The Power of Non-Surgical Periodontal Therapy

Yankee Dental Congress

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01-30-2026

Thank you!

Hu-Friedy

Curaden

Christine Fontana, R.D.H. and Mr. Scott Argo
Dr. Natalie Yam and Sarah Johnson, R.D.H.

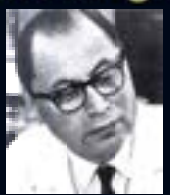
The **Goals** of today's workshop…

To discuss the concepts and to practice skills that will help our patients to achieve and maintain dental, periodontal, peri-implant, and **systemic** health!

Today's schedule

- **Introduction:**
  - **Motivation of the dental patient**
- **Probing measurements and calculus detection**
- **Hand instrumentation**
- **Specialized hand instruments**
- **Hand instrument sharpening**
- **Ultrasonic instrumentation**
- **Air polishing**
- **Conclusion**

Dr. Irving Glickman 1967 PREVENTION



"Dentistry's mission under its franchise must be clearly defined as ***primarily*** the preservation of the health of the natural structures through the ***prevention*** of disease and deformities, and ***secondarily*** the ***repair*** of destroyed tissue the replacement of lost parts and the correction of developmental anomalies."

PREVENTION of the RECURRENCE of plaque related dental diseases MUST BE our goal!

Dentistry's goal is to assist our patients to prevent recurrence

Dental caries | Gingivitis | periodontitis | peri-implantitis

All have a bacterial etiology, with the biofilm attached to the tooth or implant

The prevention of dental diseases is straightforward and involves:

- **Self-motivation** *Daily* plaque removal.
- **Knowledge** of *correct* plaque removal techniques.

- **Having accessibility** to the teeth or implants for *complete* plaque removal.
- **Regular Professional Dental Hygiene Therapy (PDHT)** is essential for *coaching* and for removing what the patient cannot.

Key is motivating your patient to move from Compliance to *Concordance*

Jill Rethman, RDH

P.D.H.T.

What is it?

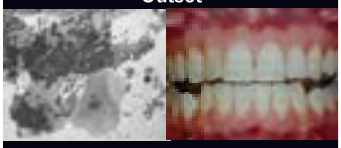
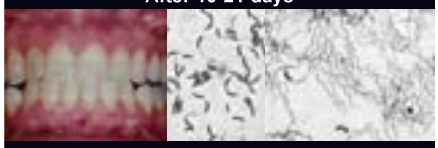
Professional Dental Hygiene Therapy

It is NOT a "cleaning"!

Health to visible disease in 10-21 days

Experimental Gingivitis in Man

BY HARALD LÖE,* D.D.S., DR. ODONT., ELSE THEILADE,** D.D.S. AND S. BORGLUM JENSEN,*** D.D.S., LIC. ODONT., AARHUS, DENMARK

Outset	After 10-21 days
	
Mainly coccal and desquamated epithelial cells	Spirochetes and gram negative vibrios following two weeks of no dental hygiene, with clinical evidence of inflammation

How long does PDHT last?

Your professional plaque removal will last a few days or less; however,…

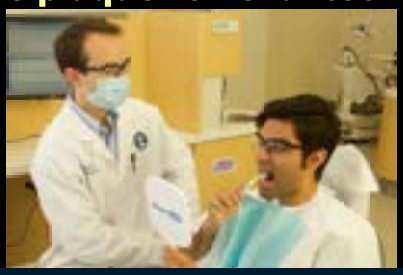
Your professional plaque removal technique instruction (OHI) will last months or years!

Technique is critical!

Dr. Joe Montesano

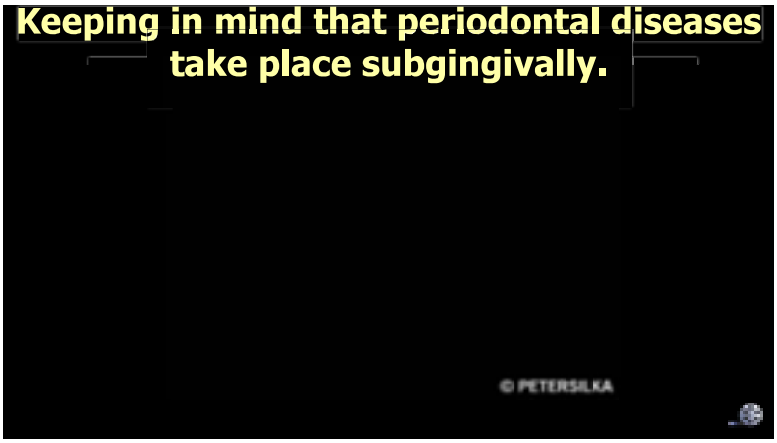
It is not just the number of times a day that patients brush and floss; however, it is the evidence-based techniques that they use *daily* that provides health!

First thing, for your PDHT, observe your patient's plaque removal techniques.



Then instruct as needed AFTER you have assessed your patient's dental health.

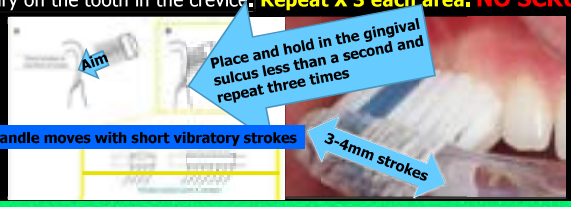
Keeping in mind that periodontal diseases take place subgingivally.



Stationary Bristle Tip Technique* (Bass)

Manual toothbrush or power toothbrush:

1. Aim brush towards the middle of the tooth angled slightly towards the gum crevice.
2. Press the bristles into the gum crevice, **vibrate the handle** and keep the bristle tips stationary on the tooth in the crevice. **Repeat X 3 each area. NO SCRUBBING!**

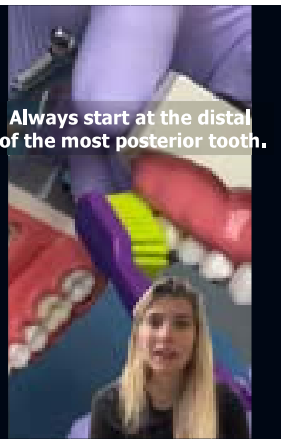


The patient should, "feel the bristles in the gum crevice."

*Ausenda F, et al The effect on subgingival inflammation and toothbrush wear using the Stationary Bristle Tip Technique (Bass), *J of Evid. Based Dent Pract , 2019 ,19:2, 106-114*

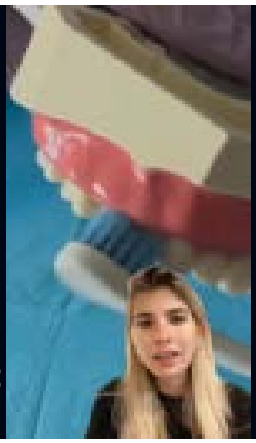
The Stationary Bristle Tip Technique (SBTT) or "Bass" technique of tooth brushing.

The bristle tips remain stationary on the tooth and the bristles are vibrated into the gingival sulcus and interproximally with the movement of the brush handle.

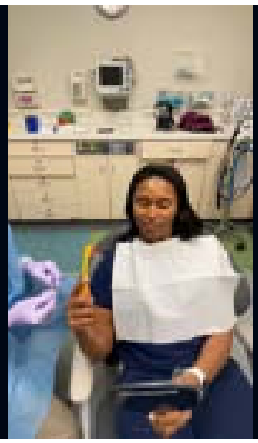


The Stationary Bristle Tip Technique (SBTT) of tooth brushing using an electric toothbrush.

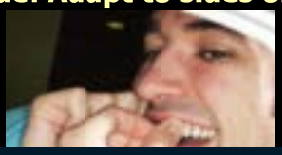
The bristle tips remain stationary on the tooth and the bristles vibrate automatically into the gingival sulcus and somewhat interproximally.

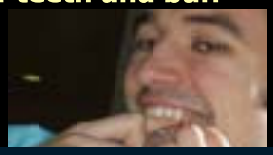


The Stationary Bristle Tip (SBTT) or "Bass" technique of tooth brushing follow-up instruction.



Technique: Adapt to sides of teeth and buff





Adapted Horizontal Vertical Flossing Technique (AHVFT)

Drawing by Dr. Stephen P. Comstock

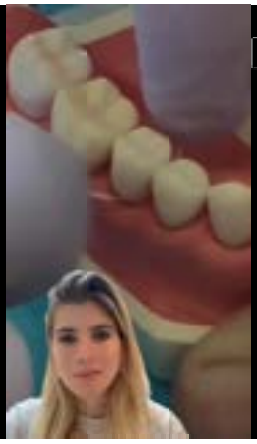
For posterior teeth use the thumbs to clean the distal surfaces and the index fingers to buff the mesial surfaces

Adapt the floss to clean the line angles and buff as if drying one's back with a towel.

Pressure is placed laterally not apically

Technique for the use of dental floss/tape.

Adapted Horizontal Vertical Flossing Technique (AHVFT)



The technique was proven in a Masters project to demonstrate the effectiveness of flossing. Dr. David Basali, Dr. Isaac Hong Tufts University School of Dental Medicine. Published JADHA July, 2023

Additional, Interproximal Plaque Removal

Rubber tip

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- Probing measurements and calculus detection
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- Specialized hand instruments
- Ultrasonic instrumentation
- Air polishing
- Conclusion

The correct use of a periodontal probe and thorough calculus detection

The key to thorough treatment is accuracy in examination and a correct diagnosis

Daniel Coleman D.M.D., M.S.

The correct use of a periodontal probe and thorough calculus detection

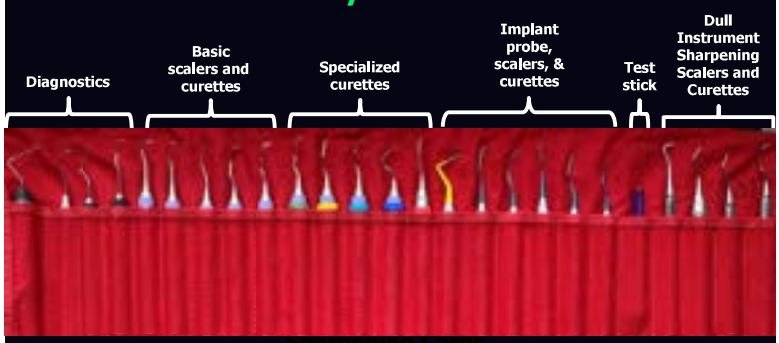
Kinoshita Dental Model

Please use these models ONLY for probing accuracy and for calculus detection

Please open the top model box and remove the model.

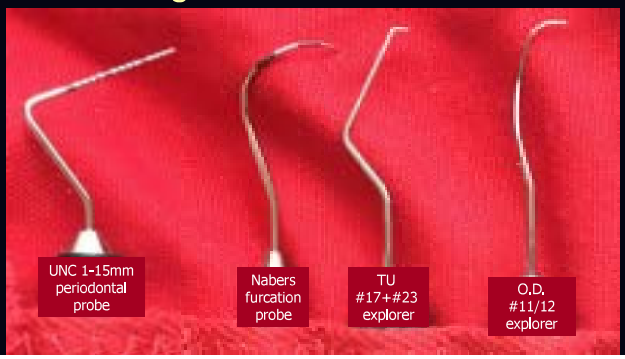
This model is unique as it has a supracrestal attachment apparatus.

Please unroll your instrument kit

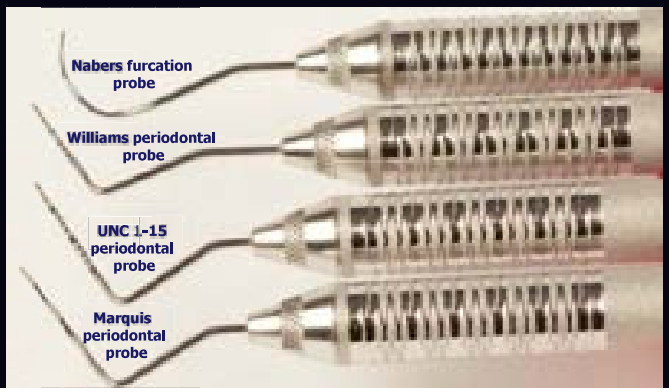


Please do not remove the instruments yet

These are the instruments that will be discussed for diagnostics in this course.



Periodontal probes



Periodontal probe, identification of parts:

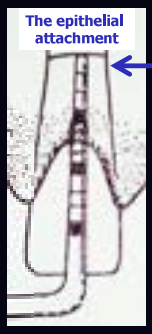
Please hold the UNC periodontal probe

Instrument Grasp

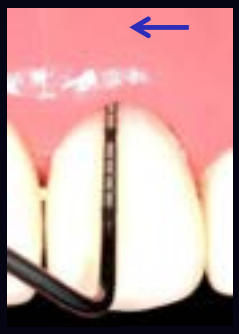
Use a modified pen grasp

A finger rest is essential for stability

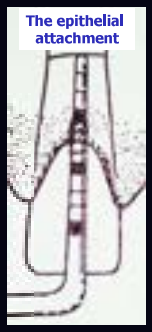
How deeply does the probe penetrate?



The tip of the probe touches the most coronal part of the epithelial attachment (AKA the junctional epithelium)



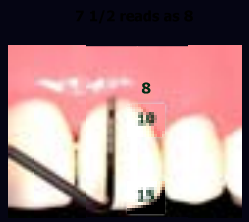
What is epithelial attachment?



The epithelial attachment is a glycocalyx (protein) secreted by the epithelial cells.

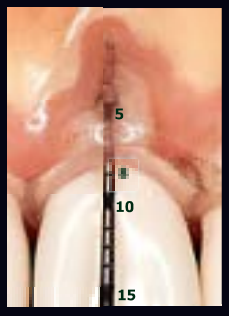
Reading your probe for accuracy

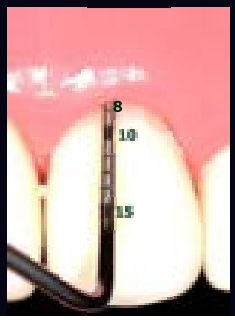
If the margin of the gingiva rests between two numbers read it as the higher number.



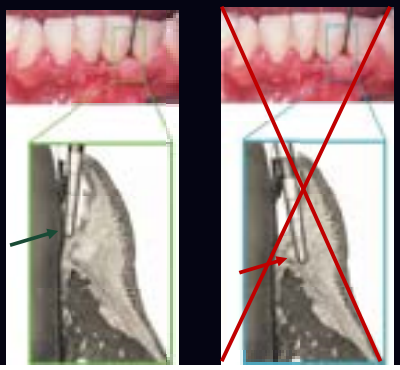
Practice reading your probe

Place your probe on the facial of tooth #9





Maintain the probe as parallel to the tooth as possible with the tip always on the tooth surface



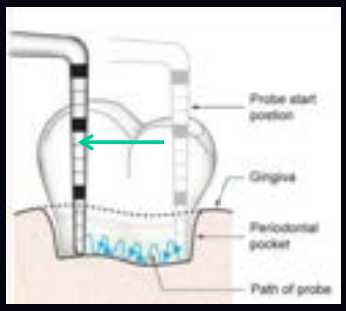
It is necessary to probe beyond calculus

If the probe hits something hard, it is NOT the attachment.

Please probe the mesiofacial of #7 probing beyond the calculus

Circumferential probing

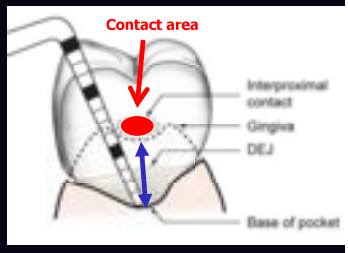
- Walk the probe from distal to mesial at 2mm intervals
- Maintain the probe in the sulcus and record the deepest pocket depth in each sextant of the tooth.



Correct angulation of the probe for interproximal pocket measurements

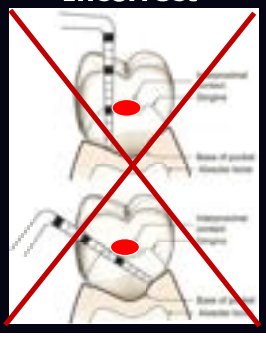
Measuring probing depths interproximally

- Angle the probe so that the tip rests on the epithelial attachment just beneath the contact area.
- The side of the blade rests next to the contact between the two proximal teeth.

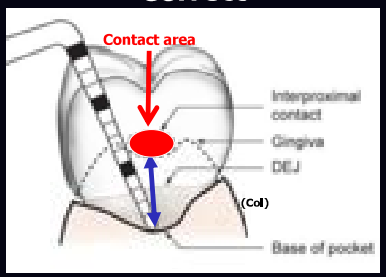


Accurate interproximal probing

Incorrect



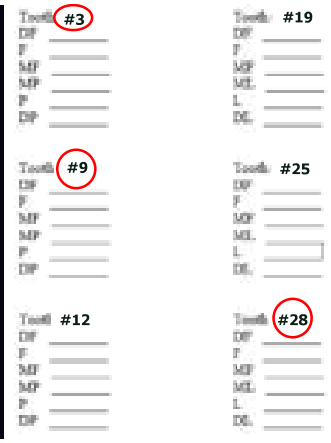
Correct



Drawings by Dr. Stephen Comstock

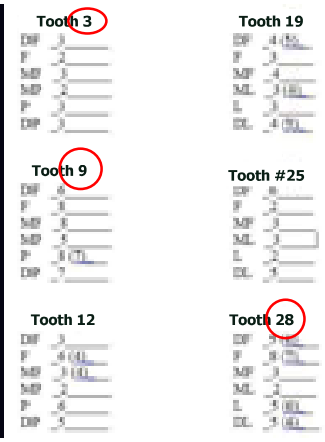
The Nabers furcation probe

Please detect the furcation on tooth # 30



An exercise

On the paper in front of you, please write the probing measurements for teeth #s 3, 9 & 28



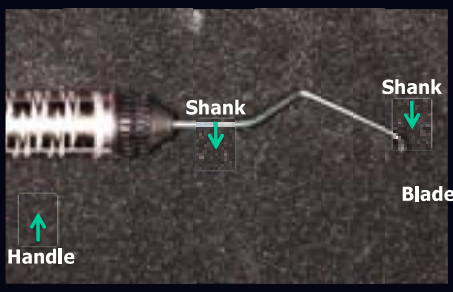
An exercise

Answers for the probing measurements

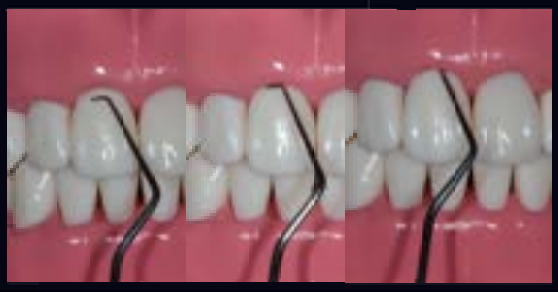
Please place your periodontal probe and Nabers probe in the red roll-up in the far left-hand side slots.

Calculus detection

Please hold and examine this TU-17 explorer

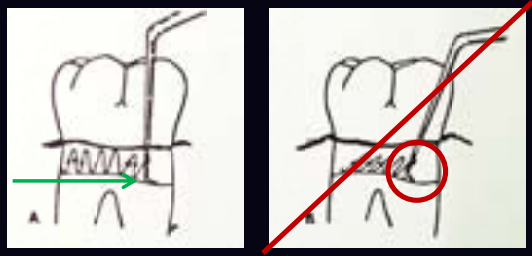


Inserting the explorer tip subgingivally



After insertion, the explorer always moves in the direction of the tip.

When using an explorer, always move in the direction of the tip

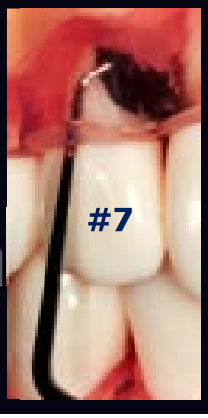


Drawings courtesy of Drs. Esther Wilkins, CPDH and Robert Rudy, DMD

The tip of the explorer MUST always be on the tooth or calculus to avoid soft tissue injury

Calculus detection with the TU-17

Please insert the #17 explorer subgingivally on the distal of teeth #s 7 and 10 and move it with a walking stroke towards the mesial.



Calculus detection

Detect the calculus on the lingual of tooth #22

Maintain the back side of the blade touching the epithelial attachment during the apical stroke as the explorer is walked apico-occlusally towards the mesial or the distal.

Compare the ODU 11/12 with Gracey 11/12

The ODU 11/12 is fashioned after the Gracey 11/12 curette, because of this you must be careful to only use the tip of the explorer and not a lateral side.

Please practice using the OD 11/12

Tooth #30
D
F
M
L

Tooth #31
D
F
M
L

Tooth #28
D
F
M
L

Tooth #15
D
F
M
L

Tooth #25
D
F
M
L

Tooth #14
D
F
M
L

An exercise

Please write "yes or no" for detecting Calculus Teeth #s 12, 19, 25

Tooth #30
D No
F No
M No
L Yes

Tooth #31
D Yes
F No
M No
L No

Tooth #28
D No
F No
M No
L Yes

Tooth #15
D Yes
F No
M No
L No

Tooth #25
D Yes
F No
M No
L No

Tooth #14
D No
F No
M No
L Yes

An exercise

Answers regarding the teeth with calculus

Please place the TU-17 next to the Nabers probe, followed by the ODU 11/12 in the red rollup and return the Kinoshita models to their respective boxes.

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Hand instrumentation

With an accurate diagnosis, thorough instrumentation can be provided.

Paul A. Levi, Jr. D.M.D.

Examples of instruments that we will discuss in this course

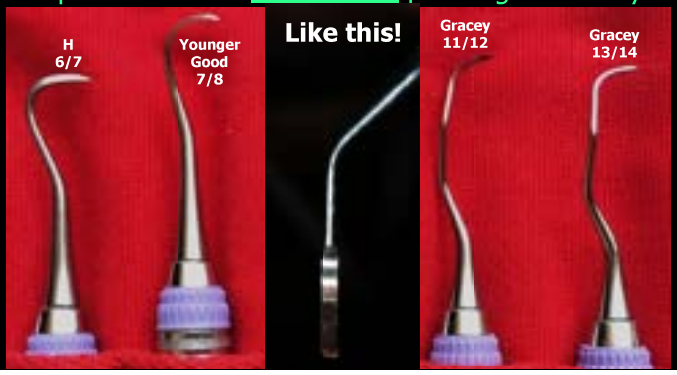
Sickle scaler

Universal curette

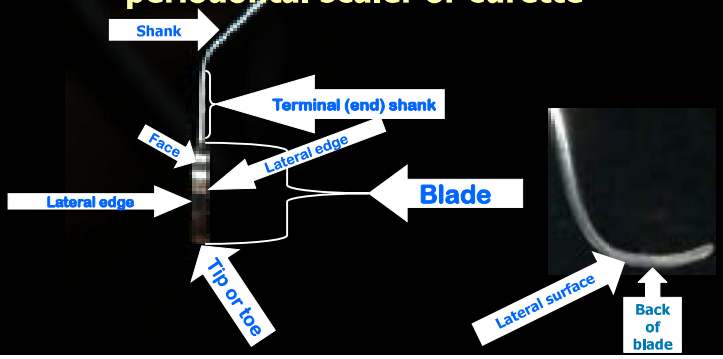
Gracey curette

Please remove the next five lavender banded instruments up to the green banded instrument

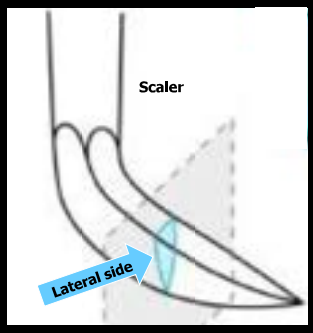
Please hold any one of the five instruments vertical with the tip or toe of the lower blade pointing towards you.

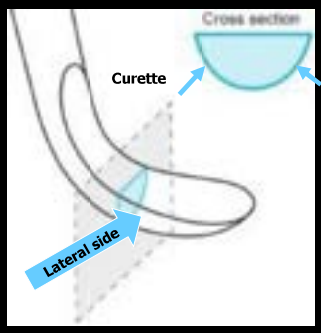


Nomenclature of the blade for ANY periodontal scaler or curette

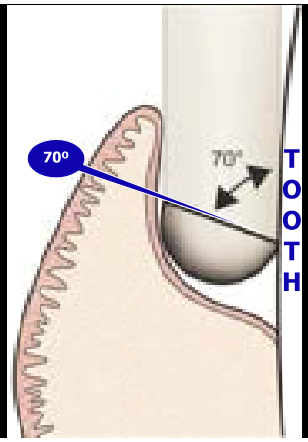


Lateral surfaces (sides)





Drawings: courtesy of Drs. Esther Wilkins, CPDH and Robert Rudy, DMD



Blade angulation for scalers and curettes

The ideal angle of the face of the blade to the tooth for efficient scaling or root planing is **70°.**

Scaling*

Instrumentation of the crown and root surfaces of the teeth to remove plaque, calculus and stains with scalers and curettes.

***American Academy of Periodontology Glossary of Terms**

Root planing*

Is done subgingivally only and with curettes

Root planing: a treatment procedure designed to remove cementum or surface dentin subgingivally that is rough, impregnated with calculus, and contaminated with toxins from the microorganisms.

*American Academy of Periodontology Glossary of Terms

Key issues in Scaling and Root Planing*

- Dentin and cementum act as a reservoir from which periodontal pathogenic bacteria can re-colonize and contribute to re-infection.
- Subgingival calculus is very porous allowing live microbes to exist within its structure and can act as a slow-releasing device.
- The presence of invasive bacteria has been demonstrated in cementum and radicular dentin.
- Bacterial endotoxin is adsorbed onto exposed root surfaces; however, it exhibits weak surface binding.

*Cobb CM, Sottosonti JS, A re-evaluation of Scaling and Root Planing *J Periodontol* 2021;92:1370-78

Hand scaling and root planing objectives:

- **Completely remove calculus** (~~plaque and stain~~) from the tooth surfaces.
- Achieve a smooth root surface to facilitate the patient's plaque removal.
- Remove minimal tooth structure.
- Ensure that the patient is comfortable.

The use of local anesthetics for ScRP:

As root planing is done subgingivally in inflamed pockets, patients must be comfortable!

This means using local anesthesia either topical or injectable…usually injectable.

When root planing, it is necessary to access the root to or apical to the epithelial attachment.

With plaque and calculus on the root there is inflamed sulcular gingiva with ulcerations in the epithelium exposing nerve endings.

The root has dentinal tubules with nerve fibrils.

Root planing – When and Where

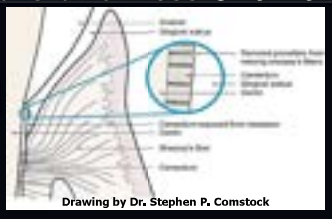
- Is done during active or maintenance therapy for patients with present or past periodontitis.
- Is for the removal of **subgingival** plaque, calculus, and cementum to assure smooth subgingival root surfaces regardless of the probing depths.

Root planing goals

To achieve a smooth subgingival root surface.

To remove the coronal cementum, which is 16-60 microns thick about the thickness of a hair.

With periodontitis, Sharpey's fibers have moved apically leaving rough root surfaces.



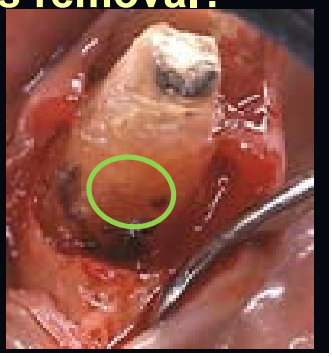
Drawing by Dr. Stephen P. Comstock

What are the probing depth limits for effective calculus removal?

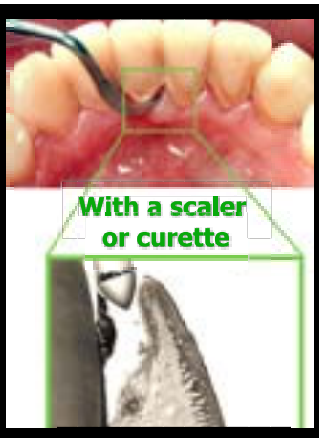
General rule:

Probing depths **≥ 5 mm** have a high probability of incomplete root debridement and calculus removal.

This is a very important concept!



Hand Instru-menta-tion

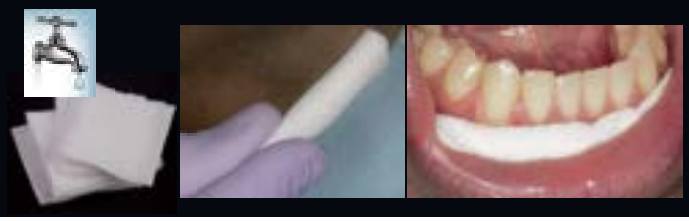


HANDS-ON

The use of gauze when doing scaling and root planing

The importance of using 2X2 gauze with hand scaling or root planing

1. Dampen it and roll it tight like a cotton roll.
2. Place it in the vestibule facial and lingual of the mandible and facial of the maxilla.



The uses of when doing scaling and root planing

3. Wipe your instrument blade.
4. Blot blood from gingival margin.
5. Provides a dry and comfortable non-skid finger rest.

More reasons to use when doing scaling and root planing

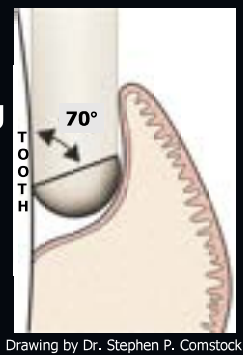
6. Helps to keep tongue away from work area.
7. Retracts lip and cheek.
8. Provides access and more visibility.

Parameters for scalers

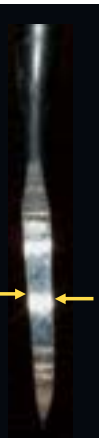
There are two lateral cutting edges.

The tip is *never* a cutting edge.

The ideal angle of the face of the blade to the tooth for any periodontal scaler or curette is 70°.



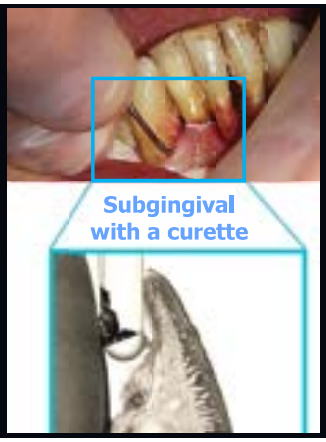
Drawing by Dr. Stephen P. Comstock



Please hold your H6/7 curved scaler as pictured →

Courtesy: Ruben Ovadia

ROOT PLANING



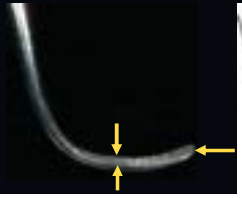
Dr. Mahmoud Hamad

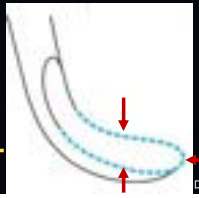
Curettes are used supra and sub gingivally

Universal curette **Gracey curette**

Universal Curettes

- Can be adapted to most tooth surfaces
- Useful for gingival curettage.
- There are **three** cutting surfaces, the two lateral edges and the toe.





Please hold your Younger-Good 7/8 curette

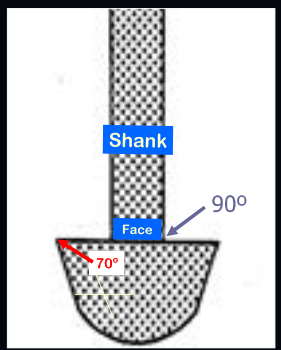
Drawing by Dr. Stephen P. Comstock

Universal curettes

This is your Y-G 7/8

The face of a universal curette is 90º to its terminal shank.

The lateral surface is a 70º internal angle to the face of the blade.



Drawing by: Drs. Wilkins and Rudy

Please place the Y-G 7/8 curette on the mesial of tooth #27 or #6.

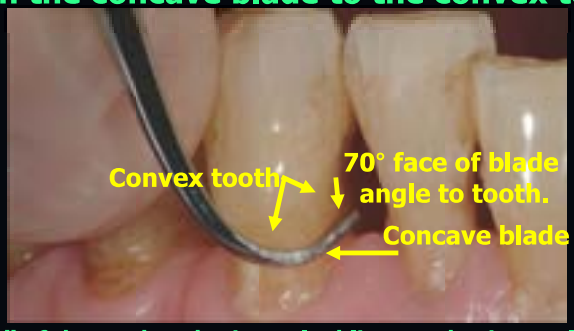
Tip the handle in order that the blade will create a 70° angle of the face of the blade to the tooth.

Blade actions (strokes)

For subgingival scaling or root planing use all strokes.
Please practice the strokes on all teeth.

Drawings courtesy of Dr. Stephen Comstock

Please use the Y-G 7/8 on all teeth all areas.
Match the concave blade to the convex tooth.



Try all of the strokes: horizontal, oblique and apico-occlusal.

Please hold the three Gracey curettes

The surfaces of the teeth for which they were originally designed to be used:

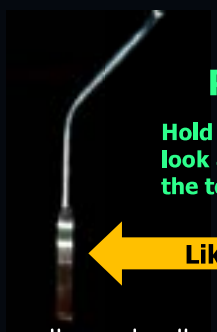
Gracey Curettes:

- Gracey 1/2, 7/8 (mesial and distal anterior teeth)
- Gracey 11 /12 (mesial posterior teeth)
- Gracey 13 / 14 (distal posterior teeth)

Gracey site specific curettes

- Very useful for fine **subgingival** root planing.
- Large variety of styles each of which is designed to root plane or scale all root surfaces.
- There are **two** cutting edges: the lateral edge and the toe.

Determining the cutting edge of any Gracey curette



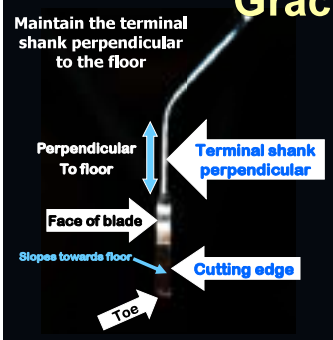
Please do this now:

Hold ANY Gracey curette vertically and look at the inferior (lower) blade with the toe pointed towards you.

Like this

All Gracey curettes are done the same way for determination of the cutting edge.

Determining the cutting edge of a Gracey Curette



Site/area specific

***Gracey* Curettes**

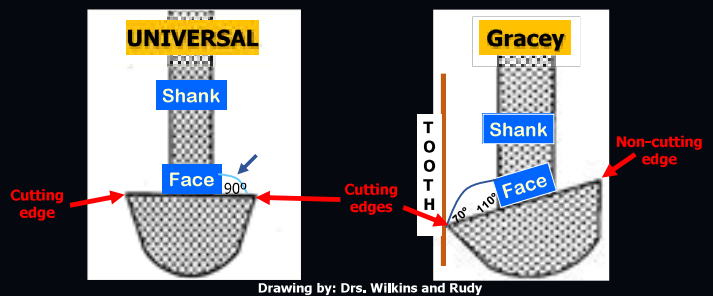
When the **terminal shank** of any Gracey curette is held **perpendicular to the floor**, then the ***cutting edge*** always slopes towards the **floor**.

Universal curette vs. Gracey curette

Please compare your Y-G 7/8 with a Gracey curette

The face of a **universal** curette is 90º to the terminal shank.

The face of a **Gracey** curette is 110º to the terminal shank.



Drawing by: Drs. Wilkins and Rudy

The many areas of use for a Gracey curette

The **TERMINAL SHANK** of any Gracey curette should be maintained **PARALLEL to the tooth surface that is being scaled or root planed using *any stroke* (vertical, oblique, horizontal), in order that the blade will be 70° to the tooth.**

This means that **any** Gracey may be used to scale or root plane **any** surface where the terminal shank can be maintained parallel to the tooth surface being treated.

Area/site specific Gracey curette (13/14)

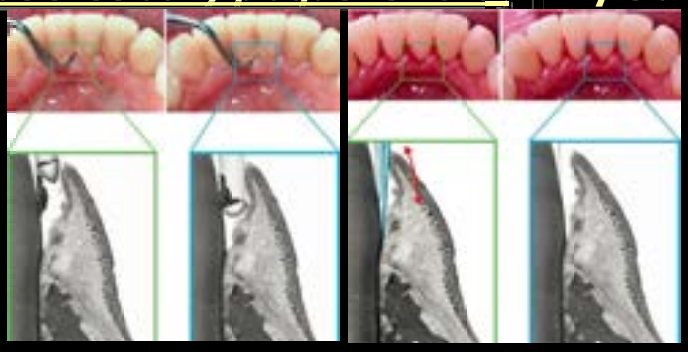
Let's practice of using the Gracey curette 1/2, 11/12, 13/14

Place a Gracey 1/2 curette on the mesial of tooth #27 and use a vertical stroke. Practice the interproximal and facial of the anterior teeth. Next use it with a horizontal stroke for the facial and lingual of the posterior teeth.

Place the Gracey 11/12 curette on the mesial of 12 and tooth # 30, using a vertical stroke. Then use it with a horizontal stroke for the facial and lingual of the posterior teeth Now do a vertical stroke for the mesials of all posterior teeth.

Place the 13/14 curette on the distals of 18 and 2, using a vertical stroke and a horizontal stroke. Then use it with a vertical stroke for the mesials and distals of the anterior teeth. Be sure to change your position around your patient as you work.

Calculus removal combined *with the patient's daily plaque removal* will yield...



Healthy results!

Please replace the regular lavender banded instruments in the red roll-ups beginning with the H-6/7 scaler then the Y-G 7/8, then the Graceys 7/8, 11/12 and 13/14

Today's schedule

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  - Motivation of the dental patient
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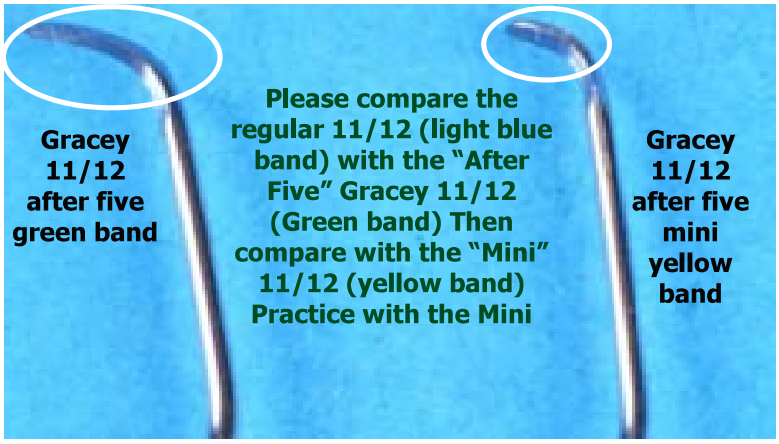
- Hand instrument sharpening
- **Specialized hand instruments**
- Ultrasonic instrumentation
- Air polishing
- Conclusion

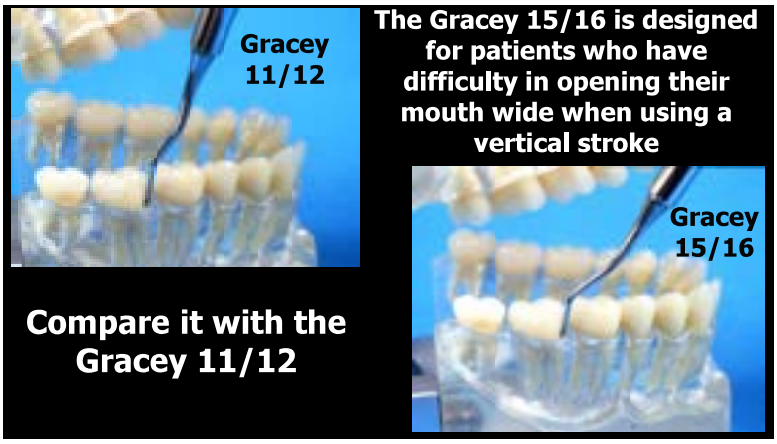
Specialized hand instruments

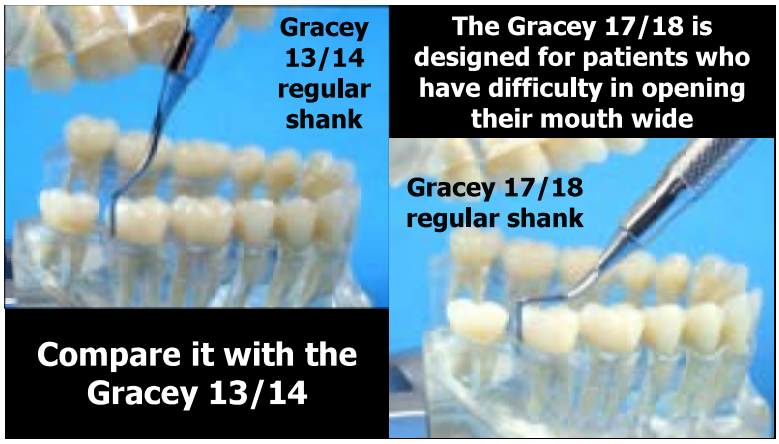
Dr. Kyle Wright

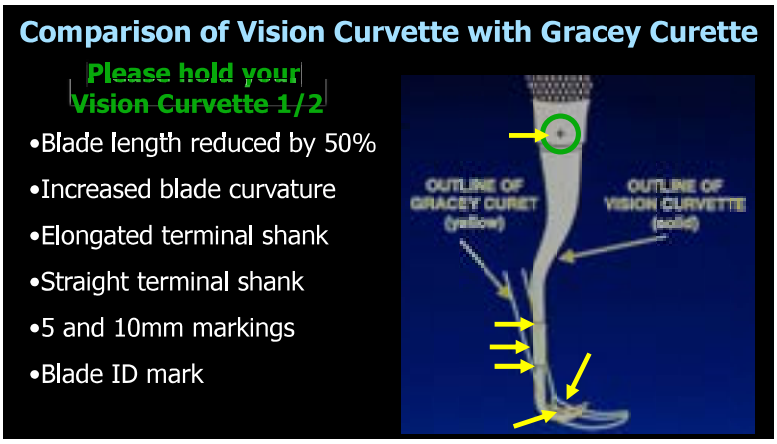
Please remove and hold the five special instruments from the middle of your kit

Specialized Gracey curettes


Gracey 11/12 after five green band
Please compare the regular 11/12 (light blue band) with the "After Five" Gracey 11/12 (Green band) Then compare with the "Mini" 11/12 (yellow band) Practice with the Mini
Gracey 11/12 after five mini yellow band


Gracey 11/12
Compare it with the Gracey 11/12
The Gracey 15/16 is designed for patients who have difficulty in opening their mouth wide when using a vertical stroke
Gracey 15/16


Gracey 13/14 regular shank
Compare it with the Gracey 13/14
The Gracey 17/18 is designed for patients who have difficulty in opening their mouth wide
Gracey 17/18 regular shank


Comparison of Vision Curvette with Gracey Curette
Please hold your Vision Curvette 1/2
•Blade length reduced by 50%
•Increased blade curvature
•Elongated terminal shank
•Straight terminal shank
•5 and 10mm markings
•Blade ID mark
OUTLINE OF GRACEY CURET (yellow)
OUTLINE OF VISION CURVETTE (solid)


Four Vision Curvettes®
1/2 Vision Curvette
13-14 Vision Curvette


Please return the special instruments to the roll-up in this order

Other specialized instruments: Plastic implant probe titanium scalers

Visualize the blue shank and blade titanium scalers.

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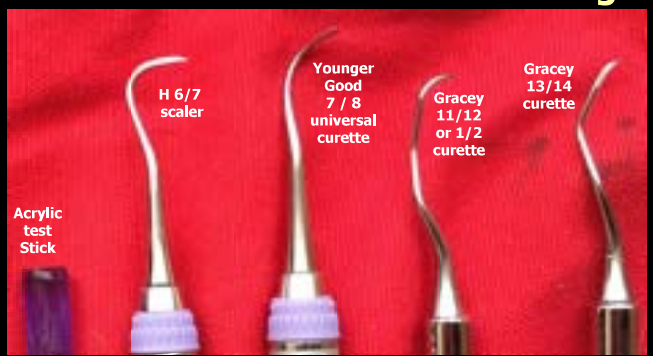
Hand instrumentation sharpening

Paul A. Levi, Jr.

Springtime - Burlington, VT

On the right-hand side of your red roll-up remove the four instruments: the scaler, the Y-G 7/8 and two Gracey curettes. Also, remove the plastic test stick.

The sharpening instruments are only the four dull instruments on the far right

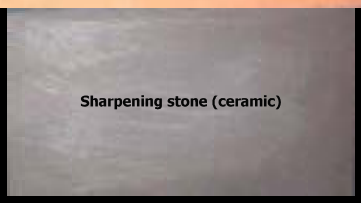


INSTRUMENT

SHARPENING

There are a variety of sharpening devices

Sharpening stone (India)



Motorized sharpening stone

Today we will use Sharpening Cards Hu-Friedy

Please try all three grits

Advantages of Sharp vs. Dull Instruments

- Much more precise in cutting.
- Less pressure against the tooth.

- Good control of the instrument with optimum tactile sensitivity.
- Less chance of the instrument slipping.
- Less operator fatigue and frustration.

Goals of instrument sharpening...

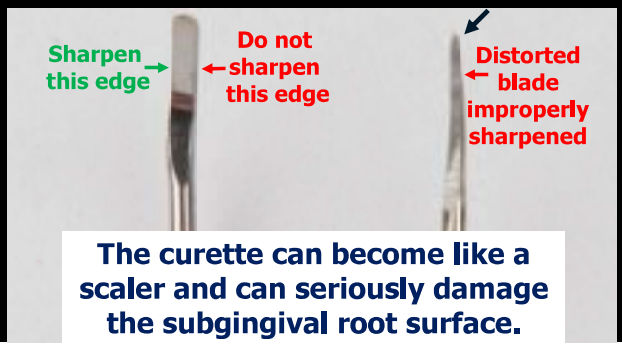
- to restore a fine, thin, linear cutting edge in order to facilitate the removal of calculus and to allow for root planing leaving a smooth, hard surface.
- to minimize the amount of instrument removed during the process of sharpening.

Goals of instrument sharpening (Cont.)

- **to maintain the original shape of the instrument and angles of the cutting edge.**

It is important not to distort the angles of the blade as the effectiveness of the instrument is greatly diminished, and operator stress is significantly increased.

The shape of the blade becomes distorted when the wrong edge of a Gracey curette is sharpened or the toe is not rounded.

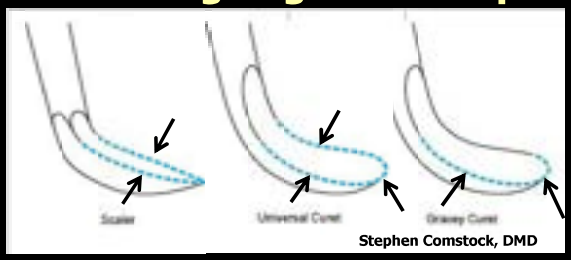


The curette can become like a scaler and can seriously damage the subgingival root surface.

When to sharpen hand instruments…

- **Always, before they are to be used!!**
- **When they become dull during use.**

The cutting edges to sharpen

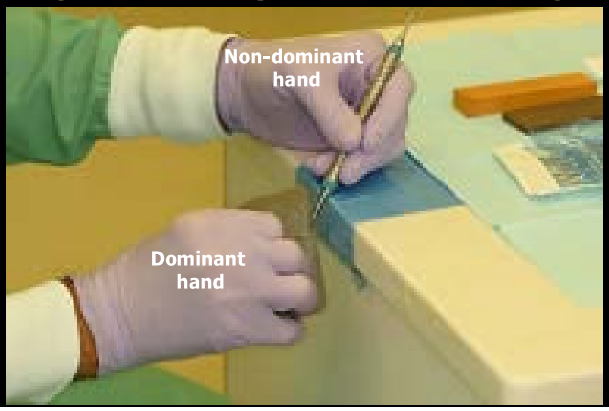


- Sickle scalers (2)
- Universal curettes (3)
- Gracey Curettes (2)

Please take and hold your H 6/7 scaler

Place it on the corner of a desk, counter, or table that has a barrier.
The tip of the blade should point towards you with the face of the blade parallel to the tabletop.
The instrument should be held firmly against the corner with your non-dominant hand.

Technique: Stationary Instrument, Moving Stone



How to evaluate sharpness

Reflected light:

A sharp cutting edge will not reflect light. A dull edge shows a bright line of reflected light coursing the length of the blade.

"Test stick":

A sharp instrument "bites" (catches) into the acrylic stick.

"Use it":

As you are working you will know when the instrument is dull due to loss of efficiency

Sharpening technique:

"Stationary instrument moving stone"

Please return the four instruments and the test stick to the roll-ups in this order

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Power Instrumentation

Ronald M. Fried, DMD, MMSc

Power instrumentation

- **Ultrasonics**
  - Types
  - Advantages
  - Disadvantages
  - Proper tip Selection
  - Technique
- **Hands-On Ultrasonics**
  - Magnetostrictive
  - Piezoelectric
- **Air Polishing**
  - Changing Paradigms
  - Uses for natural teeth and implants

Ultrasonics

When you see this

You might need this!

Increasingly more common!

Types of Ultrasonics Scalers

– Magnetostrictive

– Piezoelectric

Characteristics of magnetostrictive ultrasonic scalers

- Elliptical motion.
- All tip surfaces active.
- Must be water cooled, tips and handle become hot.

Characteristics of piezoelectric ultrasonic scalers

- Sides of tip most active.
- Minimal heat production.

Ultrasonic Scalers

Piezoelectric:	Magnetostrictive:
Highest power	High power
Lateral surfaces active	All surfaces active
Minimal heat production	Must be water cooled, tips and handle get hot

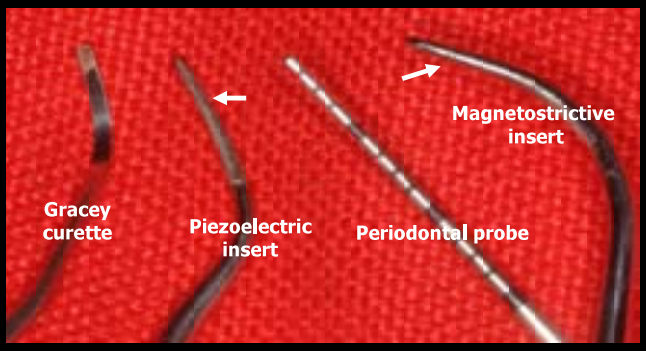
Both: Adjustable power, water, and coolant options

Advantages of Ultrasonics:

Improved Access

- Thin tips; large variety.
- More effective in anatomically difficult access areas:
  - concavities, root proximity
  - deep narrow pockets, at CEJ
- More effective in Class II and III furcations than hand instruments.

Comparison of instrument thickness



Advantages of ultrasonics:
Ease of use

- Less technically demanding.
- Effective with light pressure.
- Reduced fatigue.
- No sharpening necessary.
- Easier stain removal than with hand instruments.

Advantages of ultrasonics:
Antimicrobial

- Lavage: flushes pocket/endotoxins.
- Cavitation: disruption of bacterial cell wall.
- Acoustic microstreaming/turbulence.
- Can add antimicrobial to lavage.

Y Baehni, P., Thilo B., Chapuis, B., Pernet, D.: "Effects of Ultrasonic and Sonic Scalers on Dental Plaque Microflora in Vitro and in Vivo." J of Clinical Periodontology 19: 455, 1992.

Advantages of ultrasonics:
Reduced tissue damage

- Less root surfaces removal.
- Less soft tissue damage.
- Can work coronal-apically.

Disadvantages of Ultrasonics

- **Aerosol** : bacteria and viruses.
- Loss of tactile sensitivity.
- Patient comfort (sensitivity, water, noise).
- Cost > for ultrasonics than hand.

Aerosol Management

- Pre-Procedural Mouth rinse
  - 0.2% Chlorhexidine, 30 sec, ½ Oz
  - 1.5% H2O2, 30 sec, ½ Oz
  - Bacterial and Viral reduction
- Highspeed Evacuation (HVE)
  - Wide bore-8ml
  - 300L/min
  - 90% (can be as high as 98% reduction)
- PPE
  - Well fitted mask
  - Face Shield
- Retraction
  - Ease of access for HVE, Optragate
- Air Filtration
  - Hepa, UV, ionization, Hydrochlorous Acid (ULV)

Tip Selection

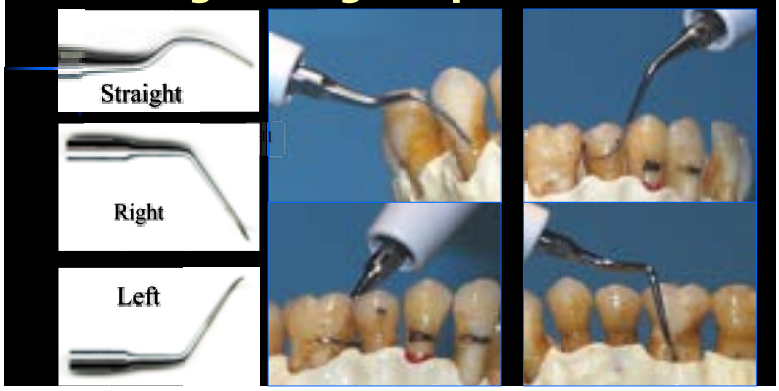
Piezoelectric

Magnetostrictive

Tip selection decisions:

- Size:
  - Wide: high power, less wear.
  - Narrow: reduced power, more wear.
- Shape:
  - Round: equal force distribution.
  - Rectangular/Edge: higher at edge.
- Length and Angle variations.

Selecting the Right Tip: Piezoelectric



Selecting a Correct Tip: Magnetostrictive

Tips on Tips

Tips wear!

- 1mm of wear = 25% loss of power
- 2mm of wear = 50% loss

Measuring card | Measuring card | Measuring card

Implant Maintenance with Titanium Ultrasonic tips

Ultrasonics vs Hand

- No significant difference between hand or ultrasonic scaling regarding calculus/plaque removal.
- Ultrasonics superior to hand instruments in access to furcations and groove.
- Ultrasonic and inserts were able to reach and debride the apical plaque border in pockets ranging from 4 to 7 mm.

Ultrasonics vs Hand

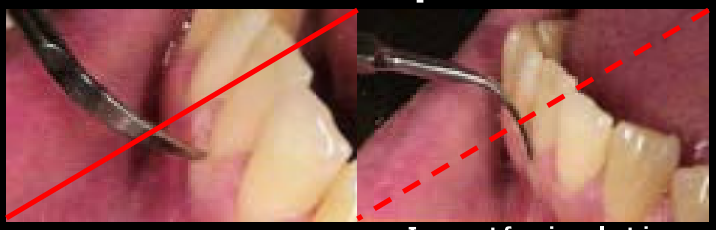
- Similar effect on resolution of inflammation.
- Endotoxins are surface adherent.
- **The combination of ultrasonics and hand instrumentation is more effective than either technique alone.**

Power instrumentation technique: Correct Adaptation

Adapt the tip like you would a periodontal probe.

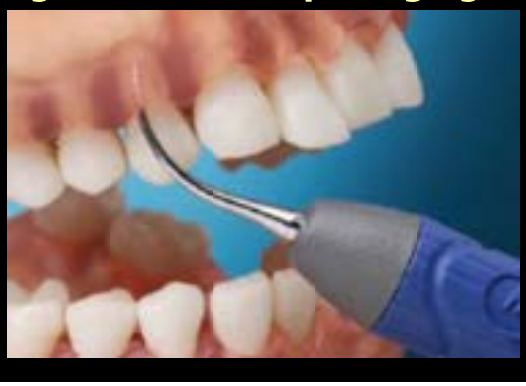
Power instrumentation technique

Incorrect adaptation



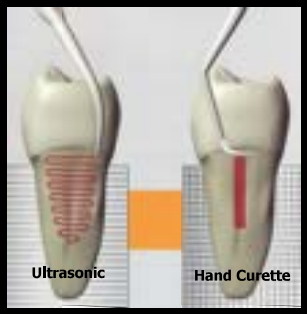
Incorrect for piezoelectric

Using the Correct Tip Subgingivally



Ultrasonic instrumentation technique vs. hand curette

- Constant light contact with the tooth.
- Constant movement of tip.
- Sweeping, overlapped strokes with light pressure keeping in mind that it is similar to coloring a picture with a sharp pencil point.



Ultrasonic instrumentation technique

Now let's practice using the magnetostrictive and piezoelectric

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- **Air polishing**
- Conclusion

Dual unit

Hu-Friedy air polish and piezoelectric unit

Air Polishing:

Expanding Uses/Changing Paradigms

Evolution of Air Polishing

- Abrasive slurry of particles propelled by pressurized air and water started in 1945 for cavity preparations.
- Sodium Bicarbonate $NaHCO_3$ introduced in the late 1970's. Primarily used for supragingival stain and plaque removal.
- Glycine Powder introduced in 2001 allows efficient supra and subgingival biofilm removal.
- Erythritol Powder introduced in 2018 in U.S. as improvement over Glycine Powder.

Air Polishing with Glycine Powder/Erythritol Powder

- Glycine power:
  - Amino Acid, water soluble, non- toxic
  - Small particles 25-65 microns
- Erythritol Powder:
  - Naturally occurring sugar alcohol
  - 14 microns
- Less Abrasive than $NaHCO_2$
- Antimicrobial activity.
- More effective biofilm removal than hand instruments.
- Specialized subgingival delivery systems.

Glycine/Erythritol Powder causes minimal abrasion

- Small particle size: low Mohs hardness score.
- Minimal abrasion to root surface.
- Minimal abrasion to restorative materials.
- Minimal soft tissue damage.
- Insignificant abrasion on titanium surfaces.

Air Polishing Biofilm Removal following 5 seconds of treatment

Air polishing will NOT remove calculus

Plaque/Biofilm stained tooth with erythrosine before Rx.

Plaque/Biofilm stained tooth with erythrosine after 5 sec treatment with air polishing with Glycine powder.

Petersilka, G.J. Subgingival air-polishing in the treatment of periodontal infections. Periodont 2000 2011 55:124-142

Air Polishing and Dental Implants

- High prevalence of inflammatory disease about dental implants.
- Peri-Implant Mucositis-48%:
  - Inflammation confined to soft tissue.
- Peri-Implantitis-6-36%:
  - Inflammation associated with bone loss.
  - Hand Instrumentation is not effective in removing plaque from implant surfaces.

Air Polishing Natural Teeth and and Dental Implants with Glycine/Erythritol Powder

- Glycine/Erythritol air polishing does not damage Ti surfaces.
- Glycine/Erythritol removes biofilm as completely as does $NaHCO_3$, and it is also bacterial static (antimicrobial activity).
- Glycine/Erythritol demonstrated significant reduction of BoP at six months compared with curettes and chlorhexidine.

Consensus Conference Findings on Supragingival and Subgingival Air Polishing

Charles M. Cobb, DDS, MS, PhD; Diane M. Daubert, RDH, MS; Karen Davis, RDH, BSDH; Jodi Deming, RDH; Thomas F. Flemmig, Dr med dent, Dr med dent habil, MBA; Anna Pattison, RDH, MS; Jean-François Roulet, DDS; and Roger V. Stambaugh, DMD, MS Compendium of Continuing Education in Dentistry 2017; 38 (2)

1. Supra- and subgingival air polishing using glycine powder is safe and effective for removal of biofilms from natural tooth structure and restorative materials.
2. There is no evidence of soft-tissue abrasion when using glycine powder in an air-polishing device.
3. In periodontal probing depths of 1 mm to 4 mm, glycine-powder air polishing, using a standard air-polishing nozzle, is more effective at removing subgingival biofilm than manual or ultrasonic instruments.
4. At probing depths of 5 mm to 9 mm, using a subgingival nozzle, glycine powder air polishing is more effective at removing subgingival biofilm than manual or ultrasonic instrumentation.

Erythritol/Glycine Powder Air Polishing Delivery

Subgingival

tip

Using the Air Flow®

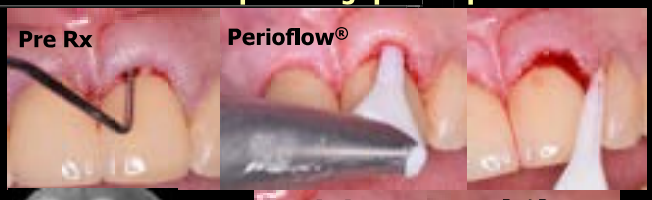
Subgingival tip

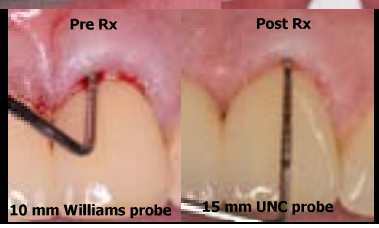
Subgingival plaque removal
Peri-implant mucositis treatment
Peri-implantitis treatment
Dentine hypersensitivity treatment

Glycine Powder Air Polishing Subgingival Delivery

5-10 sec per tooth surface (20-40 sec per tooth)

Treatment with air polishing: peri-implant mucositis





Please visit the Hu-Friedy Booth on the exhibition floor
#1233 to use the unit!

Today's schedule

- Introduction
  - Motivation of the dental patient
- Probing measurements and calculus detection
- Hand instrumentation
- Hand instrument sharpening
- Specialized hand instruments
- Ultrasonic instrumentation
- Air-polishing
- Conclusion

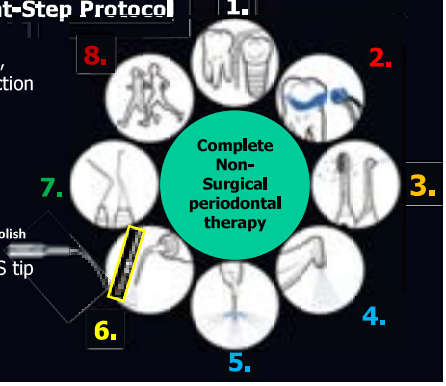
Conclusion

A comprehensive maintenance program is the key to successful dental therapy

An excellent sequence for your PDHT?

Eight-Step Protocol

1. **Assess:**
   Observe plaque control techniques, periodontal probing, calculus detection
2. **Disclose for instruction:**
   Visualize supragingival plaque
3. **Motivate and educate:**
   Teach by explaining **why**
4. **Therapy:**
   - **4.** Airflow® Supragingival
     5. Perioflow® Subgingival
     } Air Polish
   - **6.** Ultrasonic scale PIEZON® PS tip
   - **6.** Hand instrumentation
7. **Evaluate**
8. **Recall (Maintenance)**



What constitutes a PDHT appointment?

A realistic timeline for an hour appointment

Histories Medical, Dental, Social, Other	Observe Plaque Removal Techniques (PRT). Now no instruction.	Intraoral Exam Probing Depths, Check for Calculus Caries	Disclose instruct, educate, in PRT as needed.	Perform plaque & stain removal 1st with air polisher or rubber cup, then calculus removal with hand curettes, ultrasonic scalers	Re-instruct PRT if needed	Establish next patient-centered interval for PDHT based on present health and dental susceptibility.
		~15-20 minutes		~35-40 minutes		~5 minutes

So, what happens if you run out of time because there is too much disease?
Explain the issue to the patient and re-appoint for as soon as possible.
(Maybe a full hour will not be needed)

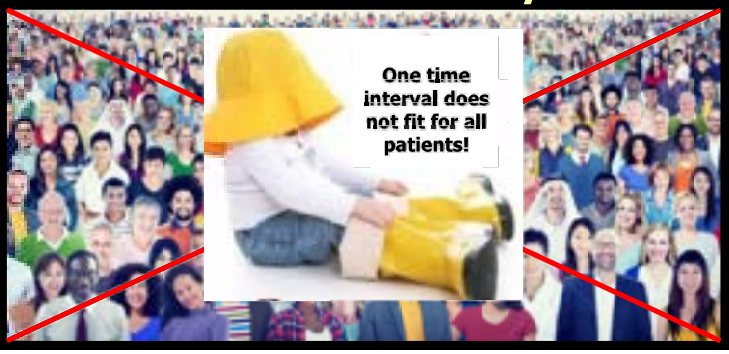
Maintaining great results!

- **Determine interval length for next hygiene therapy.**
  - –Discuss realistic treatment goals.
  - –Would periodontal pocket reducing surgery be beneficial?
  - –Does the patient need soft tissue grafting?
  - –Are there missing teeth that might be replaced with dental implants?

The maintenance interval depends upon:

1. The patient's present dental and physical health status including their self-motivation.
2. The patient's degree of susceptibility to dental diseases including risk factors such as smoking.
   a. Smooth surface caries: (Presence of Class 2, 3, 4, 5, restorations).
   b. Periodontal bone loss.
   c. The patient's phenotype.

A six-month dental hygiene maintenance interval is NOT for everyone!



With hygiene therapy only using an electric toothbrush (Bass tech.) and floss

The key to hygiene success is frequent initial visits until the patient is consistent with daily plaque removal using non-abrasive techniques.

Courtesy: Dr. Brian D. Shuman

Non-surgical therapy sometimes reduces recession

Rx: Plaque control technique instruction, scaling and root planing

Courtesy: Dr. Brian D. Shuman

Non-surgical therapy sometimes increases recession and increases health

Rx: Plaque control technique instruction (Bass intrasulcular) and submucosal scaling.

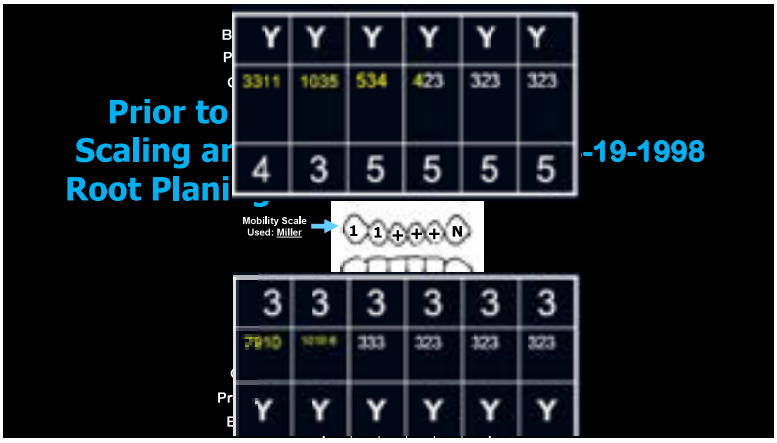
Courtesy: Dr. Brian D. Shuman

The power of non-surgical periodontal therapy

Active periodontal therapy

Case report: 4 ½ years

03-19-1998 – 11-22-2002



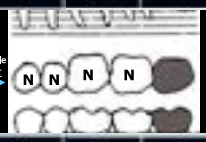
Prior to Scaling and Root Planing

Y	Y	Y	Y	
334	435	555	963	
3	4	3	3	

9-1998

Hamp

Mobility Scale Used: Miller



3	3	3	3	
434	436	7310	1057	
Y	Y	Y	Y	

4 1/2 years fol Scaling and I Planing

N	N	N	N	N	N
213	212	212	212	212	212
2	2	3	3	5	3

I-22-2002

Mobility Scale Used: Miller

3	3	3	3	3	3
211	111	111	111	111	111
N	N	N	N	N	N

4 1/2 years following Scaling and Root Planing

N	N	N	N	
212	212	223	222	
2	1	4	4	

11-22-2002

Hamp

Mobility Scale Used: Miller

3	2	2	3	
212	212	222	333	
N	N	N	N	

Active therapy, ScRP

Before ScRP

Following ScRP

03-19-98

11-22-02

Active therapy

Before SRP

Following SRP

03-19-98

11-22-02

The **Goal** today's workshop was...

to help provide each of you with some new knowledge and a review of the already known concepts and skills to assist your patients in reaching excellence in **dental and general health!**

Who bears the responsibility for dental/medical health?

Our responsibility is to do more than clean teeth

We all do!

Preventative treatment for health

Thank You!

The good clinician treats the disease; the great clinician treats the patient who has the disease. Dr. William Osler