Measuring the depth of periodontal pockets

DEFINITION of periodontal probe

- *A calibrated probe used to measure the depth and determine the configuration of a periodontal pocket*

Glossary Of Periodontal Terms. 2001 4 th Edition

- Periodontal probe and its use was first described by F.V. Simoton of the University Of California, San Francisco in 1925

Simonton FV. Examination of the mouth- with special reference to pyorrhea. J Am Dent Assoc 1925;72:287 - 295.

History

- Miller suggested probing of all pockets and recording their depth and putting this information on diagnostic chart.
- Simonton proposed flat probes 1 mm wide, 10 mm long, and notched every 2 mm. Box used special gold or silver probes that had different angulations

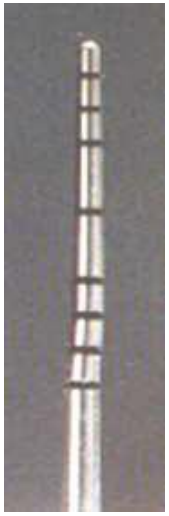
- The classification system included three generations of probes: first, second and third generations.
- In 2000, Watts extended the classification system to include a fourth and fifth generation of probes.

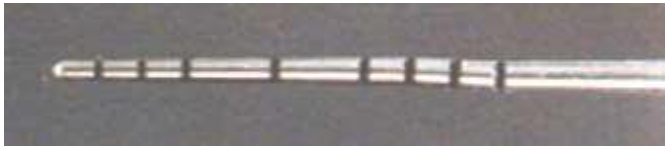
FIRST GENERATION

- First-generation probes -> manual, handheld instruments, also called conventional probes
- 1. Conventional probes
- 2. MICHIGAN “O” PROBE
- 3. NABER’S PROBE
- 4. GOLDMAN-FOX PROBE
- 5. WHO PROBE

https://www.slideshare.net/malvika014/periodontal-probes-64860621

- In 1936, Charles H. M. Williams. The Williams' probe,13 millimeters in length and one millimeter in diameter, with demarcation lines at 1, 2, 3, 5, 7, 8, 9 and 10 millimeters





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MICHIGAN “O” PROBE

- Markings are at 3, 6, and 8mm

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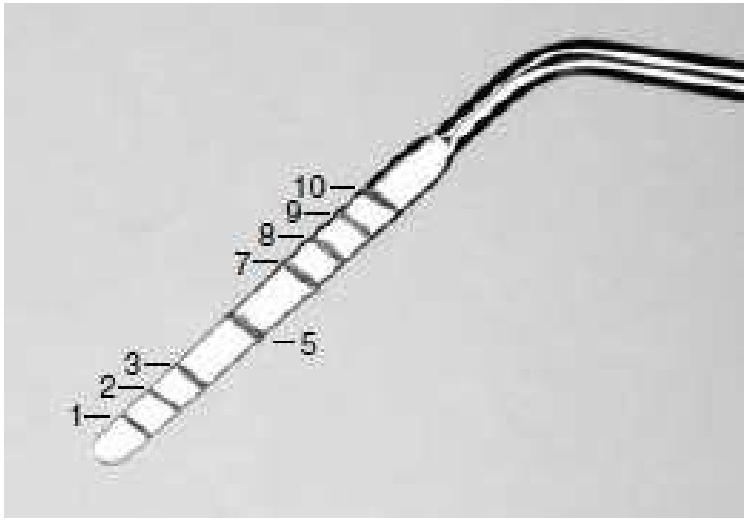
NABER'S PROBE

- Determine the extent of furcation involvement on a multi rooted teeth
- Curved working end for accessing the furcation area
- The depth of insertion of the probe into the furcation area determines the degree of furcation involvement

GOLDMAN-FOX PROBE

- Rectangular in cross section and has millimeter markings(mm) markings at 1-2-3-5-7-8-9-10



WHO PROBE

- The probe was designed for two purposes:

-Measurement of pocket depth.

-Detection of sub gingival calculus

- Weight = 5 gm

Used in the assessment of CPITN

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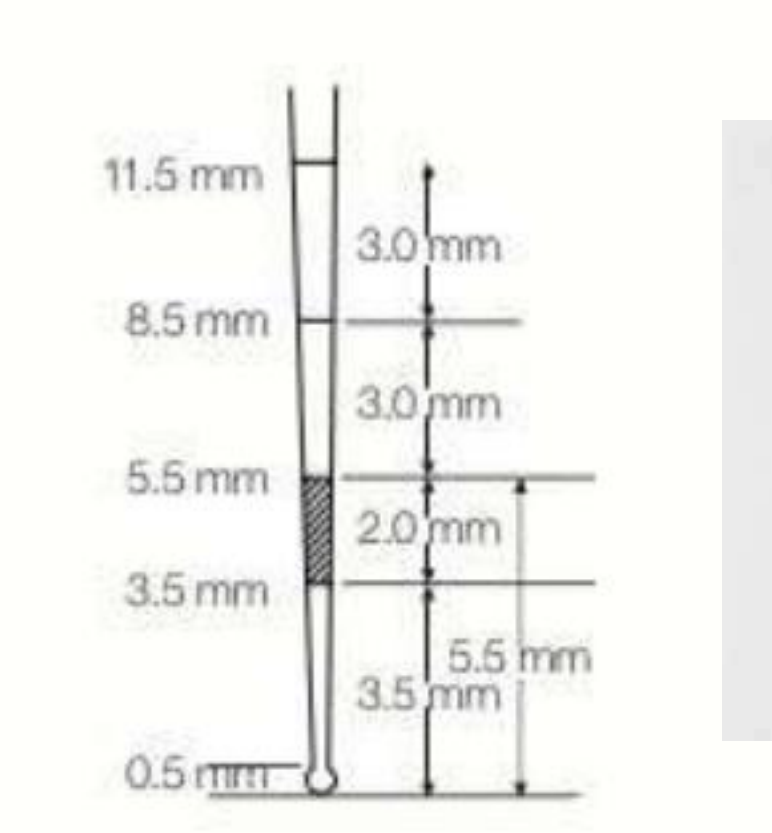
WHO (1978)– CPITN probe



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SECOND GENERATION PROBES

- Constant Pressure probes designed to provide for standardization of controlled probing pressure.
- 20 grams of force
- The TPS (True Pressure Sensitive) probe

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The TPS (True Pressure Sensitive) probe

THIRD GENERATION PROBE

- Third-generation probes refer to automated probing systems
- Software integrates with existing computer systems to provide computerized periodontal charting.

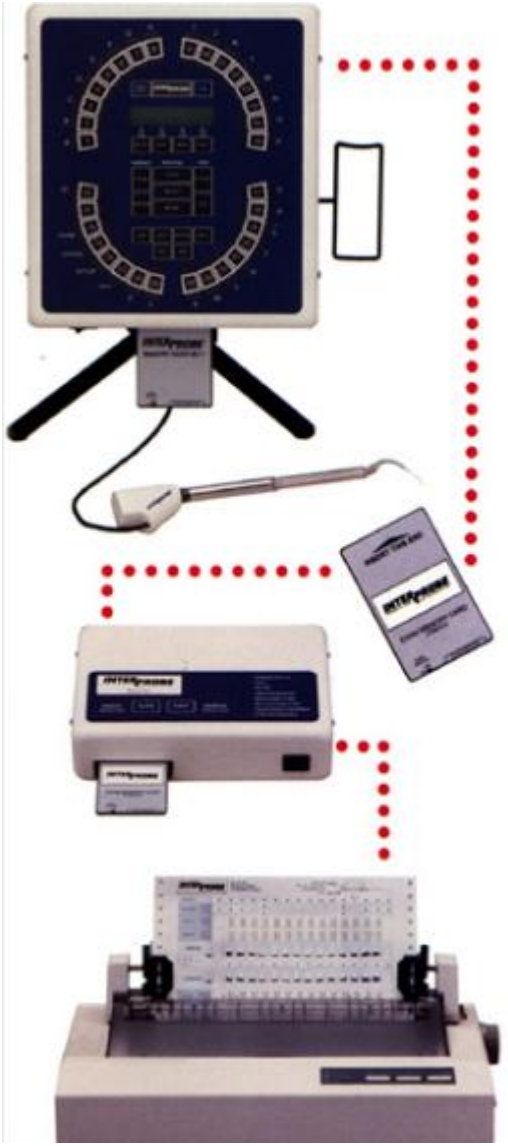
- The Florida Probe, first available in 1987, devised by Gibbs..is one such automated probing system that efficiently allows for hands free chartin and generates a detailed, computerized periodontal chart.
- The Florida Probe has a constant pressure of 15 grams and a precision of 0.2 millimeters

Florida Probe

- Foot switch
- Computer interface/personal computer. Probe tip has a diameter of 0.45 mm,
- Sleeve has a diameter of 0.97 mm . Constant probing pressure of 15 gm is provided by coil springs inside the handpiece.

INTER PROBE

- A flexible probe tip, which curves with the tooth as the probes enter the pocket area



FOURTH GENERATION PROBES

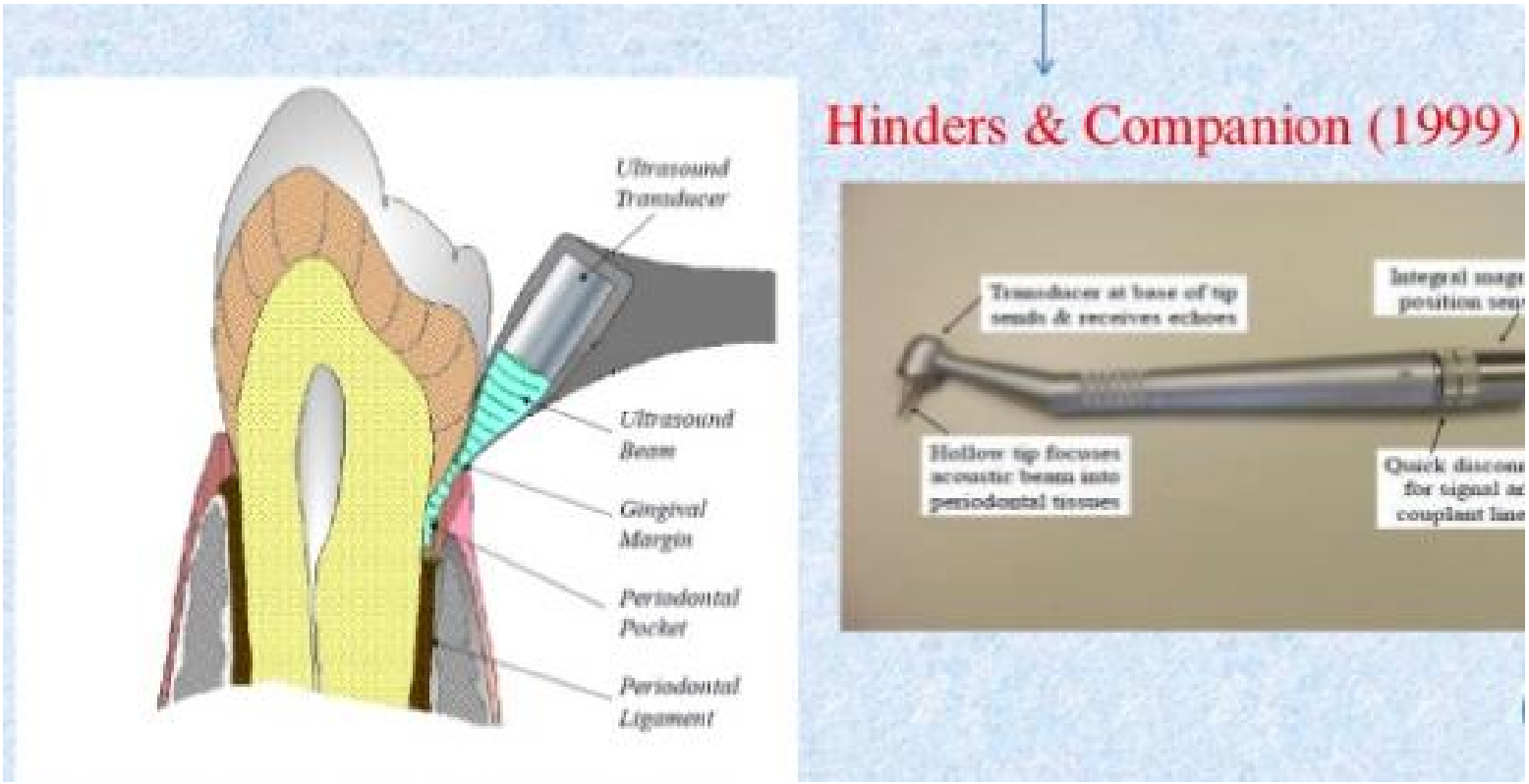
- Refer specifically to 3D technology,
- With the goal of obtaining a precise and continuous reading of the base of the sulcus or pocket.

FIFTH-GENERATION PROBES

- Designed to utilize ultrasound, in addition to 3D.
- Aim to accurately measure attachment levels without penetrating the Junctional epithelium
- For a more comfortable examination and a precise mapping

The US probe, ultra sonographic

Ultra sonographic probe



The Diamond Probe

- Detects periodontal disease during routine dental examinations by measuring relative sulfide concentrations as an indicator of gram-negative bacterial activity.
- Single-use disposable probe tip with microsensors connected to a main control unit

DIAMOND PROBE

PERIO – TEMP PROBE

- The Periotemp® Probe (Abiodent Inc, Danvers, MA) temperature-sensitive probe, detects early inflammatory changes in the gingival tissues by measuring temperature variations in these tissues
- Detects pocket temperature differences of 0.1oC from a referenced subgingival temperature

Factors Affecting Probing

- Design of the probe,
- Probing force,
- Probe position,
- Probing direction
- Pocket depth,
- Tissue inflammation

Design

- **1. Millimeter Markings**
- **2. Color Coding. Color-coded probes are marked in bands (often black in color)limeter Markings**

FUNCTION

- Determine the health of the periodontal tissues
- To measure pocket depths,
- To measure clinical attachment levels,
- To determine the width of attached gingiva, to assess for the presence of bleeding and/or purulent exudate (pus),and to measure the size of oral lesions

Working End

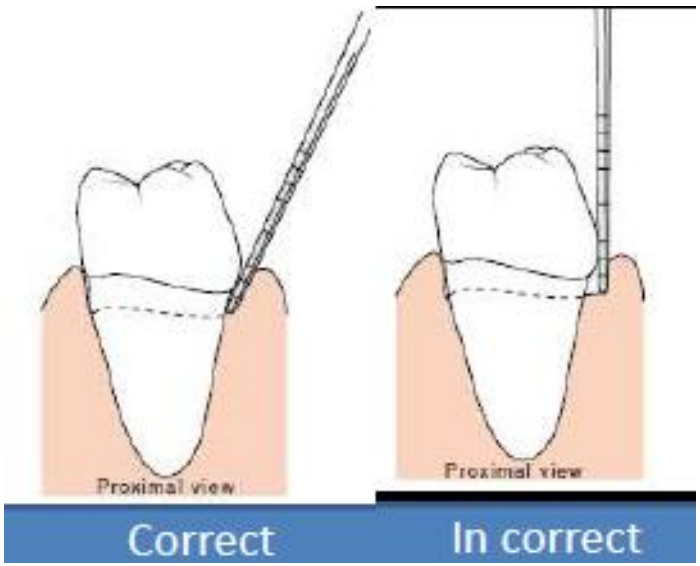
- **Working-End**
- • Blunt
- • Rod-shaped

- **Cross-section**
- • Round
- • Rectangular

Types
- Calibrated
- Non Calibrated

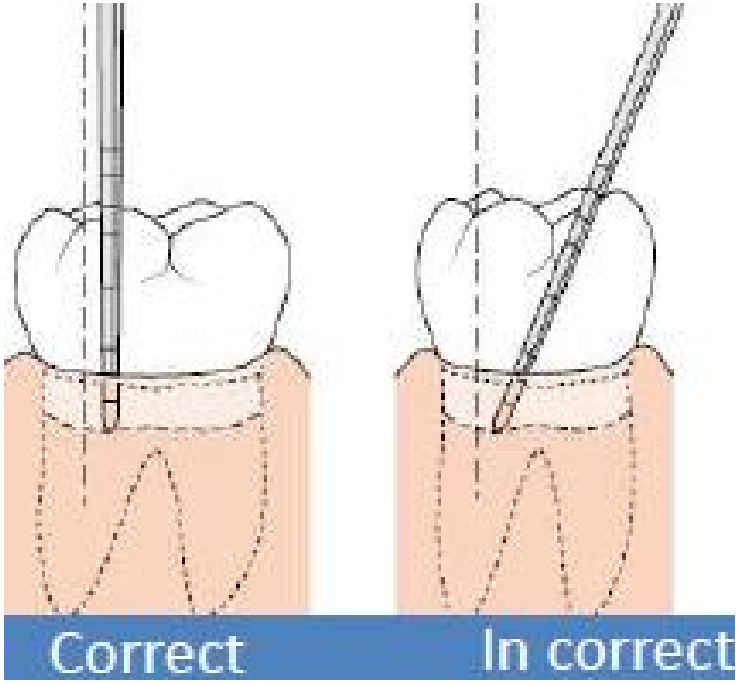
PRINCIPLES, **ADAPTATION**

- The side of the probe tip should be kept in contact with the tooth surface. The **probe tip is defined** as 1 to 2 mm of the side of the probe



PARALLELISM

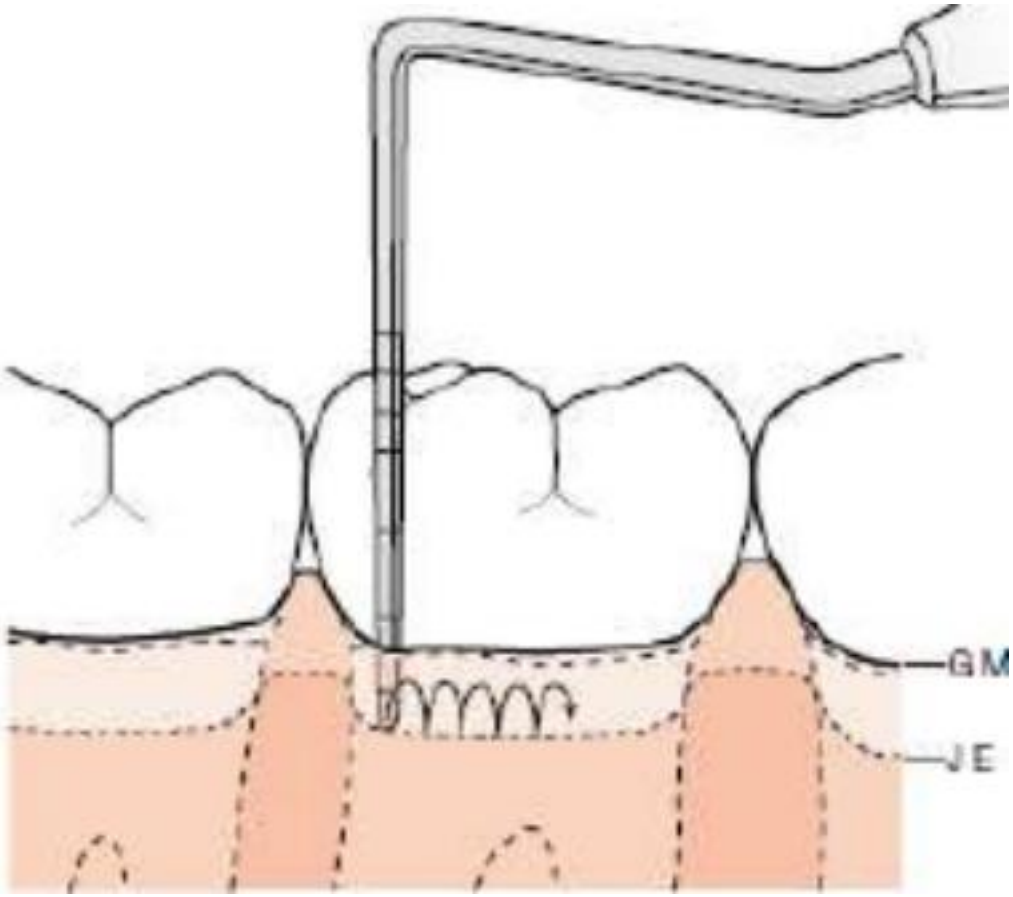
- The probe is positioned as *parallel as possible to the tooth surface.*



TECHNIQUE

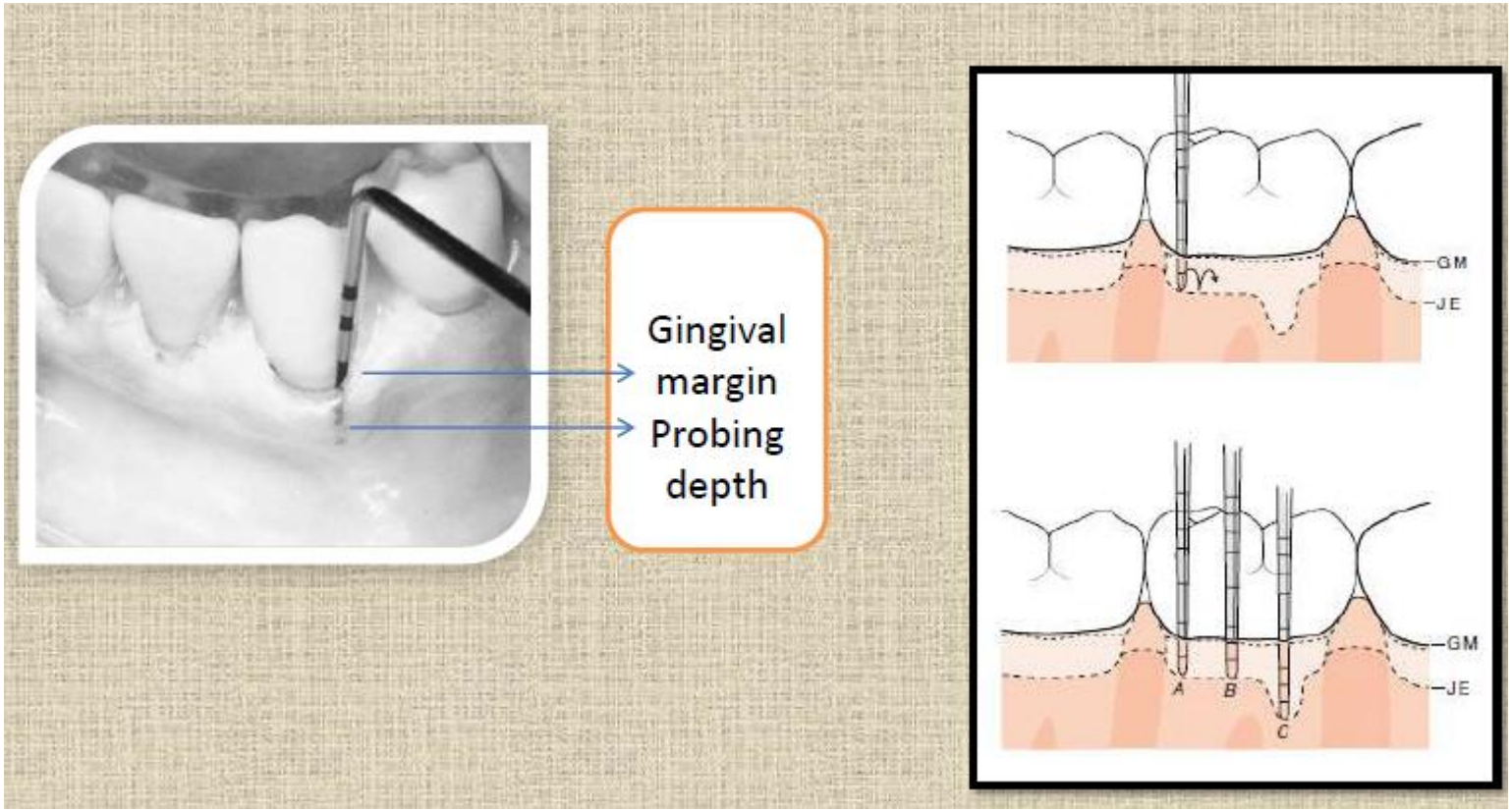
- Probing is the act of walking the tip of a probe along the junctional epithelium within the sulcus .
- THE WALKING STROKE
- The walking stroke is the movement of a calibrated probe around the perimeter of the base of a sulcus or pocket.
- Walking strokes are used to cover the entire circumference of the sulcus or pocket base.
- • It is essential to evaluate the entire “length” of the pocket base because the junctional epithelium is not
- necessarily at a uniform level around the tooth.

PRODUCTION OF THE WALKING STROKE



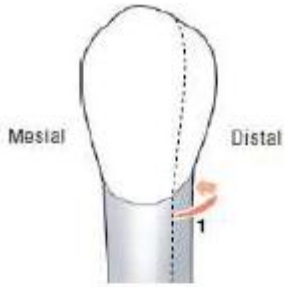
- 1. Walking strokes are a series of bobbing strokes that are made within the sulcus or pocket.
- 2. The probe is inserted until the tip encounters the resistance of the junctional epithelium that forms the base of the sulcus.
- 3. Create the walking stroke by moving the probe up and down in short bobbing strokes and forward in 1-mm increments .With each down stroke, the probe returns to touch the junctional epithelium.
- 4. The probe is not removed from the sulcus with each upward stroke.
- 5. The pressure exerted with the probe tip against the junctional epithelium should be between 10 and 20 grams.

WALKING THE PROBE

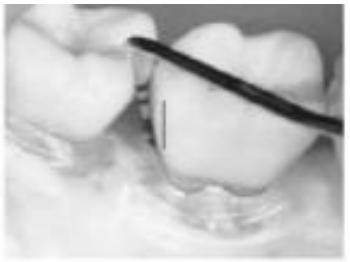


PROBING (ANTERIOR TOOTH)

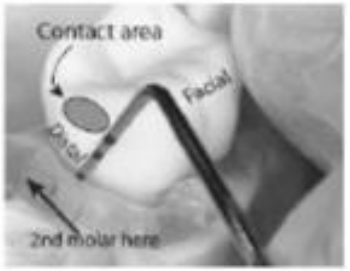
- **1.Begin on the distofacial or distolingual line**
- **2.Begin by inserting the probe at the distofacial line angle**
- **3. Walk toward the distal surface.**
- **4. Assess beneath the contact area. Tilt the probe and e**xtend the tip beneath the contact area. Press down gently to touch the junctional epithelium
- **5. Assess the facial surface. Make a series of walking** strokes across the facial surface.
- **6. Walk toward the mesial surface. Walk across the** mesial surface until the probe touches the contact area.
- **7. Assess beneath the contact area. On adjacent *anterior t****eeth, only a slight tilt is needed to probe the col area.***



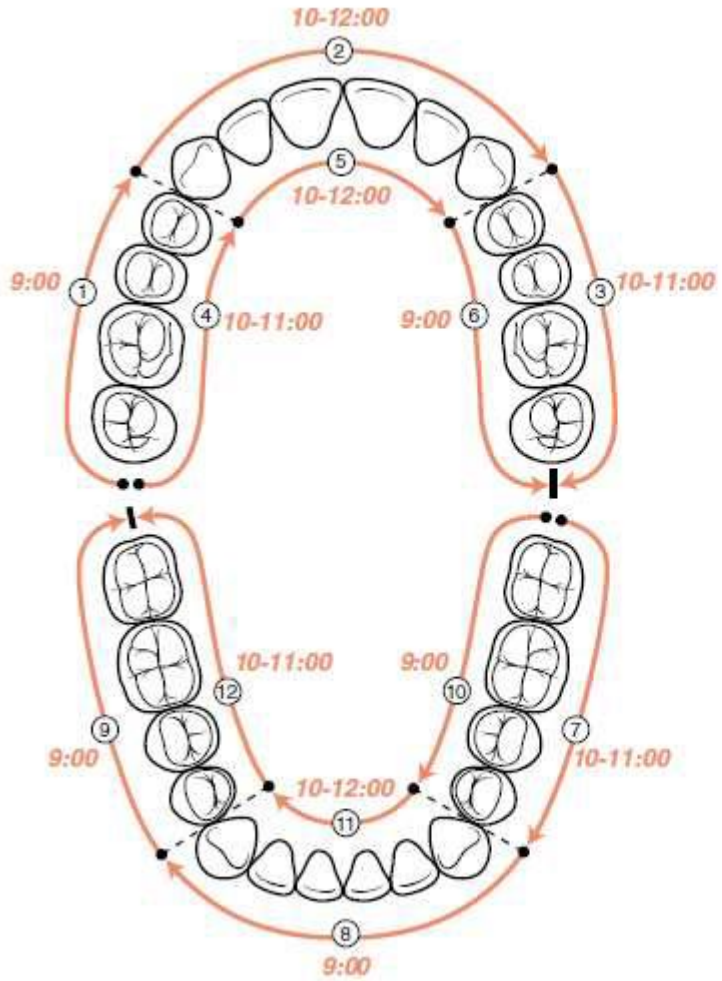
Probing(Posterior Tooth)



- **1. Assess beneath the contact area. Tilt the probe so that the tip** reaches beneath the contact area (the upper portion of the probe touches the contact area). Gently press downward to touch the junctional epithelium.
- **2. Reinsert at the distofacial line angle. Remove the probe from the sulcus and reinsert it at the** distofacial line angle.
- **3. Probe Site Make a series of tiny walking strokes across in a** forward direction toward the mesial surface.
- **4. Walk the probe across the mesial surface until it touches the**
- contact area.
- **5. Assess beneath the contact area. Tilt the probe and extend** the tip beneath the contact area.
- 6. Press down gently to touch the junctional epithelium.

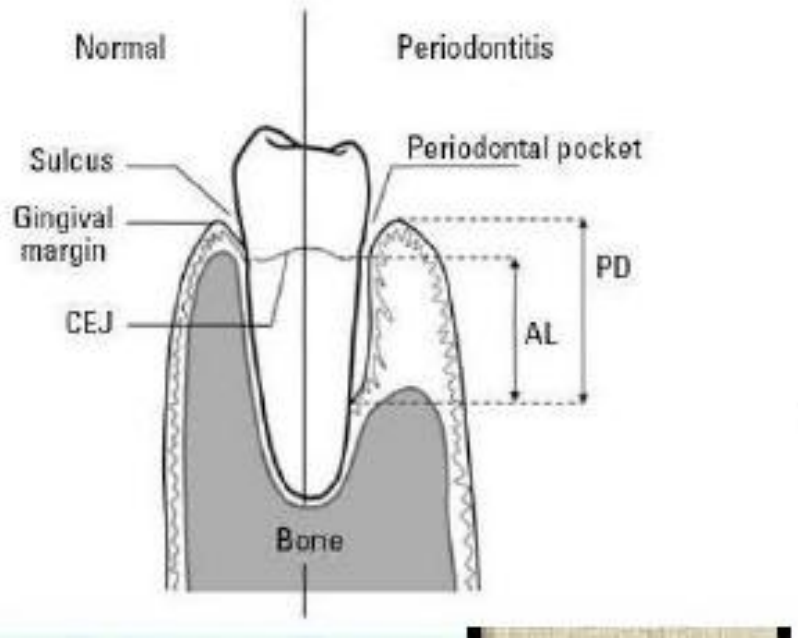


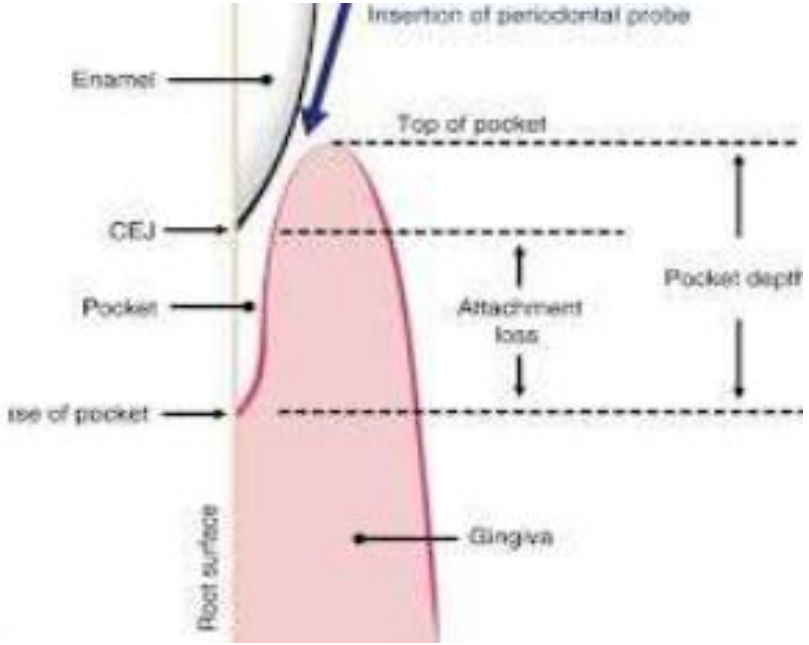
POSITIONING AND SEQUENCE FOR PROBING



RIGHT-HANDED CLINICIANS

Measurement Of CAL,RAL





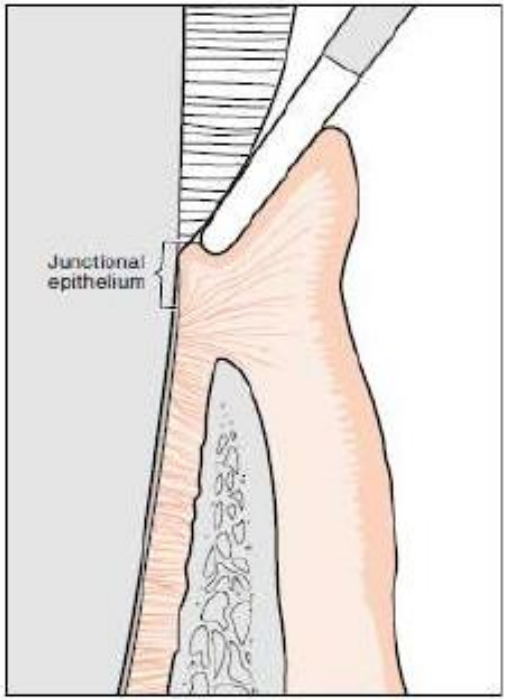
TRANSGINGIVAL PROBING

PROBING HEALTHY VERSUS DISEASED TISSUE

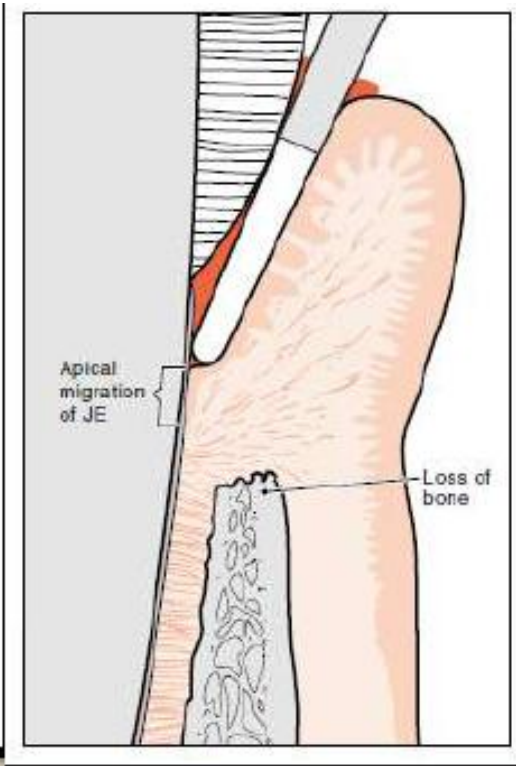
- **1. Clinically Normal Sulcus**
- a. In health, the tooth is surrounded by a sulcus. The junctional epithelium (JE) forms the base of the sulcus by attaching to the enamel of the crown near the cemento-enamel junction (CEJ).
- • b. The depth of a clinically normal gingival sulcus is from 1 to 3 mm, as measured by a periodontal probe.

- 2. Periodontal Pocket
- • a. A periodontal pocket is a gingival sulcus that has been deepened by disease.
- • In a periodontal pocket, the JE forms the base of the pocket by attaching to the root surface somewhere apical to the CEJ.
- • A periodontal pocket results from destruction of alveolar bone and the periodontal ligament fibers that surround the tooth.

PROBING



Position of Probe in a Healthy Sulcus. In health, the probe tip touches the junctional epithelium located above the cemento-enamel junction.



Position of Probe in a PeriodontalPocket. In a periodontal pocket, the probe tip touches the(JE) located on the root below the cemento-enamel junction..

PERI IMPLANT PROBING

- The results obtained with peri implant probing cannot be interpreted same as the natural teeth because:
- - Differences in the surrounding tissues that support implanted teeth.
- - Probe inserts and penetrates differently.
- - Around natural teeth, the periodontal probe is resisted by the insertion of supra-crestal connective tissue fibers into the cementum of root surface. There is no equivalent fiber attachment around implants

- Advantages:
- - Can measure the level of mucosal margin relative to a fixed position on the implant.
- - Measure the depth of tissue around the implant.
- -Periimplant probing depth is often a measure of the thickness of surrounding connective tissue and correlates most consistently with the with the level of surrounding bone.
- -The probing depth around implants presumed to be “healthy” has been about 3mm around all surfaces

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