





Nutrition

Name:

Topic			
Macro nutrients (protein, carbs, fats – what they are, what they do in the body, the effects of too much and too little			
Fibre and Water – what they do, why they are needed and the effects of too much and too little			
Micro nutrients – vitamins and minerals What are they, what do they do, what is the effect of too much or too little			
Current nutritional advice regarding healthy eating			
Dietary related diseases			
How to improve a recipe from a dietary point of view			
Nutrient requirements for different life stages			
Nutrient requirements - religious, medical, ethical			
Nutritional labelling			

MACRONUTRIENTS

	Nutrient	Source	Function	Effects of deficiency and excess
MACRONUTRIENTS	Carbohydrates	<p>Starches – found in cereal grains such as rice, wheat, oats, plus starchy tubers (potatoes and sweet potatoes) and vegetables (carrots, beets, corn)</p> <p>Sugars – lactose found in milk and dairy, fructose found in honey, fruits and some vegetables (peppers, tomatoes etc.)</p> <p><u>Glycaemic Index</u> – how quickly carbs convert to blood sugars. High GI convert quickly eg white bread, cornflakes, white rice, pineapple</p> <p>Medium – brown rice and oats</p> <p>Low GI – convert slowly – most fruits, carrots, wholewheat bread, beans, peas, lentils</p>	<p>Starches (polysaccharides) provide energy when broken down – slow release energy to the body (wholegrain provide slower release carbohydrates). Provide <u>fibre</u></p> <p>Sugars (Disaccharides and Monosaccharides) provide quick release energy to the body's cells. Known as empty calories</p> <p>1g carbs = 3.75KCal</p> <p>Intrinsic sugars – found in naturally in food eg fruit, vegetables</p> <p>Extrinsic sugars – added to foods eg white sugar, honey, artificial sweeteners</p>	<p>Deficiency of carbohydrates is extremely rare in the UK. Short term – weak, hungry and tired.</p> <p>Long term lack of carbohydrates in the diet can cause Ketosis – a condition where the body switches to using protein as an energy source.</p> <p>Excess – converts to fat – obesity, type 2 diabetes, heart disease, some cancers. Excess sugars – tooth decay</p> <p>No more than 5% of daily calories should come from sugar</p>
	Proteins	<p>Protein is digested by the body into its component parts – called amino acids. There are 8 which are essential for adults and 12 for children. HBV protein foods contain all the essential amino acids. LBV have one or more missing.</p> <p>High Biological Value (HBV) protein: Meat, fish, poultry, eggs, Quorn, milk, soya, Quinoa</p> <p>Low Biological Value (LBV) protein: Tofu, beans, nuts, seeds, grains eg wheat</p>	<p>It is needed for growth and repair, the production of body chemicals eg enzymes and hormones</p> <p>Is also a source of secondary energy</p> <p>1g protein = 4Kcal</p> <p>Complementary proteins – eating a mixture of LBV proteins in order to get all the essential amino acids eg Beans on toast</p>	<p>Protein deficiency can cause:</p> <ul style="list-style-type: none"> Wasting of muscle & muscle loss Oedema – build up of fluids in the body Slow growth in children <p>Severe deficiency leads to kwashiorkor → </p> <p>Excess – some is removed as waste. Rest is stored as fat.</p> <p>Adults need 55g of protein a day</p>
	Fats	<p>Saturated fats - Butter, cheese, meat, lard. Contain low density lipoproteins LDL (bad) which raise blood cholesterol levels and clog artery walls.</p> <p>Unsaturated fats – olive oil, avocado oil, fish oils. These contain high density lipoproteins HDL (good) which help to remove cholesterol by taking it to the liver where it is processed and removed..</p> <p>Visible fats – fat on meat, bacon rind</p> <p>Invisible fats – cheese, avocados, nuts.</p> <p>Oils are turned into solid fats by hydrogenation. These fats are unhealthy.</p>	<p>Fat is a term used to describe lipids – this can refer to solid fats and oils. Fat is broken down by the body and used for energy. 1 g fat = 9KCal</p> <p>Also provide warmth when stored under the skin. Protects organs eg heart, liver.</p> <p>Carries fat soluble vitamins A, D, E & K.</p> <p>Important for hormone production</p> <p>Contains essential fatty acids that the body is unable to make itself</p> <p>Omega 3 and 6 are essential fatty acids which promote heart and brain development and prevent depression.</p>	<p>Lack of fat in the diet can lead to deficiencies of fat soluble vitamins A, D, E & K.</p> <p>Excess fat (either type) – obesity and all diseases linked to it.</p> <p>Excess unsaturated fat - build up of cholesterol on artery walls which can lead to a heart attack.</p> <p>Adults men need 95g fat and women 70g. No more than 30g or 20g saturated fat</p>

MICRONUTRIENTS - VITAMINS

	Nutrient	Function	Source	Effects of deficiency/excess
FAT SOLUBLE VITAMINS	Vitamin A Retinol <i>An antioxidant</i>	Required for a healthy immune system Keeps mucous membranes of eyes, digestive system and lungs healthy Helps vision in dim light	Dairy products, fortified spreads, Egg yolk, oily fish, yellow fruits eg mango, apricots and yellow, red and green (leafy) vegetables eg spinach, carrots, sweet potatoes, tomatoes, red peppers	Deficiency is rare in developed countries but can lead to night blindness and a compromised immune system Dry mucous membranes Excess: pregnant women should avoid liver as high levels of Vit A can cause birth defects
	Vitamin D Cholecalciferol	Essential for absorbing calcium from foods Formation of strong bones and teeth especially during childhood and adolescence	Sunlight in UK summer Food sources – oily fish, eggs, liver, fortified cereals and margarines	Poor absorption of calcium – rickets (soft bones) in children and osteomalacia in adults At risk groups – pregnant, breastfeeding, babies, those over 65, people who cover up skin Excess – can cause kidney damage and in infants hypercalcaemia (weak bones, kidney stones).
	Vitamin E <i>An antioxidant</i>	<i>Antioxidant protects body from diseases</i> Strengthens immune system Helps maintain healthy skin and eyes	Plant oils eg soya, corn, olive oil Nuts, seeds, Milk, egg yolk Polyunsaturated spreads and oils	Deficiency is unlikely Excess can cause headaches, nausea and can affect blood coagulation
	Vitamin K	Helps blood clot and is good for bone health	Green leafy vegetables, cauliflower Liver, bacon, cereals and vegetable oils	Deficiency is unlikely. Newborns given Vit K shot to prevent bleeding Excess is stores in liver for future use
WATER SOLUBLE VITAMINS	Vitamin B Group B1 Thiamin B2 Riboflavin B3 – Niacin B9 – Folate/ folic acid B12 Cobalamin	All B's release energy from foods And most keep the skin, eyes and nervous system healthy + Helps childhood growth + helps childhood growth + helps lower fat levels in blood + helps reduce spina bifida in unborn babies Making red blood cells and processing folic acid	Red meat, Liver, Eggs, Wholegrain foods, yeast/yeast extract + fresh and dried fruits + rice, mushrooms + seeds, nuts, beans + potatoes, oranges, berry fruits + fish, milk, cheese	Severe deficiency & excess are rare in developed countries. Lack of B Group vitamins can cause dry, cracked skin Lack – beriberi (muscle wasting) Excess – headaches Excess – very rare – kidney stones Lack – pellagra (diarrhoea, sore skin, memory loss) Excess liver damage Lack = megaloblastic anaemia (sickness, diarrhoea, spina bifida in babies. Excess – stomach problems and trouble sleeping Lack – pernicious anaemia, fatigue, depression, damage to nervous system. Vegans have to supplement diet with fortified foods
	Vitamin C <i>An antioxidant</i> Levels of Vit B and C diminish during storage, processing and cooking	Helps the body absorb iron from food Essential for the formation of collagen (the body's scaffold tissue) Aids wound healing Supports a healthy immune system & fights infection	Fruits including – kiwi, strawberry, citrus fruits Peppers, tomatoes Dark green vegetables including cabbage, broccoli	Extreme deficiency is called scurvy. This is very rare however symptoms include bleeding gums, wounds not healing properly, tiredness. Lack of vitamin C can also be linked to iron-deficiency anaemia as absorption of iron will be affected by lack of vitamin C. Excess is eliminated in urine

MICRONUTRIENTS - MINERALS

	Nutrient	Function	Source	Effects of deficiency/excess
MINERALS	Calcium	Form, strengthen and maintain bones and teeth For blood clotting To keep nerves and muscles working properly Normal growth in children	Dairy foods, green leafy vegetables, eg cabbage Wholegrain cereals Soya drinks with added calcium Fish with edible bones eg sardines Bread made with fortified flour Vit D needed to help body absorb calcium eg macaroni and cheese, sardines on toast	Deficiency – rickets, osteomalacia, osteoporosis (reduction in bone density) At risk groups – lactose intolerant, have coeliac disease, breastfeeding or past the menopause Excess - stomach pain and diarrhoea. Builds up in kidneys
	Iron	Helps make haemoglobin in red blood cells which carry oxygen to the body cells	Red meat, offal, wholegrain cereals, green leafy vegetables eg watercress, beans, nuts, dried fruits, fortified breakfast cereals, all wheat flour is fortified. Vit C needed in order for iron to be absorbed eg cereal with kiwi, wholemeal toast and lemon curd	Deficiency – iron deficiency anaemia – tired, lethargic, pale. At risk – girls due to periods, nursing mothers and pregnancy. Excess – constipation, nausea, vomiting, stomach pain
	Potassium	Works with sodium to help balance body fluids, Helps to lower blood pressure, Keeps heart muscle healthy Prevents muscle cramps Helps remove excess sodium so may help reduce blood pressure	Fruits and vegetables eg bananas, broccoli, parsnips Pulses, nuts, seeds Fish, shellfish Beef, chicken and turkey coffee	Deficiency – diarrhoea Can cause heart failure Excess – stomach pain, nausea and diarrhoea Excess is excreted through kidneys
	Phosphorous	Works with calcium to build strong bones and teeth Important for energy release	Red meat, dairy foods, fish, poultry, bread, brown rice, oats	Deficiency – unlikely as in lots of foods Excess – involuntary muscle convulsions, diarrhoea and stomach cramps. Can reduce calcium levels - fractures
	Magnesium	Bone development, helps nervous system work properly, release of energy	Meat, fish, Dairy foods, Wholegrain cereals, nuts, seeds, green leafy veg eg spinach	Deficiency – rare (nausea, fatigue), high blood pressure Excess - diarrhoea
	Sodium	Helps to control the amount of water in the body Helps body to use energy Helps to control the nerves and muscles	Salt Processed foods eg crisps, bacon, ham, sausages Some breakfast cereals Yeast extract Stock cubes	Deficiency – muscle cramps Excess – high blood pressure which can damage heart and kidneys and lead to a stroke Aged 11 + = 6g day RDA

ALL ABOUT WATER...



FUNCTIONS

- Transporting nutrients in blood
- Removing waste products that are then passed in to the urine and faeces
- Regulating body temperature (e.g. by sweating)
- Aiding digestion and prevents constipation
- Acting as a lubricant and shock absorber in joints

WHICH SOURCES SUPPLY IT?

- **Water:**
Fresh water is the best way to hydrate the body; it contains no energy, is sugar free and will not rot teeth.
- **Other fluids:**
Milk (particularly low fat milk) is an important fluid, especially for children, and is about 90% water (whole milk should be consumed until two years old as under 2 years they may not get the calories they need from lower-fat milks). Tea can be an important source of fluid. It can help meet daily fluid recommendations, and is a source of antioxidants and polyphenols, which reportedly protect against heart disease and cancer. Caffeine drinks are stimulants and should be avoided as they cause the body to produce urine more quickly. Fruit and herbal teas are suggested instead of tea varieties that contain caffeine. Fresh fruit is preferable to fruit juice because it has more fibre and nutrients, and less sugar.

HOW MUCH IS NEEDED?

- In a typical UK diet, drinks provide 70-80% of water needs; the remaining 20-30% comes from food, e.g. soup, casseroles, fruits and vegetables.
- How much fluid a person needs will depend on factors such as: room temperature, room humidity, exercise.

WHAT HAPPENS IF YOU DON'T HAVE ENOUGH?

- Lack of fluids causes dehydration. Symptoms include thirstiness, a dry and sticky mouth, feeling tired, losing concentration, dizziness and headaches.
- Dehydration can increase the risk of kidney stones and urinary tract infections.

WHAT HAPPENS IF YOU HAVE TOO MUCH?

- Very rare – but can damage the body and cause hyponatremia (water intoxication). Hyponatremia occurs when sodium in the blood drops to a dangerously low level (sodium is needed for muscle contraction and for sending nerve impulses).

In the UK water is fortified with Fluoride which is added to strengthen teeth, make them more resistant to acid and prevent tooth decay. Other minerals may naturally be found in water such as calcium, sodium, potassium, magnesium, iodine.

The Bristol Stool Chart

The Bristol stool chart shows how the shape of different stools (poos) on a continuum.

Both dietary fibre and water play a HUGE role in keeping the digestive system functioning properly.

Too little water and/or fibre can result in constipation (the Type 1 and 2 stools)

Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid



FIBRE – non starch polysaccharide (NSP)

What is it?

There are two types of fibre:

Insoluble fibre. This fibre bulks up stools (poo) and holds water in them, making them softer and easier to pass. It also makes waste move through the digestive tract more quickly which is better for the gut and can prevent constipation and piles. Examples include wholegrain cereals, wholemeal bread, bran, nuts, corn, oats, fruits and vegetables (especially the skin).

Soluble fibre – is broken down and helps to remove cholesterol in the blood which can prevent CHD. Sources include oats, barley, rye, most beans and peas, fruits such as bananas, apples and root vegetables such as carrots.

Dietary fibre also can help weight control as it keeps you feeling fuller for longer.

It also slows down the absorption of carbohydrates in the blood which helps to keep blood sugar levels constant.

How Much do we Need?

30g a day for adults

2-5 years 15g per day, 5-11 years 20g per day, 11-16 years 25g per day, 16+years 30g per day

Too little fibre – constipation, haemorrhoids (piles), diverticulitis and certain cancers

Too much – bloated, stomach cramps, flatulence and can prevent mineral absorption.

To increase your fibre intake you could:

- Choose high fibre cereals e.g. bran flakes, or porridge
- Choose whole-wheat pasta, bulgur wheat or brown rice, wholemeal bread
- Go for potatoes with skins
- For snacks try fruit, veg sticks, rye crackers, unsalted nuts
- Include plenty of vegetables with meals
- Add pulses like beans, lentils or chickpeas to stews, curries and salads
- Add nuts and seeds to recipes

Eatwell Guide

Fruits & Vegetables

39%

- Eat 5 portions a day!
- Choose a variety
- Provides fibre for healthy digestion
- Provides vitamins and minerals for healthy body functions and immune system

Starchy Foods

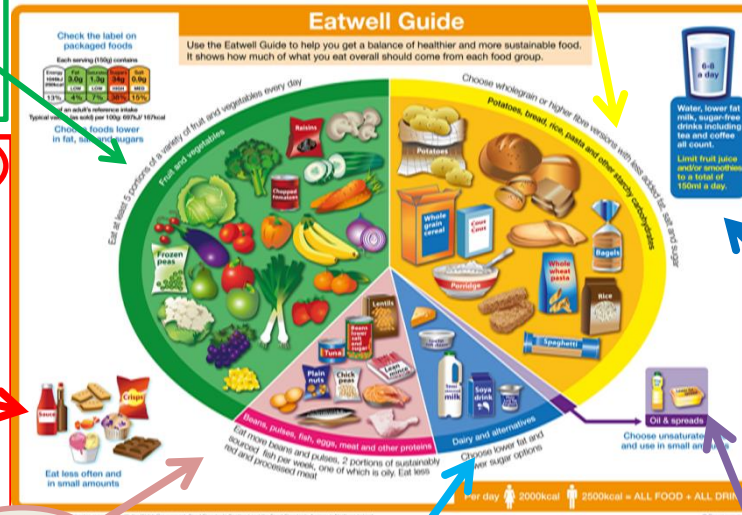
37%

- Provide slow release carbohydrate used by the body for energy
- Choose wholegrains for increased fibre (good digestion, reduced risk of heart disease)

Fatty and Sugary Foods

0%

- These are the danger foods!
- They are not part of a healthy diet
- Eat them only occasionally
- Eating too much fatty and sugary processed food is linked to increased risk of weight gain/obesity, diabetes, tooth decay and cardiovascular disease



Beans, Pulses, Eggs, Meat, Fish

12%

- Provide protein for growth, repair and maintenance of body cells
- Choose a combination of plant proteins
- Avoid eating too much processed meat like bacon and sausages as these are linked with increased risk of bowel and stomach cancer as high in fats, salt and preservatives.

Dairy Foods

8%

- Provide calcium for healthy bones, teeth and nails
- The body needs Vitamin D to absorb calcium effectively
- Choose low fat options

Portion Control!

Healthy diets not only have the correct balance, but have the right portion sizes. Here is a 'handy' guide...

Vegetables = double cupped palm.

Grains/Starches = clenched fist.

Protein = palm of hand.

Fruits = clenched fist.

Thumb = fats.



Water Intake

A balanced diet must include water, it is required for nearly all brain and other bodily functions

See slide 2 for more details on water

Fats, Oils & Spreads

1%

Provide fat soluble vitamins A,D,E & K

Are high in calories & energy so keep use to a minimum

It is recommended to choose unsaturated oils like olive oil



The Eatwell Guide is the UK Healthy Eating Model. It shows what we should eat as a balanced diet. The size of the sections represents the proportion of our diet that particular food group should make up. The Eatwell Guide was updated in 2016 to take into account scientific opinion and public opinion. The main change was that sugary and fatty foods are shown off the plate as they are not part of a healthy diet.

Current Healthy Eating Advice



Saturated fat



We are all eating too much unhealthy fat



Cut back on sat fat

We all know too much fat is bad for us – but we don't always know how much or what type of fat we're eating. There can be a surprising amount of saturated fat in everyday food and drink.

Kids get a lot of their sat fat from...



How sat fat affects our kids



They might seem fine on the outside...

But too much saturated fat can lead to the build up of harmful fat in the body that we can't see. This can cause serious diseases in the future, such as heart disease, type 2 diabetes and some cancers.



Heart disease

Eating too much saturated fat can lead to high blood cholesterol. This can clog up our arteries and restrict the blood supply to our heart, which can cause heart attacks.



Body weight

Eating too much fat, including saturated fat, can make us more likely to put on weight, because foods high in fat are also high in calories. Worried about your child's weight? Get practical advice and tips to help your child maintain a healthy weight.



Type 2 diabetes

Eating too much fat can make us put on weight. This can stop our bodies producing enough insulin, which can lead to type 2 diabetes.



Bowel cancer

Being overweight increases our risk of bowel cancer. But a diet high in fibre and low in saturated fat keeps our bowel healthy and reduces the risk of cancer.

How much is too much?

The maximum daily amounts of sat fat for you and your family are:



4-6 years

10 grams




7-10 years

20 grams



11+ years

30 grams



8 Tips for Healthy Eating!

1. Eat more fibre
2. Eat more fruits and Vegetables
3. Eat more oily fish
4. Eat less salt
5. Eat less fat
6. Eat less sugar
7. Choose wholegrains
8. Drink 6-8 glasses of water per day

What is the new vitamin D advice?


The new advice from PHE is that adults and children over the age of one should consider taking a daily supplement containing 10mcg of vitamin D, particularly during autumn and winter.

People who have a higher risk of vitamin D deficiency are being advised to take a supplement all year round.

SACN's review concluded that these at-risk groups include people whose skin has little or no exposure to the sun, like those in care homes, or people who cover their skin when they are outside.

People with dark skin, from African, African-Caribbean and South Asian backgrounds, may also not get enough vitamin D from sunlight in the summer. They should consider taking a supplement all year round as well.

Focus on healthy fats!



Having **unsaturated fat** instead of saturated fat can help lower blood cholesterol to protect your heart. Foods like fish (especially oily fish such as mackerel, salmon and trout), unsalted nuts, seeds and yummy avocado are rich in unsaturated fat.

Healthy Eating Guidelines in the UK are set by Public Health England



Salt intake

– no more than 6g a day*.

Eating too much salt can raise your blood pressure. People with high blood pressure are three times more likely to develop heart disease or have a stroke than people with normal blood pressure.

Most of the salt eaten comes from the foods we buy, but some is also added during cooking, or at the table. Too much can easily be eaten without knowing it.



AGE	Target Maximum Salt Intake (grams)
0 to 6 months	less than 1g daily
7 to 12 months	1g per day
1 to 3 years	2g per day
4 to 6 years	3g per day
7 to 10 years	5g per day
From age 11 onwards	6g per day (as for adults)

Fibre intake

Age Group	Dietary Fibre Recommendation
<2 years	No specific recommendation. Diet including increasing amounts of whole grains, pulses, fruits and vegetables is encouraged.
2-5 years	15g/day
5-11 years	20g/day
11-16 years	25g/day
16-18 years	30g/day

Sugar Facts!

Kids are consuming **THREE** times more sugar than they should be*

The problem is that sugar is often lurking in our kids' food and drink, and the biggest source is sugary drinks.

*Based on the maximum daily added sugar recommendation



We're all having too much sugar

Our kids might seem fine on the outside, but too much sugar can cause **tooth decay** and lead to the build up of harmful fat on the inside that we can't see. This fat around their vital organs can cause serious disease in the future, like:

- Weight gain
- Type 2 diabetes
- Heart disease
- Some cancers




Sugary drinks have no place in a child's daily diet

Around **30%** of the sugar in kids' diets comes from sugary drinks, such as fizzy pop, juice drinks, squashes, cordials, energy drinks and juice.




So how much is too much?

The maximum daily amounts of **added sugar*** are:




4-6 years

5 cubes max*
or 19 grams



7-10 years

6 cubes max*
or 24 grams

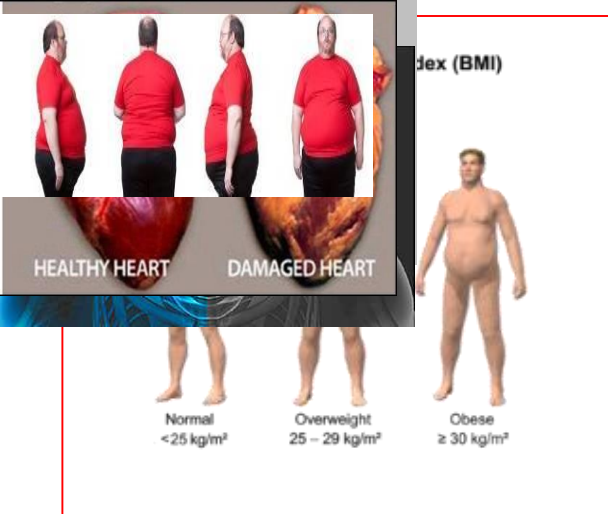


11+ years

7 cubes max*
or 30 grams

* 1 cube = 4g of sugar

Dietary related diseases



Type 2 diabetes occurs when the body doesn't produce enough insulin to function properly, or the body's cells don't react to insulin. This means glucose stays in the blood and isn't used as fuel for energy. Type 2 diabetes usually affects people who are older or overweight. Diabetes can lead to vision loss, kidney failure, heart disease and stroke.



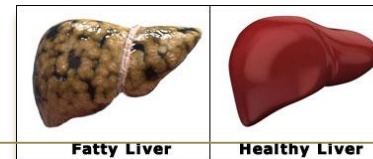
A stroke is when blood to the brain is restricted. One cause is high blood pressure caused by too much salt in the diet. This causes the vessels to the brain to burst. Another can be too much saturated fat which blocks the blood vessels.



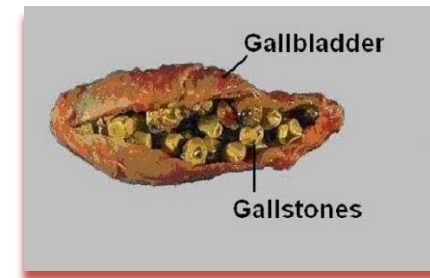
A major problem of eating too much sugar is **tooth decay**. The correct term for this is dental caries



Gallstones can be caused by too much saturated fat in the diet. The cholesterol in the saturated fat turns into stones in the gallbladder.

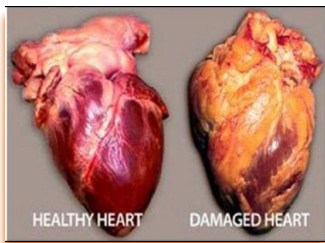


Fatty liver disease is the term for a range of conditions caused by a build-up of fat in the liver. It's usually seen in people who are overweight or obese. You're at an increased risk of this if you:
Are obese or overweight – particularly if you have a lot of fat around your waist.
have type 2 diabetes
have high blood pressure
have high cholesterol



Obesity occurs when energy intake from food and drink consumption is greater than energy expended over a prolonged period of time. BMI is a measure of whether someone is a healthy weight for their height. A BMI of 30 or above means that you are considered obese. Obesity puts pressure on your joints and leads to other health complications such as diabetes, heart disease and some cancers. Eating a balanced diet whilst combining exercise can help prevent obesity.

Coronary heart disease can lead to a heart attack and death. It can be caused through too much saturated fat in the diet. Saturated fat contains low density lipoproteins LDL (bad) which raise blood cholesterol levels and clog arteries. To prevent CHD – have a diet low in saturated fats and higher in unsaturated fats, eat plenty of fibre, eat at least 5 portions of fruit and veg daily, limit alcohol and increase exercise



Nutrient requirements for different groups of people – Age Groups

Nutrition through life differs mainly due to the need for energy and protein for growth and development – in younger age groups, growth and development occurs, in older age groups only maintenance of the body is required, therefore protein and energy requirements are reduced.

GENDER affects nutritional requirements after puberty – before puberty male and female requirements are the same. Puberty causes girls to begin menstruation, increasing their iron needs, which remain higher than men until the menopause which occurs around 50 years of age. Generally males are physically larger than females and therefore need to consume more energy and protein on a daily basis.

PHYSICAL ACTIVITY LEVEL affects a person's energy requirements. The more active a person is, the more energy they need. It is recommended that extra energy requirements come from extra starchy carbohydrate in the diet. Increased PAL could be from having an active job or from playing lots of sport.

Babies and Toddlers

- Milk only for first 4-6 months
- Weaning occurs from 6 months – introduce a wide variety of textures and colours
- Avoid nuts (choking hazard), fried foods, salt and sugar

Pre-school children

- Balanced diet needed.
- High needs for energy and protein due to rapid growth and constant movement
- Full fat dairy products should be consumed
- Salt and sugar should be avoided
- Good eating habits should be established with 3 balanced meals and healthy snacks

Children

- Balanced diet needed – in line with Eatwell Guide
- High needs for energy and protein due to rapid growth and constant movement
- 5-a-day is recommended

Teenagers

Increased needs for iron in teenage girls due to menstruation
Calcium intake & vitamin D are really important to ensure Peak Bone Mass is reached – setting up bone health for life
Many UK teenagers are lacking in calcium, iron, vitamin A and B12 and eat too much saturated fat, salt and sugars.

Adults

No more growth means less energy is needed for adults than teenagers
Well balanced diet modelled on the Eatwell Guide essential.
Many UK adults eat too much fat, too much salt and not enough fruit and vegetables.

Elderly

Sedentary older people will have reduced energy requirements. Calcium and vitamin D are still very important to prevent osteoporosis.
Some elderly people do not get outside much and can be at risk of Vitamin D deficiency
Sometimes elderly people may have issues getting access to food due to mobility issues, they may also be at risk of lack of variety of nutrients due to poor absorption. Dental problems can require softer foods.

Pregnancy & Lactation

Because the body becomes more efficient at absorption during pregnancy, normal nutritional requirements apply until the last third of pregnancy, when some extra energy and calcium /vitamin D are required. Pregnant and lactating ladies should eat a varied diet rich in fresh fruit and vegetables and wholegrains (in line with the Eatwell Guide). Early in pregnancy extra B9 folate/folic acid should be taken to reduce the risk of the foetus developing spina bifida. May need additional fibre to prevent constipation and iron/vitamin C to prevent anaemia.

There are some foods to avoid:

- Unpasteurised milk products and undercooked meats/cured meat products – they may contain listeria which is harmful to unborn babies
- Pate, liver and liver products – due to high vitamin A content (Vitamin A is harmful to unborn babies if eaten in large quantities)
- Swordfish, marlin and shark as they are high in mercury which can be harmful to unborn baby,

Nutrient requirements for different groups of people – Special Diets (Religious, Medical, Ethical)

Medical Diets	Religious Diets	Ethical Diets
<p>Nut & other allergies Must avoid particular allergen, otherwise an allergic reaction may occur. Serious allergic reactions can result in anaphylaxis and even death.</p> <p>The 14 common allergens which must be declared on menus and food packaging are: Celery, Gluten, Crustaceans, Eggs, Fish, Lupin, Milk, Molluscs, Mustard, Nuts, Peanuts, Sesame, Soya, Sulphites.</p>	<p>Halal (Muslim) Halal is Arabic for permissible. Halal food is that which adheres to Islamic law, as defined in the Koran. Haram is the opposite to Halal and describes food which is not permitted under Islamic law. Haram items that Muslims will not consume include pork and all pork products as well as alcohol. Meat must be slaughtered by halal methods.</p>	<p>Vegetarian Vegetarians do not eat any flesh – they do not eat meat, poultry or fish/shellfish. Vegetarians do eat dairy products and eggs (lacto-ovo-vegetarian). A lacto vegetarian won't eat eggs but will eat dairy products.</p>
<p>Lactose intolerance People who are lactose intolerant do not make the digestive enzyme which is needed to digest lactose (a milk sugar found in dairy products). If they consume lactose, they will experience digestive discomfort including cramps, excess wind and diarrhoea. Lactose intolerant people can consume lactose free milk and dairy products or dairy alternatives. They must be careful to ensure they get enough calcium in their diet.</p>	<p>Kosher (Judaism) Judaism instructs its followers to observe a kosher diet, this means no pork or shellfish. Kosher food also does not mix dairy products and meat in the same meal/course. For example, a burger must be served without cheese.</p>	<p>Vegan Vegans avoid consuming any animal products – including milk and dairy products, Protein is a nutrient which can be lacking in a badly planned vegan diet – vegans can eat wholegrain cereals, nuts, beans, lentils and tofu. Calcium may be lacking in a vegan diet – some vegans replace dairy with calcium fortified alternatives such as soya milk or almond milk. Vitamin B12, iron, selenium and Omega 3 might be missing. Quorn is not vegan as it has egg white in it.</p>
<p>Coeliac Coeliac disease sufferers react to the presence of gluten, a protein found in wheat, rye and barley. Symptoms are bloating, sickness and lack of energy due to nutrients not being absorbed. A wide range of gluten free foods are available which use alternatives such as rice flour, buckwheat, corn, maize, potato.</p>	<p>Hindu Followers of the Hindu religion do not eat Beef, as they believe it is a sacred animal. Strict Hindus are vegetarian.</p>	<p>Pescetarian Pescetarians do not eat meat, but will eat fish and shellfish.</p>
<p>Coronary Heart Disease People who are diagnosed or at risk of Coronary Heart Disease are currently recommended to adopt a low sugar, low saturated fat, high fibre and fruit and vegetable Mediterranean style diet.</p>	<p>Buddhist Buddhists are usually vegetarian and do not consume meat or fish. Many are vegans. All avoid alcohol.</p>	<p>Flexitarian This is a new concept – followers of a flexitarian diet choose vegetarian or vegan diet meal choices for some parts of the week, in order to reduce their carbon footprint. Meat-Free Mondays campaign spearheaded this movement.</p>

Nutritional information on food labels can inform healthy eating – Front & Back of Pack Labelling

Total fat, saturated fat, and sugar and salt - high or low?

Total fat

- High: more than 17.5g of fat per 100g
- Low: 3g of fat or less per 100g

Saturated fat

- High: more than 5g of saturated fat per 100g
- Low: 1.5g of saturated fat or less per 100g

Sugars

- High: more than 22.5g of total sugars per 100g
- Low: 5g of total sugars or less per 100g

Salt and sodium

Salt is also called sodium chloride. Sometimes, food labels only give the figure for sodium. But there's a simple way to work out how much salt you're eating from the sodium figure: salt = sodium x 2.5.

- High: more than 1.5g salt per 100g (or 0.6g sodium)
- Low: 0.3g salt or less per 100g (or 0.1g sodium)

Energy intake as a percentage of RI

Traffic light system indicates with colour how much of intake is needed. Easy to see, quick to take in

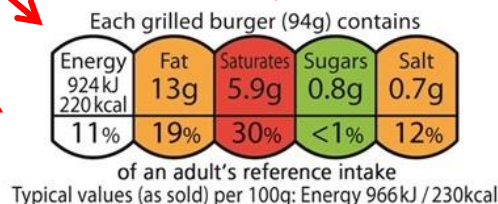
Portion/Serving size is indicated on the label. This is NOT always the whole pack!

Front of pack nutrition labelling is optional

Most pre-packed foods have a nutrition label on the back or side of the packaging. These labels include information on energy in kilojoules (kJ) and kilocalories (kcal), usually referred to as [calories](#). They also include information on [fat](#), saturates ([saturated fat](#)), carbohydrate, [sugars](#), protein and [salt](#). All nutrition information is provided per 100 grams and sometimes per portion of the food.

Supermarkets and food manufacturers now highlight the energy, fat, saturated fat, sugars and salt content on the front of the packaging, alongside the [reference intake](#) for each of these.

You can use nutrition labels to help you choose a more balanced diet



Reference Intakes used on Labelling

Adult reference intakes

Unless the label says otherwise, RI values are based on an average-sized woman doing an average amount of physical activity. This is to reduce the risk of people with lower energy requirements eating too much, as well as to provide clear and consistent information on labels.

As part of a healthy balanced diet, an adult's reference intakes ("RIs") for a day are:

- Energy: 8,400 kJ/2,000kcal
- [Total fat](#): 70g
- Saturates: 20g
- [Carbohydrate](#): 260g
- [Total sugars](#): 90g
- Protein: 50g
- [Salt](#): 6g

More detailed information on back of pack labelling : Details of food per 100g Plus info on fibre and protein

Front of Pack label

Back of Pack label

Nutrition				
Typical values	100g Each slice (typically contains 44g)	44g contains	% RI*	RI* for an average adult
Energy	985kJ 235kcal	435kJ 105kcal	5%	8400kJ 2000kcal
Fat	1.5g	0.7g	1%	70g
of which saturates	0.3g	0.1g	1%	20g
Carbohydrate	45.5g	20.0g		
of which sugars	3.8g	1.7g	2%	90g
Fibre	2.8g	1.2g		
Protein	7.7g	3.4g		
Salt	1.0g	0.4g	7%	6g

This pack contains 16 servings
*Reference intake of an average adult (8400kJ / 2000kcal)

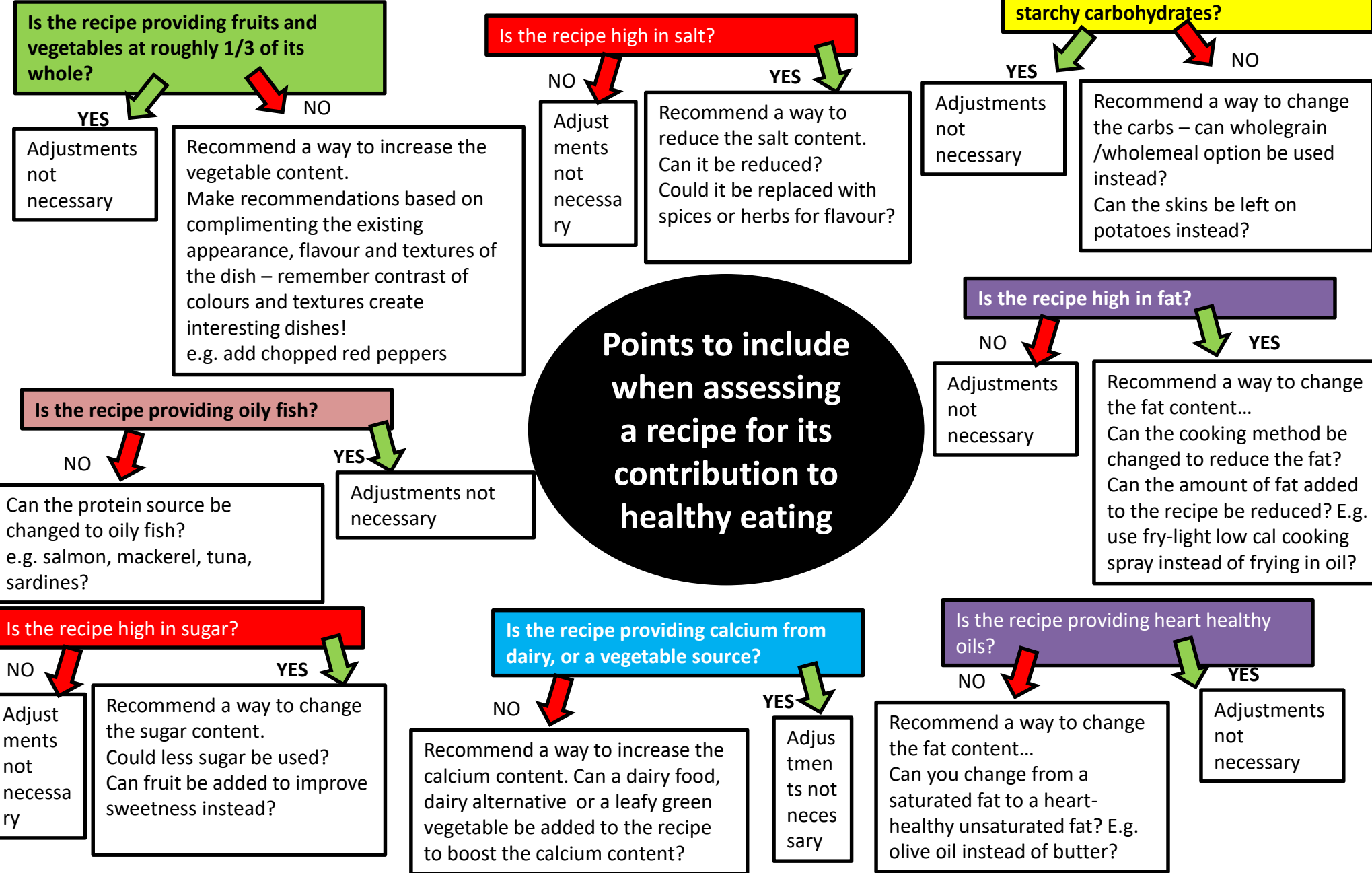
Energy Values of Nutrients

A kilocalorie (kcal for short) is an energy measurement used in food - it is the amount of energy needed to heat 1 litre of water by 1°C.

Carbohydrates provide 3.75 kcal per gram	Protein provides 4 kcal per gram	Fat provides 9 kcal per gram
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All macronutrients provide energy and eating them in excess will result in the body storing the extra energy as fat (new research suggests this is most true with refined starchy carbohydrates and sugars) .

Assess a recipe in terms of its contribution to healthy eating



How to change recipes to make them healthier

Cooking methods

Some cooking methods add fat, adding too much fat to food increases the calories (energy content) drastically and is also thought to be a risk factor in cardiovascular disease. Cooks should be minimise their use where possible.

These include:

- Frying - deep (submerging food in hot fat)
- Frying – shallow (frying food in 1cm or less of fat in a pan)
- Roasting (cooking in fat in the oven)



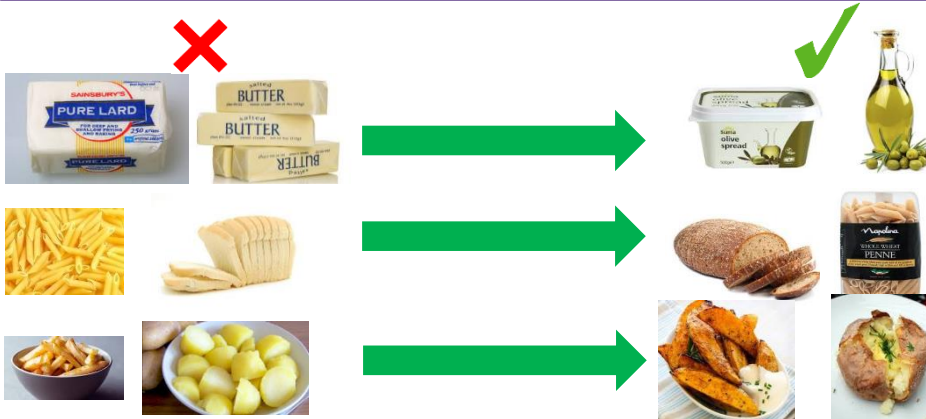
Healthier cooking methods only add small amounts of fat, or do not add fat to food at all. They can be dry (cooking without the use of water) or moist (cooking with water or steam). Healthier cooking methods include:

- Stir frying (cooking quickly in a small amount of oil at v high temps)
- Poaching (cooked gently in simmering liquid)
- Boiling (cooking food submerged in vigorously boiling ‘rolling boil’ water)
- Steaming (holding food above boiling water to be cooked by the steam)
- Grilling – on a cooker or on a BBQ (food cooked by radiant heat from a flame or glowing element)
- Baking in the oven (dry heat)
- Stewing (slow-cooking on hob or in slow-cooker with liquid)
- Casseroling (slow-cooking in oven with liquid)
- Braising (slow-cooking **pre-sealed** meat and vegetables in oven with liquid)



Preparation methods

- Do not add too much extra fat when preparing/marinating or cooking
- Trim fat off excess fat from meat where possible (leaving some is fine for flavour)
- Do not add too much extra salt when seasoning/marinating foods before cooking
- Do not add too much sugar when marinating foods



CHANGE THE INGREDIENTS USED:

- ✓ Avoid saturated fats such as butter, lard and dripping - Use heart healthy unsaturated fats such as olive oil, avocado oil
- ✓ Avoid using white flour where possible – use wholegrain or brown versions for extra fibre and B vitamins
- ✓ Leave the skin on potatoes for extra fibre and vitamin C
- ✓ Replace cream in recipes with reduced fat crème fraiche
- ✓ Replace mild cheeses with stronger ones, and use less
- ✓ REDUCE sugar content of recipes by using naturally sweet ingredients such as fruits
- ✓ Add **extra VEGETABLES, FRUITS, NUTS and SEEDS** into recipes where possible, **for extra fibre, vitamins and minerals** - these can be blended into sauces to ‘hide’ them for fussy eaters