

## Key Words

**Diet:** the food that you eat every day. There are also special diets (e.g. a low-fat diet, a calorie-controlled diet).

**Healthy, balanced diet:** contains the correct amounts of carbohydrates, fats, proteins, vitamins, minerals and water that people need for good health, to grow properly, be active and maintain a healthy body for their age, gender and PAL (physical Activity Level)

**Lacto-vegetarian:** does not eat meat, fish or eggs but will eat milk + milk products + eggs

**Lacto-ovo-vegetarian:** does not eat meat, fish but will eat milk, milk products + eggs

## Nutritional needs and health

**Dietary guidelines:** The Eatwell Guide matches the Government's recommendations for a diet that would provide all the nutrients needed by a healthy adult or child (over the age of 5 years). The dietary guidelines are:

- 1 Base your meals on starchy foods.
- 2 Eat lots of fruit and vegetables.
- 3 Eat more fish – including a portion of oily fish each week.
- 4 Cut down on saturated fat and sugar.
- 5 Eat less salt – no more than 6g (1 level teaspoon) a day for adults.
- 6 Get active and maintain a healthy weight.
- 7 Don't get thirsty – drink plenty of water.
- 8 Don't skip breakfast.

When writing about a healthy, balanced diet: 1. Write out the definition. 2. Refer to Eatwell Guide. 3. Discuss the proportion of different food groups that should be eaten and why.

## Breakfast is important:

- It replaces nutrients that have been used up during sleep.
- Helps discourage snacking on sweet, fatty and salty foods during the morning.
- Breakfast should provide slow-release energy and B group vitamins, which release the energy and make their muscles, nerves and brain function normally and aids concentration
- Provides minerals for growth (calcium/phosphorus) and iron for red blood cells (especially for females, due to menstrual losses of iron).

## Potatoes, bread, rice, pasta and other starchy carbohydrates

38%

- About of all the food we eat should be from this group.
- If possible, choose wholegrain or higher-fibre versions, with less added fat, salt and sugar, because they contain more dietary fibre and nutrients and make us feel full for longer.

## Fruit and vegetables

• About of all the food we eat should be from this group.

- Eat at least five portions (fresh, canned or frozen) of a variety of fruit and vegetables every day.
- 1 portion = 80g, for example: – 1 apple, banana, orange or similar-sized fruit – 3 heaped tablespoons vegetables – a dessert-sized bowl of salad – a glass (150ml) fruit juice – counts as a maximum of one portion a day – 30g dried fruit – counts as a maximum of one portion a day.
- Does not include potatoes.

40%

## Beans, pulses, fish, eggs, meat and other proteins

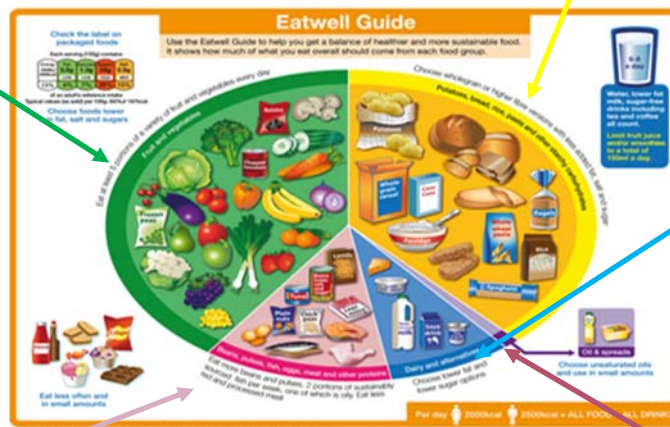
Eat more beans and pulses (peas and lentils).

Vegetable protein foods include tofu, tempeh, textured vegetable protein and mycoprotein.

Eat two portions of sustainably sourced fish per week – one of which is oily.

- Eat less (no more than 70g a day) red and processed meat products (e.g. sausages, meat pies, cold meat, smoked and cured products such as bacon and salami), which can be high in fat, salt and food additives.

12%



The Eatwell Guide also recommends • **sweet, salty and fatty foods** such as crisps, chips, cakes, biscuits, chocolate, ice cream, sauces should be eaten less often and in smaller amounts • people should drink 6–8 cups or glasses of fluid a day (water, lowerfat milk, sugar-free drinks, and unsweetened tea and coffee) • fruit juice and/or smoothies should be limited to 150ml a day • people should check the nutritional labels on packaged foods and choose foods lower in fat, salt and sugars.

## Dairy and alternatives

8%

- About of all the food we eat should be from this group.
- Eat 2–3 foods a day from this group, for example: a glass of milk (150ml), a small pot of yogurt, a piece of cheese about 25g, a small pot of fromage frais.
- Choose lower-fat and lower-sugar options, for example, 1% fat milk, reduced-fat cheese, natural or low-sugar yogurts.
- Alternatives include 'milks' and related products such as yogurts, made from soya beans, nuts, oats and rice.
- Try to choose unsweetened alternative milks that have been fortified with calcium.
- Provides calcium for healthy bones, teeth and nails

## Oils and spreads

1%

- Eat only small amounts of foods in this group.
- Choose unsaturated oils (such as olive oil, rapeseed oil, vegetable oil) and unsaturated vegetable fat spreads.



## Planning balanced meals

Seasonal/local foods—are these available?  
What do they cost?

What is available in the shops to buy/markets where they live?

Cost of ingredients to make the food

Lifestyle—whether they are active/not active/a busy family etc.

Time available to buy, prepare and cook

Their likes + dislikes



Food allergies/intolerances

Health conditions that may limit what can be eaten

Religious, cultural dietary restrictions they need to follow

**Things to take into account when planning meals for people at any life stage or with a specific dietary need**

Type of meal to be eaten—everyday or special occasion meal etc.

Nutritional profile of the meal—does it meet dietary Guidelines?



Serving suitable portion sizes for their needs

### Food portion size and costing:

When planning meals (especially for a large number of people (e.g. school or hospital meals), there are guidelines for how much of each different food type for an average size portion. [www.healthyfood.co.uk](http://www.healthyfood.co.uk). If portions are too big, they extend the stomach and it will mean that you may eat more than your body requires. If excess fat and carbohydrates are eaten this can lead to obesity which is a health problem that can lead to: CVD, CHD, Type 2 diabetes, hypertension + certain cancers. If all the food is not eaten this is waste and drains food resources and the waste



### Key word:

**Life stages:** phases of development that people go through during their life, such as infancy (babyhood), childhood, adolescence (teenagers), adulthood and the elderly.

Food	Description	Weight of portion
Boiled rice	medium	180g
Mashed potato	1 scoopful	160g
Breakfast cereal	medium	30g
apple	medium	100g
mayonnaise	Heap dsp.	20g
Baked beans	medium	135g
Minced beef	medium	70g
chicken	medium	100g
White fish	Medium 150g	cheddar
3 tbsp., grated	25g	

### Planning meals for different life stages and needs

You must be able to explain:

#### What are life stages?

Pre-school children (1–4 years)/children (5–12 years)/adolescents (teenagers)/adults/elderly adults

#### At each life stage:

What happens to their body/which nutrients are particularly important/what their best eating habits and lifestyle choices would be.

#### Special dietary needs:

Vegetarians/coeliacs (cannot eat gluten)/lactose intolerant.

#### Special diets:

High-fibre/low-sugar/fat-reduced/low-sodium (salt) diets.

### How to modify a recipe, meal, diet to meet dietary guidelines:

**Base your meals on starchy foods:** use wholegrain (wholemeal) cereal foods; choose a variety of starchy foods; add seeds to soups, stews, breads, desserts, porridge; toast starchy foods to add texture and flavour; add toasted seeds, rice flour, semolina to baked foods to add texture; roast starchy foods to strengthen flavour; serve bread with meals; food in wraps e.g. tortillas, pittas; dry fry seeds + sprinkle onto foods.

**Eat lots of fruit and vegetables:** choose very fresh fruit and vegetables; locally produced and in season; add vegetables to main meals to increase the flavour, colour, texture; frozen fruit and vegetables are convenient + good; remove tough and inedible parts; garnish and decorate foods with fruit and vegetables.

**Eat more fish:** fresh, frozen, dried, canned can be used (dried and canned may be salty); choose sustainably sourced fish; high-risk food; food hygiene needs to be good when preparing fish; remove bones; flavour with lemon, lime, fresh herbs, fresh ginger, garlic; simple cooking method is best; often served with a sauce or dressing.

**Eat less saturated fat and sugar:** study food labels for invisible fat +sugar; eat fewer energy dense foods e.g. fried snacks, chocolate, biscuits, pastries, sweet fizzy drinks, sauces, salad dressings; eat more low-energy foods e.g. fruits and vegetables, wholemeal cereals; choose lean meat; cut down on meat products e.g. sausages, pies, cold meats; choose low-sugar and low-fat versions of products; reduce free (added) sugars; high-fat foods e.g. butter, cheese, lard, ghee; avoid frying food – grill, steam, or bake instead; use veg. oils rather than solid fats; cut sugar content down in recipes; trim fat from meat; avoid energy dense accompaniments, e.g. cream, ice cream, custard, sauces.

**Eat less salt:** read food labels for salt content; eat fewer salty snacks, e.g. crisps; eat fewer salty foods, e.g. cheese, canned or dried fish, processed meat products, e.g. smoked bacon and sausages, salted nuts, yeast extract; choose low-salt versions of food products; reduce or leave out salt from a recipe; reduce use of stock cubes; reduce consumption of ready meals and takeaway foods; use alternative flavours to salt, e.g. lime juice, ginger, spices, garlic, spring onion; serve foods with alternatives to salt, e.g. fresh herbs, chillies, orange or lemon zest.



## Planning balanced meals for different life stages (1)

### Pre-school children 1 – 4 years

#### The best eating habits and lifestyle choices:

- \*Regular meals + drinks
- \*Small portions
- \*Trying new foods regularly
- \*Eating fresh + raw foods as well as cooked
- \*Let children eat until they are full – don't expect them to finish everything



These choices are important because:

- body growth is rapid so all nutrients especially protein are essential.
- energy needs are high
- limiting free sugars limits tooth decay and putting on excess weight

#### Advice for Parents:


- Serve small portions
- Some foods may cause choking e.g. nuts
- Involve children in all aspects of eating e.g. shopping and meal preparation.
- The Eatwell guide does not apply to this age group.
- Encourage them to care for their teeth

#### Encourage:

- \*Drinking water + whole milk
- \*Sharing + enjoying food as a group
- \*Happy meal times
- \*Involving children in choosing, buying and preparing meals
- \*Tooth care – cleaning regularly and not eating/drinking too many sugary foods and drinks

**Discourage:** eating snacks between meals because this can lead to obesity, tooth decay and type 2 diabetes.

### Children 5 – 12 years

The best eating habits and lifestyle choices:	This is important because:
*Regular meals + drinks – especially breakfast (wholegrain + fortified)	Energy needs are high The brain and body need to have a 'kick start' to the day. Fortified cereals have B vitamins (to release energy from foods); calcium (for strong teeth and bones) and wholegrain (for a healthy digestive system). Help to feel fuller for longer to avoid mid morning snacking.
*Following the Eatwell guide	Body growth and development is rapid so all nutrients especially protein are essential.
*Drinking water instead of sugary/fizzy drinks	Hydrates. Limiting free sugars limits tooth decay and putting on excess weight
*Continue to try new foods regularly	Extends acceptance of new foods and flavours
*Eating fresh + raw foods as well as cooked instead of too many ready prepared meals and fast foods	Fresh foods have antioxidants; provide different textures and help to feel fuller for longer. Ready prepared meals and fast foods are high in fats, sugar and salt and low in NSP (dietary fibre)
* Share and enjoy food as a group/family	Develops confidence with food especially new flavours + textures
*Being physically active most of the time *Not spending too much time inactive (sedentary) using the computer and mobile phone	Children can become overweight due to inactivity 
*Have enough sleep	Children are rapidly growing and need time to rest.

### Adults

#### The best eating habits and lifestyle choices:

- Regular meals + drinks. Always eat breakfast.
- Drink plenty of water
- Follow the Eat well Guide
- Take regular weight bearing exercise e.g. running, walking + exercise to stay fit and keep a healthy body weight
- Spend time outside in the sun to make vit. D
- Get plenty of sleep
- Avoid too much stress
- Avoid eating too many energy dense foods (high in fat, sugar) and salt




- Wholegrain breakfast cereals contain fibre required for a healthy digestive system.
- The Eatwell Guide (if followed) will provide all nutrients but especially:
  - Calcium + Vit. D – the skeleton reaches peak bone mass around 30 years of age and gradually starts to lose minerals and become weakened after this age.
  - Iron + vit. C (which helps the blood to carry oxygen around the body) to avoid anaemia by loss through menstruation.
  - The B group of vitamins release energy from foods and allows the brain to concentrate.
  - Energy dense foods may develop: obesity, CHD, CVD, Type 2 diabetes, gallstones, hypertension



## Adolescents (Teenagers) 13 – 19 years

## Planning balanced meals for different life stages 2

The best eating habits and lifestyle choices:	This is important because:
*Regular meals + drinks – always breakfast (wholegrain + fortified) 	Energy needs are high The brain and body need to have a 'kick start' to the day. Fortified cereals have B vitamins (to release energy from foods); calcium (for strong teeth and bones) and wholegrain (for a healthy digestive system). Help to feel fuller for longer to avoid mid morning snacking. The B group of vitamins release energy from foods and allows the brain to concentrate.
*Following the Eatwell guide	Body growth and development is rapid so all nutrients especially protein are essential.
*Eat/drink plenty of calcium rich foods	Minerals are taken into the bones and teeth so that the skeleton reaches peak bone mass when teenagers become adults
*Spend time outside	Vitamin D (with calcium) strengthens the skeleton allowing it to gain maximum bone density. This allows it to reach peak bone mass when they are adults.
*Drinking water instead of sugary/fizzy drinks	Water hydrates the brain and aids concentration. Limiting free sugars limits tooth decay and putting on excess weight. Fizzy drinks may affect how many minerals are taken into the bones
*Eating fresh + raw foods as well as cooked	Fresh and raw foods contain vitamin C (which with iron, helps the blood to carry oxygen around the body) to avoid anaemia. Fresh foods have antioxidants. Raw foods are required for a healthy digestive system as they contain NSP (dietary fibre)
*Eating iron rich foods e.g. red meat, liver, kidneys, wholemeal bread, green leafy veg. egg yolk, dried apricots, lentils, cocoa, curry powder and fortified breakfast cereals. <ul style="list-style-type: none"> <li>• Eat plenty of protein foods</li> </ul>	Teenage start to menstruate so need to intake iron rich foods/ <b>vitamin C for the absorption of iron to prevent anaemia</b>
* Share and enjoy food as a group/family	Develops confidence with food especially new flavours + textures
*Being physically active most of the time *Not spending too much time inactive (sedentary) using the computer and mobile phone or watching TV	Teenagers can become overweight due to inactivity. Being a healthy weight reduces risk of obesity and development of diabetes.
*Have enough sleep	Teenagers are rapidly growing and need time to rest.
* Eating too many ready prepared meals and fast foods as these are high in fats, sugar and salt and low in NSP (dietary fibre)	can become overweight due to inactivity. Develop Type 2 diabetes and develop poor eating habits for adulthood
*Eat oily fish	Rich in fats called omega 3 fatty acids which may help prevent coronary Heart Disease (CHD). E.g. salmon, mackerel, sardines + fresh tuna

## Elderly Adults

### The best eating habits and lifestyle choices:

- Regular meals + drinks. Always eat breakfast.
- Drink plenty of water
- Follow the Eat well Guide
- Take regular weight bearing exercise to stay fit and keep a healthy body weight
- Spend time outside in the sun to make vit. D
- Get plenty of sleep
- Avoid too much stress
- Eat smaller portions as the appetite decreases and metabolic rate slows down
- Eat plenty of fibre to maintain a healthy digestive system

### This is important because:

- Weight management – to avoid health risks associated with unhealthy weight. E.g. CHD
- There is a decline in immunity to infections e.g. 'flu. A decline in cognitive thought processes and memory and mobility – This group need for range of nutrients to support this e.g. Omega 3 fatty acids help and B vitamins
- Osteoporosis post menopause – oestrogen to protect bone health calcium/phosphorus/vitamin D
- Include Vitamin B12 and folates - lack of these linked to Alzheimers, memory loss and heart disease.
- Digestive function e.g. constipation – ensure high fibre in diet -cereal foods
- Reduce salt intake - links to CHD, blood pressure problems
- Ensure food supplements not used to replace real foods
- Less mobile/active therefore may need to take care with energy balance
- Include the antioxidant vitamins A, C and E may help to prevent cancer and heart disease
- Include vitamin C and iron to prevent iron deficiency anaemia.

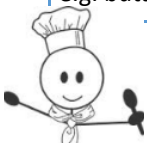


## Planning balanced meals for specific groups of people (1)


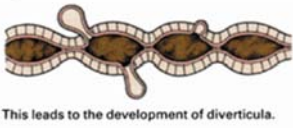




**When planning meals for specific groups of people remember some have specific dietary needs for a variety of reasons:**

- Choosing not to eat certain foods
- Having a dietary intolerance or allergy to certain foods
- Medical or health condition

Foods to be avoided	Foods eaten	Dietary need:
-Vegetarians do not eat any flesh – they do not eat meat, poultry or fish/shellfish. Vegetarians who do eat dairy products and eggs ( <b>lacto-ovo-vegetarian</b> ).	Dairy products (milk, cheese, yogurt, cream, butter), eggs. All plant foods e.g. fruit, nuts, seeds veg.	Not enough protein of high biological value (red meat, eggs, poultry + dairy products). People still growing will not reach full adult height. Adults 30+ reach adult height so the body needs to be maintained to keep it free from disease, strong and active. All age groups may have skin and nails in poor condition; may lose hair + don't digest food properly. Vitamin A in dairy products, liver, kidneys, oily fish, egg yolk, milk. Might develop poor vision in dim light and dry mucus membranes. Need to eat vegetable fat spreads + fortified breakfast cereals as Vitamin A is added + plant based sources. Vitamin D found in oily fish, meat, liver, butter. Needs to be replaced with sunshine and supplements + eating green leafy veg., enriched soya drinks and products made from soya.
<b>lacto-vegetarian</b> do not eat eggs + any meat, poultry or fish/shellfish.	Dairy products (milk, cheese, yogurt, cream, butter). All plant foods e.g. fruit, nuts, seeds veg.	Vitamin B1 found in pork, cheese, milk, eggs. Needed to release energy from foods. Eat plenty of wholegrain cereals and fortified breakfast cereals. Vitamin B2 found in milk and milk products. Beef, pork and milk. B2 releases energy from carbohydrate, fat and protein foods during respiration. Eat fortified breakfast cereals, rice, mushrooms + dairy products, Vitamin B3 (niacin) found in beef, pork, eggs and milk. B3 releases energy from foods. If deficient may develop a rare disease - pellagra. Vegans need to eat wheat + maize flour
<b>Vegan</b> All animal products even if the animal was not killed to produce it.	All plant foods e.g. fruit, nuts, seeds veg. products from plants e.g. soya milk, T.V.P (Texturised Vegetable Protein made from soya)	Vitamin B12 (cobalamin) found in liver, meat, fish and cheese. B12 makes healthy blood cells (with vitamin B9). Deficiency can lead to pernicious anaemia - shows as severe tiredness. Vegans need to eat marmite and fortified breakfast cereals. Calcium in dairy products + fish with edible softened bones. If no dairy products eaten, impact could be osteomalacia in later adult life because the bones will be weakened. By age 30 skeleton has reached peak bone mass. Muscles + nerves might not work properly. Teeth may also weaken. Iron found in red meat, liver, kidneys, egg yolk. If these not eaten iron deficiency anaemia = tiredness, energy lack, weakness, pale skin, weak + split nails. Do not eat too many carbohydrate foods to fill up if vegan or too many energy dense dairy products = weight gain.
<b>Coeliacs</b> Gluten in wheat, oats, barley and rye	Must avoid any food containing gluten. Many gluten free food products available.	Coeliacs have an intolerance to the protein gluten. In the small intestine, villi line the inside and nutrients are absorbed through them into bloodstream. Gluten intolerance causes the villi to become very small and deformed so not enough nutrients are absorbed. Coeliacs become malnourished – they get anaemia, lack energy and suffer from tiredness and weight loss. Children do not grow properly.
<b>Lactose Intolerance</b> Drinking milk and eating milk products e.g. butter, cream, yogurt and cheese.	Can buy lactose free dairy products.	People cannot digest the milk sugar found naturally in milk. Bacteria in large intestine break it down. This causes bloating, flatulence, abdominal pain, diarrhoea, nausea. May miss out on calcium, protein, fat soluble vitamins.



## Planning balanced meals for specific groups of people (2)

Foods to be avoided	Foods eaten	Dietary need:
<p><b>High Fibre diet:</b> Foods low in soluble and insoluble non starch Polysaccharide. Foods where the fibre has been removed e.g. white flour, pasta and white rice.</p>	<p>Fresh, whole foods that have had little processing, wholegrain cereals and cereal products e.g. bread, rice, pasta</p>	<p>Some people need to increase fibre intake to avoid developing problems in their digestive system including:</p> <ul style="list-style-type: none"> <li>•Constipation</li> <li>•Diverticula disease (a painful condition affecting the lining of the intestines)</li> <li>•Cancer of the colon and rectum</li> </ul> <p>Overall health should improve as fibre intake increases</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<p><b>Type II diabetes:</b></p> <p>Foods sweetened with free sugars e.g. breakfast cereals, soft drinks, desserts, cakes, biscuits, confectionery, sauces, preserves and ice cream.</p>	<p>Sweet foods containing natural intrinsic sugars e.g. fresh fruit and veg. Extrinsic milk sugars (lactose) in milk + milk products</p>	<p><b>Low sugar diet—Type II diabetes</b> The pancreas has to keep producing insulin to regulate the amount of glucose entering the digestive system. If sugar intake is controlled the blood sugar levels remain consistent.</p> <p>With controlled sugar intake the body maintains a healthy weight.</p> <p><b>The importance of not eating lots of sugary snacks and sweetened soft drinks in between meals:</b></p> <p>They are popular, inexpensive, readily available and human have a liking of sweet foods. However, sugar is bad for health: • easily gives excess energy, • raises blood sugar levels = an insulin response which could eventually lead to insulin resistance and Type 2 diabetes. • Raises the acidity level in the mouth due to bacterial action on the teeth, which can lead to tooth decay and gum disease.</p> 
<p>Full fat versions of dairy foods. Foods containing 'invisible fats' e.g. fried food, crisps, cakes, meat products e.g. sausage rolls.</p>	<p>Naturally low fat foods such as fruits and veg. Cereals (wheat, rice, barley etc.) white fish e.g. cod, haddock, whiting. Fat reduced versions of foods such as milk and cheese</p>	<p><b>Low fat</b> Some people need a fat-reduced diet if they are trying to reduce the energy density of their diet or have CHD.</p> <p>Weight loss will occur due to less fat being consumed. Cholesterol levels will reduce. Some fat soluble vitamins may be reduced (but can still be gained but in smaller quantities).</p> 
<p><b>Low sodium diets:</b> Preserved or flavoured foods with salt e.g. yeast extract (marmite), cheese, dried + canned fish. Some types of bread, sauces e.g. soy sauce. Pickles, chutneys, ready meals. Foods containing monosodium glutamate (a flavour enhancer), fast food, fried snacks. Foods with added baking powder e.g. cakes, biscuits, scones. Some bottled mineral water</p>	<p>Naturally low sodium/salt foods e.g. fruit and veg., milk and eggs.</p>	<p><b>Low sodium diets:</b> Some people need a low sodium diet if they have high blood pressure or if there is a chance they may develop it.</p> <p>6g is recommended daily for an average healthy person.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>

### Key Words

**Risk factor:** an action or natural tendency that makes you more likely to develop a disease or health condition

**Malnutrition:** Having a diet that is not balanced

**Diet – related disease:** a disease or health condition where one or more of the risk factors for developing it are linked directly to what or how much of a particular food group you eat or drink over time.

### What does being in good health mean?

Eating a healthy, balanced diet.

- Drinking plenty of water.
- Being physically active.
- Having enough sleep and relaxation.
- Avoiding too much stress.

### Obesity—what is it?

A diet related disease. Too much fat stored in adipose tissue.



### What happens to the body?

- Stored fat builds up under the skin (adipose fat) and inside body around abdomen + intestines = visceral fat).
- Visceral fat eventually pushes up the diaphragm squashing the lungs making breathing difficult
- Extra weight carried = strain on heart, blood vessels, liver, kidneys, skeleton + muscles.
- Obesity leads to Type 2 diabetes, heart disease, breathing difficulties, cancer, arthritis and high blood pressure. Can lead to heart disease, high blood pressure, cancer, diabetes, pain in joints and stroke.

### What causes it? (risk factors)

- Body not in energy balance – too much energy consumed and not used for physical activity. Fat is then stored and the person gradually becomes overweight and eventually obese.
- Many foods and soft drinks are energy dense. Because they contain hidden fats and sugars.

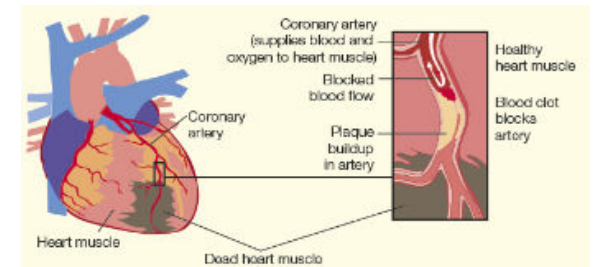
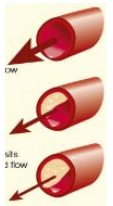
### How can it be prevented + treated over time?

- To prevent = person needs to be in energy balance.
- To lose some of the stored fat the person needs to take in less energy from food than is used daily. Over a period of time = weight loss.
- If physical activity level is increased the store will be used quickly.

## Diet, Health and Nutrition : OBESITY (1)

### What happens to the body?

In **CHD** the coronary arteries become **blocked** by **fatty deposits (plaques)** + these prevent blood flowing freely. This happens when a diet contains excess **saturated fat**. This can increase the levels of **cholesterol** in the blood. If cholesterol levels are high it may be deposited in, build up and block the **coronary arteries** that supply the heart with blood and oxygen. If the heart muscle does not get enough oxygen the muscle will stop working = **heart attack** (which permanently damages the heart muscle + may cause death).



### High Blood Pressure:

The lining of the blood vessels become less flexible, especially with age, which makes it harder for the heart to pump blood around them

### How can it be prevented + treated over time?

- By following the Eatwell Guide and 8 healthy eating tips.
- Reducing salt intake
- Loosing weight if necessary.
- Taking regular physical exercise.
- Trying to reduce stress levels.
- Limiting alcohol intake.
- Not smoking.



### What is it?:

**Cardiovascular disease:** The cardiovascular system is the heart and blood vessels. Diseases can affect all parts e.g. coronary heart disease (CHD). To work properly, the coronary arteries have to work properly and be clear for blood to pass through them, otherwise CHD develops.

**High Blood Pressure (hypertension) :** The blood vessels that carry the blood around the body needs to have pressure for it to work properly. If the measurement is consistently high then this can lead to CHD, stroke (a blood clot in the brain) or damage to eyes and kidneys.



### What causes it? (risk factors)

#### Coronary heart disease (CHD) and High Blood Pressure (hypertension)

- If a lot of salt is consumed this can change the volume and capacity of the blood meaning the heart works harder which can lead to heart attack.
- Obesity puts strain on the heart and this could lead to CHD
- Other contributory factors are: smoking (which changes the blood's consistency); a sedentary lifestyle; stress; alcohol and family history.

## Diet, Health and Nutrition: Skeletal diseases (2)

### Skeletal Diseases: What are they?

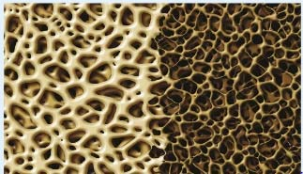
Skeleton includes bones + teeth. Bones and teeth are affected by diet-related disease.

**Rickets:** Deficiency of vitamin D in children meaning not enough calcium is absorbed by the body from food.

In adults, lack of vit. D will lead to weakened bones (**osteomalacia**)

**Osteoporosis:** The natural ageing process that becomes apparent in old age but can happen earlier in life.

- **Osteoporosis** means 'porous bones'.



**Tooth decay:** Teeth are important as they physically break down food to enable us to **digest and absorb** nutrients from it.

- Teeth are vulnerable to being **diseased and decayed**, making them unable to do their job.



### What causes them? (risk factors)

**Rickets:** Lack of vit. D often caused by lack of exposure to sunlight (staying indoors too much or completely covering the skin with clothing).

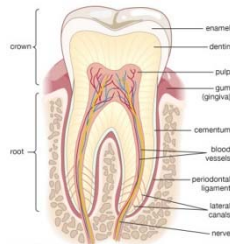
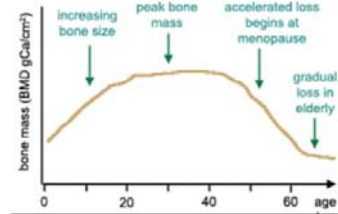
### Osteoporosis:

- The effect of osteoporosis are worse if bones never reach peak bone mass when the person was younger.
- Some people have a family history so are more at risk.

### Tooth decay:

Healthy teeth look like this:

- In the mouth there are millions of **bacteria** living on the gums and teeth.
- Every time food is eaten and drinks consumed any foods containing sugar and starch **and/or free sugars** encourage a sticky film of plaque to build up on the tooth's enamel.
- Bacteria feed on plaque and turn the sugars + starches into **acids**.
- The acids stay on the teeth for approx. 45 minutes before saliva neutralises them.



### What happens to the body?

**Rickets:** The teeth and bones are unlikely to contain enough calcium to enable them to reach maximum strength (**peak bone mass**).

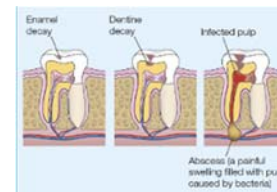
As the bones are not strong enough, the leg bones bend outwards under the weight of the body. Skeleton remains weak and more likely to break with age.

**Osteoporosis:** Need to reach peak bone mass by about age 30 to make sure the skeleton is as strong as possible. After this time minerals e.g. calcium is slowly removed and not

replaced. The skeleton gradually weakens, bones become porous and more likely to break. In some people osteoporosis is severe and they have a lot of pain; bone weakness and become bent over.



**Tooth decay:** caused by bacteria in mouth turning sugars and other foods into acids. The acids dissolve the enamel, bacteria enter and cause decay.



### How can it be prevented and treated?

### Rickets:

- Making sure the diet has enough calcium and other minerals.
- Regularly exposing the skin to sunlight.

### Osteoporosis:

- The rate minerals are withdrawn from the bones can sometimes be slowed down by making sure there is enough vitamin D and calcium and staying physically active

### Tooth decay:

- Clean teeth regularly; avoid eating between meals, especially sweet foods; avoid sweetened fizzy drinks and fruit juices which are acidic and can dissolve the enamel; visit dentist regularly for check-ups.





**What is it?**

Anaemia is a diet-related condition caused by a deficiency of iron in the blood.

The body needs **iron** (a mineral) to make **haemoglobin** in **red blood cells**.

Haemoglobin picks up **oxygen** from the lungs and carries it to all body cells where it is used with **glucose**, to produce **energy** during **respiration**.

**Vit. C** is needed to help the body **absorb iron** from food during its digestion.

**What happens to the body?**

The symptoms of iron deficiency are:

Lack of energy

Tiredness

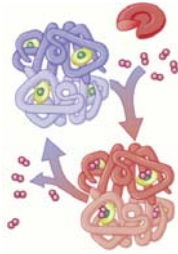
Muscle weakness

Weak, ridged fingernails

Pale inner eye lids

Pale complexion

Feeling cold

**What causes it (risk factors)?**

If there is not enough iron (or vitamin C) the body will develop **iron deficiency anaemia**.

**Anaemia** can affect all age groups but teenage girls and women who are **menstruating** are at most risk.

**How can it be prevented and treated?**

Make sure the diet contains plenty of iron rich foods (see minerals knowledge organiser) and vitamin C rich foods (see vitamins knowledge organiser).

**Type 2 diabetes****What is it?**

For all body cells to produce **energy** during respiration a continuous supply of **glucose** is needed.

Glucose enters the bloodstream after absorption during the process of digestion.

To get the glucose into the body cells a hormone is needed called **insulin** (which is produced in the **pancreas**).

**Insulin** is the 'key that unlocks the door' for each body cell to use glucose. If the 'key' i.e. **no insulin** is unavailable doors cannot be opened to release glucose so it stays in the bloodstream and it cannot enter the cells = **Type 1 diabetes**.

If there are plenty of 'keys' i.e. enough insulin but the 'locks' are damaged or will not work (called **insulin resilience**) the glucose cannot enter the cells and stays in the bloodstream. This is what happens in **Type 2 diabetes**, which develops often in older adults (but increasingly in younger children and adults). This is a preventable diet related disease.

**What happens to the body?**

A diabetic will have these symptoms:

**Feeling tired and weak** because glucose is locked in the cells and is not available for energy the body needs.

**Feeling thirsty** (because the glucose in the bloodstream makes it concentrated and the body knows it needs to dilute it).

**Weight loss** because the stores of body fat have to be used for energy.

**Frequent urination** because more water is drunk to counteract the effects of thirst and more glucose goes into the urine.

**Blurred vision** due to the tiny blood vessels in the (retina) – back of the eyes being affected by extra glucose.

**Diabetes** can lead to permanent damage because of the excess glucose in the blood. For example:

Eventual blindness.

Numbness in fingers and toes because the capillaries (tiny blood vessels) are damaged.

**What causes it? (Risk factors)**

Insulin resistance leads to Type 2 diabetes **if** the diet is **unbalanced**. If foods containing a lot of **free** and **refined starches** e.g. **white bread, pasta, rice** are eaten frequently every day.

People who are overweight or obese or have high blood pressure, and/or have a sedentary (not active lifestyle) are **more likely** to develop Type 2 diabetes.

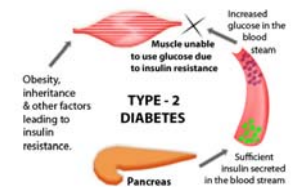
The pancreas has to continually make insulin to deal with the large amounts of glucose that enter the bloodstream. This leads to the 'door locks' in the body becoming faulty or damaged.

**How can it be prevented and treated?**

By following the advice of the Eatwell Guide and the 8 tips for a balanced diet.

Take **physical exercise regularly**.

**Limit** alcohol intake.



An estimated 9 out of 10 adults currently diagnosed with diabetes have type 2 diabetes.

