

# OUR FOOD, OUR DIET





# DIET: Food set that we take daily

Each type of food performs different functions:

## Energy sources

Foods with abundant carbohydrates, such as potatoes or cereals, or lipids such as cold meat or butter are energy sources. Its oxidation releases the energy that we use to keep our body moving and help to maintain our body temperature. Your body also needs energy to fight infection, it even uses energy when we're thinking and resting.

The cellulose is a particular type of carbohydrate, which is indigestible for our digestive system. This carbohydrate doesn't have an energetic function but helps to regulate **bowel movements**.



## Metabolic regulators

Used to regulate many of the processes and reactions that need to take place in our bodies. They are rich in vitamins and mineral salts



## Plastic function

Protein-rich foods such as meat or legumes have this function. Thanks to them we build our own stuff, that's to say, we grow and repair and replace cells and tissues.





# THE FOOD WHEEL

It's a diagram for presenting foods by the most important type of nutrient in them and their main function in our body.

- Each sector represents a group of foods with the same main nutrient .
- The size of each sector is proportional to the composition of a balanced diet.
- Sectors in the same color include foods that share main function in the body.

## Energy sources

- Group I. Foods rich in carbohydrates: cereals, potatoes, sugar
- Group II. Foods rich in lipids: butter, oils, and fats.

## Other recommendations

- Do physical exercise
- Drink sufficient water



## Raw materials

- Group III. Foods rich in proteins: dairy products
- Group IV. Foods rich in protein: meat, eggs, fish, legumes and nuts.

## Metabolic regulators

- Group V. Foods rich in vitamins and minerals: vegetables
- Group VI. Foods rich in vitamins and minerals: fruit



# OUR DIET PROVIDES US WITH ENERGY

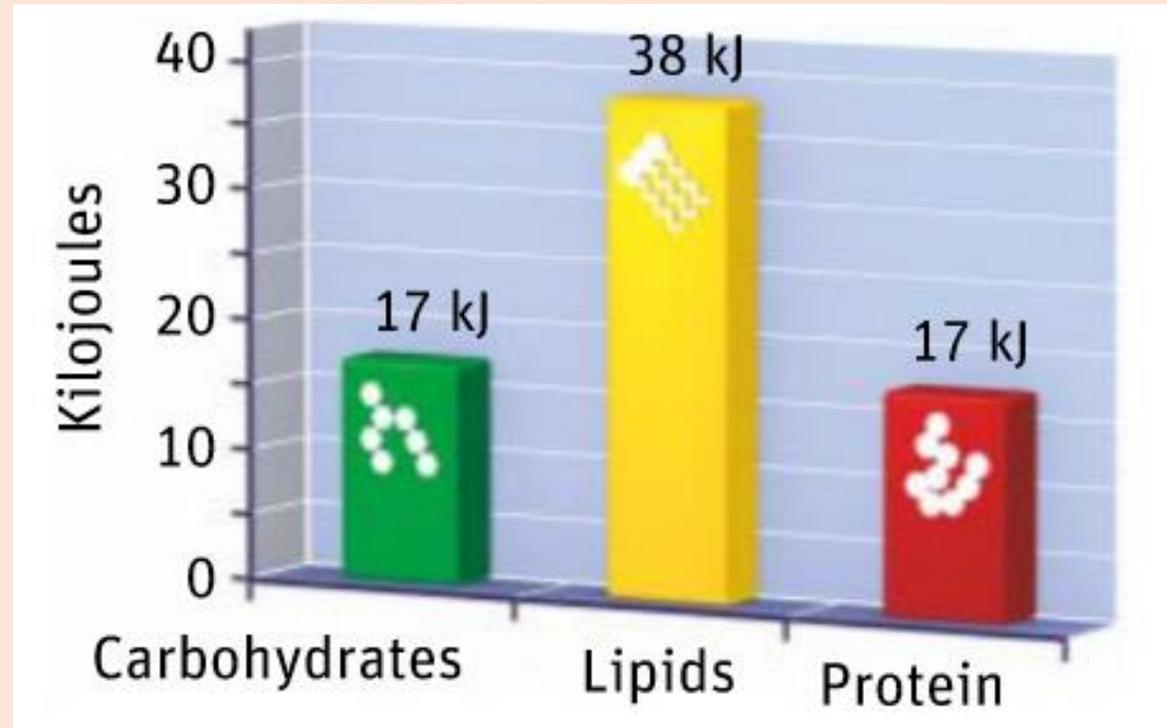
Our food intake should provide enough energy to power our daily activities as well as maintain body mass. Our bodies access the energy content in food through the process known as **cellular respiration**.

The chemical energy in the nutrients (carbohydrates, lipids and proteins) we eat is transformed into usable energy in the following manner:

- **Mechanical energy:** This energy is used for muscular contraction, enabling skeletal movement, the heartbeat, and pulmonary ventilation.
- **Chemical energy:** This energy is used to build new molecules. The synthesis or production of new molecules requires energy input.
- **Thermal energy or heat:** This energy is used to maintain body temperature between 36 and 37 degrees



## ENERGY YIELD PER GRAM OF NUTRIENTS



**1 kcal = 4,2 KJ**



# HOW MUCH ENERGY DO WE NEED?

Our bodies are constantly using energy, even when we are asleep

## Basal metabolism

Individual's daily energy requirements under controlled conditions, when the individual is completely at rest, fasting for 12 hours and doesn't have to compensate for any temperature extremes.

It is influenced by several factors including age, gender, height and weight

The FAO has established the following formulas to calculating the basal metabolism

**Females:  $7,4 \times \text{weight in kilograms} + 428 \times \text{height in metres} + 572$**

**Males:  $16,6 \times \text{weight in kilograms} + 77 \times \text{height in metres} + 572$**

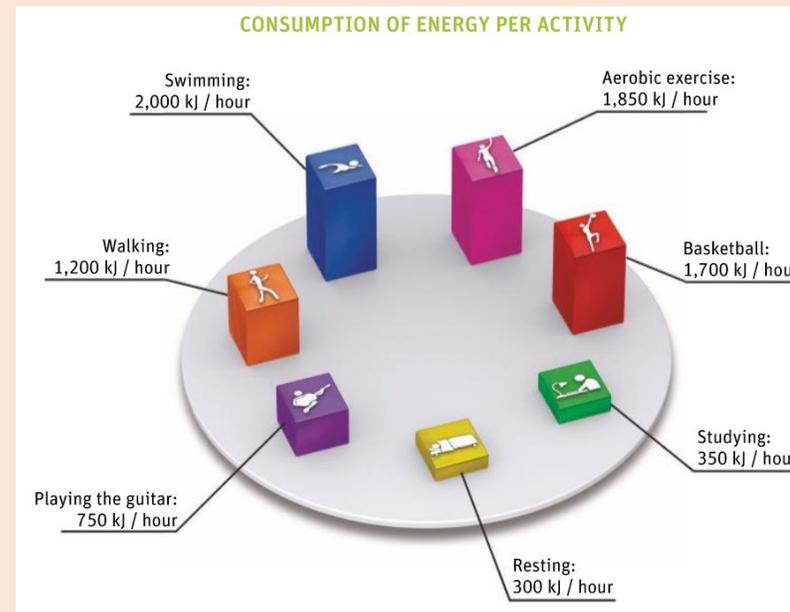


# ENERGY REQUIREMENTS

Energy requirements can be determined by an individual's age and gender.

Age	Female (KJ/day)	Male (KJ/day)
Adolescent	10000	12500
Adult	8300	10800
Alderly person	5800	5800

Our individual's energy requirements are often much higher than the basal metabolism due to physical activity level, environmental temperature and cellular activity level.



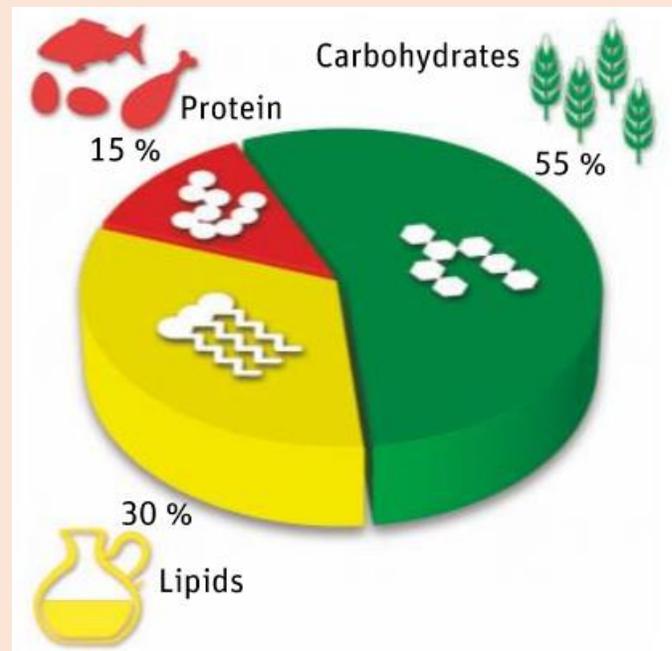


# A BALANCED DIET

There are two key conditions that need to be met for a diet to be considered balanced:

- ★ Provide all types of nutrients and in the right proportions.
- ★ Satisfy energy requirements of the organism.

In a balanced diet, carbohydrates should provide approximately 55% of the energy, lipids 30% and proteins 15%





# THE MEDITERRANEAN DIET: BALANCED AND HEALTHY

The food that characterise the Mediterranean diet are the following:

- ❖ **Grains:** Rice, wheat, and their derivatives, such as bread and pasta, are the base of this diet. These foods are rich in complex carbohydrates.
- ❖ **Fresh fruit and vegetables:** Source of vitamins and minerals. Furthermore, along with legumes and whole grains, they contribute a significant amount of dietary fibre.
- ❖ **Fish, meat and legumes:** Main sources of protein.
- ❖ **Olive oil:** The main type of fat used.
- ❖ **Other aspects:** Active lifestyle, regarding mealtime as a social activity to be enjoyed with others, the use of local products and traditional foods.





## SPECIAL DIETS

Sometimes certain foods must be added or removed to rectify dietary disorders or prevent illnesses.

- ❖ **Low cholesterol diet:** This diet avoid foods rich in saturated and trans fats.
- ❖ **Low salt diet:** This diet introduces other seasonings in place of salt.
- ❖ **Gluten free diet:** Gluten is present in wheat as well as some other grains. People intolerant to protein gluten (celiacs ) need to eat special bread, pasta and biscuits that are gluten free.
- ❖ **Diabetes diet:** This diet avoids simple sugar, but permits complex carbohydrates.
- ❖ **High or low calorie diets:** The basic recommendation is to follow a balanced diet, but to increase or decrease the total food intake to gain or lose weight.



# ILLNESSES CAUSED BY NUTRITIONAL IMBALANCES

## Obesity

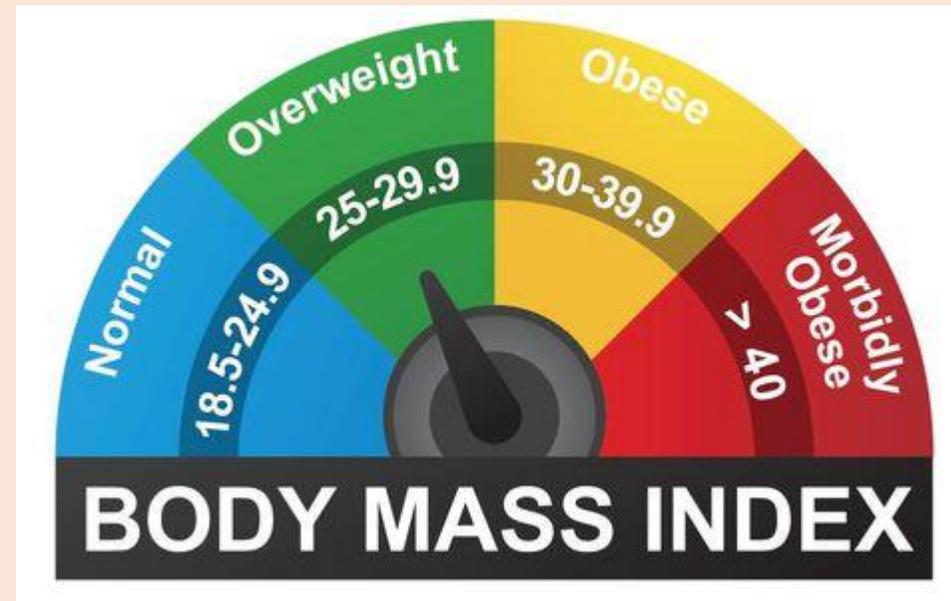
It's the result of chronic overeating, as well as sedentary lifestyle. This condition is a risk factor for several of the most common chronic illnesses that plague modern society:

- Diabetes
- Cardiovascular disease
- Several types of cancer

### Body mass index (Indice de masa corporal)

CALCULATE YOUR

$$\text{BMI} = \frac{\text{WEIGHT (kg)}}{\text{HEIGHT X HEIGHT (Metre)}}$$





# ILLNESSES CAUSED BY NUTRITIONAL IMBALANCES

## Anorexia nervosa

Illness characterised by an intense fear of gaining weight combined with a distorted self-image. The behavioural symptoms of anorexia include restricting food intake, in some cases accompanied by excessive exercise.

## Bulimia

Many anorexics also suffer this illness, which involves eating large quantities of food followed by self-induced vomiting

## Nutrient deficiency diseases

The majority of the nutrient deficiency diseases are the result of insufficient intake of particular vitamins or minerals.

- **Imbalanced diet:** Results from a diet lacking in certain nutrients, because it is monotonous.
- **Malnutrition:** The result of a diet lacking sufficient nutrients.



# FOOD PRESERVATION

## Cold

Keeping food at low temperatures slows down the growth of microbes.

- **Refrigeration:** Temperatures between 0°C and 5°C
- **Freezing:** Temperatures below 0°C

## Additives

These substances are added to food to slow down the proliferation of microorganism: salt, vinegar and artificial chemical additives.

## Irradiation

Ionising radiation such as X-rays to destroy microorganism and prolong the shelf life of certain foods at room temperature.



# FOOD PRESERVATION

## Vacuum-packing and Oxygen-free packaging

Food in containers from which the air has been removed (vacuum-packing/embasado al vacio). The absence of oxygen starves the microorganisms responsible for food spoilage. Alternatively, the oxygen alone can be removed from the air (Oxygen-free packaging).

## Heat

Reduces the number of viable microorganism. This method is often used for milk preservation.

- **UHT (Ultra High Temperature) milk** : Milk has been heated to 135°C for two seconds.
- **Pasteurised milk**: Milk has been heated to 72°C for 15 seconds, followed by rapid cooling.

## Dehydration

The growth of microorganisms are reduced by eliminating most of the water contain in certain foods. **Freeze-drying** is a dehydration technique in which a food item is frozen very rapidly and then placed in vacuum, in order to extract its water content.