

Teething

Cutting, or tooth eruption, is a process where the teeth from the jawbones and gums penetrate into the oral cavity and are positioned in their final position. Immediately before cutting, the crown of the tooth is formed, the root is opened wide and gradually grows in length. Root development is not complete until several months after pruning.

The site of tooth eruption is often reddened, swollen and painful just before cutting into the oral cavity. After that, a white tip of the crown of the tooth appears under the epithelium, which perforates the epithelium. The pericorony sac disappears. After the tooth erupts, the periodontium and cementum are formed. ^[1]

Cutting of temporary teeth (dentes decidui)

The time point of tooth eruption is variable, genetic, nutritional factors or general illnesses of the child have an influence. The temporary dentition is cut from approximately 6 to 30 months of age. There are usually no significant time differences between the sexes for the eruption of the temporary dentition. During this period, the first physiological increase in bite occurs.

Types of temporary dentition

- **With spaces** – the tiny spaces between all the teeth are called tremata. This condition provides enough space for the permanent dentition and there is less risk of crowding of the permanent dentition.
- **With anthropoid spaces** – in the upper jaw between II and III, in the lower jaw between III and IV.
- **Without spaces** – reduction type.

Eruption of temporary teeth (average times according to Lysell)^[2]

Maxilla		I	II			IV		III					V
Bottom jaw	I			II		IV		III				V	
Child's age (months)	8	10		13		16		19				27	29

Time ranges^[3]:

- Middle incisors 6-11 months
- Small incisors 8-16 months
- First molars 14-18 months
- Canines 16-22 months
- Second molars 22-32 months

Mixed dentition

While the temporary dentition remains in the mouth, the germs of the permanent teeth stored in the alveolar ridges are mineralized. In small jaws, the germs of the permanent incisors are orally behind the roots of the temporary ones arranged in a stage-like manner, or they may be in rotation, this condition is corrected with the growth of the jaw, sometimes it can be preserved even after cutting. The upper large incisors mineralize closest to the temporary teeth, which leads to complications in the case of injuries to the temporary upper incisors, when the germs of the permanent teeth are also damaged. The upper canine has the longest eruption path, which in combination with a crowded dentition (or other obstacle in the path) is a frequent cause of its ectopic eruption or retention.



Alveolus before the eruption of the first teeth



Upper temporary denture



Temporary denture



The first phase of change – eruption of incisors

GIRLS													
Maxilla	6			1		2			4			5 3	7
Bottom jaw	6	1		2					3	4	5		7
Child's age (years)	6		7		8		9		10		11		12
BOYS													
Maxilla	6			1		2				4	5		3
Bottom jaw	6	1		2							3 4	5	7
Child's age (years)	6		7		8		9		10		11		12

The difference in the eruption of the same tooth in the right and left half of the jaw should not exceed half a year, a longer interval indicates an anomaly that needs further investigation.

Early mixed dentition

The period of early mixed dentition begins with the cutting of the first lower molar or the replacement of the lower incisor. This period is associated with growth acceleration and a second physiological increase in bite occurs. Temporary canines and temporary molars serve as a support zone. Correct intercuspitation of the upper and lower first molars is important. The mesiobuccal cusp of the upper 6 fits between the mesiobuccal and disobuccal cusp of the lower 6 = so-called normoocclusion. In the early mixed dentition, morphological arrangements may appear temporarily, which can be confused with orthodontic anomalies - temporary crowding of the lower incisors, temporary diastema between the upper large incisors, physiologically deep bite, "bump-to-bump" intercuspitation of the first permanent molars.

Late mixed dentition

The second stage of tooth replacement is preceded by a 1-2 year pause in dentition development. Then the premolars, permanent canines and permanent second molars erupt.

- In the upper jaw, there are 2 physiological variants of the cutting sequence: 4→**5**→**3**→7 or 4→**3**→**5**→7.
- In the lower jaw **3**→**4**→5→7 or **4**→**3**→5→7.

This is where various orthodontic anomalies occur most often due to lack of space. At the same time, there is a third physiological increase in the bite during the eruption of the lower canines.

Permanent teeth (Dentes permanentes)

Complete - permanent teeth 1-7 or **incomplete** in each half of the jaw. The existence of third molars is individual, they are established by the age of 14 at the latest (can be recognized from an X-ray).

Links

related articles

- Development of teeth
- Teething mnemonic

Reference

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2. KAMÍNEK, Milan a Marie ŠTEFKOVÁ. *Ortodoncie. I. [Kamínek - Štefková, 2001]*. 1. vydání. Olomouc : Univerzita Palackého, 2001. ISBN 80-244-0204-1.
3. ŠUBRTOVÁ, Irena. *vybrané kapitoly z ortodoncie*. 1. vydání. Praha : Karolinum, 1993. 164 s. ISBN 80-7066-726-5.

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