

## SALT

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Salt has been used since ancient times as a **food preservative**. Salt dehydrates food, limiting bacterial proliferation in the water they contain. This dehydration also reduces the weight and volume of food, making them easier to transport. Today, salt is still used as a preservative, but also as a flavor enhancer, a substance that does not alter the taste of the food consumed, but increases the intensity of **gustatory and/or olfactory perception**.

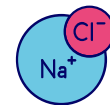


More or less perceptible, salt is present in many of the food products we consume, and particularly in processed products containing added salt.

Beyond its role as a flavor enhancer or preservative, salt provides essential **micronutrients** for the body. However, **excessive consumption can have harmful consequences on health**.

### Types of salt

Salt, also known as **sodium chloride (NaCl)**, is mainly composed of sodium and chloride.



The main sources of salt are :



- **Sea water** : Salt is collected from seawater by evaporation, for example by the action of the sun and wind in salt marshes.



- **Rocks** (e.g. Himalayan salt, Persian blue salt): Gem salts or rock salts are obtained from extraction of underground salt deposits by injecting water to obtain a brine solution (water+salt), which is then left to evaporate. These salts can also be collected on the surface in salt deserts (Uyuni Salt).

**Salt** is said to be food grade when it consists mainly of sodium chloride (97%). However, some institutes pointed out that some salts consumed contain less than 97% sodium chloride.

In addition to sodium and chloride, salt may also **contain other minerals** in varying proportions. Edible salt may also be enriched with **iodine and/or fluoride**.

**Sodium** is not always associated with chloride, therefore it is not necessarily present in the diet solely in the form of salt. However, most of the sodium we consume comes from salt.

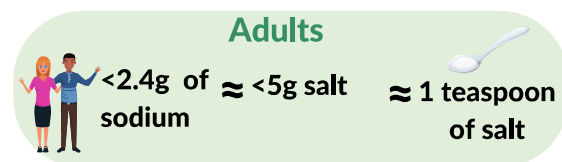
It is important to note that different types of salt do not always have the same sodium content.

Type of salt (100 g)	Sodium (g)	Chloride (g)	Iodine(µg)	Calcium (mg)	Magnesium (mg)	Potassium (mg)
Grey sea salt	32.2	53.2	<200	181	503	99.3
Pink salt (Himalaya)	35	61	ND*	431	1644	767
Fleur de sel	37.7	58.7	ND*	171	424	103
White salt	39.1	60.8	1.8	13.3	3.15	16.9
White salt, iodized	39.1	60.8	1860	ND*	3.15	16.9
White salt, iodized, fluorinated	39.1	60.8	1860	ND*	3.15	16.9

\*ND: Not available

## Recommendations

The World Health Organization (WHO) and the French National Nutrition and Health Program (PNNS) recommend no more than **2.4g of sodium** per day for adults, which is equivalent to **5g of salt** ( $\approx$  a teaspoon), and not to add salt to food offered to a child under 1 year old.



**These recommendations take into account both the salt naturally present in our food and added salt.**

They also recommend that the salt consumed be iodized (fortified with iodine, it is usually indicated on the label), as iodine is an essential micronutrient for the body. The body does not produce iodine, it must be supplied through the diet.

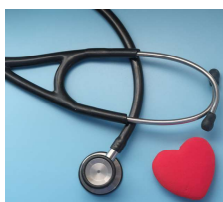
The world's average **salt** consumption is **10.8 grams** per day, more than **double the recommended daily intake**.

## Sodium and health

Sodium is essential to our body's equilibrium. In fact, it plays an essential role in **maintaining water balance**, which include the distribution of body water. It also helps in regulating **blood pressure** (blood pressure rises in proportion to the amount of sodium present in the blood, and vice versa), and participate in cell function, nerve transmissions and muscle contractions.



Sodium is therefore necessary for the body to function properly, **and both too little and too much sodium can be dangerous to our health**. In fact, the WHO points out that excessive salt consumption is **the main risk factor for death** linked to diet and nutrition.



Excessive sodium consumption is one of the main risk factors for **hypertension, cardiovascular disease and kidney disease**. When consumed in excess, sodium accumulates in the blood, leading to the displacement of water from the cells into the bloodstream to reduce plasma salt concentration. This increase in blood volume (hypertension) leads to a higher risk of cardiovascular disease, kidney disease and epilepsy.

## Excessive sodium consumption may also be a risk factor for :

- **Obesity:** The presence of salt in the diet induces an increase in taste intensity, which can lead to greater food consumption, as well as an increased risk of food addiction.
- **Osteoporosis:** Excessive salt intake promotes the elimination of calcium in the urine, leading to bone demineralization (reduced mineral mass) and the risk of osteoporosis (a disease characterized by a reduction in bone mass).
- **Gastric cancer:** High salt consumption is associated with an increase in stomach cancer, and is considered a "probable cause of stomach cancer".

Many sources extol the benefits of **Himalayan salt**, but **no real health benefits** have been demonstrated in scientific literature.


Although some salts have a higher content of other minerals, they have to be consumed in large quantities (more than 6 spoonfuls per day) to make a significant contribution to the daily micronutrient intake, which would lead to an excessive sodium intake, with serious consequences for health. For an adequate intake of micronutrients, a balanced diet is essential.



## Identifying salty products

**Sodium** is **naturally** present in small quantities in food such as milk, meat and shellfish. However, **most of the sodium we consume comes from salt added to our diet.**

Here's an example of the same dish, one is homemade, the other is processed:

Processed dish		Homemade dish
French Beef and Potato Casserole, industrial (300g): 2.4 g salt		Unsalted homemade French Beef and Potato Casserole (300g): 0.47 g salt
Green salad (100g): 0.023 g salt		Green salad (100g): 0.023 g salt
Industrial oil and lemon salad dressing(1 tablespoon = 15g): 0.4g salt		Homemade oil and lemon salad dressing(1 tablespoon = 15g): 0 g salt
<b>TOTAL: 2.82g of salt</b>		<b>TOTAL no added salt: 0.49g of salt</b>
		<b>+ Table salt: 0.8g ≈ 1 portion packet ≈ 1/6 spoon ≈ 10 pinches</b>
		<b>= TOTAL with added salt: 1.29g of salt</b>

In addition to naturally-occurring sodium, **processed food** such as bread, cheese, cold meats and condiments (mustard, ketchup, soy sauce, etc.) generally contain significant amounts of added salt.

There are several **salt substitutes** on the market with all or part of the sodium replaced by potassium: potassium salt. Its taste is similar to that of sodium chloride, but it can have a bitter aftertaste when heated. Beware: this salt may have **health consequences** (drug interaction, sodium deficiency, etc.) and is not recommended for certain medical conditions (e.g. kidney disease). It is therefore very important to **discuss with your doctor**, before making any major changes to your diet.

Here are a few examples of food containing salt and their quantities:

<b>Canned vegetables</b>  ≈ 2.2 g of salt 1 can of green beans (440g)	<b>Charcuterie</b>  ≈ 1.4 g of salt 2 slices ham (40g/slice)	<b>Condiments</b>  ≈ 0.25 g of salt 1 teaspoon = 5g of mustard	<b>Bread</b>  ≈ 3.25 g of salt 1 French baguette (250g)
<b>Cheese</b>  ≈ 0.40g of salt 30g of brie cheese	<b>Olives</b>  ≈ 1.2 g of salt 6 olives (30g)	<b>Pickles</b>  ≈ 0.63g of salt 30g of gherkins	<b>Stock</b>  ≈ 5.1 g of salt 1 cube of poultry stock (10g)
<b>Industrial soups</b>  ≈ 1.7g of salt 1 bowl (250ml)	<b>Sparkling water</b>  ≈ 0.08 g of salt 1 L of sparkling mineral water	<b>Meat, natural, unsalted</b>  ≈ 0.15 g of salt 100g of beef steak, raw, unsalted	<b>Dairy products</b>  ≈ 0.23 g of salt 1 glass of milk (250ml)

## How can I reduce my salt intake?



- Prefer **homemade** dishes.
- **Cook** with **little** or **no added salt**.
- **Taste** your food **before adding salt** to your meals.
- When cooking, use **alternatives to replace or reduce the amount of salt**, such as garlic, citrus juice, salt-free seasonings or spices.
- Eat mainly **fresh or frozen, minimally processed food**: fruit and vegetables, meat, fish...
- Choose **cans with no added salt** or sauce.
- **Rinse canned food** several times with water to remove some of the added salt.
- Choose products **low in salt or sodium**.
- **Remove the salt shaker from the table**.



- Limit the consumption of **processed** food: canned food, ready-made meals, commercial sauces and condiments...
- Limit the consumption of **high-salt food**: olives, pickles, broth, cheese, deli meats, ...
- Limit takeaways and fast food to occasional pleasures.



## Conclusion

Sodium is essential to our body's equilibrium, which is why it's important to provide this micronutrient through the diet. However, excess sodium can have negative consequences on our health. Present in small quantities in food such as milk, meat and shellfish, most of the sodium we consume comes from salt added to our diet. Most of the processed food we eat every day are rich in salt. That's why it's so important to know what foods are rich in salt, and how to reduce our salt intake.



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