



Non-Surgical Periodontal Therapy II: Scaling and Root Planing



Presented by

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Reference

- *CARRANZA's Clinical Periodontology 11th Edition*
- *Part 6, Section III, Chapter (45 & 46)*

outline

CLASSIFICATION OF PERIODONTAL INSTRUMENTS

- Periodontal Probes , explorer
- Scaling and Curettage Instruments
- Cleansing and Polishing Instruments

GENERAL PRINCIPLES OF INSTRUMENTATION

- Accessibility: Positioning of Patient and Operator
- Visibility, Illumination, and Retraction
- Condition and Sharpness of Instrument
- Maintaining a Clean Field
 - Instrument Stabilization
 - Instrument Activation
 - Instruments for Scaling and Root Planing

✓ PRINCIPLES OF SCALING AND ROOT PLANING

- Definitions and Rationale
- Detection Skills
- Supragingival Scaling Technique
- Subgingival Scaling and Root-Planing Technique
- Ultrasonic and Sonic Scaling
- Ultrasonic Instruments
- Evaluation

✓ INSTRUMENT SHARPENING

- Evaluation of Sharpness
- Objective of Sharpening
- Sharpening Stones
- Principles of Sharpening
- Sharpening Individual Instruments

- **Periodontal instruments are designed for specific purposes such as:**

- Removing calculus**

- Planing root surfaces**

- Curettling the gingiva**

- Removing diseased tissue**



CLASSIFICATION OF PERIODONTAL INSTRUMENTS

Periodontal Instruments classification

Periodontal
probes

Explorers

Scaling, root-
planing,
& curettage
instruments

Periodontal
endoscope

Cleansing and
polishing
instruments

*Sickle
scalars*

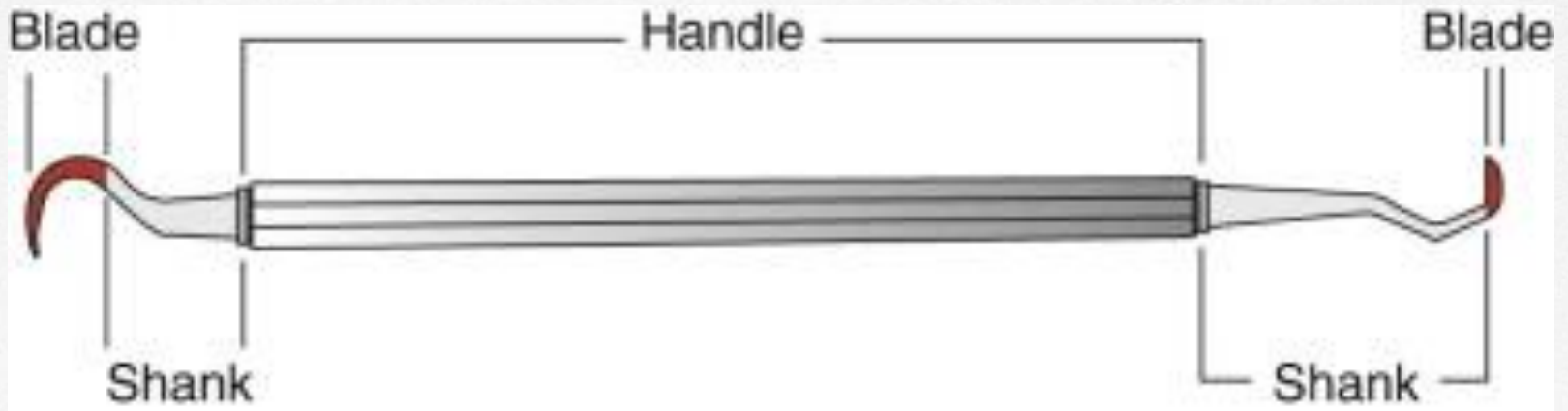
Curettes

*Hoe, chisel,
and file
scalars*

*Ultrasonic
and sonic
instruments*

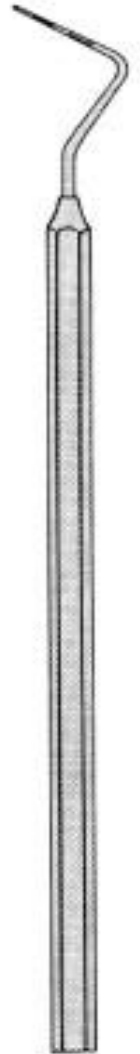
Instruments parts

- Working end
- Shank
- Handle



Periodontal Probes

- **Shape:**
 - ✓ tapered, rodlike instrument calibrated in millimeters, with a blunt, rounded tip
- **Function:**
 - ✓ To measure the depth of pockets and to determine their configuration
 - ✓ Detection of subgingival deposits



Periodontal Probes

- **Types:**

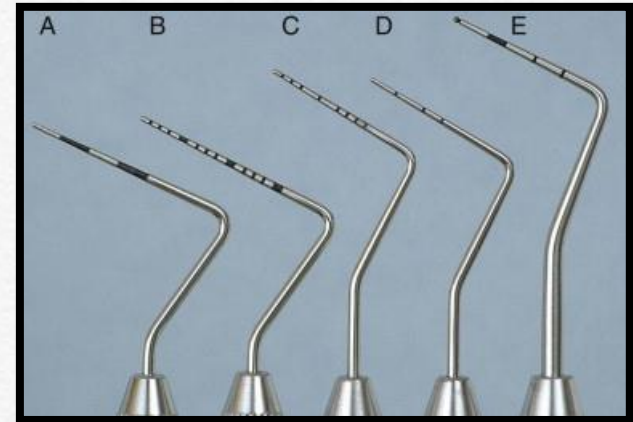
A, Marquis color-coded probe.

B, UNC-15 probe

C, University of Michigan "O" probe, with Williams markings (at 1, 2, 3, 5, 7, 8, 9, and 10 mm).

D, Michigan "O" probe with markings at 3, 6, and 8 mm.

E, World Health Organization (WHO) probe, which has a 0.5-mm ball at the tip and millimeter markings at 3.5, 8.5, and 11.5 mm and color coding from 3.5 to 5.5 mm.



Periodontal Probes

Types:

Williams Probe:

markings

at 1, 2, 3, 5, 7, 8, 9 and 10 mm

Nabers Probe:

color-coded markings

at 3, 6, 9, and 12 mm



- **When measuring a pocket:**

1. Probe is inserted with a firm, gentle pressure to the bottom of the pocket.
2. The shank should be aligned with the long axis of the tooth surface to be probed



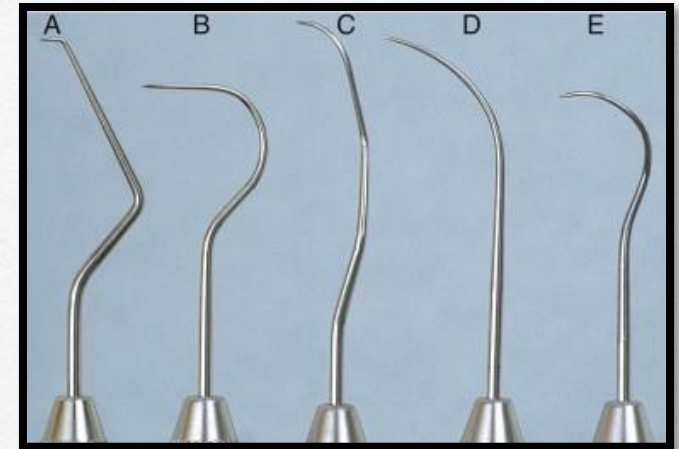
Explorers

- **Shape:**

- ✓ Different shapes and angles

A, #17; B, #23; C, EXD 11-12; D, #3;

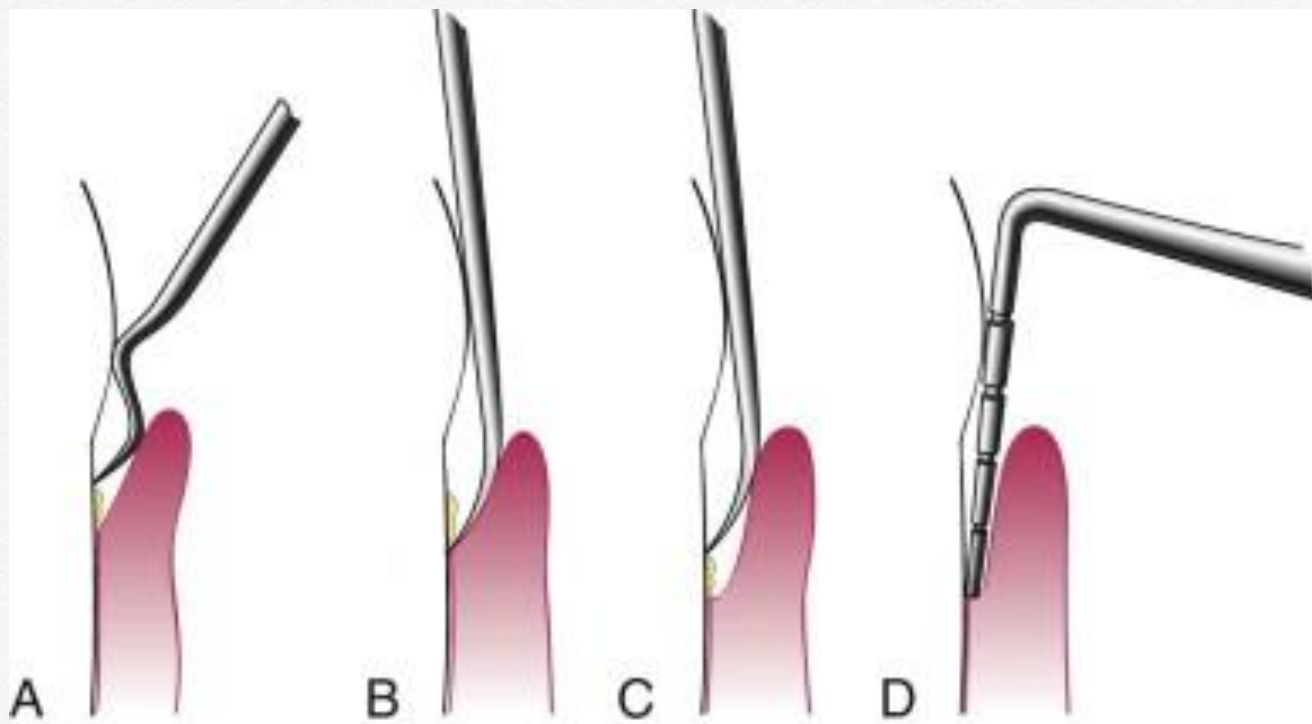
E, #3CH Pigtail.



- **Function:**

- ✓ To locate subgingival deposits and carious areas
- ✓ To check the smoothness of the root surfaces after root planing

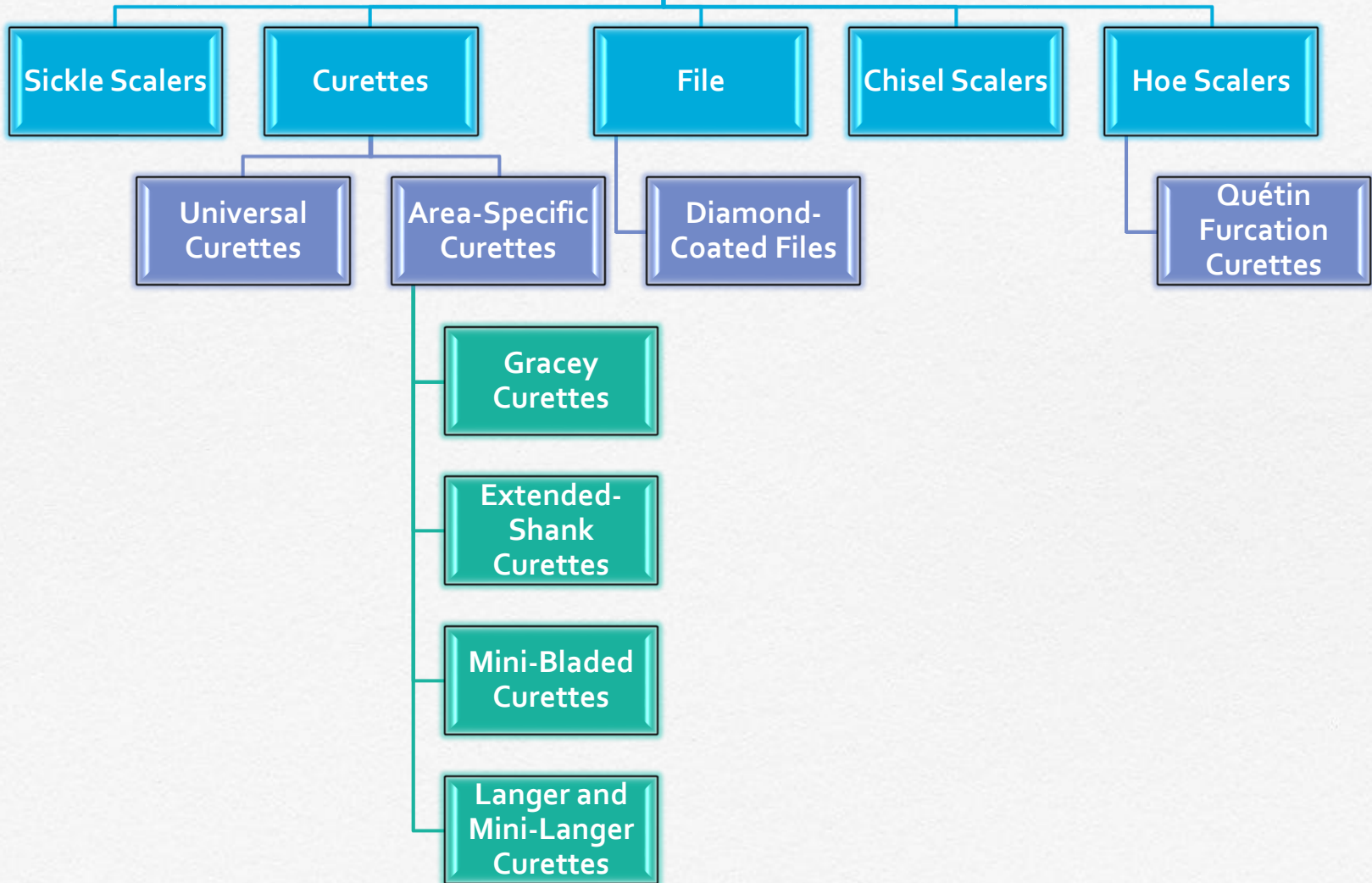
Detection of Subgingival calculus



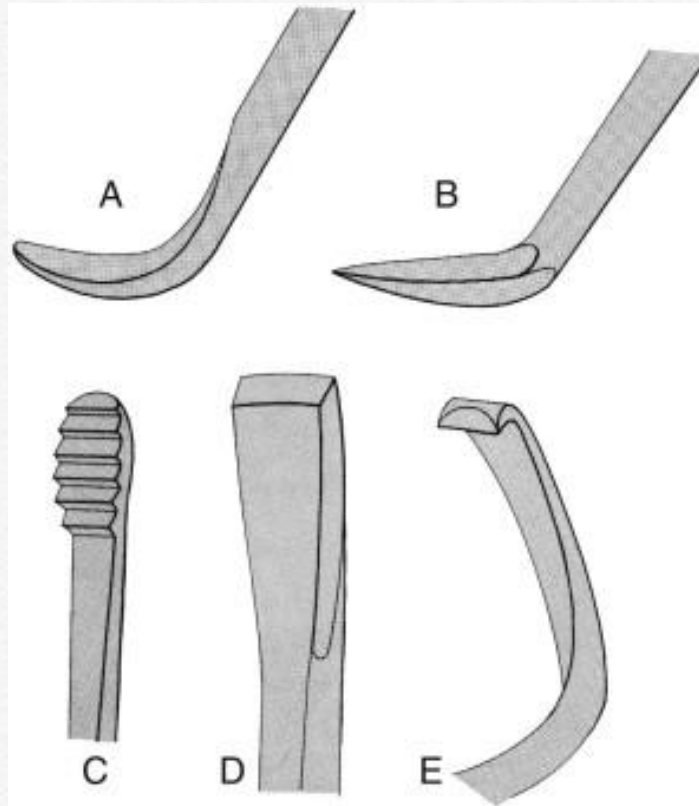
Scaling and Curettage Instruments



Scaling and Curettage Instruments



The five basic scaling instruments



A, Curette; **B**, sickle; **C**, file; **D**, chisel; **E**, hoe

Sickle Scalers

- **Shape:**

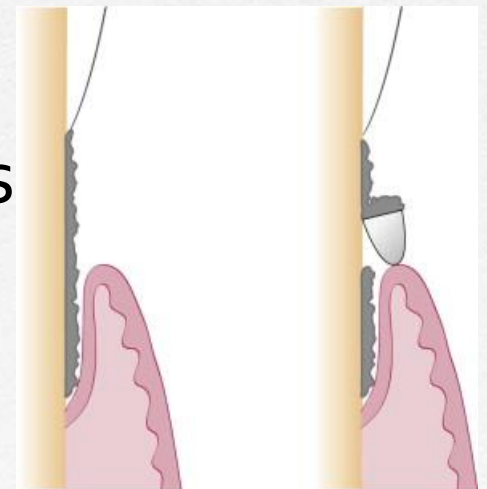
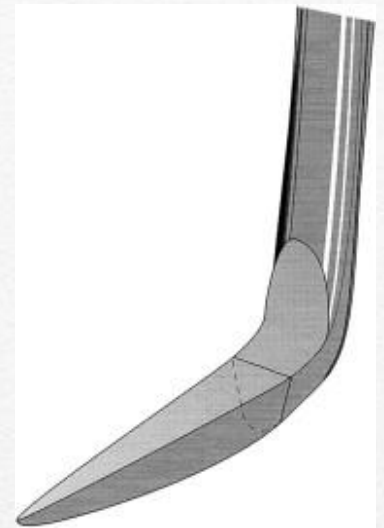
Triangular shape, double-cutting edge, & pointed tip.

- **Function:**

To remove supragingival calculus

- **Types:**

- Ball & Indiana University sickle scalers
- The Jaquette sickle scalers
- curved 204 posterior sickle scalers



U15/30 scaler



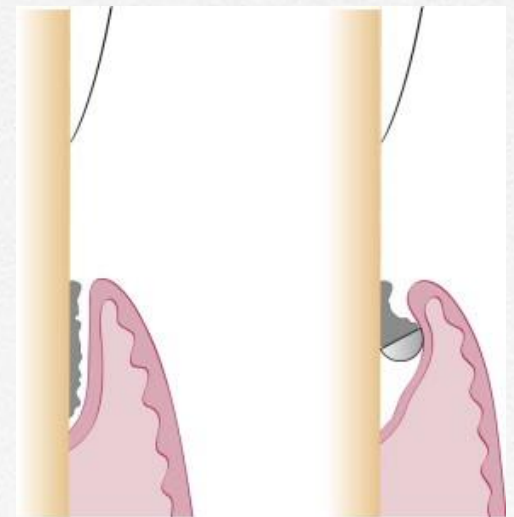
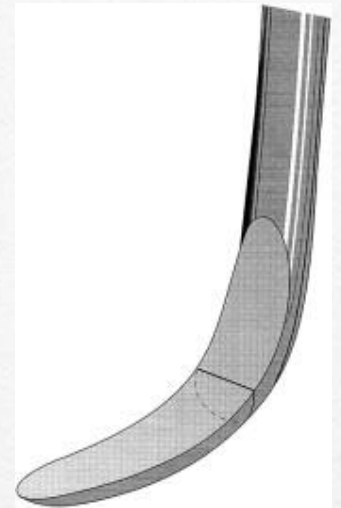
Curettes

- **Shape:**

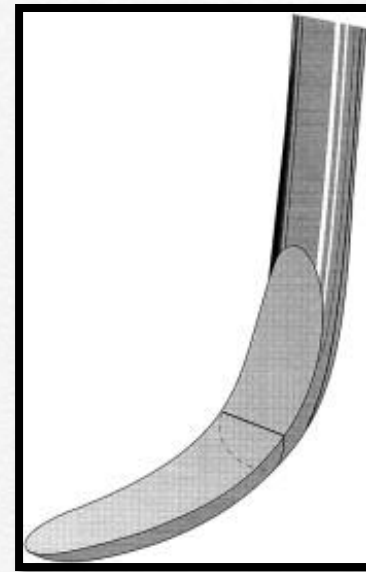
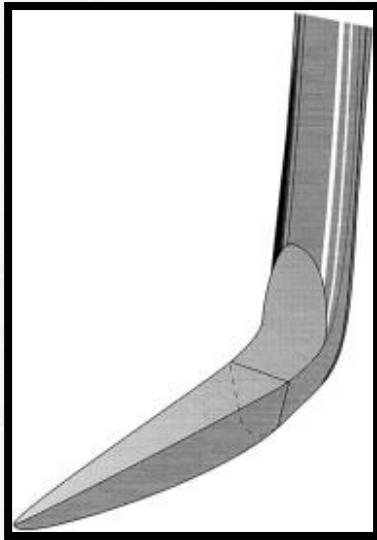
- ✓ spoon-shaped blade & rounded tip

- **Function:**

1. Removing deep subgingival calculus
2. root planing altered cementum
3. removing the soft tissue lining the periodontal pocket



Difference b/w Sickle scalers & Curettes



curved blade and rounded toe of the curette allow the blade to adapt better to the root surface, unlike the straight design and pointed end of a sickle scaler, which can cause tissue laceration and trauma

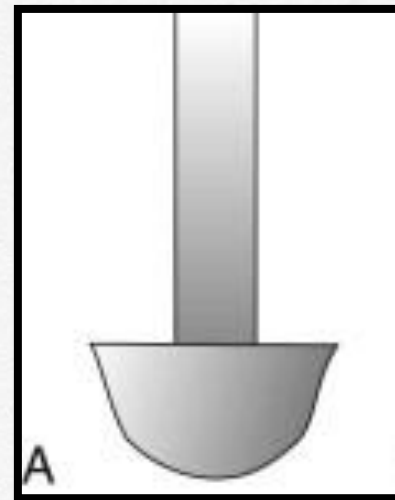
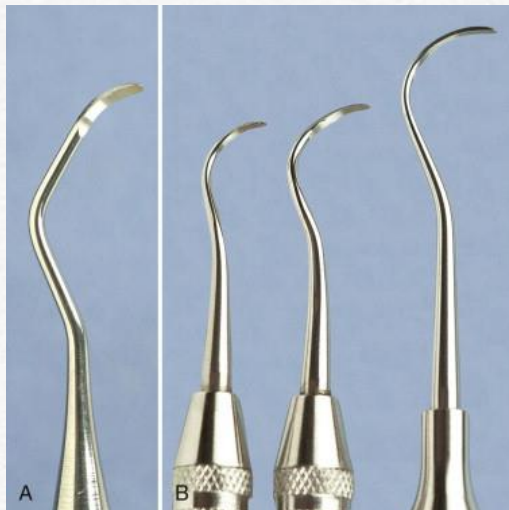
■ **There are two basic types of cures:**

- 1. Universal**
- 2. Area specific**

Universal Curettes

- Have cutting edges that may be inserted in most areas of the dentition by altering and adapting the finger rest, fulcrum, and hand position of the operator.

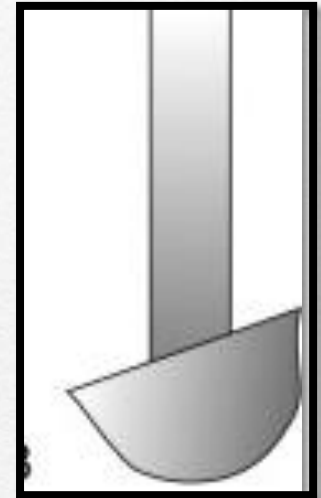
Columbia
#4R-4L
universal
curette



Area-Specific Curettes

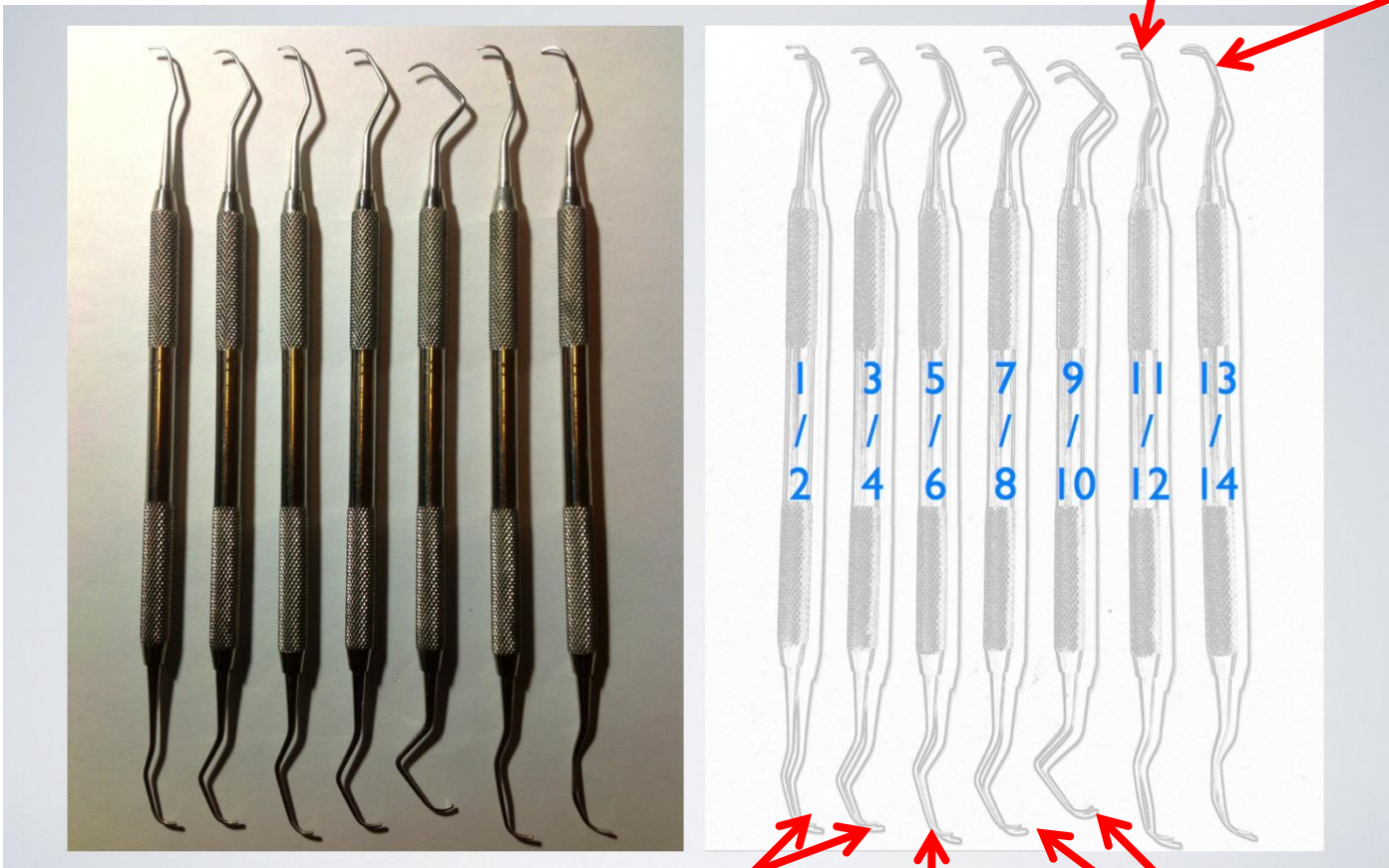
Gracey Curettes

- A set of several instruments designed and angled to adapt to specific anatomic areas of the dentition



- Best instruments for subgingival scaling and root planing because they provide the best adaptation to complex root anatomy.

Gracey Curettes



Posterior teeth (Mesial)

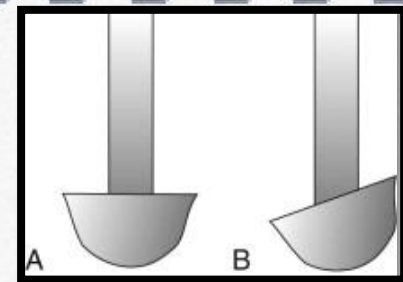
Posterior teeth (Distal)

Anterior teeth

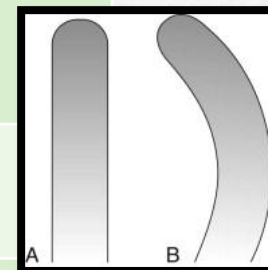
Anterior & PM teeth

Posterior teeth (F&L)

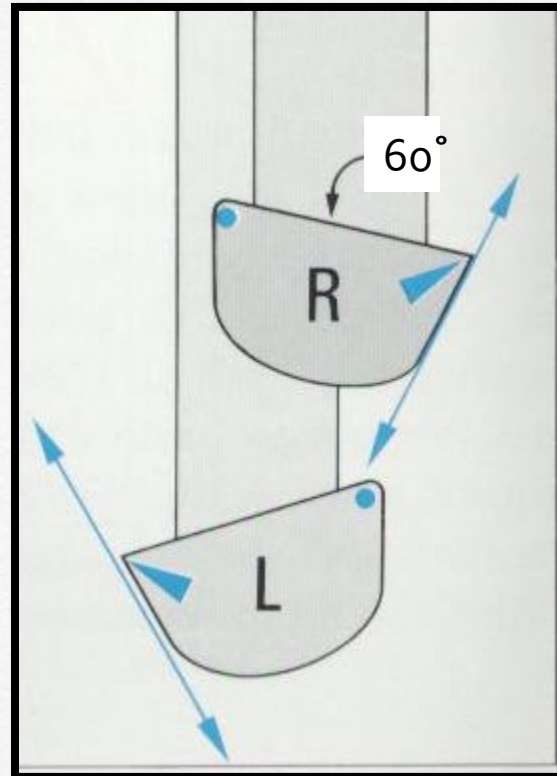
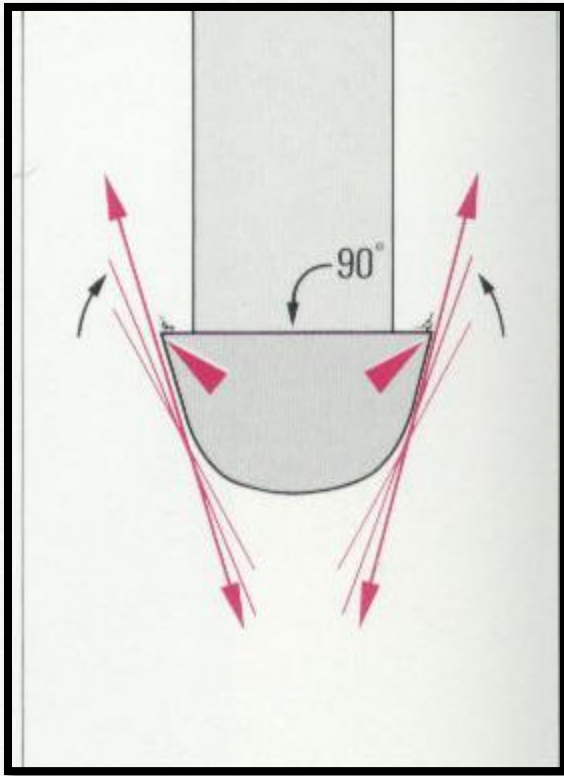
Comparison of Area-Specific (Gracey) and Universal Currettes



	Gracey Curette	Universal Curette
Area of use	Set of many curettes designed for <u>specific areas and surfaces</u>	One curette designed <u>for all areas and surfaces</u>
Cutting Edge		
Use	<u>One cutting edge</u> used; work with outer edge only.	<u>Both cutting edges</u> used; work with either outer or inner edge.
Curvature	<u>Curved in two planes</u> ; blade curves up and to the side.	<u>Curved in one plane</u> ; blade curves up, not to the side.
Blade angle	Offset blade; face of blade beveled at 60 degrees to shank.	Blade not offset; face of blade beveled at 90 degrees to shank.

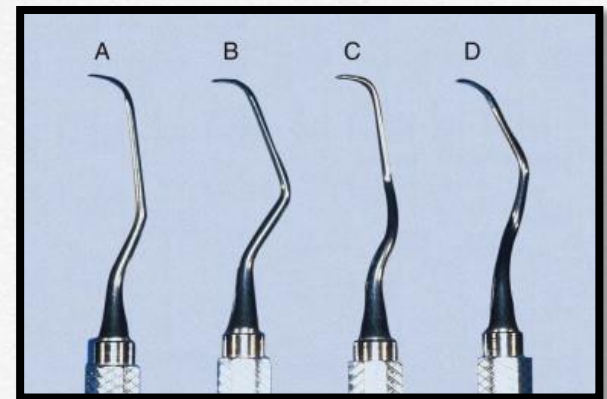


Offset blade



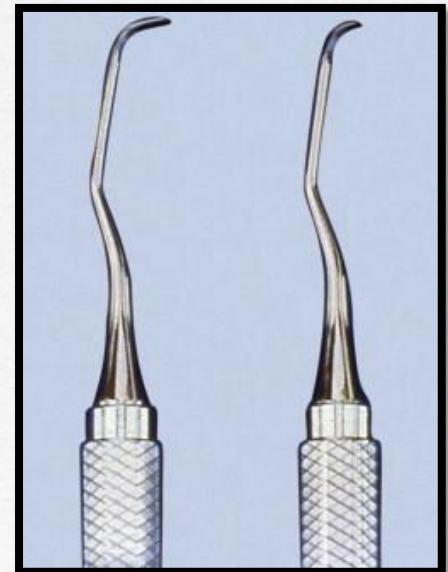
Extended-Shank Curettes

- Modifications of the standard Gracey curette design.
- The terminal shank is 3 mm longer, allowing extension into deeper periodontal pockets of 5 mm or more.
- Example: *After Five* curettes



Mini-Bladed Currettes

- Shorter & thinner blade allows easier insertion and adaptation in deep, narrow pockets; furcations; developmental grooves; line angles; and deep, tight, facial, lingual, or palatal pockets
- Ex., *Micro Mini Five* Gracey currettes



Langer and Mini-Langer Curettes

- Set of 3 curettes combining the shank design of the standard Gracey curettes with a universal blade honed at 90 degrees rather than the offset blade of the Gracey curette.



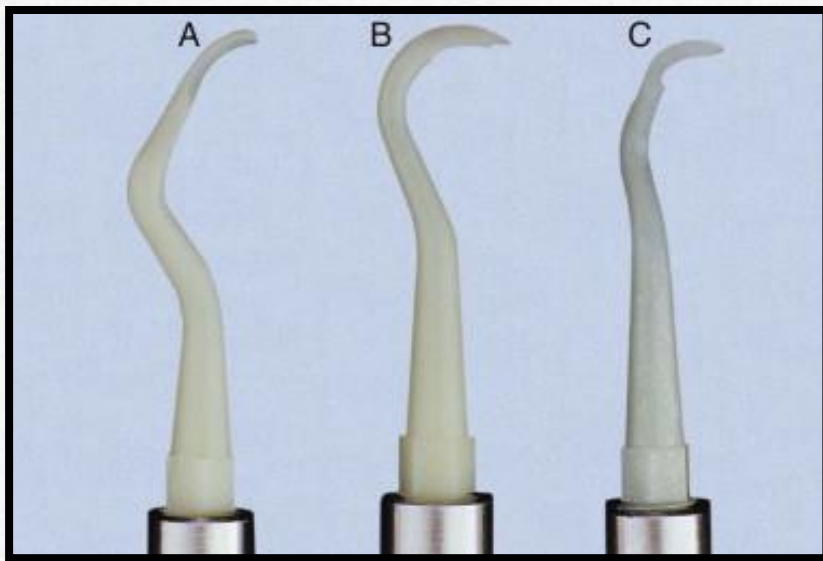
Schwartz Periostriever

- Set of two double-ended, highly magnetized instruments
- Designed for the retrieval of broken instrument tips from the periodontal pocket



Plastic and Titanium Instruments for Implants

- To avoid scarring and permanent damage to the implants



Hoe Scalers

■ Shape:

- ✓ The blade bent at a 99-degree angle
- ✓ The cutting edge is beveled at 45 degrees.
- ✓ The blade is slightly bowed

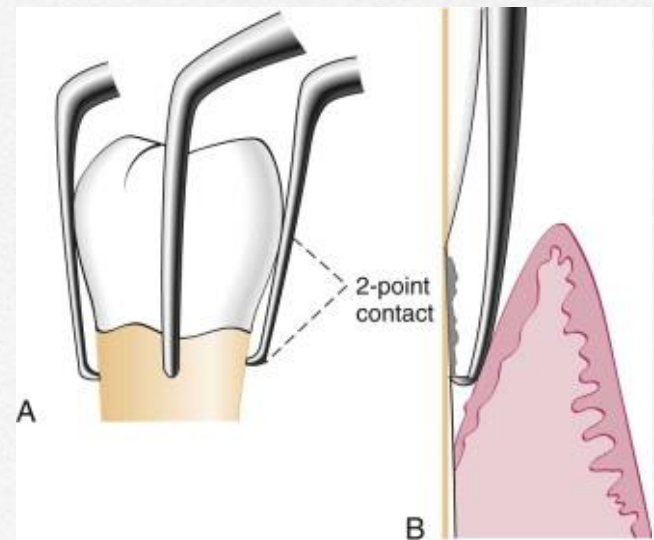
■ Function:

For scaling of ledges or rings of calculus

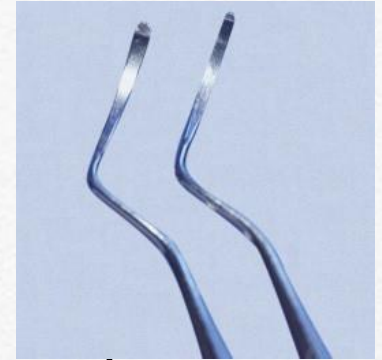
■ Technique:

- ✓ The instrument contacts the tooth at two points for stability.

Ex., McCall's #3, 4, 5, 6, 7, and 8



Quétin Furcation Curettes



Shape:

- Are actually hoes with a shallow, half-moon radius that fits into the roof or floor of the furcation

Function:

1. Remove burnished calculus from recessed areas of the furcation
2. fits into furcations & developmental depressions on the inner aspects of the roots

Ex. tips are available in two widths.:The BL1 (*buccal-lingual*) and MD1 (*mesial-distal*) instruments.

Files

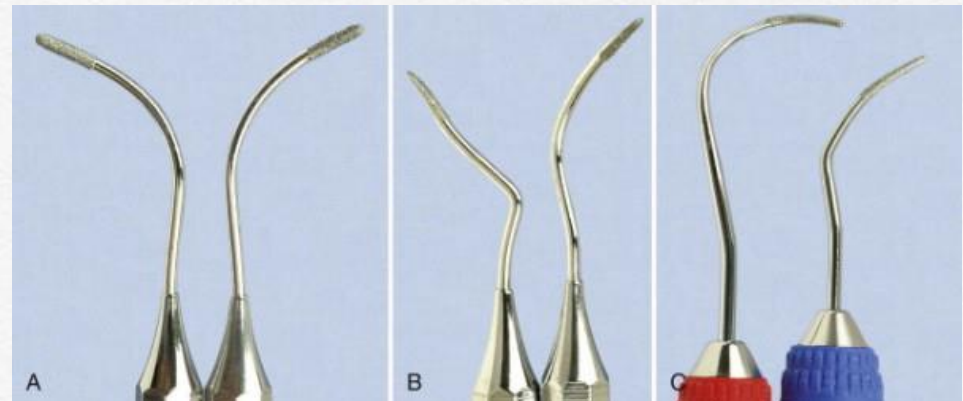
Function:

- ✓ To fracture or crush large deposits of tenacious calculus or burnished sheets of calculus
- ✓ Sometimes used for removing overhanging margins of dental restorations.



Diamond-Coated Files

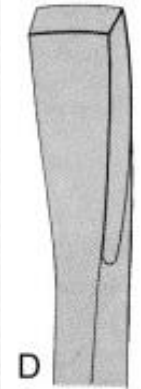
- **Shape:**
- Have no cutting edges
- coated with very-fine-grit diamond
- **Function:**
- Used for final finishing of root surfaces
- Effective when used with the dental endoscope



Chisel Scalers

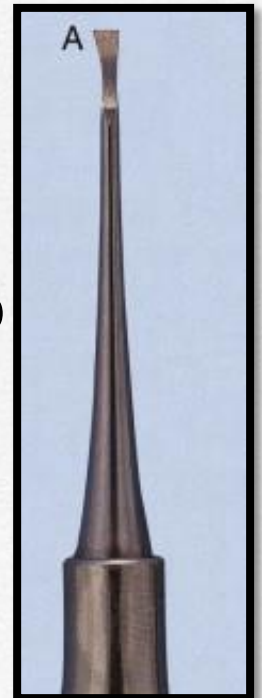
- **Shape:**

- ✓ blades are slightly curved and have a straight cutting edge beveled at 45 degrees.



- **Function:**

- ✓ Designed for proximal surfaces of teeth too closely spaced to permit the use of other scalers
- ✓ Used anterior part of the mouth



Dental Endoscope

- Use subgingivally in the diagnosis and treatment of periodontal disease
- *The Perioscopy system*
- Magnification ranges from **24X to 48X**, enabling visualization of even minute deposits of plaque and calculus



A spiral-bound notebook with a white page. The spiral binding is at the top. On the left side, there is a vertical bar with segments of black, grey, yellow, and pink. The text 'CLEANSING AND POLISHING INSTRUMENTS' is written in a bold, pink, sans-serif font, with a reflection effect below it.

CLEANSING AND POLISHING INSTRUMENTS

Cleansing and Polishing Instruments

1. Rubber Cups
2. Bristle Brushes
3. Dental Tape
4. Air-Powder Polishing (*Prophy-Jet*)

Air-Powder Polishing

- Handpiece to deliver an air-powered slurry of warm water and sodium bicarbonate for polishing
- **Function:** removes stains rapidly and efficiently by mechanical abrasion and provides warm water for rinsing and lavage
- **Disadvantages:** lost of tooth substance, Transient damage to gingival tissue.

- **C.I:**
 - ✓ Patients with medical histories of respiratory illnesses and hemodialysis
 - ✓ Hypertension, sodium-restricted diets, or medications affecting the electrolyte balance.
 - ✓ Patients with infectious diseases







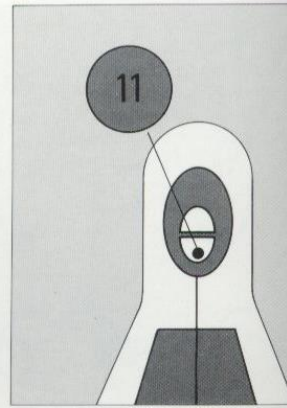
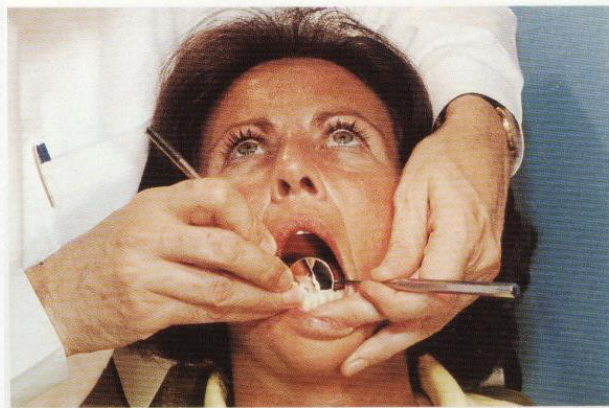
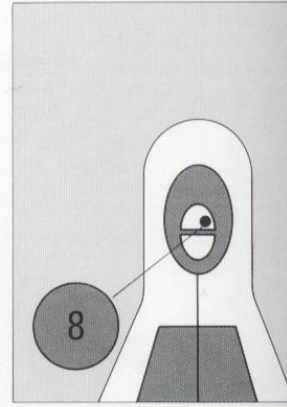
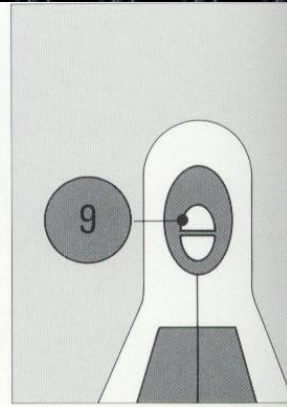
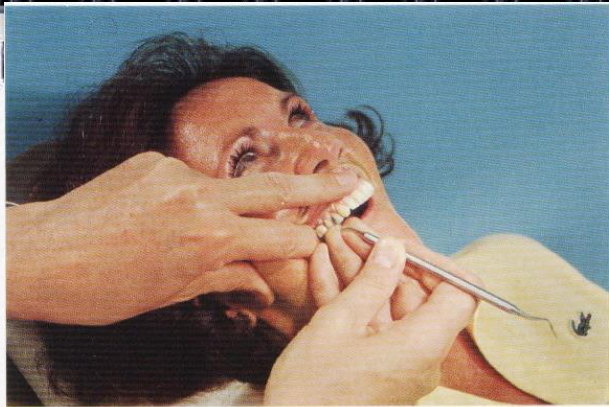
GENERAL PRINCIPLES OF INSTRUMENTATION

GENERAL PRINCIPLES OF INSTRUMENTATION

1. Accessibility: Positioning of Patient and Operator
2. Visibility, Illumination, and Retraction
3. Condition and Sharpness of Instrument
4. Maintaining a Clean Field
5. Instrument stabilization
6. Instrument activation
7. Instruments for Scaling and Root Planing

Accessibility: Positioning of Patient and Operator

- Accessibility facilitates thoroughness of instrumentation.
- The clinician should be seated on a comfortable operating stool
- The patient should be in a supine position and placed so that the mouth is close to the resting elbow of the clinician
- For instrumentation of the maxillary arch, the patient should be asked to raise the chin slightly
- For instrumentation of the mandibular arch, the patient should be asked to lower the chin



Visibility, Illumination, and Retraction

- Whenever possible, *direct vision* with *direct illumination* from the dental light is most desirable
- If this is not possible, *indirect vision* may be obtained by using the mouth mirror and *indirect illumination*



Illumination, and Retraction

1. Use of the mirror to deflect the cheek while the fingers of the nonoperating hand retract the lips and protect the angle of the mouth from irritation by the mirror handle.
2. Use of the mirror alone to retract the lips and cheek
3. Use of the fingers of the nonoperating hand to retract the lips
4. Use of the mirror to retract the tongue



Condition and Sharpness of Instruments

- Before any instrumentation, all instruments should be inspected to make sure that they are clean, sterile, and in good condition.
- The working ends of pointed or bladed instruments must be sharp to be effective
- Dull instruments may lead to incomplete calculus removal and unnecessary trauma

Maintaining a Clean Field

- **Pooling of saliva**
- **Gingival bleeding** (bleeding is not necessarily an indication of trauma from incorrect technique but rather may indicate ulceration of the pocket epithelium)
- Adequate suction
- Wiping with gauze squares.
- Flush occasionally with water.
- A jet of air directed into the pocket deflects a retractable gingival margin

Instrument Stabilization

- *The two factors of major importance in providing stability are:*
 1. **The instrument grasp**
 1. **The finger rest.**

Instrument Grasp

- The most effective and stable grasp for all periodontal instruments is the *modified pen grasp*



MPG

The pad of the middle finger rests on the shank



Standard pen grasp

The side of the middle finger rests on the shank



Palm and thumb grasp

used for stabilizing instruments during sharpening

Finger Rest

- To stabilize the hand and the instrument by providing a firm fulcrum as movements are made to activate the instrument
- Middle and fourth fingers should be kept together to work as a one-unit fulcrum during scaling and root planing
- Classified as intraoral finger rests or extraoral fulcrums

The following examples illustrate the different variations of the intraoral finger rest:

- **Conventional:** The finger rest is established on tooth surfaces immediately adjacent to the working area



- ***Cross-arch:*** The finger rest is established on tooth surfaces on the other side of the same arch.



- ***Opposite arch:*** The finger rest is established on tooth surfaces on the opposite arch (e.g., mandibular arch finger rest for instrumentation on the maxillary arch)



- ***Finger on finger:*** The finger rest is established on the index finger or thumb of the non-operating hand



Extraoral fulcrums

- They allow optimal access and angulation
- Providing adequate stabilization
- **The two most common extraoral fulcrums are used as follows:**
 1. *Palm up*
 2. *Palm down*

PaLm up

- The backs of the fingers rest on the right lateral aspect of the mandible while the maxillary right posterior teeth are instrumented.



PaLm down

- The front surfaces of the fingers rest on the left lateral aspect of the mandible while the maxillary left posterior teeth are instrumented





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THANK YOU

ANY QUESTIONS?