

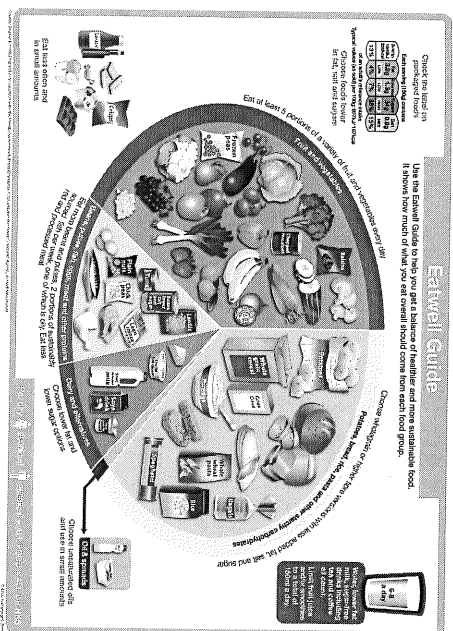
# MAKING INFORMED CHOICES for a varied and balanced diet

## Current Guidelines

Nutritional needs of people differ depending on:

- Age, weight, height
- Sex/gender
- Physical activity levels
- State of health

However, general guidance can be taken from the Eatwell Guide (below).



## Planning meals for specific dietary groups

Some people cannot, or do not want to, eat certain products. It is important to take that into account when planning a meal or diet for them.

### Lactose intolerance

Common condition in which lactose cannot be digested, causing painful bloating, stomach pains and diarrhoea.

**Lactose is a disaccharide present in milk.**

Milk and dairy products should be avoided by lactose intolerant people.

### Celiac disease

- Inborn disease characterised by intolerance to gluten.
- Gluten intake causes inflammation and damage to the intestines, impairing nutrient absorption and leading to malnutrition.

**Gluten is a protein found in wheat, rye, barley and oats.**

A coeliac has to follow a gluten-free diet for their whole life.

Rice, potatoes, buckwheat and quinoa are gluten-free.

### Vegetarians

People who do not eat meat and sometimes other foods of animal origin.

- Lacto-ovo vegetarians eat dairy and eggs
- Lacto-vegetarians eat dairy
- Ovo-vegetarians eat eggs
- Pesco-vegetarians eat fish



### Vegans

People who do not eat any foods of animal origin, such as meat, fish, milk and dairy, eggs, honey and butter. Often avoid using other products of animal origin, such as leather clothing, fur, feathers, etc. All foods eaten are plant-based. Vegans are at risk of developing vitamin B12 deficiency and anaemia.



## High-fibre diets

- Help prevent obesity, coronary heart disease, type 2 diabetes and some cancers
- Dietary fibre is a group of polysaccharides, usually indigestible for humans, present in the cell walls of plants
- Adults should eat 30 g of dietary fibre daily to remain healthy and prevent certain diseases

### Soluble fibre:

- Increases satiety
- Slows down sugar ingestion and prevents type 2 diabetes

### Insoluble fibre:

- Regulates bowel movements
- Prevents constipation
- Binds toxins and harmful substances
- Fibre-rich foods include: cereals, wholegrain products, raw vegetables

## How nutritional needs vary depending on age

As we age, our nutritional needs change due to a number of reasons.

### Young children

- Growth spurt means young children require more protein, calcium and vitamin D
- Teething means they require more calcium, fluoride and vitamin D
- More vitamins and minerals are needed to help support the developing immune system
- Fewer sugary sweets and drinks should be consumed to prevent overweight and tooth decay.

### Teenagers

- Calcium and vitamin D should be consumed to support growth spurts and help reach 3k bone mass
- More iron is needed from menstruation
- Eat regularly to provide more energy for increased physical and intellectual activity
- Should consume fewer sweets and sugary drinks, do more physical activity and drink more water to prevent obesity and other health conditions

### Adults and the elderly

- More dietary fibre should be consumed to prevent obesity, diabetes and cancers
- More vitamin D and calcium is required to maintain strong bones
- Fewer sugary snacks and drinks to prevent diabetes, coronary heart disease and obesity
- Elderly people are less active, so less energy is needed from energy dense foods
- More iron to prevent anaemia and maintain healthy red blood cells.
- Less salt and more water should be consumed, and more activity done, to reduce hypertension.

## Portion size and costing when planning a meal

Eating the correct portion size can help ensure that an individual's nutritional and energy needs are met.

A portion is the amount of food eaten in one meal.

Planning meals and shopping in advance helps assess the cost and stay within the family budget.

Family budget is the amount of money allocated to spend on food or other goods.

Children may be using **pester power** to force their parents into buying sweets, toys or other things.

## How to carry out nutritional analysis

Nutritional analysis allows you to measure the nutritional value of the food we eat. The following can be used to help you analyse foods:

- Food tables – contain data on all nutrients in a given food
- Nutritional analysis software – helps plan a meal and/or diet for specific target groups or plan a balanced diet.

This allows you to assess the needs of the consumer: their preferences, health conditions, age, etc.

Providing proper amounts of nutrients can help to improve and maintain health.

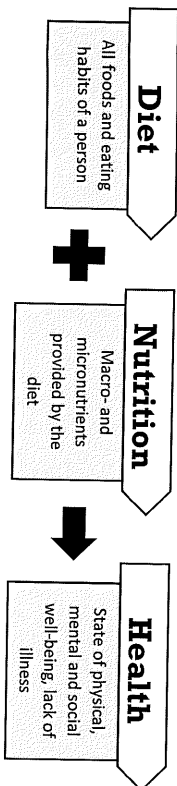
### Modifying recipes

You can modify your recipes to make a given meal more suitable for different groups or individuals through a number of ways:

- Substitute ingredients, e.g. soy chunks for meat
- Reduce the amount of sugar, salt, fat or other ingredients
- Replace ingredients with low-fat, low-protein or high-fibre alternatives
- Choose low-fat dressings and sauces, e.g. yogurt instead of mayo
- Substitute saturated fats with unsaturated ones if possible
- Change the consistency of the dish



Diet and nutrition have a large impact on health. An imbalanced diet may cause many diet-related diseases and conditions.



### Name: Obesity

Condition in which fat is stored by the body in large amounts

- Reasons:
- Imbalanced diet
  - Lack of physical activity
  - hormonal issues
- Results:
- X increased risk of CHD
  - X hypertension
  - X stroke
  - X diabetes
  - X cancer
  - X depression
  - X social isolation
  - X high cholesterol levels
  - X infertility
  - X back and joint pain

25% of adults and 16% of children in the UK are obese

Diet: balanced, varied, low-fat, low-sugar, regular meals during the day

### Name: Coronary heart disease

Condition in which blood vessels in the heart are narrowed by cholesterol plaque build-up

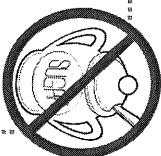
- Reasons:
- Imbalanced diet
  - too much cholesterol
  - obesity
  - hypertension
  - smoking
- Results:
- X cholesterol plaque build-up in the heart
  - X blood vessels
  - X increased risk of heart attack
  - X chest pains (angina)
- CHD is the main cause of 'dear' in the UK
- Diet: balanced, varied, low-fat to reduce weight, low-cholesterol



### Name: Type 2 diabetes

Chronic condition in which blood sugar levels are abnormally high

- Reasons:
- Imbalanced diet
  - obesity
  - improper secretion of insulin\*
- Results:
- X damage to the nerves and blood vessels
  - X eyesight loss
  - X leg amputation
  - X kidney failure
  - X increased risk of heart attack and stroke
- Diet: balanced, varied, regular meals, no simple sugars, usually low-fat to reduce weight



\*Insulin – hormone produced in the pancreas, which lowers sugar levels in the blood by transporting sugar to the cells

# Diet, nutrition and health

### Name: Hypertension

Condition in which blood pressure is too high (above 90/140 mmHg)

- Reasons:
- Imbalanced diet
  - too much salt and cholesterol
  - obesity
  - impaired kidney performance
  - smoking
  - alcohol
- Results:
- X cholesterol plaque builds up in the blood vessels (atherosclerosis) and increases the pressure, or liquids are not excreted properly from the body and the pressure rises
  - X Hypertension increases the risk of heart failure, stroke and kidney disease

25% of adults in the UK suffer from hypertension

Diet: low in salt/sodium, usually low-fat to lose weight

### Name: Iron deficiency anaemia

Condition caused by a lack of iron in the diet or by impaired absorption in the gut

- Reasons:
- Iron is needed to build haemoglobin
  - haemoglobin is the red pigment in the blood which binds oxygen and transports it around the body
  - If there is not enough iron, red blood cells cannot be built and oxygen cannot be transported properly
- Results:
- X pale skin
  - X tiredness
  - X shortness of breath
  - X heart palpitations
  - X dizziness
  - X fainting
  - X immune system is weakened and infections are more likely to occur
- Diet: rich in iron and vitamin C, red meat, liver, eggs, broccoli, kale and spinach, beans and lentils, fortified cereals and bread
- Vitamin C increases iron absorption in the gut!

Girls and women are at greater risk of developing iron deficiency anaemia

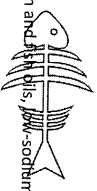


### Name: Skeletal disorders

Group of diseases of the skeletal system caused by a deficiency of micronutrients

- Reasons:
- Lack of calcium
  - lack of vitamin D
  - lack of fluoride
  - deficiency or excess of phosphorus
  - excess sodium
- Results:
- X Rickets
  - X Osteoporosis
  - X Tooth decay
- Occurs in children
- Occurs in the elderly
- Is a result of calcium, vitamin D and fluoride deficiency, as well as a high-sugar diet and improper dental hygiene

Diet: high in calcium, vitamin D, fluoride, high in milk and dairy, fish and shellfish, low-sugar



## Energy needs

Energy is the number of calories you need to consume every day to properly function and maintain your body mass. It varies for different people, depending on their sex, age, height, weight, occupation, lifestyle, body composition, etc.

Energy is measured in kilocalories (kcal) or kilojoules (kJ).

BMR (basal metabolic rate)

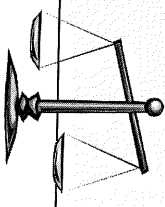
Amount of energy needed to stay alive, i.e. to keep the heart beating, to breathe and to maintain a stable body temperature.

Depends on: age, weight, height and sex

PAL (physical activity level)

Amount of energy needed to perform all life activities, e.g. cleaning, walking, shopping or swimming

- 1.0–1.4 – low PAL
- 1.5–1.8 – moderate PAL
- Over 1.8 – active PAL



BMR x PAL = total energy expenditure (TEE)

(or how much energy a person needs each day)

BMI (body mass index)

Indicates whether a person's weight is proportionate to their height

$$\text{BMI} = \frac{\text{body mass in kg}}{\text{height in m}^2}$$

BMI < 18.5 – underweight

BMI 18.5–25.0 – healthy

BMI 25.0–30.0 – overweight

BMI > 30.0 – obese