

Manual for
Dental Prophylaxis Specialists



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**Secours Dentaire
International**

Dental-Aid International

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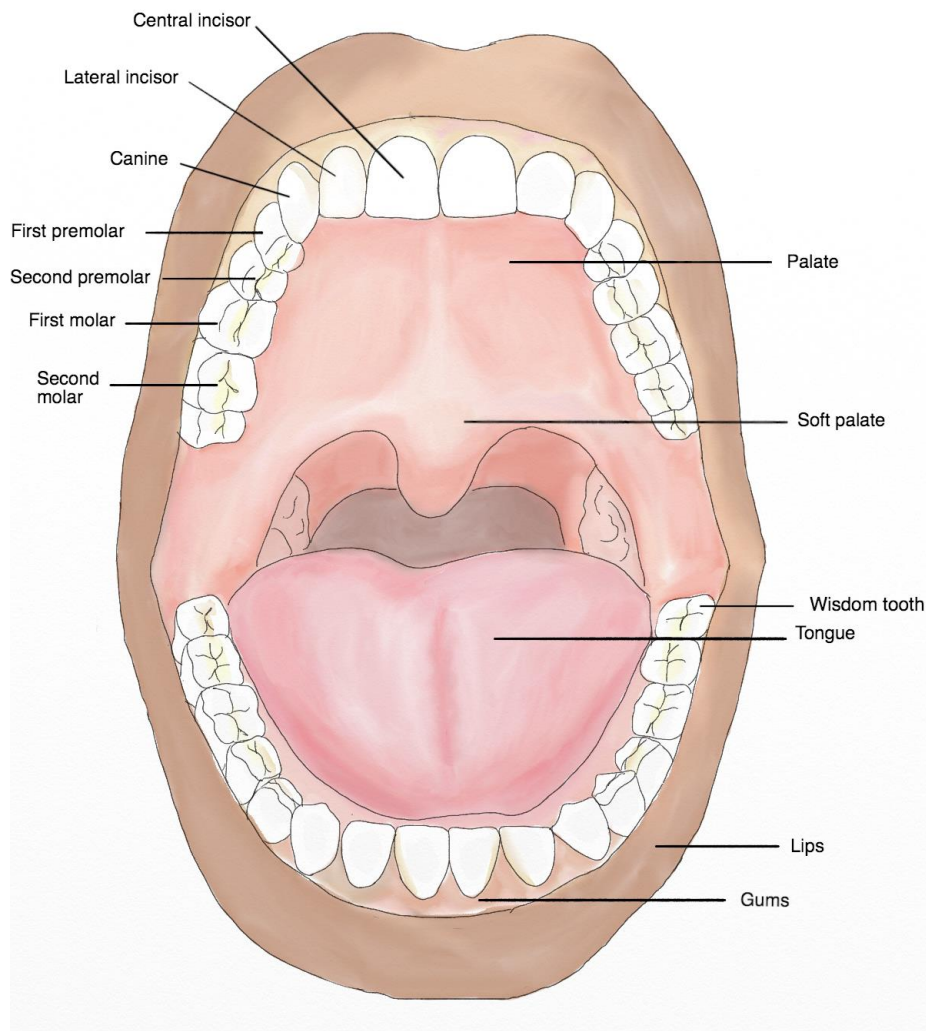
1. Anatomy and Function of the Oral Cavity and Teeth

1.1 Function of the Oral Cavity

The oral cavity has many different functions such as

- speaking
- chewing
- swallowing
- breathing

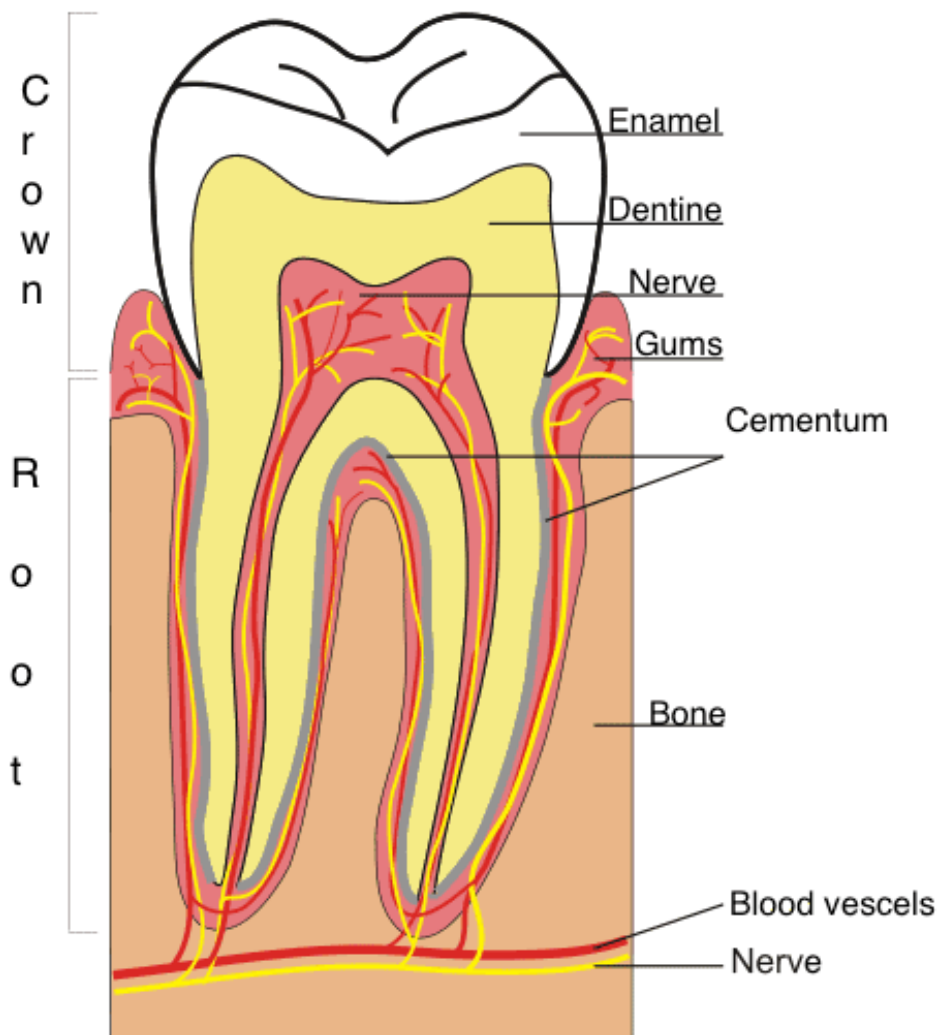
All of these functions are very important for good health. The teeth play an important role to sustain these functions. This is why it is so important to preserve good oral health with good oral hygiene and prophylaxis.



Anatomy of the oral cavity

1.2 Anatomy of the Tooth

Every tooth consists of different tissues:



Dental Crown

Visible part of the tooth above the gums. The crown is covered with enamel.

Dental root

Part of the tooth below the crown. Normally the dental root is not visible but covered by the gums and is attached to the bone.

Enamel

Hard layer covering the exposed part of the tooth (=covering the Crown). Enamel is much harder than Dentin.

Dentin

Part of the tooth below the enamel in the crown and below the cementum in the dental root.

Cementum

Layer on the root covering the dentin.

Nerve/ Dental pulp

In the middle of the tooth you can find the dental pulp. The dental pulp consists of the dental nerve and blood vessels. The dental nerve is the reason why we can feel pain if we have a problem with the tooth, like tooth decay.

Bone

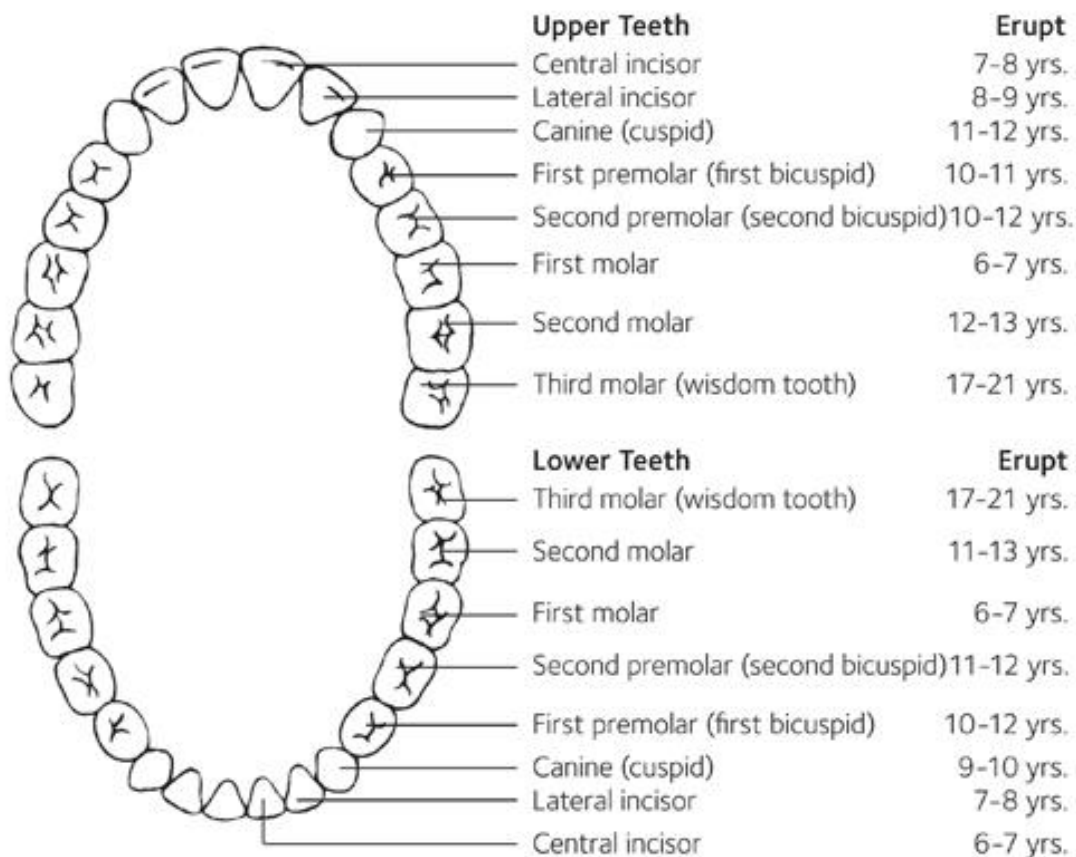
The teeth are attached to the bone in the upper and lower jaw.

1.3 Permanent Teeth / Secondary Teeth

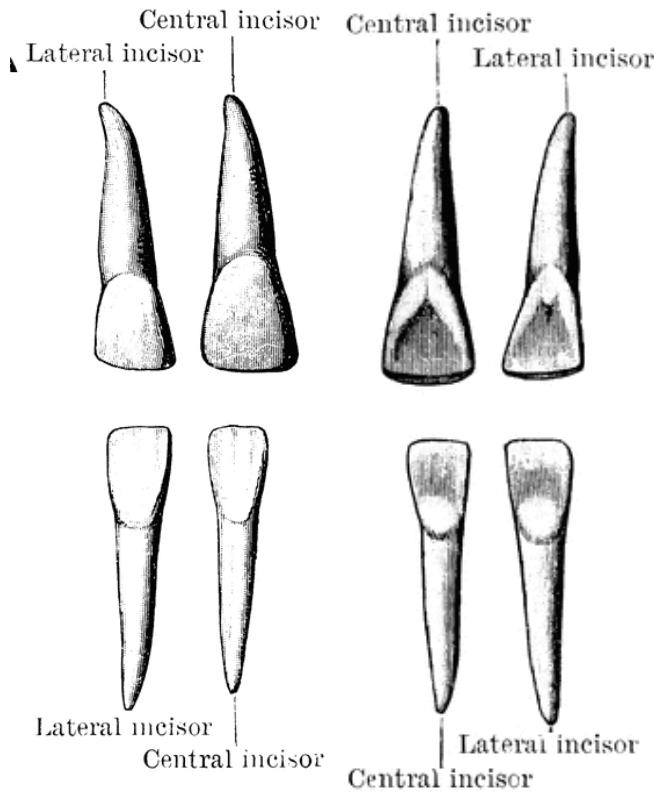
The permanent teeth are the adult set of teeth. They erupt between the 6th and 13th year of life. Because these teeth are permanent we have to take very special care of them throughout our whole life.

The normal permanent dentition consists of the following 32 teeth:

Incisors	<ul style="list-style-type: none"> •4 central incisors (2 lower and 2 upper) •4 lateral incisors (2 lower and 2 upper)
Canines	<ul style="list-style-type: none"> •4 Canines (2 lower and 2 upper)
Premolars	<ul style="list-style-type: none"> •4 first premolars (2 lower and 2 upper) •4 second premolars (2 lower and 2 upper)
Molars	<ul style="list-style-type: none"> •4 first molars (2 lower and 2 upper) •4 second molars (2 lower and 2 upper) •4 wisdom teeth (2 lower and 2 upper)



1.3.1 Incisors

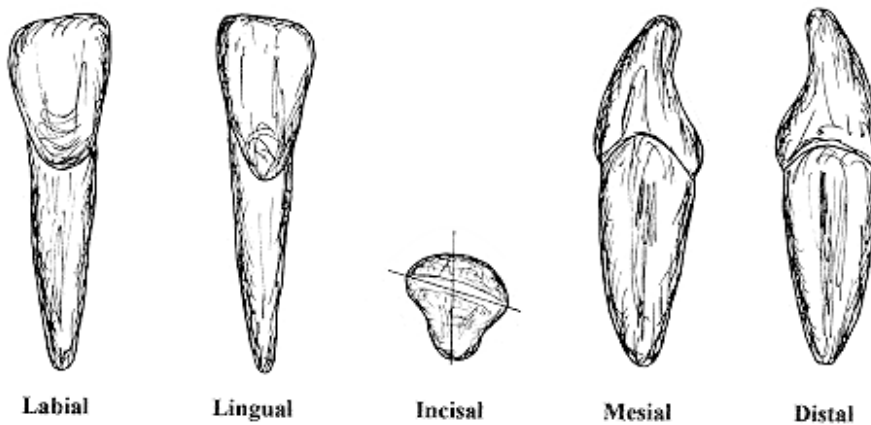


The 4 central and the 4 lateral incisors are our front teeth. They have sharp cutting edges to bite off food

upper incisors

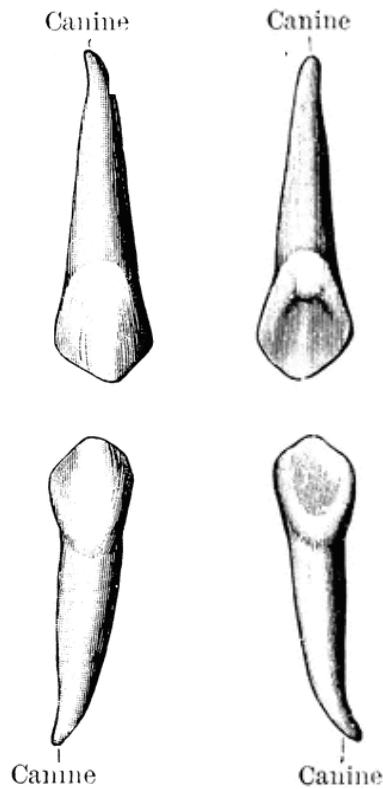


lower incisors

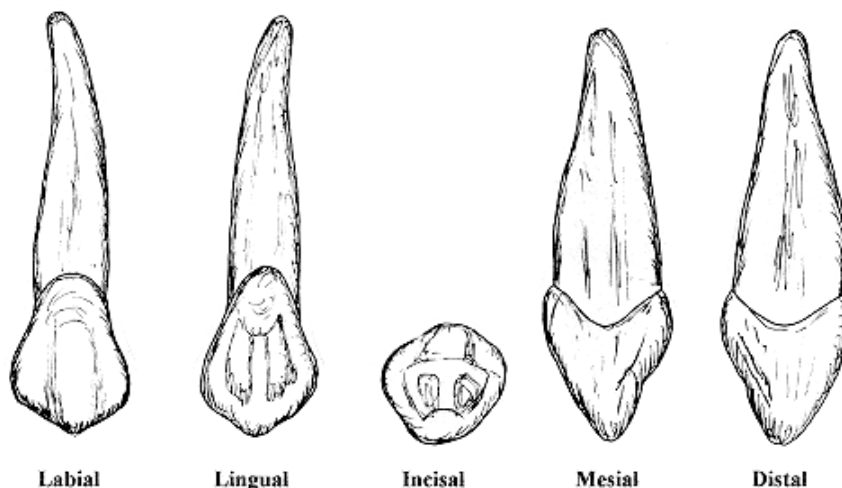
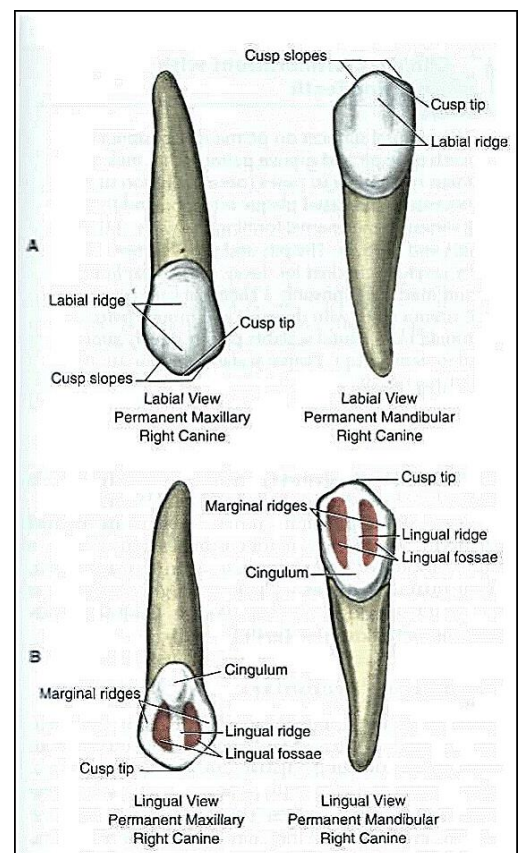


Mandibular Right Permanent Lateral Incisor

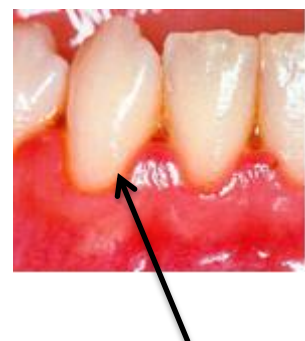
1.3.2 Canines



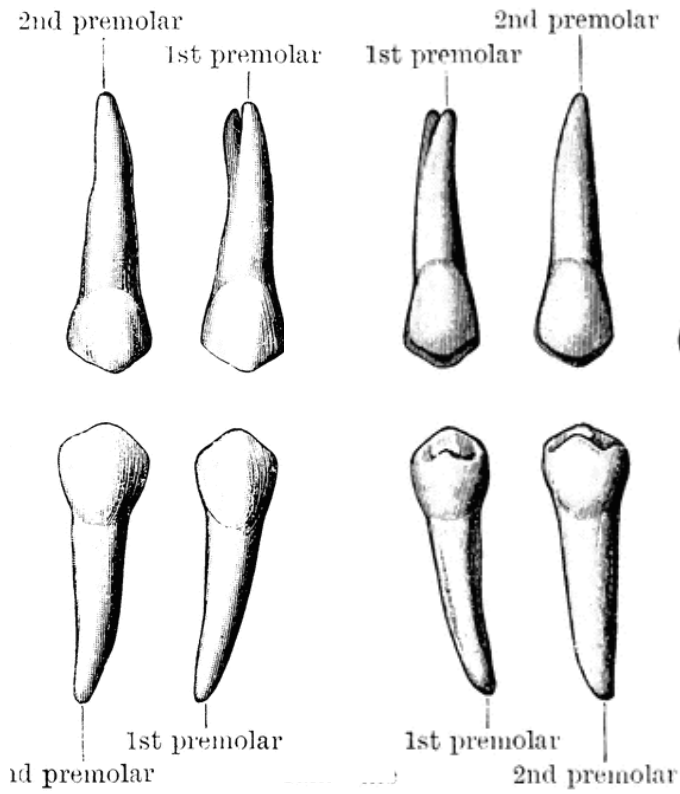
The 4 Canines are used to tear our food to pieces. They are the longest of our teeth. The canines are the corner teeth in the dental arch next to the lateral incisors. They are identified by a pointed cusp for tearing food.



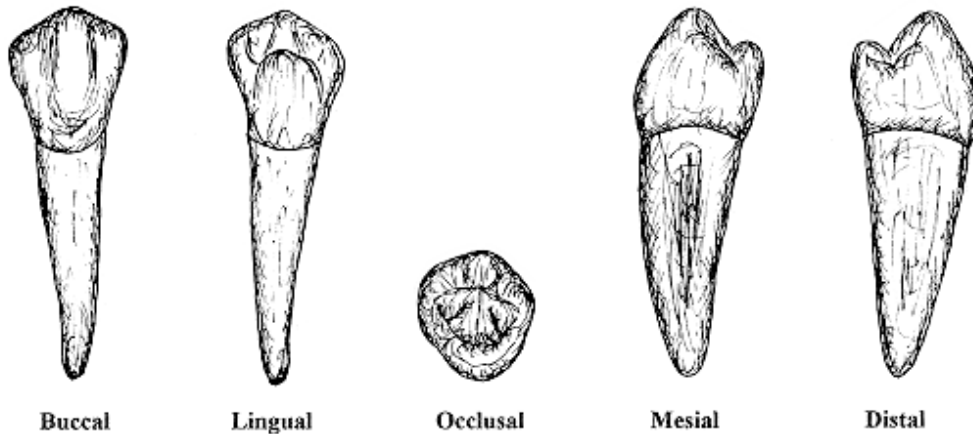
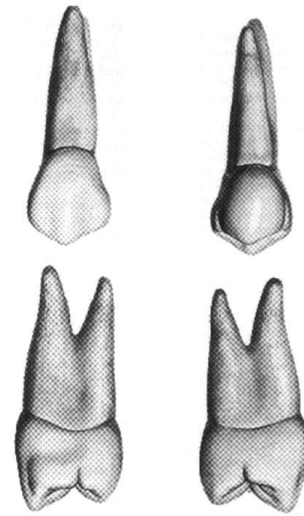
Maxillary Right Permanent Canine



1.3.3 Premolars



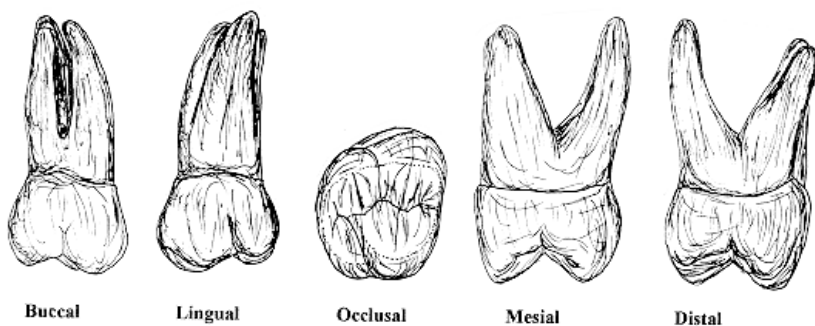
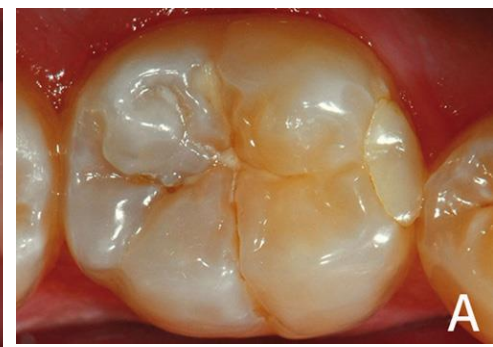
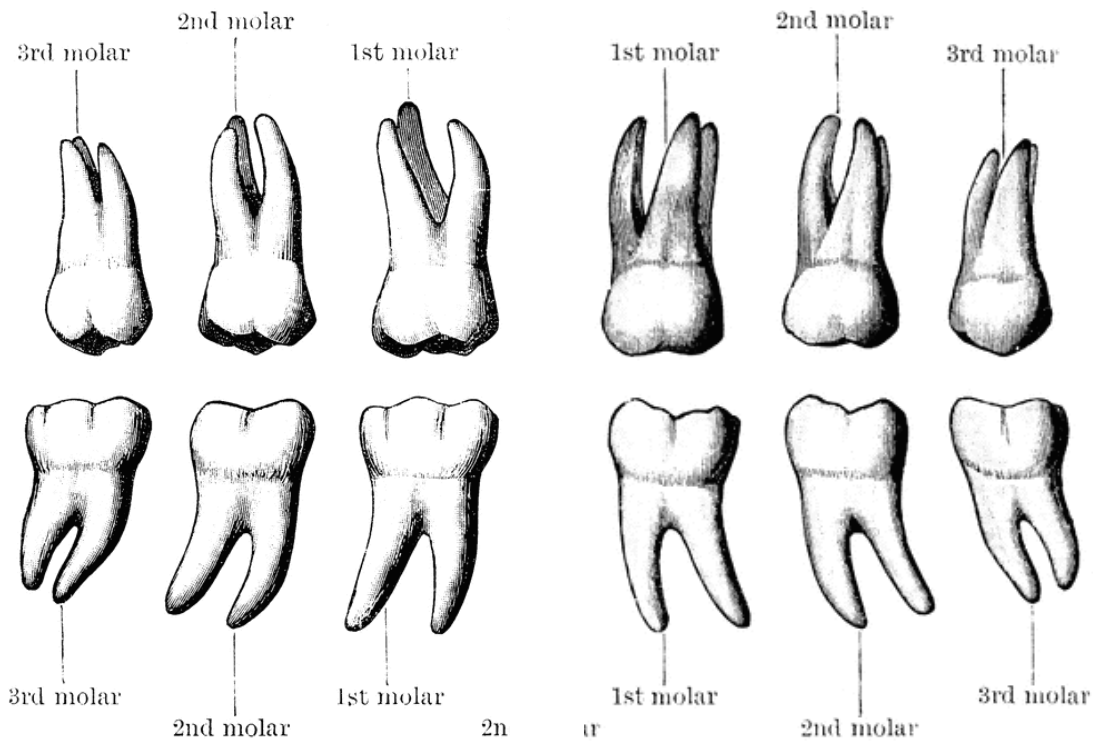
The premolars are the teeth just behind the canines. They have 2 cusps or points. We use them to chop up our food.



Mandibular Right First Premolar

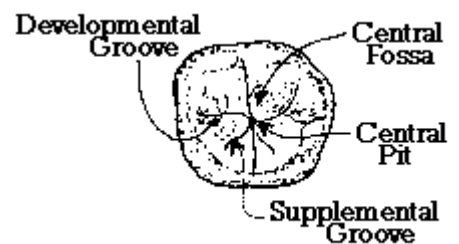
1.3.4 Molars

The molars are the teeth just behind the premolars. They have 4 or 5 cusps. The cusps are separated by fissures (=hairlines). These fissures can be very deep and this is why they often get decayed. We use the molars to chew and grind our food.



Buccal Lingual Occlusal Mesial Distal

Maxillary Right Second Permanent Molar

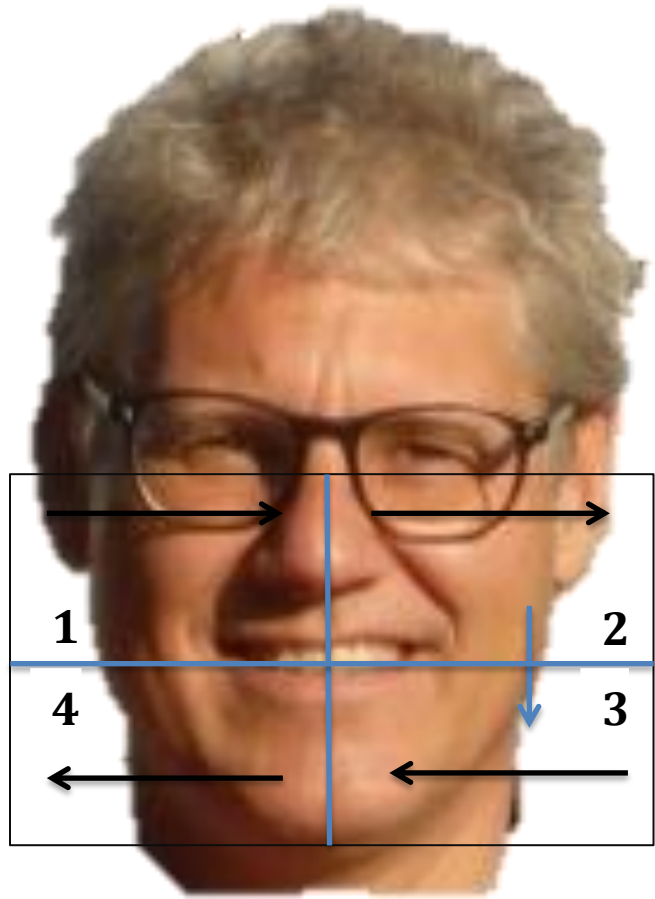


1.3.5 The dental arch

The dental arch are divided anatomically into the upper left and right and the lower left and right quadrants.

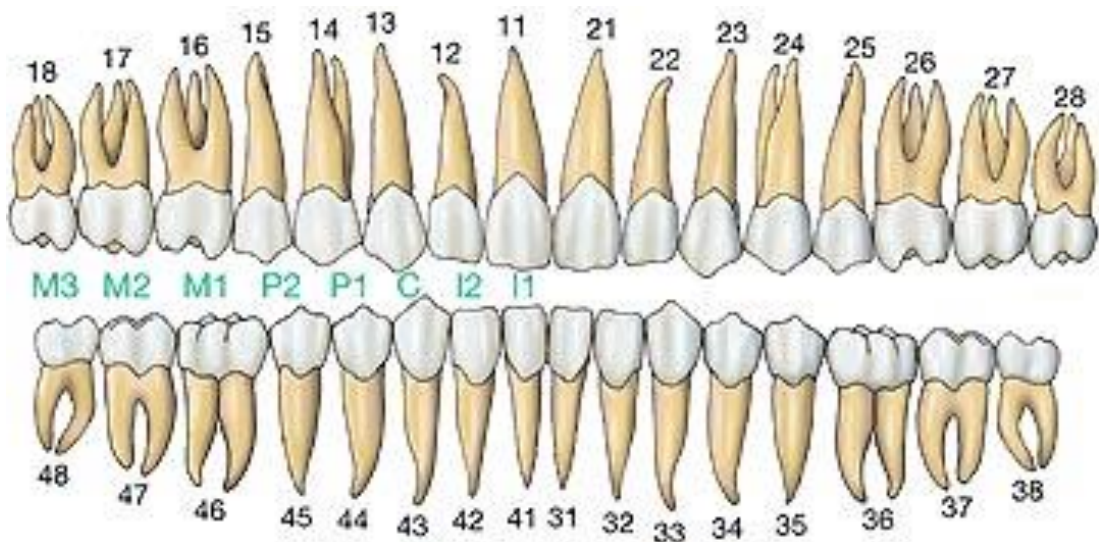
- Upper **right** quadrant = Nr. 1
- Upper **left** quadrant = Nr. 2
- Lower **left** quadrant = Nr. 3
- Lower **right** quadrant = Nr. 4

How to count the 4 quadrants:



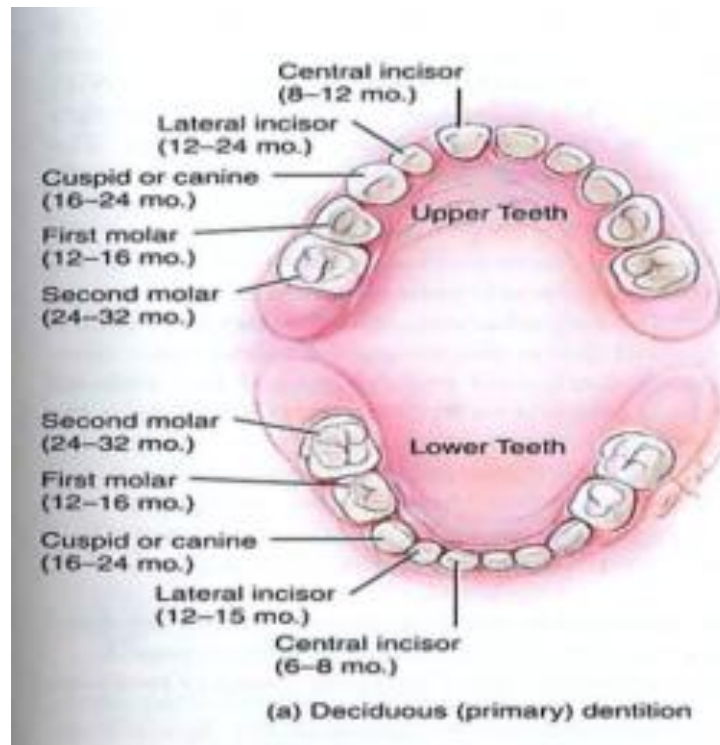
Right side of the face

Left side of the face



1.4 Baby Teeth

The baby teeth are also called primary or temporary teeth. They fall out in childhood and are replaced by the permanent teeth.



Incisors

- 4 central incisors (2 upper and 2 lower)
- 4 lateral incisors (2 upper and 2 lower)

Canines

- 4 canines (2 upper and 2 lower)

Molars

- 4 first molars (2 upper and 2 lower)
- 4 second molars (2 upper and 2 lower)

Note: there are NO BABY TEETH PREMOLARS

The baby teeth are similar to the permanent teeth, but there are a few important differences:

- baby teeth are **smaller** than permanent teeth
- baby teeth are **brighter** and **whiter** than permanent teeth
- normally there is **space/ gaps** between the baby teeth while permanent teeth normally don't have **space/ gaps** between the teeth.

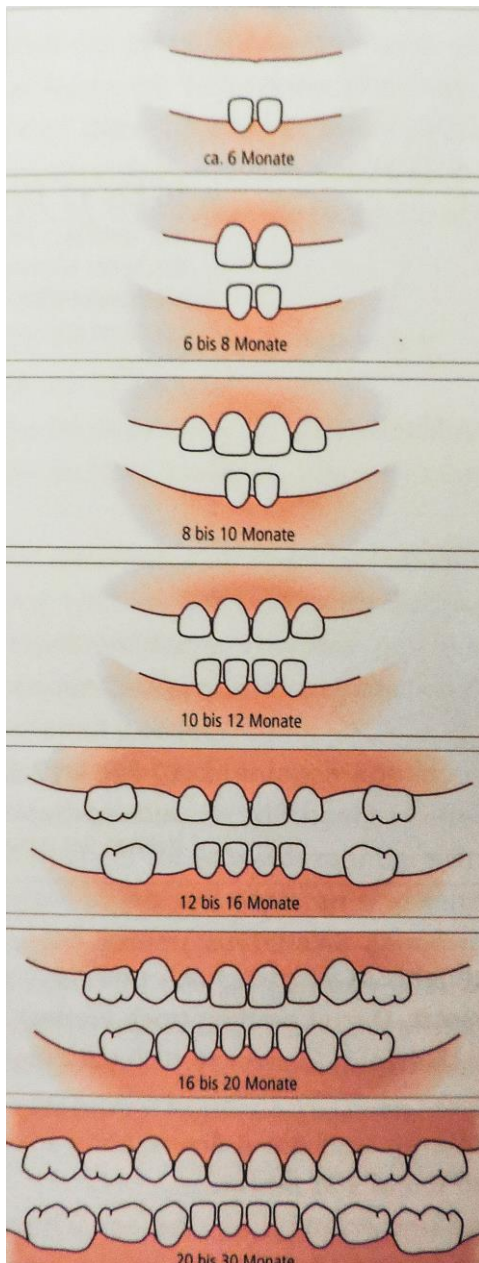
1.4.1 Teething of baby teeth

The process of eruption of the baby teeth is called teething. This process normally begins around the 6th month of life. Teething can cause some pain to the infant but is a normal and healthy process.

Note that the baby teeth dentition has no premolars. Instead of the premolars there are baby teeth molars.

Time of eruption of the baby teeth:

tooth	average age at time of eruption
1. upper and lower central incisors	6 to 8 months
2. upper and lower lateral incisors	8 to 12 months
3. upper and lower first molars	12 to 16 months
4. upper and lower canines	16 to 20 months
5. upper and lower second molars	20 to 30 months



about the age of 6 months

about the age of 6 to 8 months

about the age of 8 to 10 months

about the age of 10 to 12 months

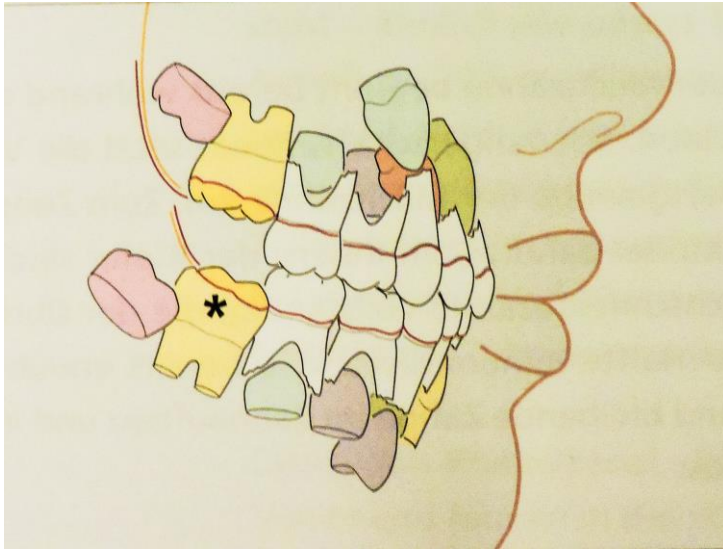
about the age of 12 to 16 months

about the age of 16 to 20 months

about the age of 20 to 30 months

1.5 Teething of permanent teeth and mixed dentition

The process of eruption of the permanent teeth is called teething or cutting of teeth. This process normally begins around the 6th year of life and ends around the 13th year of life. The only exception is the third molar, also called wisdom tooth. The wisdom tooth erupts later, normally somewhere between the 18th 25th year of life.



Age of 6

Eruption of the 4 first permanent molars (yellow) behind the baby teeth molars (white).

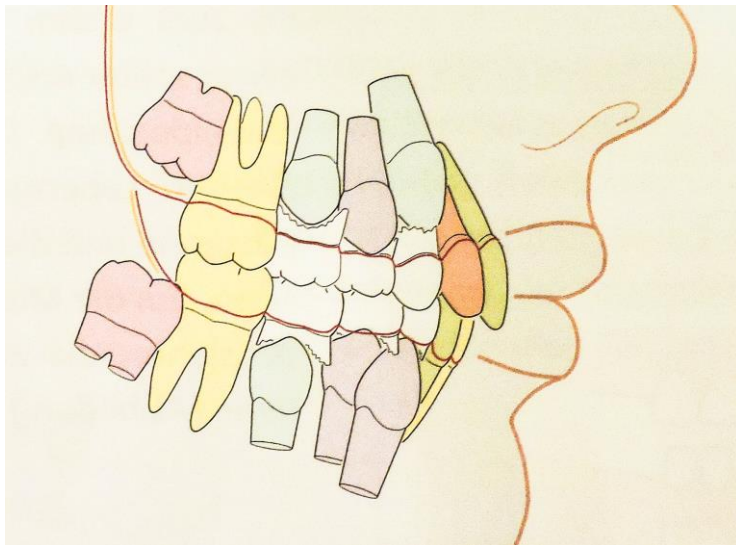
Eruption of the 2 lower central incisors (yellow)

Age of 7

Eruption of the two upper central and the two lower lateral incisors (green)

Age of 8

Eruption of the two upper lateral incisors (red)



Age of 10

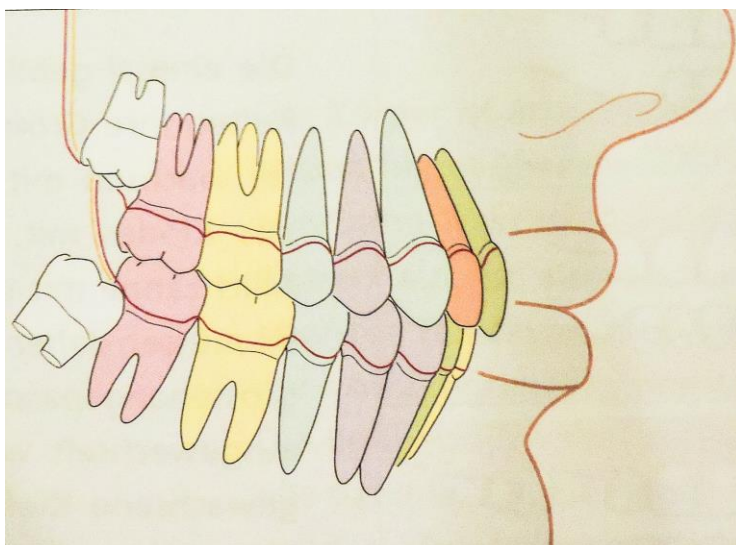
Eruption of the two lower canines and the 4 first premolars (purple)

Age of 11

Eruption of the 2 upper canines and the 4 second premolars (blue)

Age of 12

Eruption of the 4 second molars



Age of 18 to 25

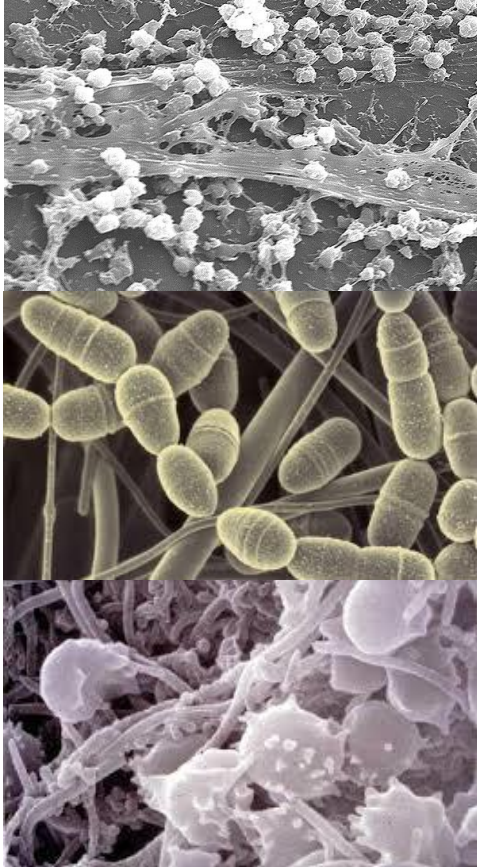
Eruption of the 4 wisdom teeth

The dentition between the age of 6 and 13 is called **mixed dentition** because there are baby teeth as well as permanent teeth.

2. Common oral diseases

2.1 Tooth Decay

2.1.1 Dental Plaque/ Bacteria



A healthy oral cavity is home to many bacteria. The bacteria live in our saliva, on our gums and on our teeth.

Bacteria form a layer on our teeth and this layer is called **dental plaque** (see the pictures on the left side).

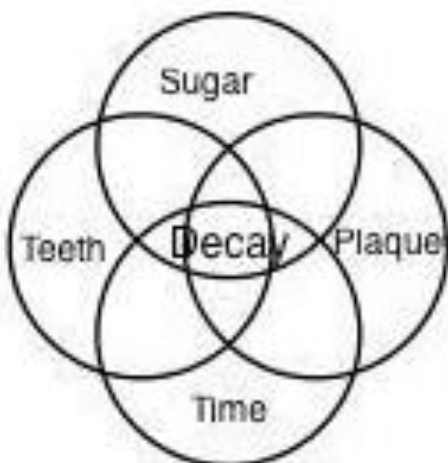
Normally, if we clean our teeth well, the bacteria that form the dental plaque on our teeth are no problem to us.

Every time we clean our teeth with the tooth brush, we remove the dental plaque (= the bacteria) from our teeth. The bacteria then have to start all over again to form a new layer and they can do no harm to our teeth.

If we don't clean our teeth properly and regularly, the bacteria begin to form thicker layers on our teeth. They use the sugar from the food we eat every day to produce acid.

The acid from the bacteria is very bad and aggressive to our teeth and causes dental decay.

To harm our teeth with dental decay, the bacteria not only need sugar but also time to produce enough acid:



So there are two things we can do to protect our teeth from tooth decay:

➤ **Clean the teeth very well and regularly**, at least 2 times a day, with the toothbrush. If you do so, the bacteria and the dental plaque will be removed from your teeth every day and the bacteria don't have the time to produce enough acid to harm your teeth.

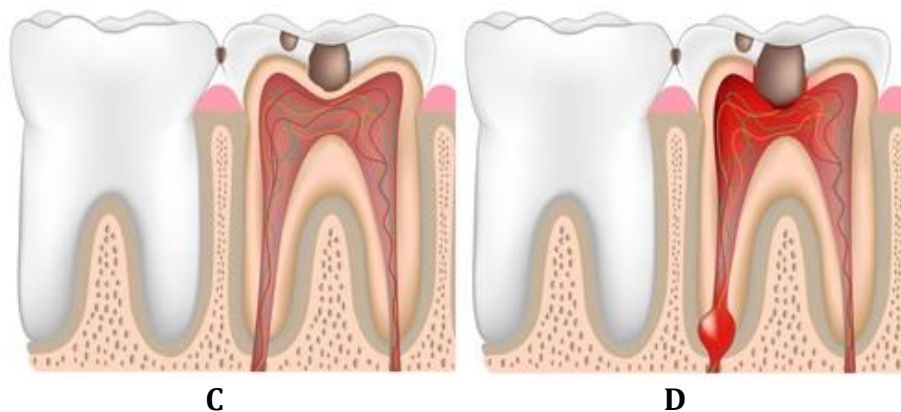
➤ **Eat and drink no or very few sugar**. If the bacteria don't have sugar, they can not produce acid and they cannot harm your teeth.

2.1.2 Effects of tooth decay

1. If we don't brush our teeth, the bacteria form a thick layer of dental plaque.
2. If we don't remove the bacterial layer soon enough, the bacteria will start to produce acid from the sugar in our food and drinks. (Picture A)
3. The acid starts to attack and harm the tooth surface = the enamel of the tooth. (Picture B)



4. If left unchecked and untreated, the tooth decay will penetrate the enamel and reach the dentin. The dentin is softer than the enamel and the tooth decay will spread very quickly. At this point, the tooth may already be sensitive or even hurt. (Picture C)
5. If still left unchecked and untreated, the tooth decay will pulp and reach the dental nerve. This will cause an inflammation of the dental nerve and will most likely hurt. (Picture D)



6. If still left unchecked and untreated, the inflammation will spread around the roots of the tooth and the tooth will be lost sooner or later

→ **Tooth decay will cause the loss of your teeth if left untreated**

2.1.3 Diagnosis - how does a tooth decay look like?



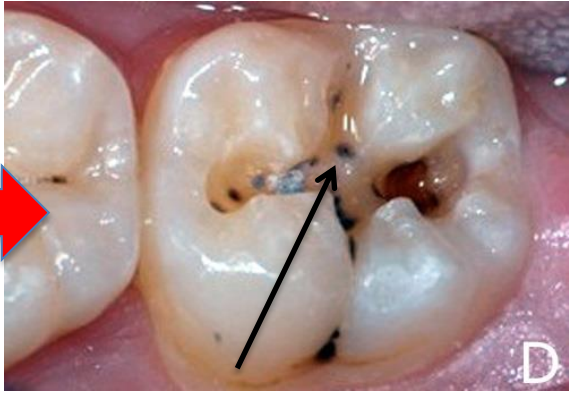
Molar with small tooth decay → filling



Molar fissures with tooth decay → filling



Molar fissures with tooth decay → filling



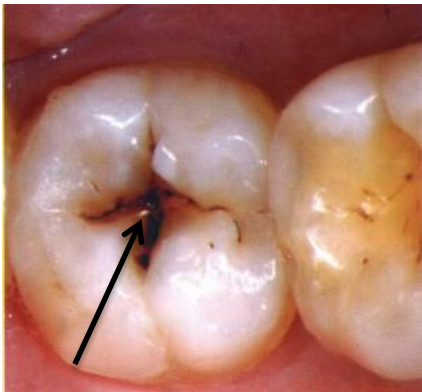
Dentist removed part of dental decay



Molar with big tooth decay → extraction



Molar with big tooth decay → extraction



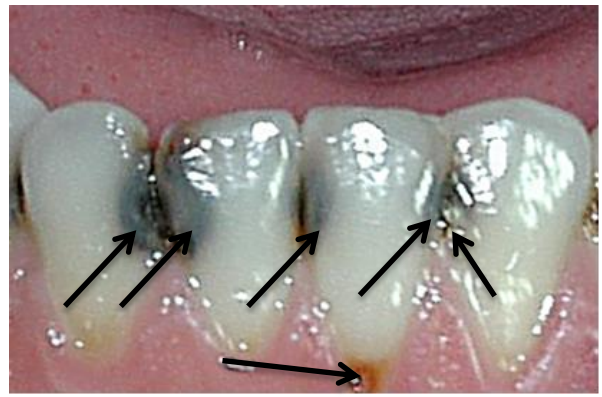
Molar fissures with tooth decay → filling



Molars with big tooth decay → extraction



Front teeth, canines and a molar with tooth decay → filling (molar) and extractions



Upper and lower incisors with tooth decay → fillings if possible



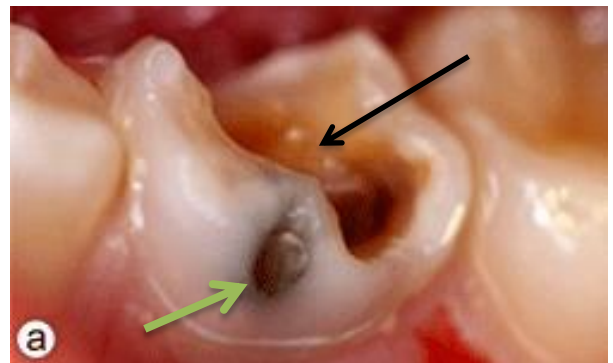
Molar fissures with tooth decay → filling



Premolar with small tooth decay → filling



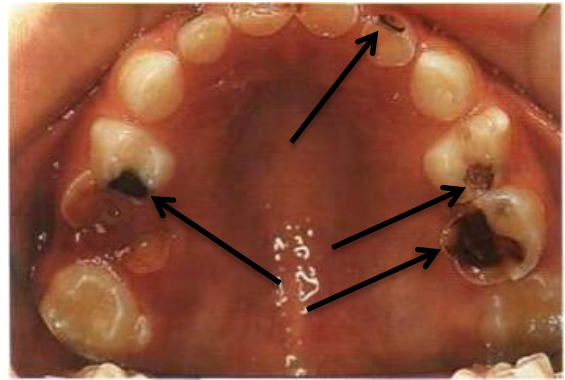
Premolar with big tooth decay → extraction



Molar with big tooth decay → extraction
old amalgam metal filling (green)



Molar with big tooth decay → extraction



Molar with big tooth decay, premolars and lateral incisor with small tooth decay → Extraction and fillings



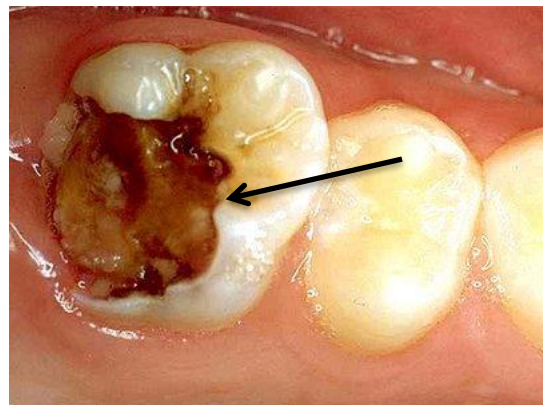
Premolar and canines with small tooth decay → filling
Molar with old amalgam metal filling (green)



Molar fissures with tooth decay → filling



Molar with small tooth decay → filling



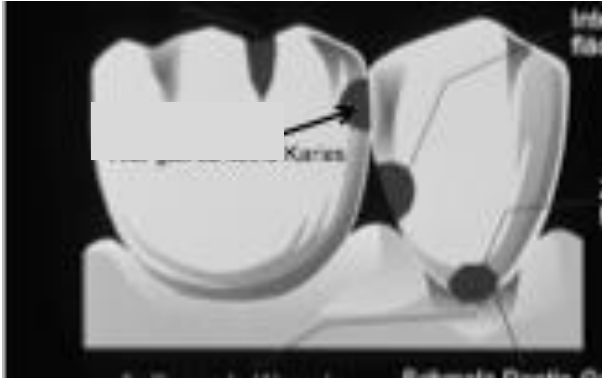
Molar with big tooth decay → extraction



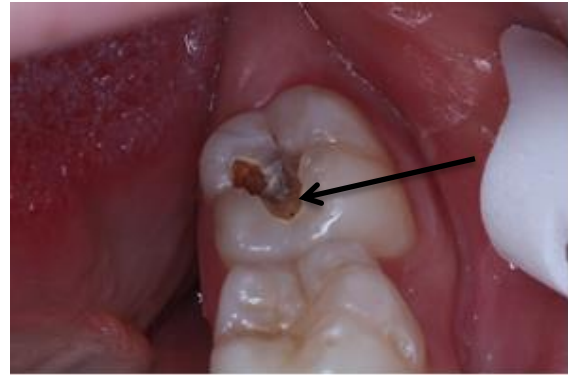
Molar with big tooth decay → extraction



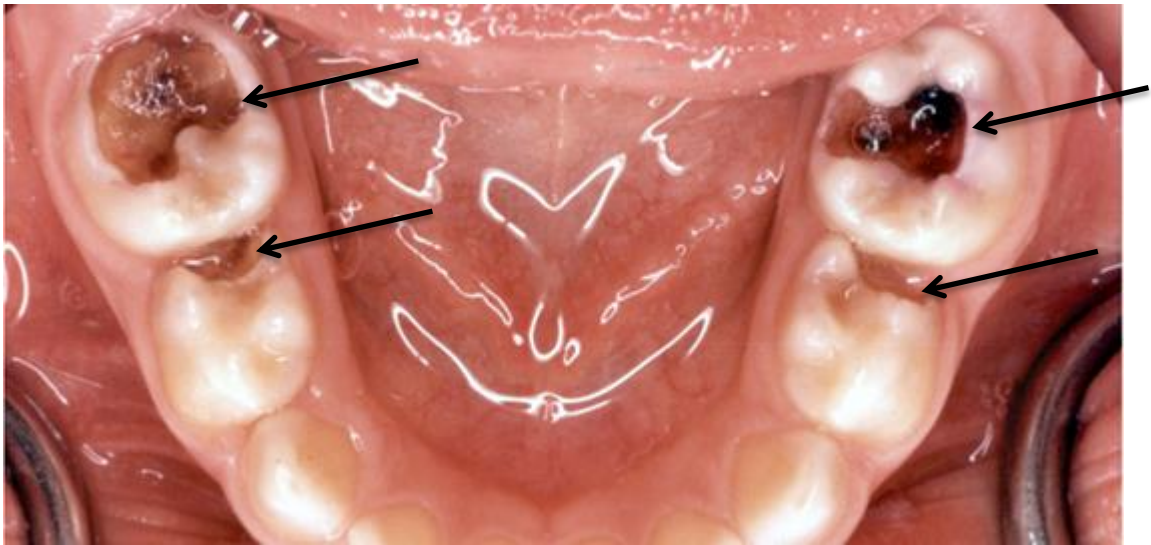
Molar fissures with tooth decay → filling



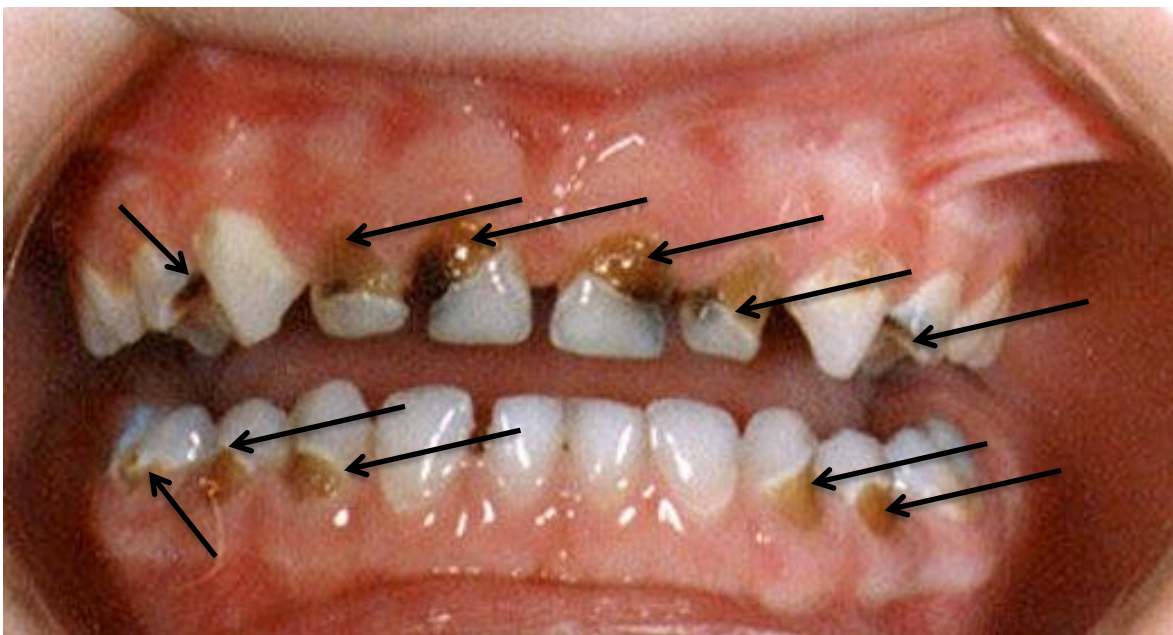
Typical locations of tooth decay



Molar with tooth decay → filling



Baby teeth molars with big and small tooth decay → no treatment for baby teeth if no pain; if pain → extraction



Baby teeth with a lot of big and small tooth decay → no treatment for baby teeth if no pain; if pain → extraction

2.2 Periodontitis

2.2.1 Bacteria and Calculus



If not removed, bacteria will form dental plaque on our teeth.

It is a normal process, that some of the bacteria die after time. Dead bacteria together with material from our saliva will form a hard material called calculus on the surface of our teeth.

Calculus has a very rough surface and more bacteria will attach to it.



Bacteria not only cause tooth decay, but also harm our gums:

The bacteria living on the calculus will irritate the gums and cause an inflammation around the tooth.



The calculus on our teeth should be removed at least once an year if possible to prevent inflammation of the gums = gingivitis. Inflamed gums will look red and bleed very quickly if irritated or touched.

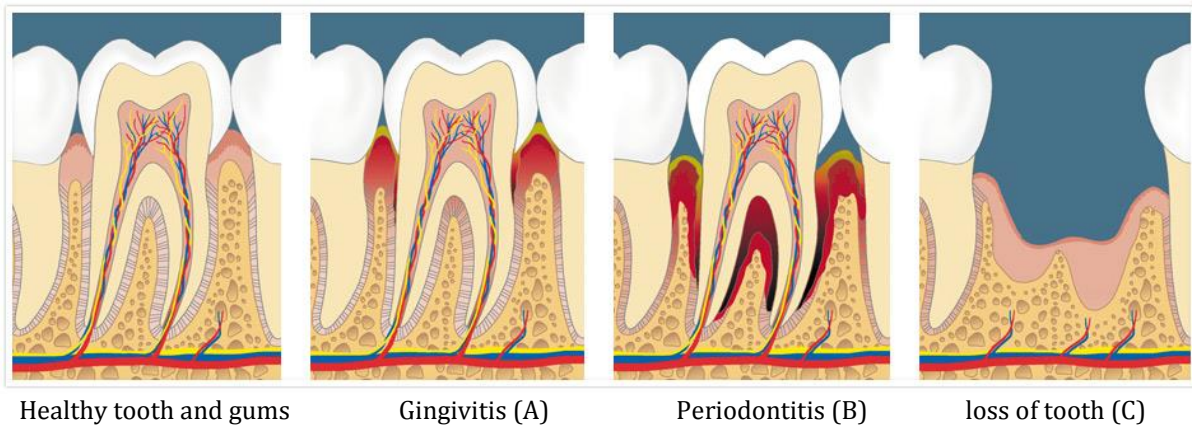
Note: the better you clean your teeth, the less calculus will form and your gums will be healthy.



Inflammmated gums = gingivitis

Removal of the calculus

2.2.2 Effects of inflamed gums/ gingivitis



1. If we don't brush our teeth properly and regularly, the bacteria form a thick layer of dental plaque.
2. Dead bacteria from the dental plaque together with materials from our saliva will form calculus on the surface of the tooth.
3. The bacteria on the rough surface of the calculus will irritate and cause an inflammation of the surrounding gums = **gingivitis**. This can hurt. (Picture A)
4. If the inflammation of the gums is left unchecked and untreated for a long time, it will also inflame the bone around the tooth = **periodontitis**. This can hurt. (Picture B)
5. If still unchecked and untreated, the inflamed bone around the tooth will be destroyed and the tooth will fall out. (Picture C)

➔ **Gingivitis and Periodontitis (Inflammation of your gums and bone) will cause the loss of your teeth if left untreated**



3. Prophylaxis and Oral Health

3.1 What is dental prophylaxis?

Dental prophylaxis means to prevent oral diseases (tooth decay and periodontitis). We try to do so by informing the people about:

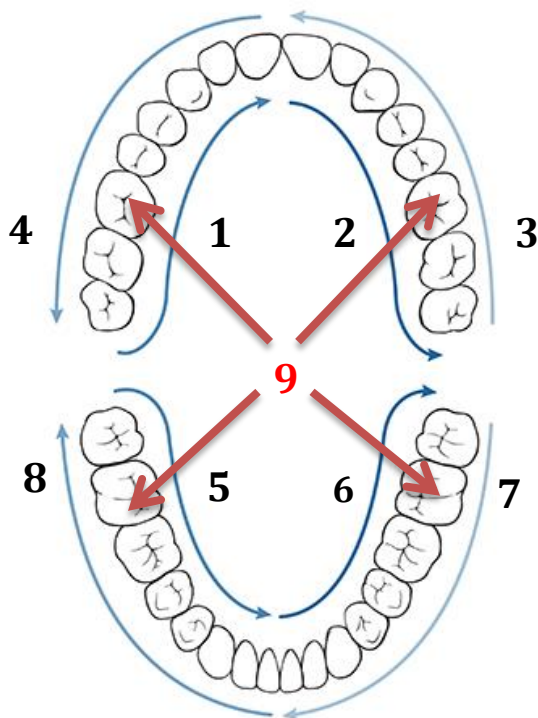
- What are the common oral diseases?
 - ➔ Tooth decay and periodontitis
- What are the reasons for tooth decay and periodontitis
 - ➔ Tooth decay: Bacteria/dental plaque, sugar, not enough cleaning the teeth,...
 - ➔ Periodontitis: Calculus, bacteria, inflammation,...
- How can we prevent tooth decay and periodontitis?
 - ➔ Tooth decay: Brush teeth very well and regularly, no sugar,...
 - ➔ Periodontitis: Brush teeth well and regularly, remove the calculus,...
- Which food and drinks are healthy for our teeth? Which food and drinks are unhealthy for our teeth?
 - ➔ Show the posters

3.2 Oral hygiene instruction – How to brush your teeth

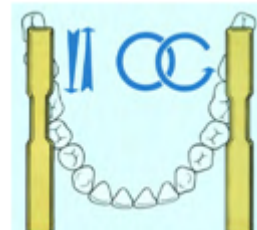
Note:

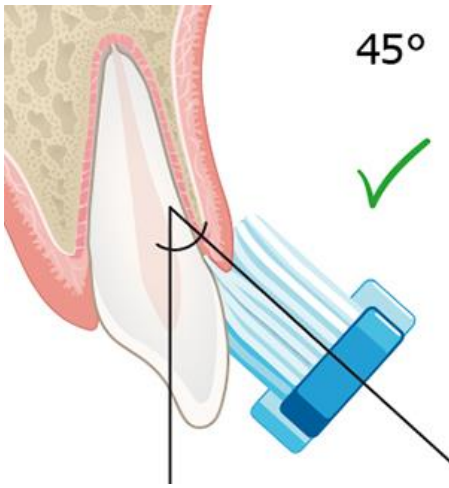
- Brush at least **2 times a day**, if possible 3 times
- **Brush AFTER the meals** -> brush after breakfast and after dinner, and if possible after lunch
- Brushing duration: **3 minutes** each time you brush
- Brush if possible with **toothpaste**. The toothpaste should have **fluorides** → fluorides are good for our teeth: fluorides protect the teeth and make them stronger!

Brushing technique:



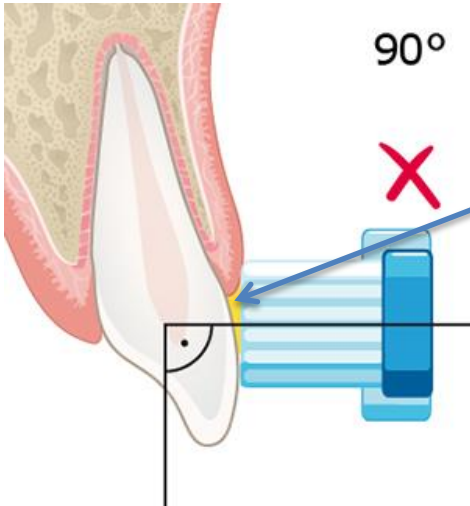
- Brush your teeth **systematically** so you don't forget any
- 1 and 2: start with the inside part of the upper teeth
- 3 and 4: continue with the outside part of the upper teeth
- 5 and 6: continue with the inside part of the lower teeth
- 7 and 8: continue with the outside part of the lower teeth
- 9: end with brushing on top of the teeth:





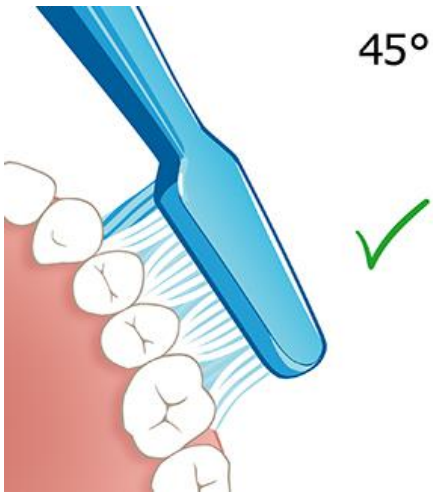
45°

- Hold the toothbrush towards the gums



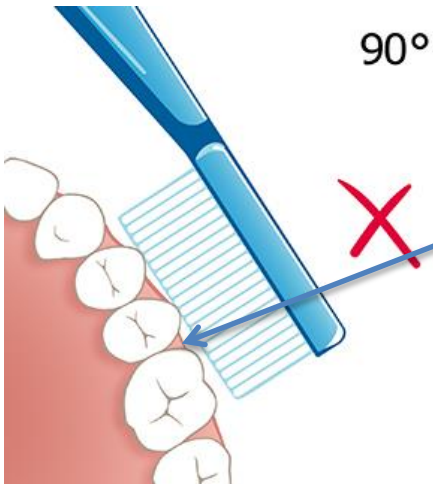
90°

- If you don't hold the toothbrush correctly towards the gums, you will not remove all the bacteria/dental plaque (yellow)



45°

- If you hold the toothbrush correctly against the gums, you will also reach the space between the teeth



90°

- If you don't hold your toothbrush correctly against the gums, you will not remove all the bacteria/dental plaque between the teeth

3.3 Prophylactic lesson

1. Preparations before the lesson:

- Organize school visit in advance / inform head teacher
- Inform class teachers / ask for number of children in the classes
- Inform teacher: **children have to bring their own toothbrush** / toothstick
- Prepare material:
 - Plastic teeth with big toothbrush
 - Flashlight and batteries
 - Posters and pictures (good food/ bad food/ how to brush/ tooth decay/ periodontitis)
 - A few gloves (in case children forget toothbrush)
 - Manual for dental prophylaxis specialists
 - Forms

2. Introduction:

- Hello
- Name
- Why I am here
 - Brushing teeth
 - Bad and good food / sugar
 - Diseases:
 - ➔ tooth decay
 - ➔ Periodontitis

3. Tooth decay:

- don't brush
- Bacteria layer
- Sugar
- Acid
- Harm teeth
- **Result: tooth decay**
- **Big decay → Nerv → Extraction**
- **How to prevent:**
 - **brush teeth**
 - **no sugar**
- **Treatment:**
 - **filling**
 - **extraction**

4. Food:

- Ask children
- explain poster/ picture (good food/ bad food)
- **Sugar**

5. Periodontitis:

- Bacteria
- Saliva
- Thick bacteria layer on teeth
- Calculus: bacteria + dead bacteria + saliva
- **Inflammation of the gums = Gingivitis**
 - **pain**
 - **bleeding**
- **Inflammation of the bone = Periodontitis**
 - **Bone reduce / destruction**
 - **losing of the tooth**
- How to prevent:
 - brush teeth
- Treatment:
 - remove calculus at the dentist

6. Brushing teeth:

- tell the children:
 - soft toothbrush
 - toothpaste with fluorides → strong teeth
 - brush 2-3 times a day for 3 minutes
 - small circles / towards the gums / don't press
- show the children:
 - Children take their own toothbrush
 - Show them how to brush
 - Children show other children
 - Questions
 - Control the children

7. Screening:

- SDI form / signatures
- Ask for a chair for the children to sit
- Flashlight
- Toothbrush of the children (they have to bring their own)
- If treatment needed: tell children to tell their parents → treatment at dental unit

8. Goodbye

9. After the school lesson:

- Get all the signatures (teacher, head teacher, person in response at dental unit)
- Put form into folder
- Fill out summary form
- Person in response at dental unit:
 - record summary forms into excel (computer)
 - Mail excel form to Dr. Markus Willi once a month