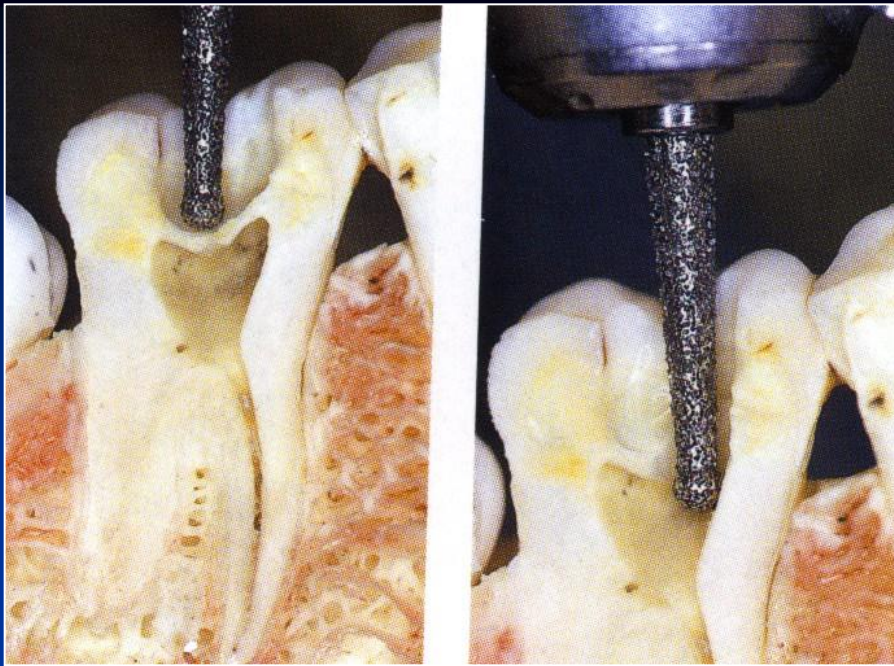


# Phases of the endodontic treatment

1. Diagnosis (patient's history, clinical examination, x-ray).
2. Consideration
3. Local anaesthesia
4. Removal of old fillings and caries, restoration of the tooth if necessary
5. Dry operating field
6. Access to the pulp chamber

# Phases of the endodontic treatment

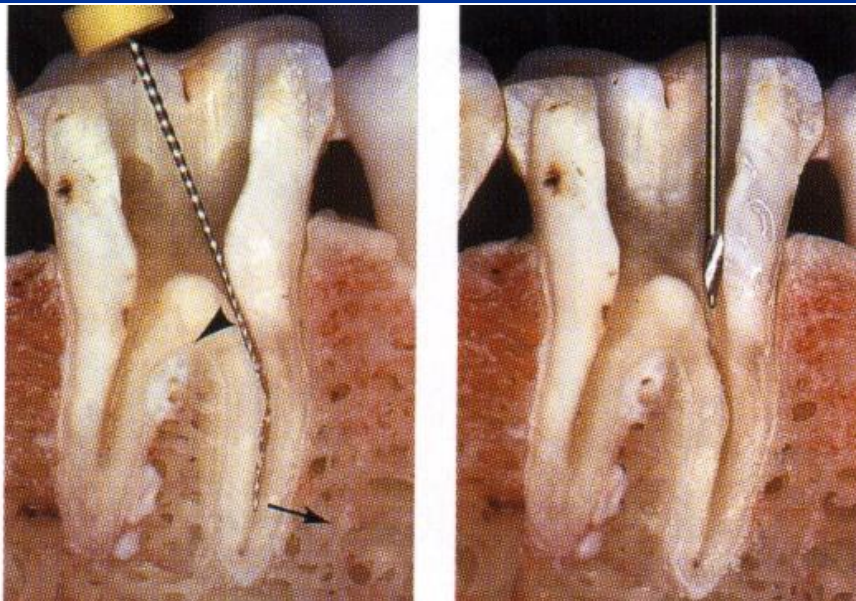
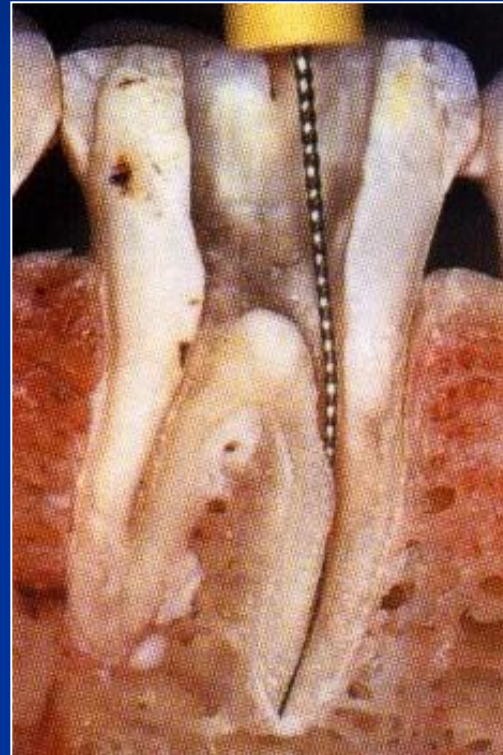
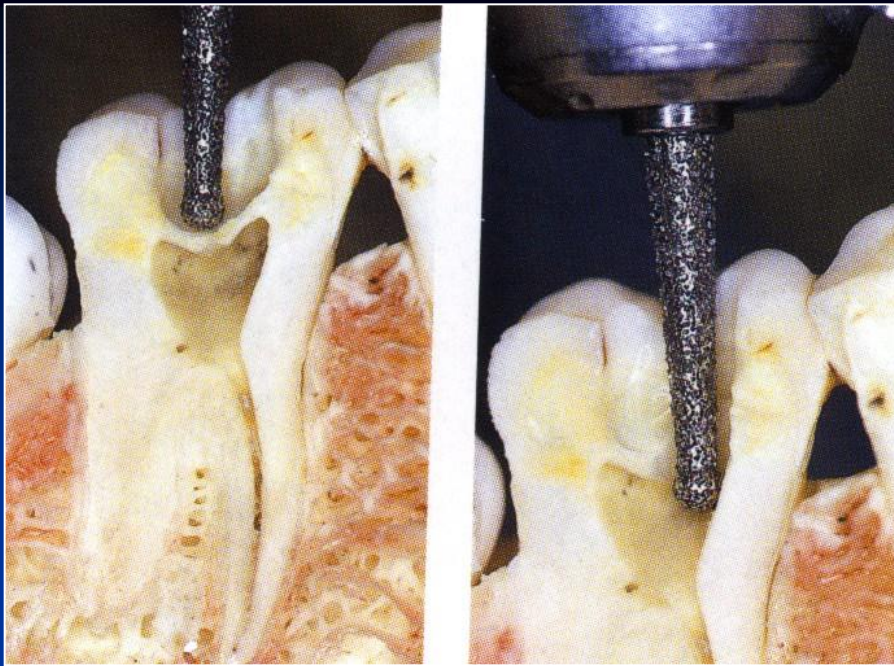
7. Opening of the root canals (coronal flaring)
8. Root canal shaping and cleaning (irrigation)
9. Root canal filling
10. X- ray
11. Restoration



# Access



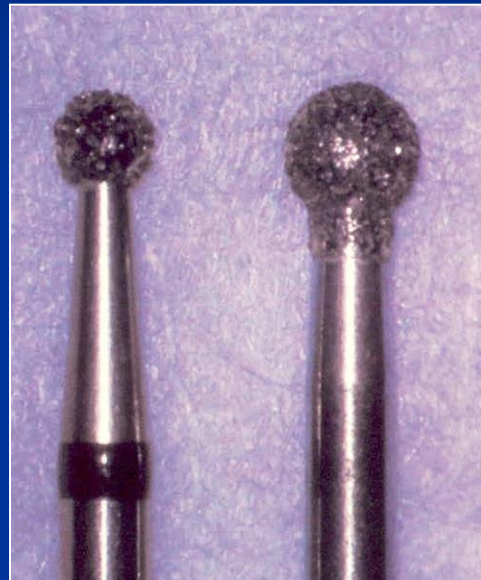
# Access



# Access – opening of the pulp chamber



Dia trepan



Dia balls



Round Burs



# Preparation of the endodontic cavity –facilitating form

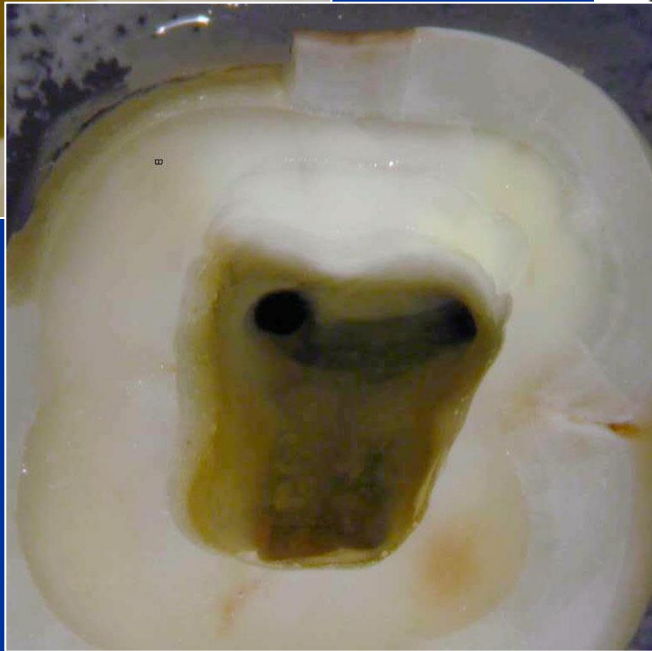
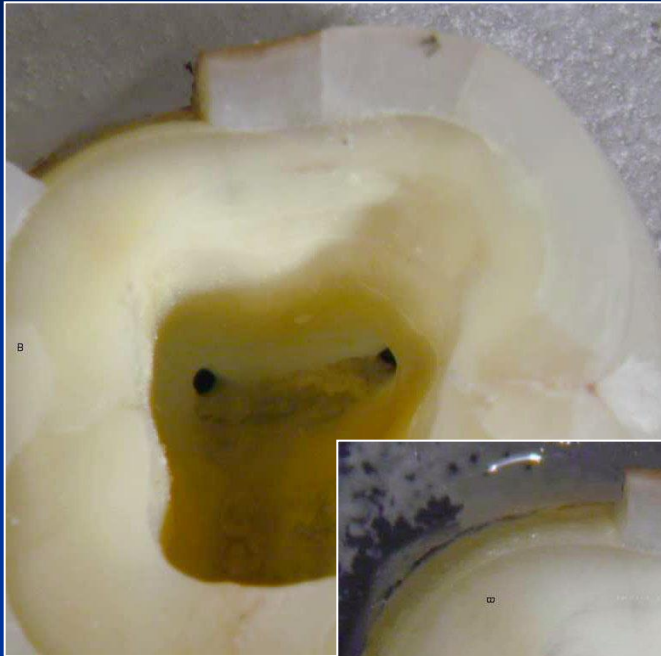


Dia trepan

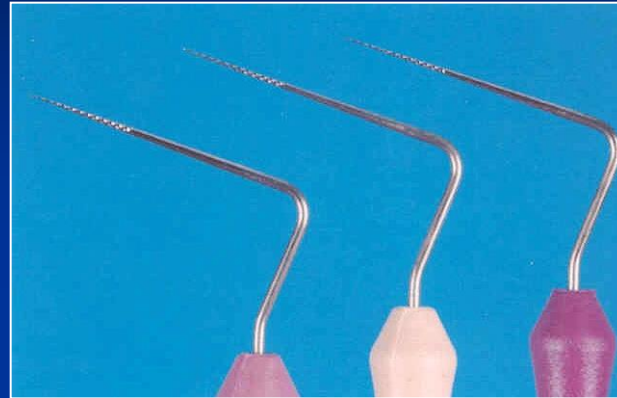
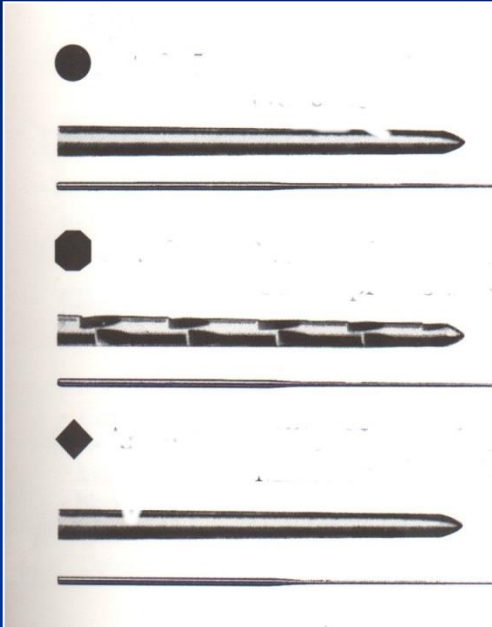


Fissure burs

Instruments with safe  
ended tips),  
Acc. to Batt



# Root canal access



↑  
Endodontic probes  
Microopeners



Ultrasound



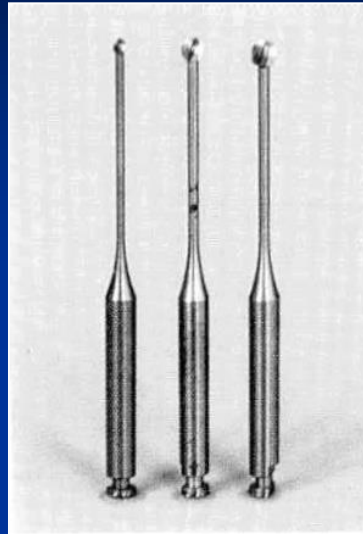
Dye



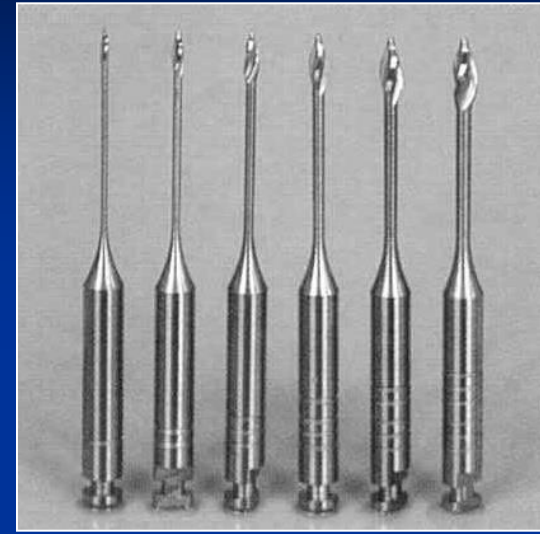
# Opening of the root canal orifices



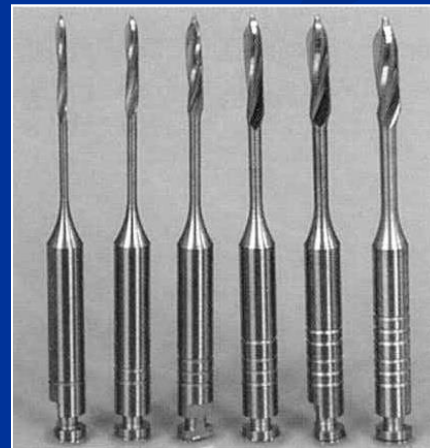
Round burs



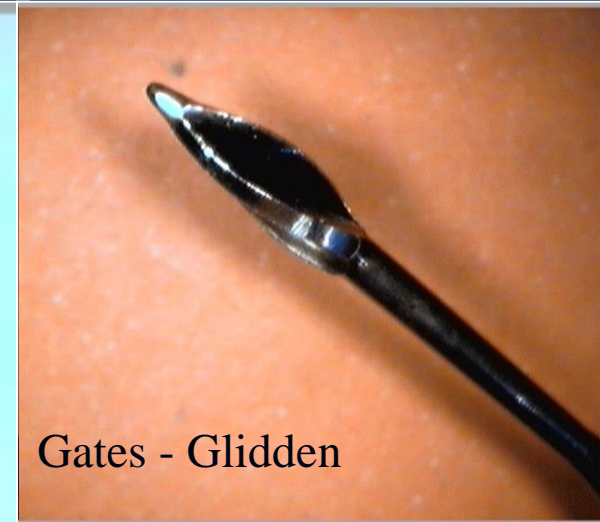
Miller's burs



Gates Glidden's burs



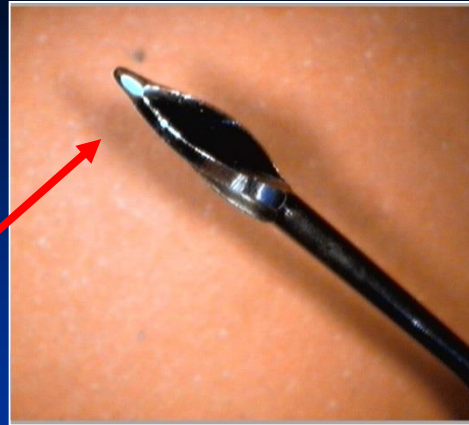
Peeso – Largo burs



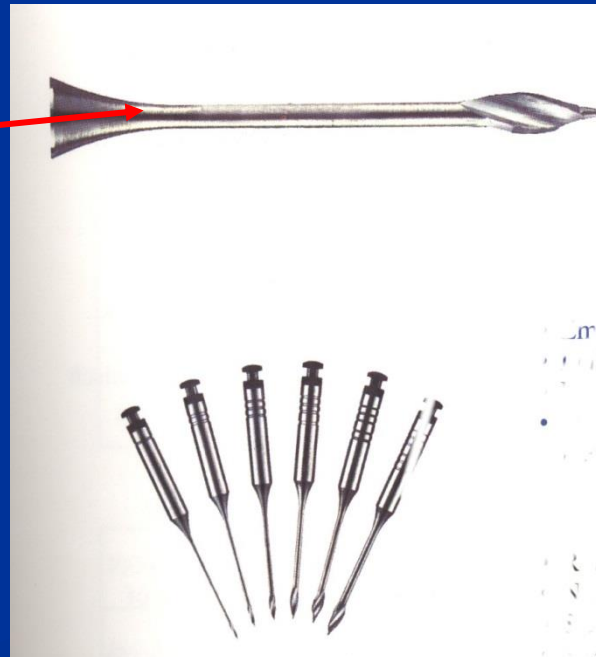
Gates - Glidden



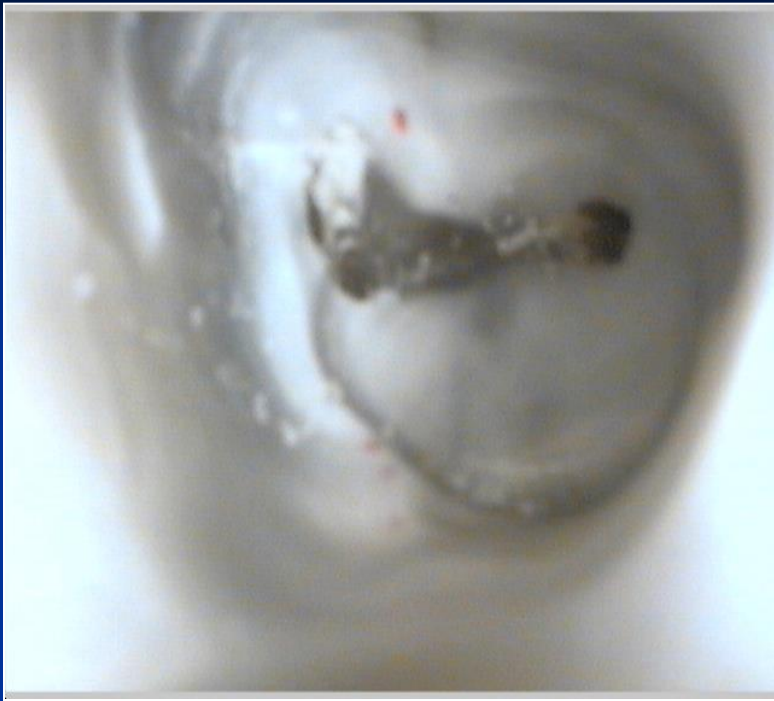
Peeso-Largo



Gates – Glidden:



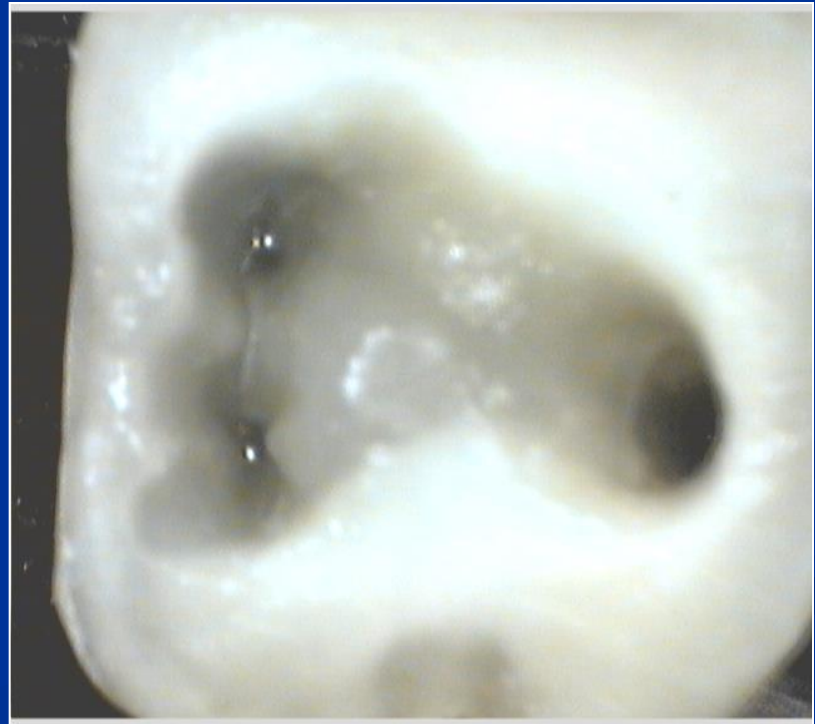
Point of breakage



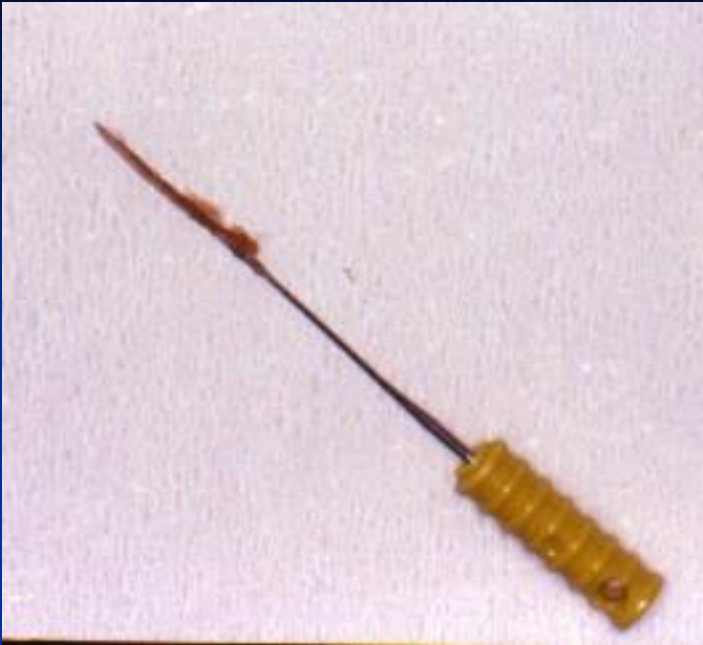
Bad endodontic cavity



Good endodontic cavity

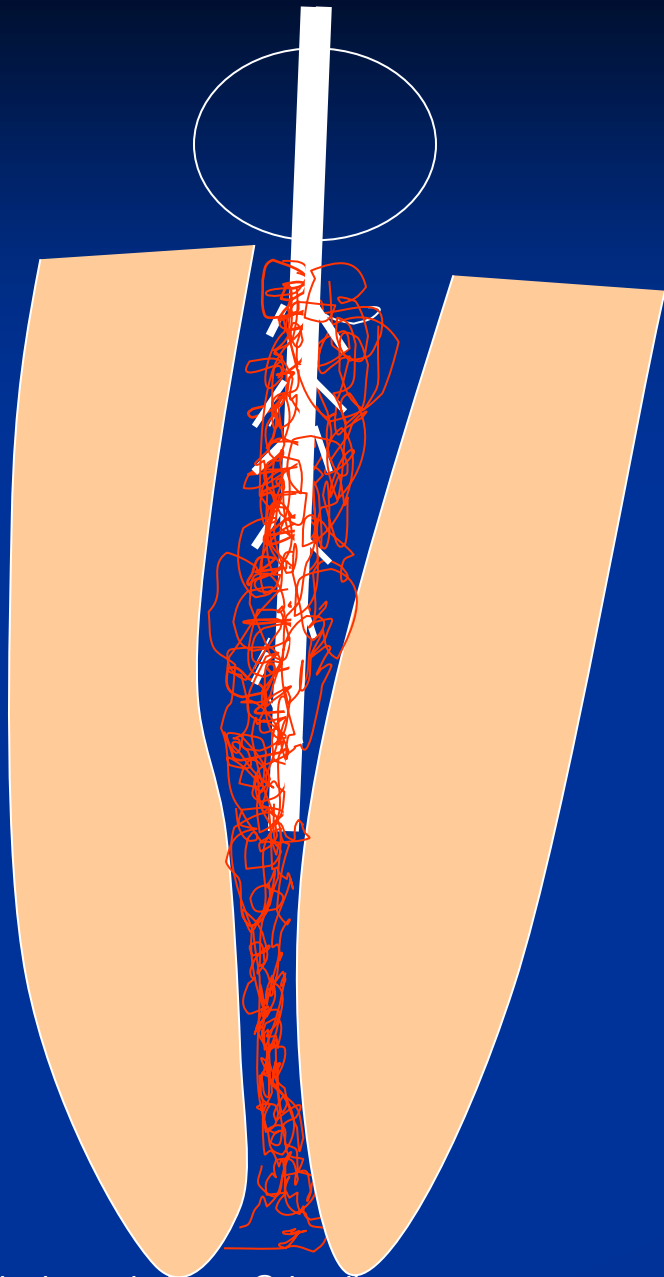


## Extraction of the content of the root canal - exstirpation



Pulpextraktor – made of soft wire





➤ Rotation and exstirpation!

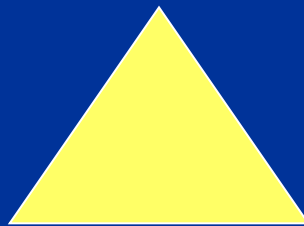
# Canal shaping

➤ Reamers

➤ Files

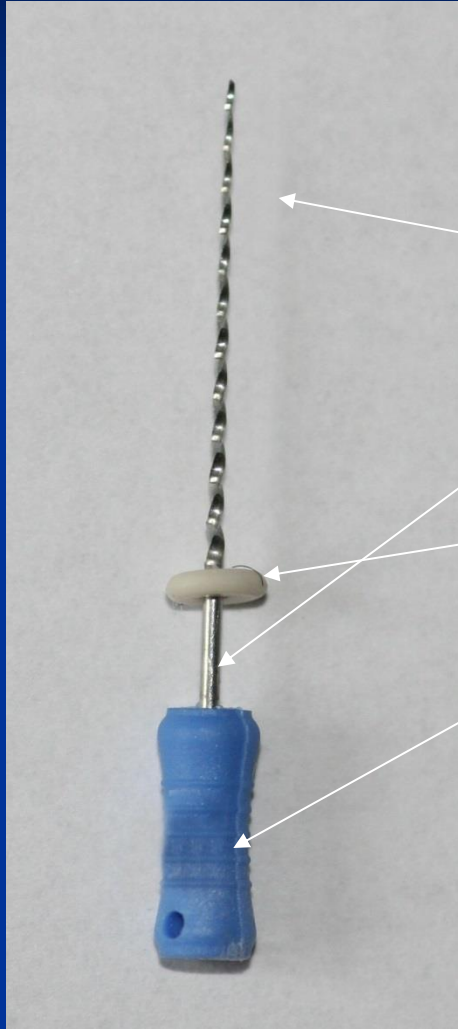
# Reamer

- **K -reamer**





# Reamer



Working –cutting part

Shank

Stopper

Grip

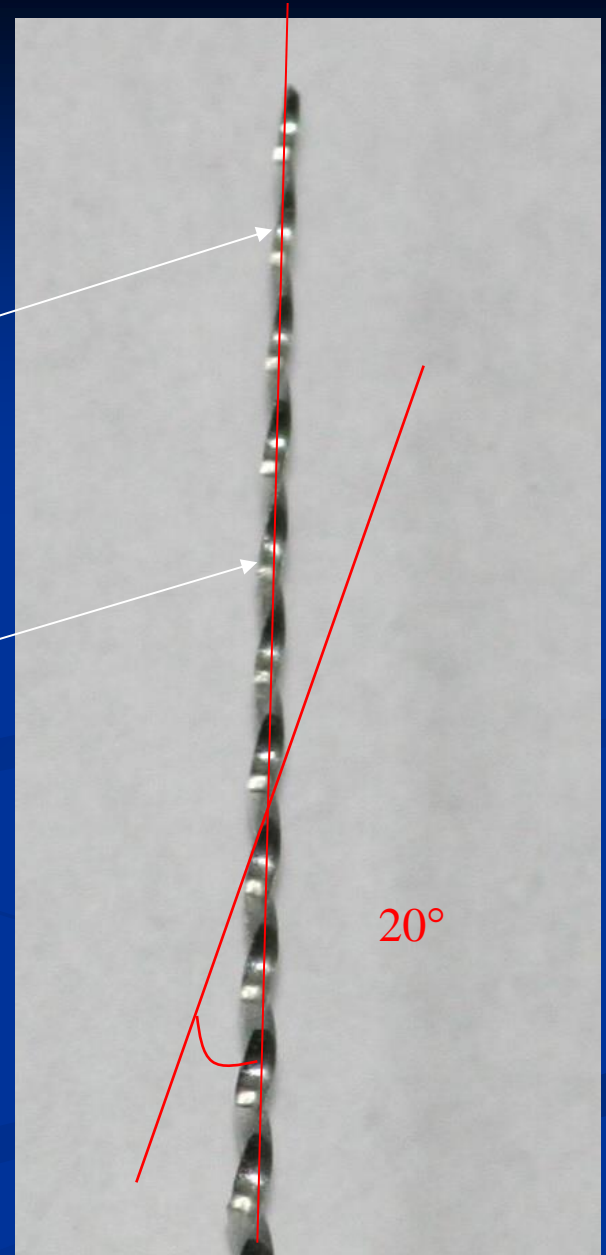


# Reamer

Cutting edges

Space for chips

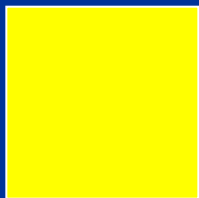
*Clockwise rotation*



# Files

1. K-file
2. K-flexofile, flexicut, flex-R - file
3. K-flex
4. H-file, S-file

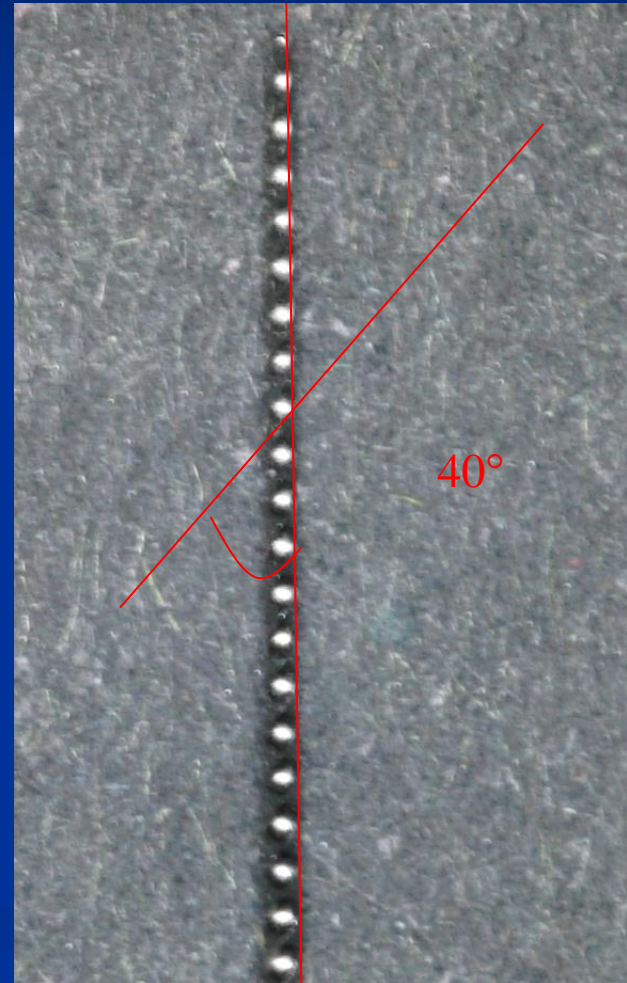
# K file



# K-file

## *Filing and (or) rotation*

*Straight canals 45° - 90°*

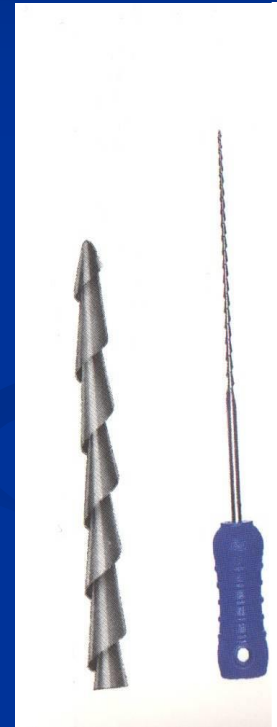
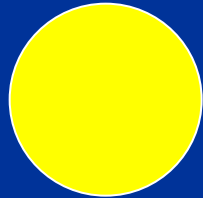


## K-file x reamer



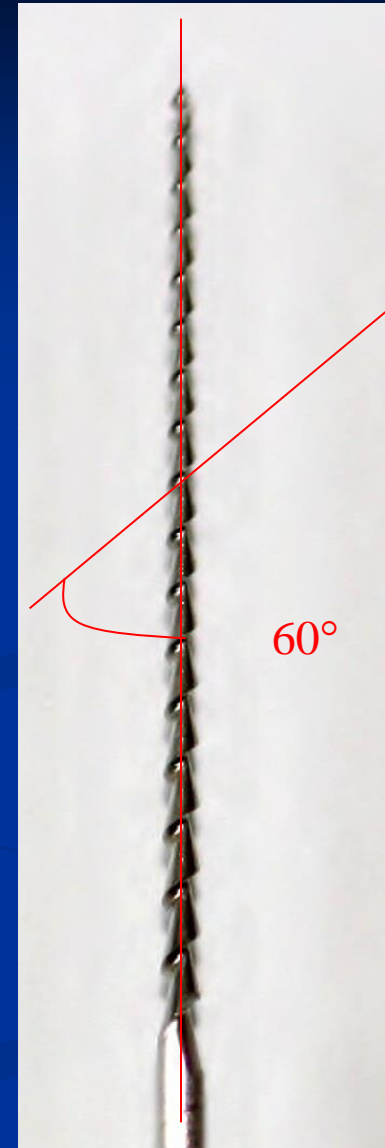
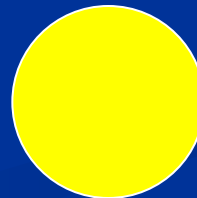
# H-file

= Hedström file



# H- file

Filing only!!!!





# ISO norma

- Diameter
- Length of the cutting part
- Taper



**06 pink**

**08 gray**

**10 purple**

**15 white**

**20 yellow**

**25 red**

**30 blue**

**35 green**

**40 black**

**45 white**

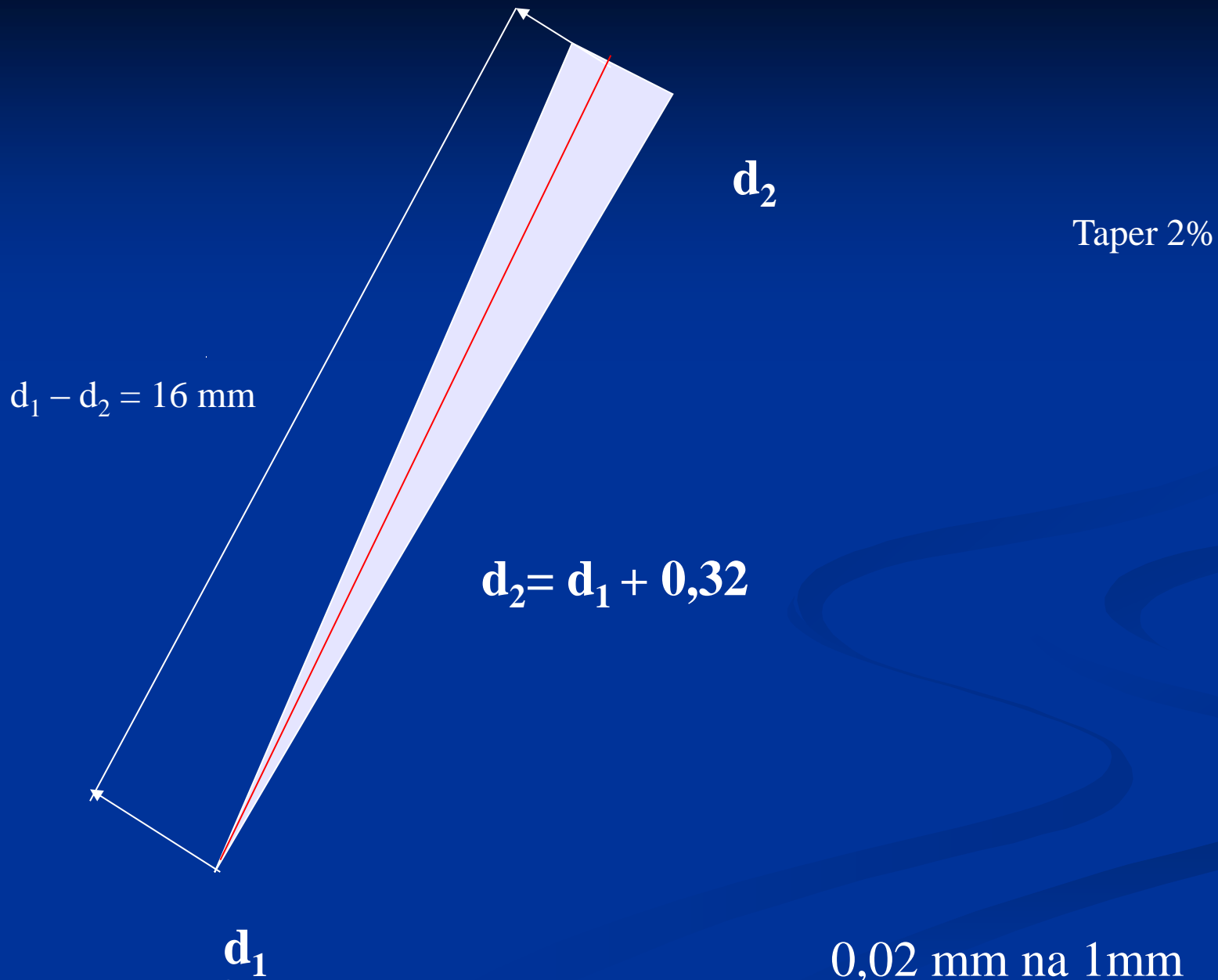
**50 yellow**

**55 red**

**60 blue**

**70 green**

**80 black**

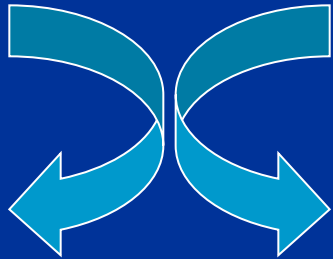


# Hand instruments

- Made of stainless steel
- Taper is 2° (higher taper is for NiTi instruments – these are for power driven endodontics).

# Instrumentation

- Rotation – incomplete (45° clockwise and contraclockwise)



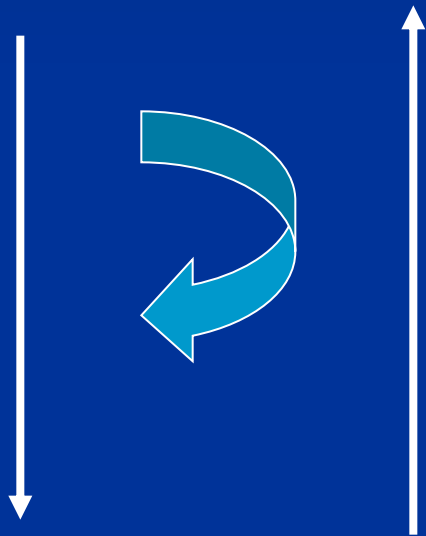
K – reamer

or

K- file

# Instrumentation

- Rotation 45° slight pressure and pull motion

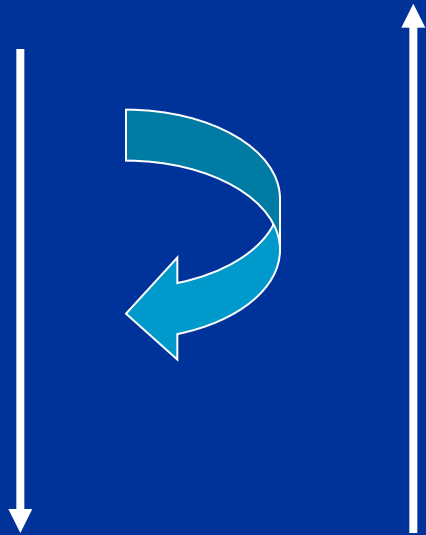


K – reamer

K- file

# Instrumentation

- Filing – push and pull motion. The instrument is in action during pull motion



H- file

K – file

# Circumferential filing

## ■ H- file

The instrument is inserted into the root canal

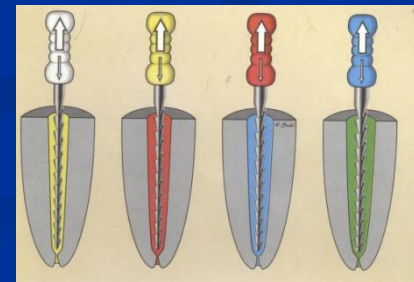
The working length is reached

The instrument is pulled out- action

Without any action the instrument is rotated

without any action in order to be in contact with the root canal wall

Pull motion again is applied.





# Circumferential filing

- The purpose – root canal shaping around the root canal with respect to its natural shape, mostly oval.

# Balanced force technique

- K file

The instrument is inserted into the root canal – the size of the instrument is one size smaller than the instrument that can be inserted on complete working length.

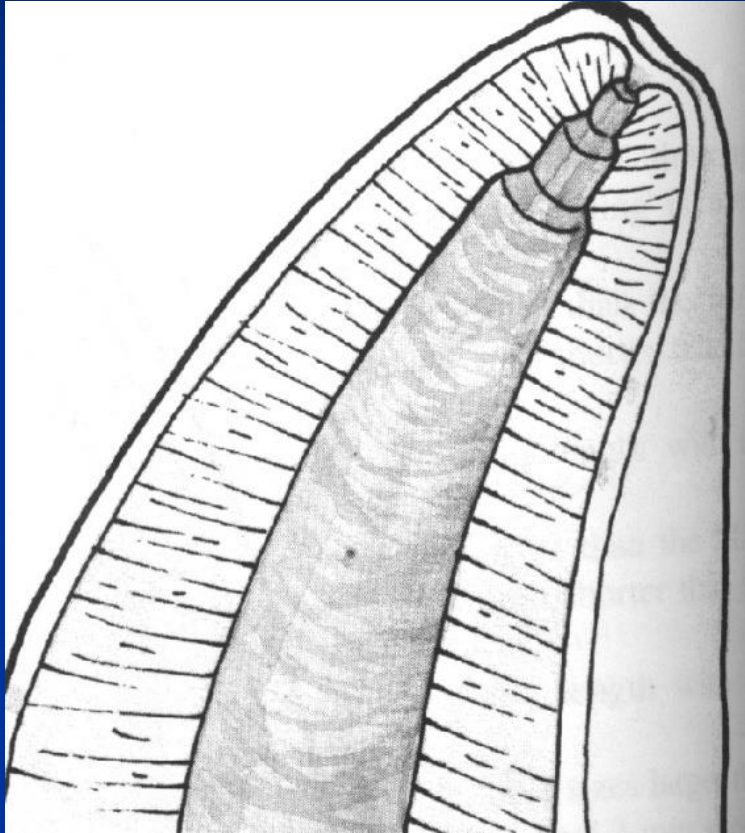
Rotate with this instrument clockwise 90 – 180 °

Follow with slight pressure forward and rotate contraclockwise till 270°

Pull the instrument out of the root canal rotating clockwise again.

# Step back method

- We use endodontic instruments of increasing size during root canal shaping.
- The rigidity of instruments increases with the size. It can cause ledge in root canal wall and difficulties with reaching the working length.
- Therefore we reduced working length of instruments for 1mm. This we do from the 4th instrument we use. See next slide.



20 working length  
25 working length  
30 working length  
35 1 mm less  
40 2 mm less  
45 3 mm less

# Step back

## ■ Prevent

- intracanal complications –ledge especially when the root canal is curved.
- extrusion of the filling material