Intended for the general public, the *Bücco Care Guide* is a general educational guide. Its contents present some of the most common dental practices. However, there are many approaches and philosophies in dentistry, and your dentist will be able to advise you on what he or she believes is best for your oral health. Don’t hesitate to consult a general dentist for more information.

The Bücco team and its partners

First translation from French to English
Beta version.

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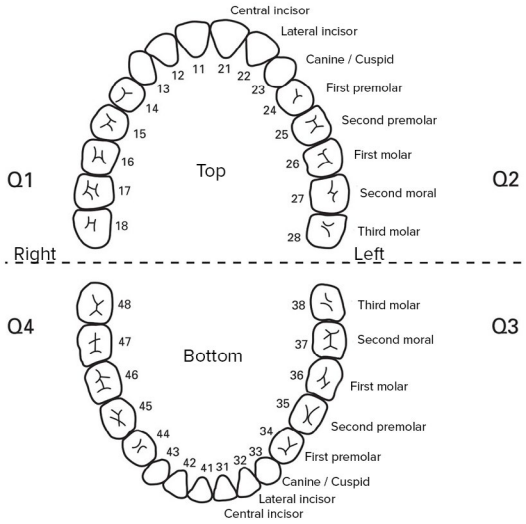


When your dentist or hygienist tells you that decay has started on one of your teeth, he or she identifies the tooth by name or number. For example, your dentist might tell you that you have incipient decay on your upper first molar on the left side, also known as tooth No. 26.

This is how dental insurers identify teeth on claims or treatment cost estimates.

* Some countries, such as the United States, use a different coding system.

* The absence of a tooth in a quadrant does not change the number representing the other teeth (e.g.: if the 36th tooth is absent, its neighbor will have the number 37).

Quadrants to identify your teeth

Because it can be useful to identify the dentition by section to target an area of several contiguous teeth, the mouth is divided into four sections named **quadrants** :

- quadrant 1 (top right);
- quadrant 2 (top left);
- quadrant 3 (bottom left);
- quadrant 4 (bottom right).

Each quadrant consists of a central incisor, the neighboring lateral incisor, the adjacent canine, two premolars and three molars.

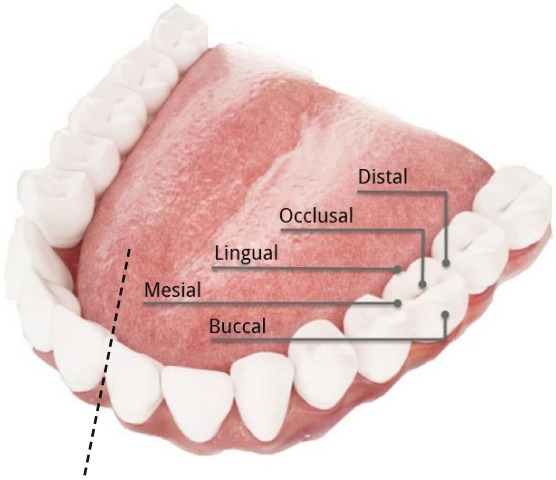
To identify teeth accurately, we specify their quadrant and position. For example, we'd write tooth 36: quadrant 3, position 6.

Tooth surface identification

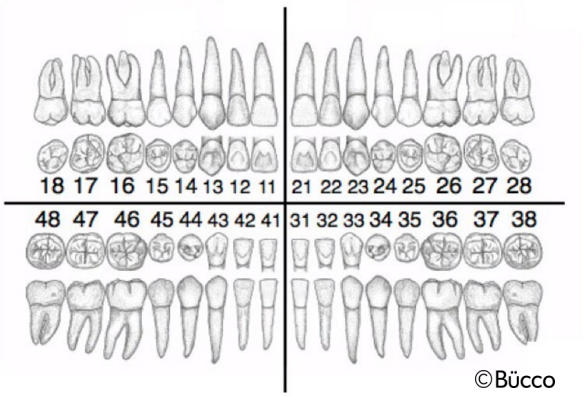
Although the crown of a tooth may seem small enough to indicate it as a whole, it's often useful to be able to talk about a more specific part of it. For example, a cavity or other anomaly may be located on one or more surfaces of the same tooth. In addition, restorative treatment (operative dentistry) is billed by surface area, which explains, among other things, why fillings on two different premolars may be charged at different rates.

In writing, we use the first letter of the surface to designate the location in question.
For example: tooth #36 O (O = Occlusal).

- Distal = D (surface of the tooth furthest from the midline)
- Occlusal = O (masticatory surface for molars and premolars only)
- Incisal= I (masticatory surface for anterior teeth only)
- Lingual = L (surface on tongue side)
- Mesial = M (surface closest to midline)
- Buccal = B (cheek surface)



Visualization of the entire dentition with an odontogram



To make it easier for you to understand, your dentist or hygienist can give you an overview of the dentition using a diagram entitled **odontogram**.

Although there are many other elements that make up tooth structure, this diagram will help you to better visualize the location of problems and proposed treatments on your individual teeth.

Tooth anatomy

What do you know about your teeth?

For many, knowledge about teeth is limited.

- We know that our teeth are useful for eating, that they influence our aesthetic appearance and that we need to take good care of them.
- We know that our teeth are “replaced” (primary dentition) during childhood, and that some of them can become fragile in later life.
- We also know that our teeth can be a source of discomfort, pain and worry, and that a better understanding of this component of the human body is desirable.

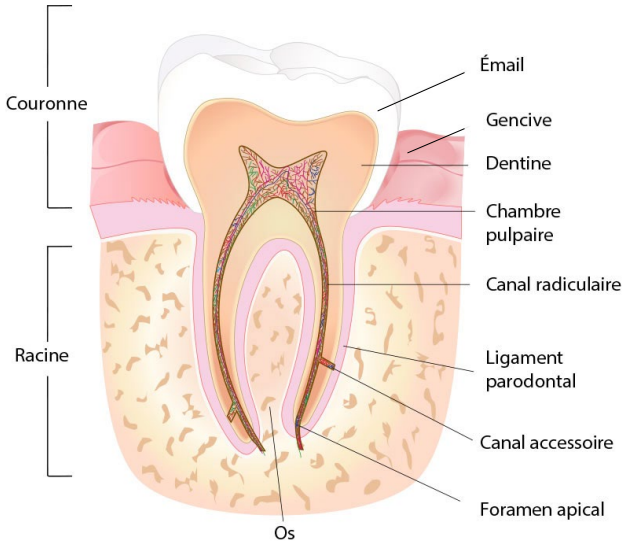
Tooth structure

In very simple terms, the general structure of a tooth is similar to that of a hard-boiled egg.

Like a shell, a first layer, the **enamel**, covers and protects the visible part of the tooth.

Dentin is the second layer of the tooth. Like the white of an egg, this material occupies the largest volume of the tooth. Although less solid than enamel, it is as hard as human bone. Dentin is the last piece of armor to preserve the life of the tooth, offering protection to its core. Once attacked by decay, dentin deteriorates very rapidly.

Then, the equivalent of the egg yolk is called the **pulp** or “nerve” of the tooth. Located in the center of the tooth, the pulp is made up of tiny blood vessels and nerve fibers that make the tooth sensitive to pain.



Tooth parts

The tooth consists of two main sections: the root and the crown.

The root
The part of the tooth usually hidden beneath the gums is called the **root**. This part of the tooth is firmly embedded in the bone tissue of the jaw. Like the posts of a fence, the roots keep the teeth firmly in position. The number of roots varies from tooth to tooth: front teeth (central, lateral and canine) have a single root, while premolars and molars have between one and four roots to resist the pressure exerted on them during chewing. Root shape varies greatly from person to person.

The crown
The **crown** is the visible part of the tooth, above the gums, that comes into contact with food. It is covered with enamel.

Tooth nomenclature

Our teeth are classified into 5 categories:

- The 4 central incisors: located directly under the nose (2 upper, 2 lower). The upper ones are sometimes called “paddles” or “buck teeth”.
- The 4 lateral incisors: adjacent to the central incisors (2 upper, 2 lower).
- The 4 canines (“fangs”): the sharpest, each with a single long root (2 at the top, 2 at the bottom). They are generally the fulcrum for left and right lateral jaw movements.
- 8 premolars: used for chewing (4 upper, 4 lower).
- The 12 molars: resistant to strong pressure and positioned at the back (6 at the top, 6 at the bottom). First, second and third molars (wisdom teeth).

The 12 teeth at the front of our mouth (incisors and canines) are called front teeth. They enable us to tear and cut. These are the teeth you see when you smile.

The other 20 teeth (premolars and molars), positioned towards the back of the mouth, are called posterior teeth. They have an occlusal surface for chewing and crushing food.

Primary dentition

Eruption of baby's first teeth

With a few exceptions, babies are born with no visible teeth in their mouths. But this doesn't mean that teeth are non-existent; tooth development begins in the first few weeks of life, inside the mother's womb.

The eruption of the first teeth (primary dentition) takes place over a period of more or less three years.Occasionally, however, newborn babies are born with one or more teeth; this is known as premature eruption. This is not a cause for concern, but vigilance is required to avoid injuries to the tongue or mouth that could be caused by the presence of teeth. The presence of these teeth can make it difficult for the mother to breastfeed at an early age.

Primary dentition

The 20 primary teeth have a configuration similar to that of the permanent dentition:

- 4 central incisors (directly under the nose, top and bottom);
- 4 lateral incisors (always at the front of the mouth, on either side of the central incisors);
- 4 canines (commonly known as "fangs");
- 8 molars (large teeth at the back of the mouth, used for chewing).

Primary teeth are whiter than permanent teeth, hence the term "**milk teeth**". This is due to the greater enamel thickness and dentin content of permanent teeth. In fact, dentin is relatively yellowish in color. It's therefore normal for newly-arrived permanent teeth not to be the same color as baby teeth.

Note: There are no premolars in primary dentition.

Role of the primary dentition

- Allow food to be chewed;
- Promote good elocution (spoken language sounds);

- Greatly influence facial aesthetics by having a direct impact on jaw development, thus modifying the shape of the child's face and smile.

What's more, the primary dentition has a decisive role to play in the coming dentition, since it serves as a guide, preserving and maintaining the space for the arrival of the permanent dentition.

Don't forget that some primary teeth will be in the mouth until the age of 12. So it's very important to keep them healthy until they fall out on their own.

Breaking through baby's teeth

Teething generally begins in the 6th month of life and continues until the child is about 3 years old. Primary teeth erupt through the gums one after the other. Teeth erupt from the center of the mouth towards the back (towards the ears), with the exception of the canines, which are preceded by the first molars.

Generally speaking, the central incisors will appear first in the lower jaw, alternating with the upper ones, followed by the other teeth. The order of the eruption sequence is more important than the age of eruption. Some children will have their first tooth at 12 months. The age at which teeth erupt varies greatly from one ethnic group to another.

Tooth eruption calendar

- Central incisors: between 6th and 8th month.
- Lateral incisors: between 7th and 9th month.
- 1st molars: between the 12th and 16th months.
- Canines: between 16th and 20th months.
- 2nd molars: between the 20th and 30th months.

This timetable is purely indicative, and there's no cause for alarm if tooth eruption is a little late or starts earlier than expected.

Mixed dentition

The appearance of adult teeth

Your child will soon be four years old, and for some time now he or she has been offering his or her most beautiful smile, with all his or her first teeth (primary dentition) in the mouth. His or her first teeth will be in place for a few years, but the formation of adult teeth (permanent teeth) has already begun, deep under the gums.

Gradually, the roots of each primary tooth will resorb (which is why baby teeth that fall out have no roots). The adult teeth will then grow in, pushing the primary teeth to make their way into the gums. Like the primary dentition, the growth of the permanent dentition varies from tooth to tooth and from individual to individual.

The transition

We know the importance of the primary dentition and its role, which motivates us to take good care of it.

Over the next few years, from the age of 6 to around 11, your child's mouth will be in transition, displaying both primary and permanent dentition: we call this **mixed dentition**.

Timetable for primary tooth loss

- Loss of central incisors: between ages 6 and 8.
- Loss of lateral incisors: between 7 and 8 years of age.
- Loss of canines: between ages 9 and 12.
- Loss of 1st molars: between ages 9 and 11.
- Loss of 2nd molars: between 10 and 12 years.

The color change

It's also worth noting that new teeth will probably be more yellowish in color than their primary counterparts. This is because the amount of dentin (more yellowish than enamel) will be greater beneath the thin layer of enamel that covers it.

Dental hygiene during the transition

Children will have both primary and adult teeth in their mouths. By the age of 9, they will have 12 primary teeth and 12 permanent teeth. Since teeth vary in size, brushing may require some assistance on your part, and the introduction of dental floss into oral hygiene habits is recommended. Particular attention is required for the first permanent molars, given their position.

Loss of primary teeth

The loss of primary teeth is an important milestone in your child's life. It can create a variety of emotions.

Since the first teeth to fall out are the incisors, it's hard to go unnoticed. But it's not uncommon to forget that at age 10 or 11, sudden discomfort or pressure pain can be caused by the loss of back teeth.

Although they're ready to give way to the new permanent teeth, sometimes the primary teeth don't want to leave your child's mouth. Encourage your child to play with teeth that are mobile, moving them around and eating hard foods like carrots or apples. This will stimulate the tissues of the mouth and gradually loosen the skin and ligaments that often hold teeth in place.

Frequently, the permanent incisors grow in a second row, so-called "shark teeth". This is usually not serious, but a visit to the dentist may be required if you are concerned.

Permanent dentition (adult teeth)

Total number of teeth

The permanent dentition has a total of 32 teeth, including wisdom teeth.

Here is the composition of this dentition:

- 8 central and lateral incisor teeth;
- 4 canines;
- 8 premolars;
- 12 molars.

This dentition will be in the mouth from the age of 12 or 13. The first adult teeth will appear at 6-7 years of age, forming the mixed dentition, since some primary teeth will still be present until the last primary tooth is lost at around 12 years of age.

Daily functions

The permanent dentition contributes to several essential functions:

- Feeding: eating solids without constraints;
- Elocution: speaking properly (the position of teeth or the absence of certain teeth can influence the way we pronounce certain sounds);
- Proper functioning of the digestive system (properly ground food).
- Self-confidence, pride and self-esteem.

Eruption calendar for permanent teeth

- Central incisors: between 7 and 8 years of age.
- Lateral incisors: between 7 and 9 years.
- Canines: between ages 9 and 12.
- 1st molars: between 6 and 7 years.
- 2nd molars: between ages 12 and 13.
- 3rd molars: between 17 and 21.

Tooth hardness thanks to enamel

Enamel is the strongest and hardest part of the human body. On the Mohs hardness scale, tooth enamel reaches 5, while glass or ordinary steel reach 5.5 and diamond, 10.

Since enamel is resistant even to the destructive effects of fire, it is not uncommon for forensic scientists to use it for identification purposes. However, enamel remains sensitive to food acids and plaque bacteria. Enamel must be protected from these by plaque removal through brushing and a healthy diet.

Historical role

Throughout history, the careful examination of teeth has revealed valuable information about their host. Teeth have provided information on species identification, age, social rank and even cause of death, in both humans and animals. For example, DNA analysis of teeth has made it possible
to identify causes of death such as plague, typhus and poisoning.

Tooth eruption

Normal tooth eruption

Here are a few facts about tooth eruption in humans:

- The human dentition comprises a temporary dentition (also called primary dentition or “baby teeth”) and a permanent dentition (commonly called “adult teeth”).
- There are 20 temporary or baby teeth, erupting from ± 6-10 months of age for the lower jaw, and 7-12 months for the upper jaw, until ± 30 months of age.
- Permanent teeth appear between ± 6 and 13 years of age and comprise 28 teeth (32 with wisdom teeth).
- Girls often develop their teeth faster than boys.
- There may be delays between the eruption of the same tooth on either side of the dental arch. **If the delay is more than 6 months, talk to your dentist.**
- Primary dentition is completed between the second and third years, and some primary teeth remain in the mouth until around age 12.

The process of tooth formation and eruption

Tooth eruption is a biological and physiological process that is dynamic and complex. This process takes place over a period of several years. It includes the formation of teeth, their migration into the jaws and their exit from the mouth in their final functional position.

- Tooth eruption involves a transition between 2 types of dentition: the temporary (primary) dentition and the permanent (definitive) dentition.
- It is intimately linked to the development and growth of children, and involves bone and soft tissue (gums) in the environment of the teeth, as well as tissue modifications such as the resorption of the roots of temporary teeth to make way for permanent teeth.
- Eruption is a localized, symmetrical process, normally occurring simultaneously on both sides of the dental arch.
- The first stages of development occur at the embryonic level, ending some twenty years later with the eruption of the third permanent molars (wisdom teeth).
- Le processus de formation et d’éruption des dents est très complexe et plusieurs hypothèses tentent d’expliquer les mécanismes d’éruption sans toutefois les avoir élucidés complètement.

Chronology of normal tooth eruption

The period or age at which temporary and permanent teeth appear varies considerably, and can be linked to a number of factors:

- Gender: on average, girls erupt earlier than boys, with the exception of the first upper molar;
- Height: the literature reports a relationship between short stature and dental delay;
- Jaws: eruption is later in the maxilla than in the mandible;
- Posterior teeth: the last teeth in each group (third molars, second premolars) are the most frequently affected by delayed eruption;
- Dentition: delayed eruptions are rarer in temporary dentition than in permanent dentition;
- Ethnic origin: there are differences in tooth eruption dates between populations. For example, people of European origin erupt later;
- Climate: warmer climates seem to favour faster or earlier tooth eruption;
- Socioeconomic conditions: children from disadvantaged social backgrounds may show later tooth development and eruption;
- Degree of urbanization: eruptions are more rapid in urban areas than in the countryside;
- Phylogenetic evolution: our modern population has more eruption problems with wisdom teeth (third molars) and upper canines. Researchers attribute this phenomenon to human evolution and the lack of jaw development linked to changes in the eating habits of Western populations;
- Family rank: the onset of eruption is later in the youngest members of a family than in the eldest.