

The 4 C's

The 4C's cover the main way to prevent food poisoning:

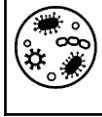
- Cleaning
- Cross-contamination
- Cooking
- Chilling



Key words



Contamination - The process of making food dirty or poisonous, or containing unwanted or dangerous substances.



Pathogenic bacteria - Harmful bacteria that can cause illness or disease such as food poisoning.

Pathogenic Bacteria

The four conditions bacteria need to multiply:


Food (protein), moisture, time and warmth. The pH balance (acidity or alkaline) of a food also influence the growth of bacteria. If conditions are too acid or too alkaline, bacteria cannot grow.



Binary Fission – The multiplication of bacteria

When bacteria have the correct conditions, food, moisture, warmth and time, they multiply by a process called 'binary fission' every 20 minutes.

In this process the **bacterium**, which is a single cell, divides into two identical daughter cells. **Binary fission** begins when the DNA of the **bacterium** divides into two (replicates).


A food probe/temperature probe used to check the core temperature of cooked food. Temperature should reach 75°C

Common food hygiene faults leading to food poisoning

- Preparation of food too far in advance and stored at room temperature.
- Slow cooling.
- Inadequate reheating / cooking.
- Contaminated food.
- Inadequate thawing (defrosting) prior to cooking.
- Food handlers (poor personal hygiene).

Danger Zone thermometer

Boiling point of water = 100°C

Reheat and cook food = 75°C or above

Cooking at 75°C and above kill most bacteria

Keep hot food hot = 63°C or above

Danger Zone 5-63°C

Rapid bacteria growth

Keep cold food cold = below 5°C

Fridge temperature = 0°C to below 5°C

Freezer temperature = -18°C

Freezing temperatures slow bacterial growth

High Risk Foods

High risk foods support the multiplication of bacteria. These foods are usually high in protein and moisture as well as being 'ready-to-eat'.



Low Risk Foods

Bacteria are **not able to multiply** in dry food or food containing high concentrations of sugar, salt, acid (vinegar - pickled) and other preservatives







Nutrients & Nutritional Needs

Nutrients are natural substances that are essential for our bodies to grow, work properly and stay healthy.

Nutrients are split into two categories; protein, carbohydrates and fats are classed as **macronutrients**. Vitamins and minerals are classed as **micronutrients**.

Name	Function	Source
Protein	<ul style="list-style-type: none"> Growth of the body Repair of the body when injured Gives the body energy 	Eggs, meat, fish, poultry, beans and pulses
Carbohydrates	<ul style="list-style-type: none"> Main source of energy for the human body Dietary fibre helps the body get rid of solid waste products 	Starchy—potatoes, rice, pasta Sugar—fruit, sweets, jam
Fats	<ul style="list-style-type: none"> A source of energy for the body. Insulate the body from cold temperatures Protects the bones and kidneys from physical damage Gives the body fat soluble vitamins A, D, E, K 	Oils and fats, milk, butter, cream
Vitamin C	<ul style="list-style-type: none"> Helps the body absorb iron Maintains connective tissue Antioxidant which helps to prevent heart disease and cancers. 	Fruits and vegetables e.g. citrus fruits, kiwi fruit
Vitamin D	<ul style="list-style-type: none"> Helps the body to absorb calcium Helps calcium add strength to the bones and teeth 	Sunlight on skin, oily fish, meat, eggs
Calcium	<ul style="list-style-type: none"> To make strong bones and teeth Make nerves and muscles work Helps the blood clot after injury 	Milk, cheese, yogurt, green leafy vegetables,
Iron	<ul style="list-style-type: none"> Makes haemoglobin in red blood cells to carry oxygen to all body cells and produce energy. 	Red meat, green leafy vegetables

Target Group	What are their special dietary and nutritional needs.	Which nutrient should they have more of?
Children 	Need to eat regular, smaller meals, snacks and drinks. High energy needs due to growth and activity. Reduced salt (sodium) and sugar. Introduce Eatwell guide between 2-5 years.	Protein – growth and repair. Calcium and vitamin D. Iron and vitamin C. B group vitamins.
Teenagers 	Follow the Eatwell Guide. Teenagers have growth spurts and are very active, so high energy needs. Increased appetites mean larger portion sizes are needed.	Protein Calcium and vitamin D. Iron and vitamin C
Adults 	Lower energy needs. Need to avoid foods high in sugar and fat to prevent weight gain.	Calcium and vitamin D. Iron and vitamin C.
Pregnancy. 	Healthy, balanced diet prepared safely. Include plenty of watery drinks. Higher energy meals for the last three months of pregnancy.	Folic acid – vitamin B ₉ (especially at the start of pregnancy). Protein Calcium and vitamin D Iron and vitamin C