A **ferment** is a group of **living micro-organisms** that are responsible for fermentation.

**Fermentation** is a natural process. Fermentation is a metabolic process that breaks down complex organic compounds (lactose, etc...) into simpler compounds (acids, gases, alcohol...), producing energy.

There are different **KINDS OF FERMENTS**:  

- **MOLDS** – 100 microns  
- **YEASTS** – 10 microns  
- **BACTERIA** – 1 micron
The diversity of **FERMENTED FOOD**

**A fermented food is a food product transformed by ferments.**

- Yeast + Lactic acid bacteria + Grapes = Wine
- Yeast + Lactic acid bacteria + Flour = Bread
- Lactic acid bacteria + Milk = Yogurt
The diversity of **FERMENTED MILK**

Thanks to the different process and formulation, fermented milk can have different textures and taste.

**Stirred**: fermentation takes place in a fermentation tank. Before filling cups, the mixture is stirred to obtain a creamy texture.

**Set**: fermentation takes place directly in the final cups to obtain a gelified texture.

**Greek**: milk proteins are concentrated through a process of ultrafiltration/separation. This process requires two times more milk to produce a very thick texture.

**Kefir**: this product is made with Kefir grains (a yeast/bacterial fermentation starter) to obtain an acidic and sparkling taste.

**Fresh cheese**: the concentration process is the same as for greek yogurts. And ferment cheese is added for the taste.

**Drink**: the process is the same as for stirred yogurts, with fewer proteins and smoothing to obtain a liquid.
How do ferments manage to transform a liquid substance into a solid one?

In milk, there are proteins and lactose (natural sugar).

To make yogurt, milk is heated (pasteurized) and 2 lactic ferments are added: Lactobacillus bulgaricus and Streptococcus thermophilus.

To multiply, these 2 bacteria feed on the lactose and secrete lactic acid: pH decreases.

This acidity makes the blocks of protein gradually bind together to form a strong network.

This incredible transformation produces a new, smooth and creamy texture: the yogurt.
**Goodness of Lactic FERMENTATION**

**SAFETY**
Lactic acid produced during fermentation limits the growth of contaminants that are responsible for the development of rot and mold: the yogurt can be stored **100% naturally!**

**TEXTURES & AROMAS**
Lactic acid produced during fermentation coagulates the milk protein, forming a certain texture. And there are as many different yogurt **aromas and textures** as there are **varieties of ferment!**

---

**LACTOSE DIGESTION**

**Yogurt helps with lactose digestion:**

In the human intestine, lactose has to be broken down by an enzyme called **lactase** in order to be digested. The ferments in yogurt produce this enzyme!

---

So during fermentation, around 20–30% of the lactose is converted to its digestible components (glucose and galactose). Then, in the gut during digestion, this enzyme continues to be released by the ferments and carries on breaking down lactose.

**So the good news is that consuming yogurt helps to digest lactose!**

---

![Diagram showing the process of lactose digestion in yogurt](image-url)
The nutrient goodness of YOGURT

Yogurt contains good nutrients!

Thanks to milk, yogurt is a source of the protein, calcium, vitamin B and minerals we need.

Yogurt is a source of very good proteins:

- Protein Quality = Digestibility & Essentaility

Yogurt is a source of calcium:

Yogurt and dairy products may represent the best sources of calcium due to their high content, high absorptive rate, and relatively low cost.

Calcium is known to contribute to growth and maintenance of bones. The European Food Safety Authority (EFSA) has approved the following claim on calcium and bone health: “Calcium is needed for the maintenance of normal bones“.

Calcium is also an important nutrient for other functions in the body like neurotransmission, muscle function, the work of digestive enzymes...
The health benefits of YOGURT

Yogurt is good! Great tasting, but also good for health!

Regular yogurt consumption is known to be associated with benefits for:

- Lactose digestion
- Healthier lifestyle
- Better calcium and other nutrient intakes
- Better cardio-metabolic profile
- Reduction of weight gain over time
- Decreased risk of type 2 diabetes

Yogurt has many benefits and there are plenty more to discover!
Our Gut is much more than just a tube! Containing more than 100,000 billion bacteria, it plays a key role in human health.

**MICROBIOTA**
100,000 billion bacteria = 2 kg

**EPITHELIAL CELLS**
5 to 7 m² (a tennis court!) to contain microbiota and control external exchanges

**NEURONS**
200 million
70% of nervous connection in our gut

**IMMUNE CELLS**
70% of immune system in our gut

Colon
Small intestine
Gut Microbiota: also previously called gut flora, the microbiota represents all the micro-organisms that live naturally in the human intestine, and with higher density in the colon. These bacteria live together in mutual balance with their host and are necessary for the proper functioning of the gastrointestinal system and the entire body.

**DIVERSITY**

- the microbiota contains about 400 different species of bacteria.
- Relatively stable in human adults and unique to each individual.
- Good and bad bacteria (pathobiont) co-exist.
- Relatively resilient to disruption (diet, antibiotics...).
- Produce metabolites such as vitamins and Short Chain Fatty Acids that are beneficial for host.

**There are many SOURCES OF DISRUPTION**

- Antibiotics
- Infections
- Stress
- Diseases
- Lifestyle
- Vitamin deficiencies
- Diet
There are many benefits of fermented products containing probiotics.

In addition to ferments, we can also add other bacteria to the yogurt with the aim of delivering a targeted health benefit, beyond conventional nutritional effects. These bacteria are known as probiotics.

THE HEALTH BENEFITS OF PROBIOTICS

- **Intestinal well-being**
  - Digestive properties

- **Produce beneficial micronutrients**
  - for metabolic health

- **Strengthen the immune system**
Various types of yogurt consumption

Yogurt is often part of national dietary guidelines, but consumed differently depending on cultural habits.

- **USA**: As a snack
- **France**: As a dessert or during breakfast
- **Netherlands**: As a drink during meals
All dairy products, plain yogurt, contain some sugar naturally present in milk: lactose.

Flavoured yogurts contain added sugars or alternatives.

How to identify DIFFERENT TYPES OF SUGARS?

**Total sugars**

= Added sugars + lactose from dairy, sugars naturally present in fruits and vegetables

**Added sugars**

= Sucrose, fructose, powder, HFCS, fruit juices & concentrates, honey