

# Year 9 Food Knowledge Organiser: Principles of Nutrition

## Macronutrients

Needed in large amounts to help the body to function properly

### Protein:

These are made up of **essential amino-acids** and **non-essential amino-acids**. (Our bodies can make non-essential amino acids, but we need to get essential amino acids from our food).

#### Source

HBV – these have all the essential amino acids

- Meat, fish, dairy, eggs (animal sources)
- Tofu

LBV – these are missing at least one essential amino acid

- Seeds, nuts, beans, pulses, cereals, Quorn (plant sources)

#### Function

Growth  
Repair  
maintenance



#### Not enough

Kwashiorkor  
Oedema  
Anaemia  
Slow growth in children

#### Too much

Excess protein can be converted to energy. If unused turns to fat.

#### Complementary actions

Combining 2 or more LBV proteins helps get a balance of essential amino acids. e.g. beans on toast.

#### Dietary Reference Values

Age	Amount
1-3	15g
4-6	20g
7-10	28g
11-14	42g
15-18	55g
19-50	55g
50+	53g

[Watch this video to learn more](#)

<https://www.youtube.com/watch?v=cKRf531737E>

### Fats, oils and lipids:

Too much fat is bad for you, but so is not enough.

#### Source

#### Saturated Fats

(From Animal sources. They are also called unhealthy fats. They are generally solid at room temperature)

Sausages / Bacon / Lard / Dairy



#### Unsaturated Fats

(These are healthier. They are often liquid at room temperature.)

- Monounsaturated fats  
– olive oil / avocados
- Polyunsaturated fats  
– sunflower oil / seeds

**Omega-3.** These are Polyunsaturated and called "healthy" fats as your body needs them but can't make them. They are good for your heart.  
– Oily fish / Nuts / Seeds

#### Function

Energy  
Warmth  
Protection of organs  
Source of fat soluble vitamins  
Hormone production

#### Dietary Reference Values

DRI	Men	Women
Total fat	95g	70g
Sat fat	30g	20g

#### Too much

Obesity  
Heart disease  
Type 2 diabetes  
Stroke  
Cancer

#### Not enough

Vitamin deficiency (fat soluble)  
Unprotected organs

### Carbohydrates

There are 2 kinds, simple and complex - Sugar & Starches

#### Monosaccharides (one sugar)



#### Disaccharides (two sugars)



#### Polysaccharides (many sugars)



#### Source

Simple - these are sugars (monosaccharides, disaccharides)  
Cakes, jam, soft drinks

Complex - these are starches (polysaccharides)  
Bread, potatoes, Flour, Pasta, Rice.

#### Function

**Simple**  
Quick burst of energy

**Complex**  
Longer lasting energy



#### Free sugars

These give you no nutritional benefit other than energy.

#### Dietary advice

- Reduce the amount of sugar that we eat, no more than 5% of our diet.
- Complex Carbohydrates should make up half of the energy we eat.
- Wholegrain cereals are a good source of fibre

#### Not enough

Can make blood sugar level drop

- hunger,
- dizziness,
- Tiredness
- Lack of energy

Our body will use protein for energy (leads to loss of muscle)

#### Too much

- Excess is turned into fat
- Can cause obesity
- Too much sugar leads to dental problems
- Can lead to type 2 diabetes

## Dietary Needs

People have different dietary needs; this affects what they can and cannot eat.

### Key Words:

- **Allergy:** an adverse reaction by the body to certain substances.
- **Intolerance:** a condition that makes people avoid certain food because of the effects on their body
- **Allergic reaction:** the way someone responds to certain food. For example: a rash/swelling/anaphylactic shock

Some people make a choice not to eat certain foods. Reasons include:



➤ Religious beliefs



➤ Medical reasons



➤ Taste/texture of food



➤ Ethical beliefs

## Vegetarians

There are many different types of vegetarian depending on which animal foods are included in the diet. People may follow a vegetarian diet for different reasons

- They do not like the thought of eating dead animals, fish, birds
- They think it is cruel to kill for food
- Their religion does not allow them to eat meat, fish, poultry.
- They think it is healthier to eat a vegetarian diet.

The three main types of vegetarian are lacto-vegetarian, lacto-ovo vegetarian and vegan.



**lacto-vegetarian** –will not eat any meat, fish or eggs, but will consume milk and dairy products.

**lacto-ovo vegetarian** –will not eat any meat, or fish, but will consume eggs, milk and dairy products.



**Vegan** – will not eat any food that is made directly or indirectly from an animal. They also refuse to use product such as soap and cosmetics which involve the use of animal oils or fats.

## Diet Related Health Problems

### Obesity - When the body has too much fat.



- BMI (Body Mass Index) is used to calculate body mass  
BMI of 18.5 – 25 is normal, 30 + is obese.

Cause: energy in > energy out; Eating too many high energy foods (fat & sugar); Low exercise levels.

Problems: High blood pressure and cholesterol = heart problems; Increased risk of type 2 diabetes & cancer

Breathing difficulties, fatigue & low self esteem.

### Coronary Heart Disease Arteries clogged with cholesterol



- Cause: saturated fats, low physical activity, smoking & high blood pressure.

Health Problems: Blood cannot pass through arteries properly which causes heart to pump faster and harder, causing chest pains (angina); blood flow and oxygen to the heart gets blocked which causes heart attacks



### Tooth Decay

Plaque is a substance which contains bacteria. This builds up from food in the mouth. Bacteria feed on sugars and form acids which eat away at tooth enamel and cause tooth decay (caries/cavities) Cause: high sugar foods.

## Religious Reasons

Islam



➤ Do not eat pork

➤ Meat must be halal

➤ No alcohol or shellfish

Judaism

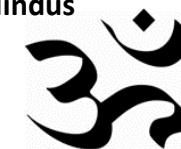


➤ No pork or shellfish

➤ No milk and meat together

➤ Meat must be kosher

Hindus



➤ No beef or beef products

➤ Mostly vegetarians

➤ No alcohol

Name of medical condition	Food/drinks to avoid	Reason to avoid
Diabetes	Starchy food/ high in sugar	High in saturated fat. Can lead to heart disease, while excess sugars can cause unwanted weight gain and blood sugar spikes
Nut allergy	Nuts, blended cooking oil, margarine with nuts oils and often seeds	the immune system overreacts to proteins in these foods
Lactose intolerance	Milk, cheese, yogurt, processed food	cannot metabolize <b>lactose</b> properly; they lack lactase, an enzyme required in the digestive system to break down <b>lactose</b> . Patients typically experience bloating, flatulence, and diarrhoea
Gluten intolerance (coeliac)	Wheat, wholemeal, bran, pasta, rye, beer	Celiac disease is caused by a reaction to a gluten protein found in wheat, barley, rye, and sometimes oats. Symptoms include chronic <a href="#">diarrhoea</a> , weight loss and <a href="#">fatigue</a>

Medical reasons