

## 牙髓病學 Endodontics

# Endodontic Treatment In Interdisciplinary I



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## 學習目標

All students must be familiar with the development of endodontic theory and practice and an evidence-based approach that permits an intelligent evaluation of current and future technologies and materials.

## 參考資料

- Principle of Endodontics Pathway of the pulp

## Summary

- Rationale of Endodontics  
Anatomy and Embryology of the Pulp  
Pretreatment and Rubber Dam
- Diseases of the Pulp
- Endodontic diagnosis and emergency management  
Endodontic Radiography
- Endodontic Instruments and materials
- The Art and Science of Cleaning and Shaping
- The device and application of the Ni-Ti instrument in the endodontic treatment
- The Art and Science of Obturation—
  - Vertical Compaction of Warm GP Technique
  - Lateral Compaction Technique

## Summary

- Surgical Endodontics
- Apexogenesis and Apexification
- Endodontic Traumatology
- Diagnosis and Management of Combined Perio-endo Problem  
Treatment planning /Endodontic Mishap /retreatment
- Apex Locator  
Tooth Bleaching
- Laser endodontics  
digital radiography / CT in Endodontic treatment
- 醫療環境與心理層面  
Treatment planning /Endodontic Mishap /retreatment

## Coping with the Root Canal System is Dependent Upon Two Things

- Our skill
- Our desire

100% -X = Healing Capacity

**PAIN IN THE X**  
(ASS)



## Three-dimensional Obturation

????

- Cold Lateral Condensation
- Warm GP Technique
  - Vertical Compaction Technique
  - Continuous Wave Technique
  - ThermaFil Technique

8 ways  
to predict the location of accessory canal

- Widened PDL
- Tangent-radius relationship
- Disappearance of main canal
- File is not in the center of root
- Inner curvature
- Bulbos root tip
- Symmetry (very smaller anatomy)
- Expect the unexpected

## Common reasons for Endodontic failure

- Missed canals
- Blocks, ledges, perforations, and transportations
- Separated instruments and post
- Coronal leakage
- Inadequately filled the canal systems
- Restoration failures
- Post placement errors
- Fractures

## Analyzing what happened

Inadequate cleaning and shaping  
is  
a major cause of endodontic failure.

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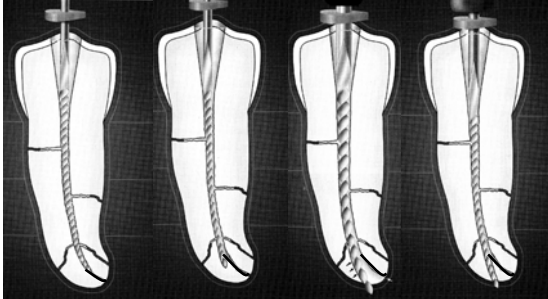
- Short to the working length
- Missed canal systems
- Transported the canal systems
- Blocked the canal systems

## Traditional Cleaning and Shaping Breakdowns

- Working Short
- Apical Preparation First
- Instruments and Methods of Use

**Traditional Cleaning and Shaping Breakdowns**

**Working Short**



**WORKING LENGTH**

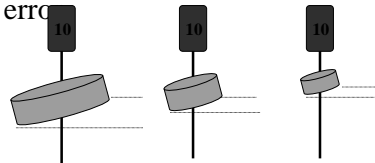
**Two Reference Points are relevant to Working Length**

**External reference -- Use a small rubber stop which is slipped on to the endodontic file to rest against a flat surface of crown or tooth structure.**

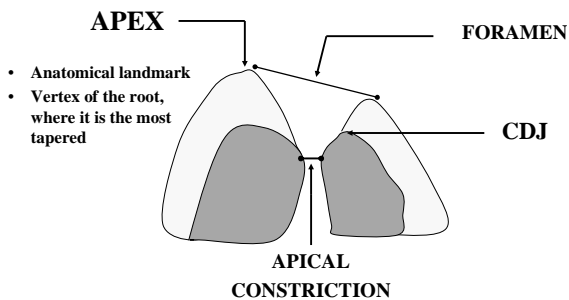
**Internal reference -- Radiographic Terminus (RT)**

**Reason for using a small rubber stop**

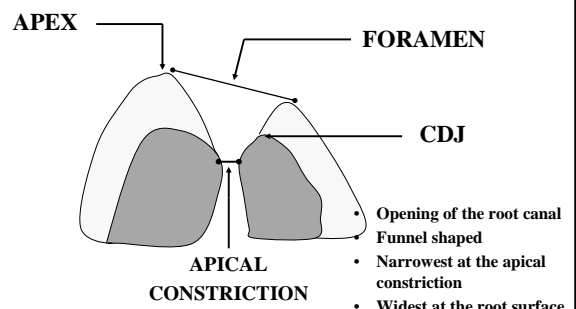
- Better visibility -- allows us to see canal clearly, without obstruction
- Any angulation of the rubber stop along the file will be less important i.e. cause less error

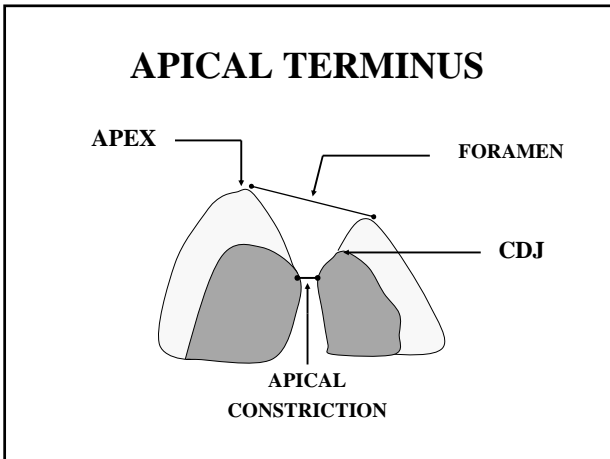
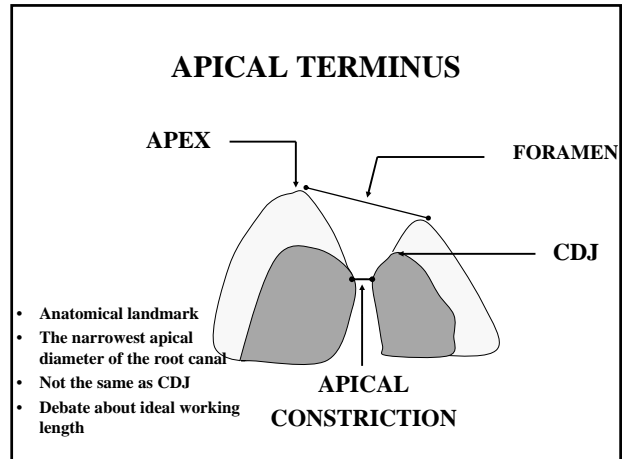
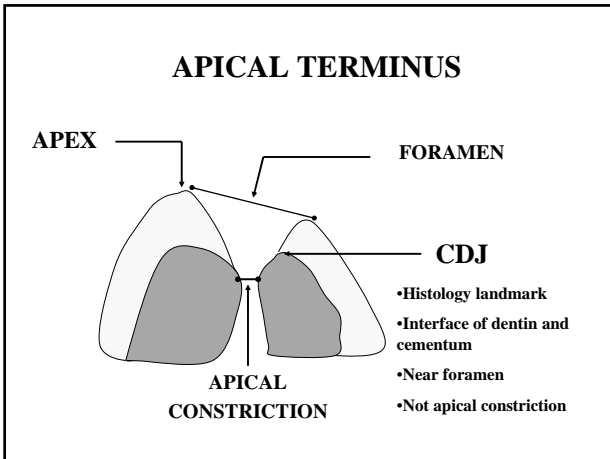


**APICAL TERMINUS**



**APICAL TERMINUS**



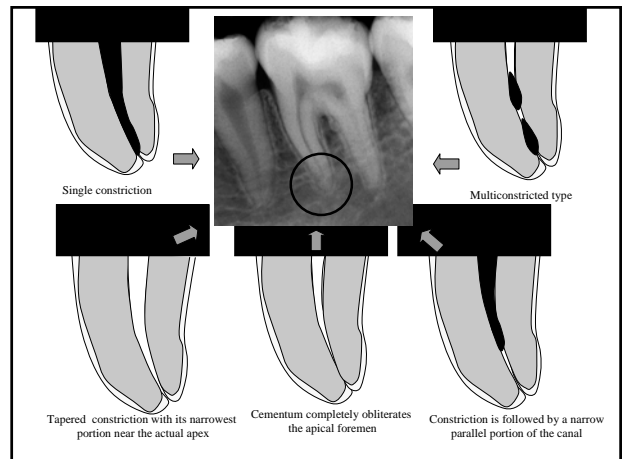


### Radiographic Terminus ( RT )

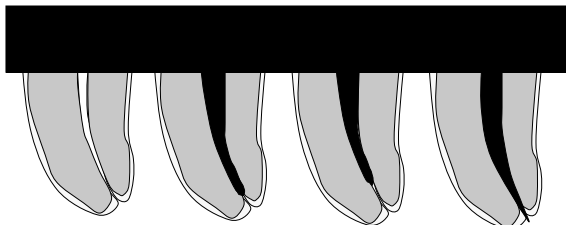
- A practically procedural term
- Here the small file touches the PDL
- A reproducible landmark
- Beyond apical constriction

### Five distinct types of constrictions

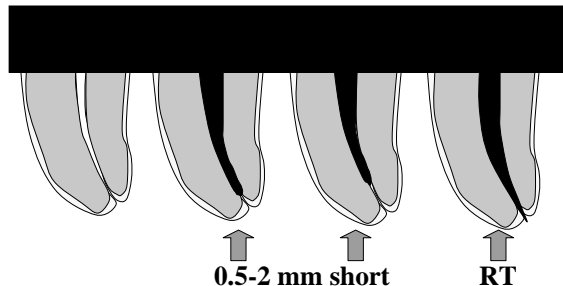
- Dummer PMH et al (1984)  
The position and topography of the apical canal constriction and apical foramen  
International Endodontic Journal Vol 17: 192-8
- Gutmann JL, Leonard JE (1995)  
Problem solving in endodontic working length determination  
Compendium of Continuing Education in Dentistry Vol: 16 288-302



## Working Length ???



## Ideal Working Length



## Methods of the working length determination

- Radiograph film
- Patient feeling
- Dentist feeling
- Endometer
- Paper point test



## Inadequate cleaning and shaping is a major cause of endodontic failure.

- Short to the working length
- Missed canal systems
- Transported the canal systems
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## Root Canal Anatomy

- Root canal systems
- Mandibular incisors ----- 2 canals : 40%
- Mandibular 1st premolars – 2 canals : 31%
- Mandibular 2st premolars – 2 canals : 11%  
-- 3canals : 3%
- Mandibular 1st molar -----4 canals : > 25%
- Mandibular 2nd molar -----C shaped canal systems : 33-52%
- Maxillary 1st premolars ----- 2 canals : 84%
- Maxillary 2nd premolars ---- 2 canals : 58%
- Maxillary 1st molar ----- 4 canals : >90%