good eating habits.
- Adopt a new pattern of sensible eating and keep to this after weight loss, rather than reverting to bad eating habits.
- Establish a regular pattern of exercise.

## **Osteomalacia**

This is an adult form of rickets more common in the elderly which can result in serious fractures, after even a minor fall. If absorption of calcium and phosphorus from the small intestine is reduced due to a lack of vitamin D, too much phytic acid or too much NSP, there will be insufficient supplies to maintain the strength of bones. Bones become weak and fragile, and may break easily. Strength of teeth is also not maintained.

Some causes of osteomalacia in the elderly are:

- not exercising enough
- not getting out in the sunshine particularly in winter
- possibly medication may increase risk.

## **Osteoporosis**

Osteoporosis is on the increase, affecting men as well as women. Osteoporosis develops gradually and unnoticeably over many years.

### **What is osteoporosis?**

- Osteoporosis means porous bones.
- Bones are made up of collagen for flexibility and calcium for strength. In osteoporosis bones lose some of their internal collagen and calcium, making them weak and liable to break – hence the more common name of brittle-bone disease.
- Osteoporosis is not simply a problem of too little calcium but of the way we use and keep that calcium in our bones.
- Most people do not know they have osteoporosis until they have a minor fall or make an awkward movement and end up fracturing a bone.
- Some people with osteoporosis experience chronic backache or notice they are getting shorter and developing a stoop as the bones of their spine become weakened and compacted. Losing 5–10 cm in height is common, and the spinal curve may develop into a ‘dowager’s hump’.
- This shortening of the body means there is less room for internal organs – the stomach can be forced up into the chest and the abdomen pushed forward. This can cause chest pain and a feeling that food is stuck behind the breast bone.

## **The bone lifecycle**

- Bone tissue is constantly turning over, being broken down and rebuilt.
- Bones stop growing in length around the late teens, early 20s or early 30s.
- At this age bones reach their peak bone mass – their maximum size and density. Potential peak bone mass is determined by heredity, but whether this potential is achieved depends on diet and lifestyle factors. After the early 30s bone density declines.

## **Guidelines to reduce the risk of osteoporosis**

Teenagers with low calcium intakes may not reach their potential peak bone mass. At risk are those who avoid dairy foods, are slimming and/or rely heavily on junk food – foods which contain little calcium.

- Regular exercise will increase bone density and stimulate bone formation. In young people exercise may actually raise peak bone mass. In adults it seems to protect against bone loss.
  - Eat a diet rich in calcium, phosphorus and vitamin D to ensure a strong bone structure is developed.
  - Vitamin D helps the absorption of calcium, so exposure to sunshine is essential for the syntheses of vitamin D.
  - Stop smoking – nicotine causes bone loss.
  - Use alcohol in moderation only – alcohol is a toxin to the bone cells.
  - Be a realistic weight. Insufficient calories may mean that the calcium target is not being met.
  - Beware of substances which hinder calcium absorption, eg some forms of NSP, phytic acid and certain drugs.
  - Decrease salt in the diet as it can lead to loss of calcium from the bones.
  - Doctors may prescribe hormone replacement therapy (HRT) for individuals at risk.
- Achieving a high peak bone mass in early adulthood is probably one of the best ways of preventing the development of osteoporosis in later in life. There is a suggestion that high intake of calcium during younger life may raise peak bone mass. Bones grow very rapidly during adolescence and calcium requirements are higher during teens than at any other time. Teenagers with low calcium intakes may not reach their potential peak bone mass. At risk are those who avoid dairy foods, are slimming or who rely heavily on junk foods (which usually contain little calcium).

## **DIABETES:**

During digestion food is broken down into glucose and used for energy. The pancreas, makes a hormone called insulin to help the glucose get into the cells of our bodies. When you have diabetes, your body either doesn't make enough insulin or can't use its own insulin as well as it should, resulting in a build-up of sugars in the blood.

### **Type 2 Diabetes**

Occurs when there is not enough insulin produced or the insulin that is made by the body doesn't work properly.

This type affects people as they get older but is becoming common in young children, teenagers and overweight/obese people due to a poor diet. This type is usually treated with a healthy diet, including complex carbohydrates.

#### *Effects on health:*

People with diabetes are more at risk of:

- Heart disease and strokes
- High Blood Pressure
- Kidney Failure
- Blindness
- Circulation problems, which may result in amputation of one or both legs

<b>Diet related causes</b>	<b>Non- dietary Causes</b>
<p><b>High sugar diet</b></p> <ul style="list-style-type: none"> <li>• <b>Sweets contain high quantities of fat or sugar which can contribute to weight gain, especially if eaten daily between meals or instead of meals.</b></li> <li>• <b>Drinks with added sugar, e.g. sweetened fruit drinks or fizzy drinks can contribute to weight gain</b></li> </ul> <p><b>Being overweight is a major risk factor in developing Type 2 Diabetes</b></p>	<p><b><u>Lack of regular exercise:</u></b></p> <p>Regular exercise reduces uses up energy so reduces the risk of becoming overweight which can help to lower risk of developing Type 2 Diabetes.</p>

<p><b>High-fat diet</b></p> <ul style="list-style-type: none"> <li>• <b>Fast foods and snack consumption are both high in fat. These are popular especially with teenagers and have a high fat and energy content and can lead to weight gain.</b></li> </ul> <p><b>Being overweight is a major risk factor in developing Type 2 Diabetes</b></p>	<p><b><u>Advertising and media</u></b></p> <ul style="list-style-type: none"> <li>• <b>These promote snack foods and often high-fat and sugar foods which appeal to children and teenagers. This will put a person at greater risk of obesity which is a major contributory factor in Type 2 diabetes.</b></li> </ul>
<p><b><u>Reluctance to eat fresh fruit and vegetables</u></b></p> <ul style="list-style-type: none"> <li>• Some people prefer to snack on high-fat and sugar foods rather than fruit and vegetables.</li> <li>• There may be limited availability in the home due to cost or lack of knowledge about how to prepare these foods.</li> </ul> <p>These factors may lead to weight gain which is a major risk factor in developing Type 2 Diabetes.</p>	<p><b><u>Lifestyle</u></b></p> <ul style="list-style-type: none"> <li>• Lack of time for shopping – hence the preference for quick-to-prepare meals which require little food preparation and cooking. Convenience foods are often high in fat and sugar.</li> <li>• Increased ownership of microwaves and freezers make convenience-type foods very useful for busy families.</li> </ul> <p>These factors may lead to weight gain which is a major risk factor in developing Type 2 Diabetes.</p>
<p><b><u>Increased consumption of pre-prepared convenience meals in the home</u></b></p> <ul style="list-style-type: none"> <li>• There is an increasing tendency for these meals to be used in the home as an alternative to home-made meals – these foods can be high in fat and sugar so may lead to weight gain which is a major risk factor in developing Type 2 Diabetes.</li> </ul>	<p><b><u>Family history:</u></b></p> <p>A family history of Type 2 Diabetes increases the risk of developing this condition. Some families inherit poor eating habits in childhood that are often carried into adulthood. These factors may lead to weight gain which is a major risk factor in developing Type 2 Diabetes.</p>