NiTi ?

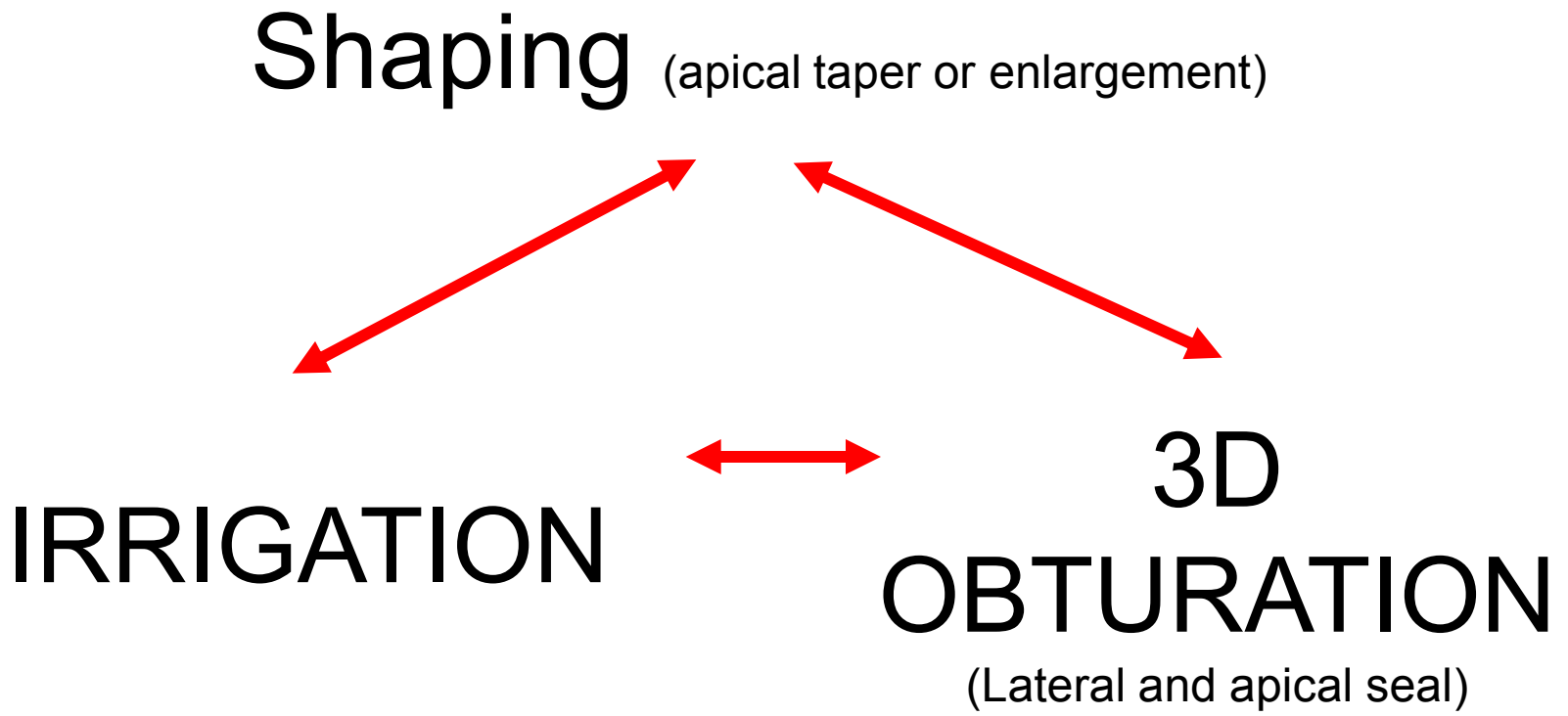
Biological Objectives
Of the Root Canal Treatment

- Eliminate pulp and debris

- Eliminate bacteria and endotoxins

From the root canal system

The Keys to Success



IRRIGATION Protocole

- SODIUM HYPOCHLORITE (0,5% to 5.25%)

with

- LUBRICATING / CHELATING GEL (Glyde™)

And

- LIQUID EDTA (to eliminate smear layer)

Other solutions and irrigation devices are advocated to allow better desinfecting efficiency:

(Chlorhexidine, heat, ultrasonics, sonics…..)

Evaluation of Glyde File Prep in Combination with Sodium Hypochlorite as a Root Canal Irrigant

Grandini S. *et al.* *J Endodon* 2002 ; 28 : 300-303

« *Combined use of 2.5% Sodium Hypochlorite and Glyde File Prep allowed to obtain cleaner canal walls (less debris, less smear layer and a greater number of open dentinal tubules) than irrigation with saline or hypochlorite alone*»

GLYDE File Prep™

Available in single dose compules (avoids cross contamination)

- EDTA

- CARBAMIDE PEROXIDE

- HYDROSOLUBLE GEL (GLYDE)

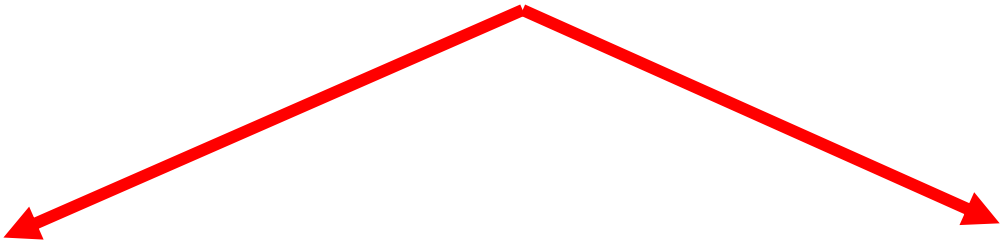
Drawbacks of Conventional Hand Stainless Steel Preparation Techniques

- MISHAPS *(ledges, canal blockade, zipping of foramen)*
- DEBRIS EXTRUSION WITH FILING MOTION
- TIME CONSUMING
- LESS PREDICTABLE SHAPES IN CURVED CANALS

Advantages of Rotary NiTi Techniques

- LESS CANAL TRANSPORTATION
- LESS DEBRIS EXTRUSION (LESS Post Op PAIN)
- FASTER THAN HAND PREPARATION
- MORE PREDICTABLE RESULTS

Characteristics of Rotary Nickel Titanium Instruments

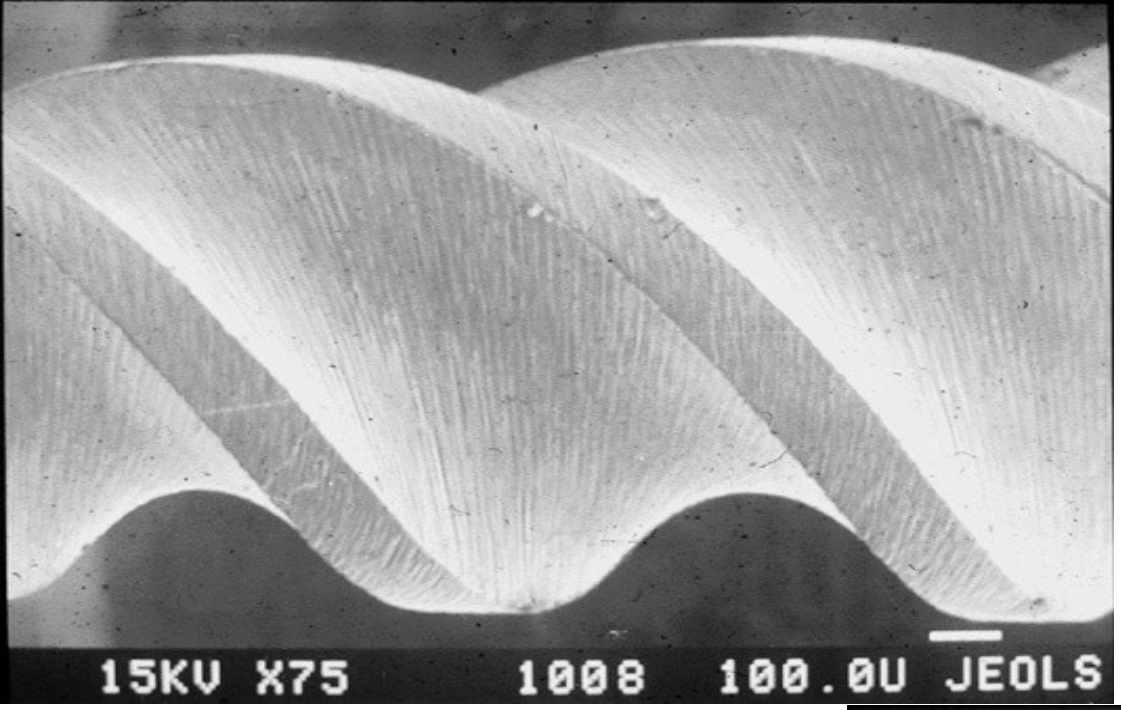


Constant Taper (All instruments)

Cutting blades
Or
Non cutting blades
(Radial Land)

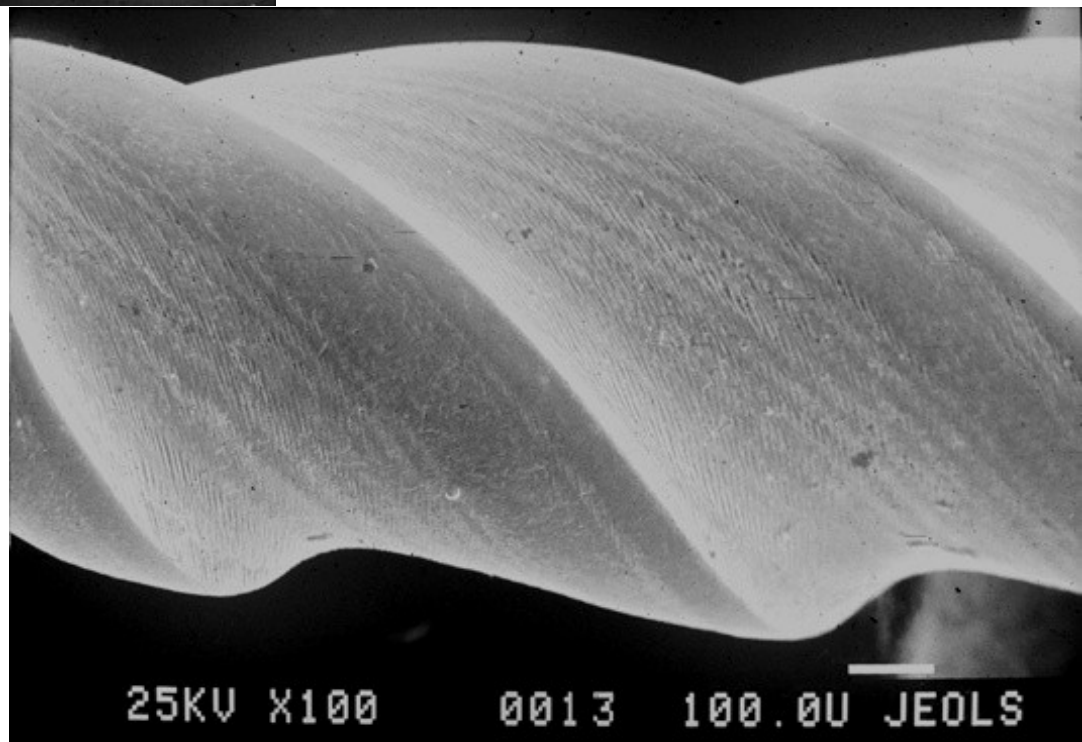
Variable Taper (ProTaper)

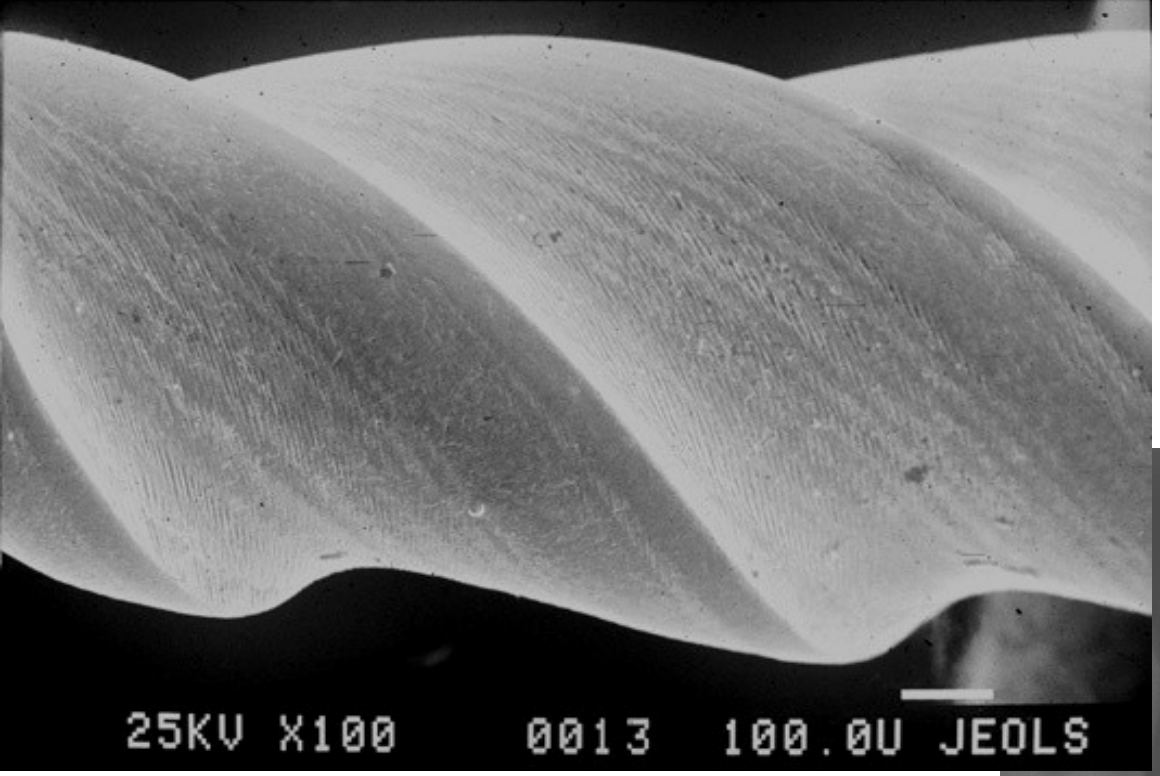
Cutting blades



NON CUTTING BLADE
(with Radial Land)
ProFile, GT System, K_3

CUTTING ACTIVE
BLADE
(Hero 642, HeroShaper,
Mtwo, Alpha File, RaCe)



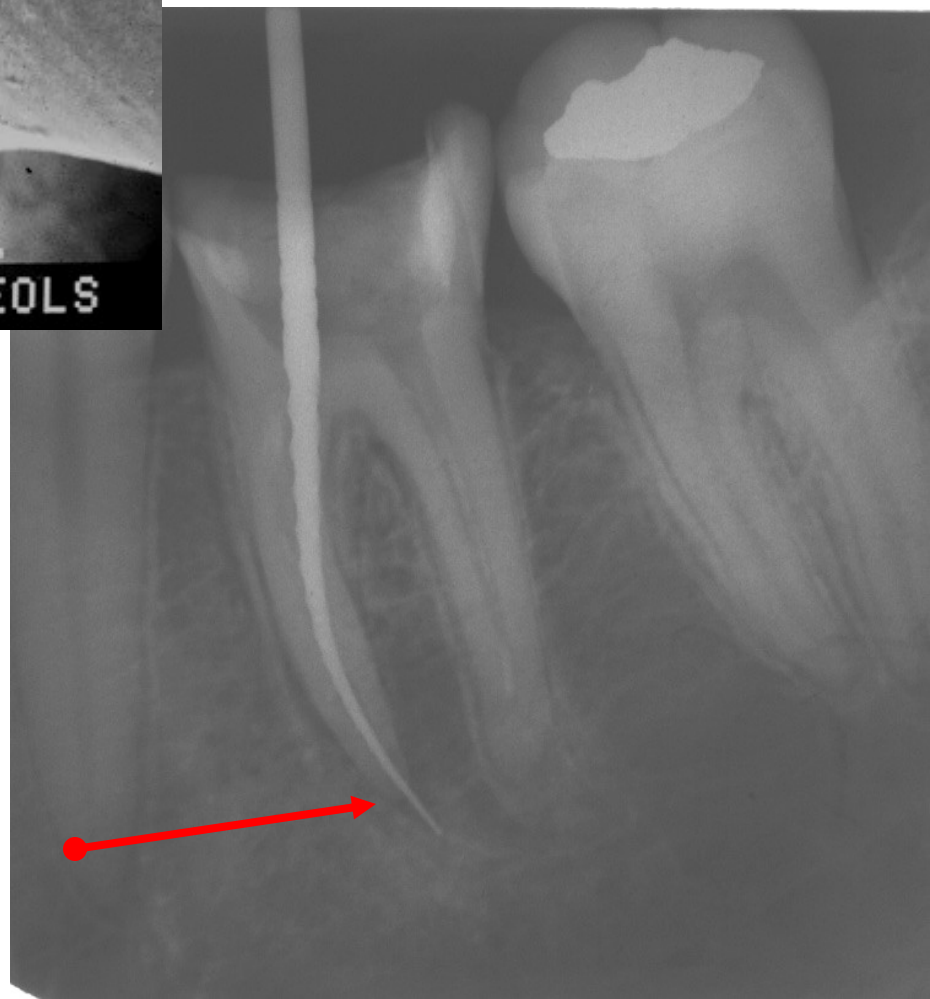


Rotary Instrument with

a *Constant taper*

and *Cutting Blades*

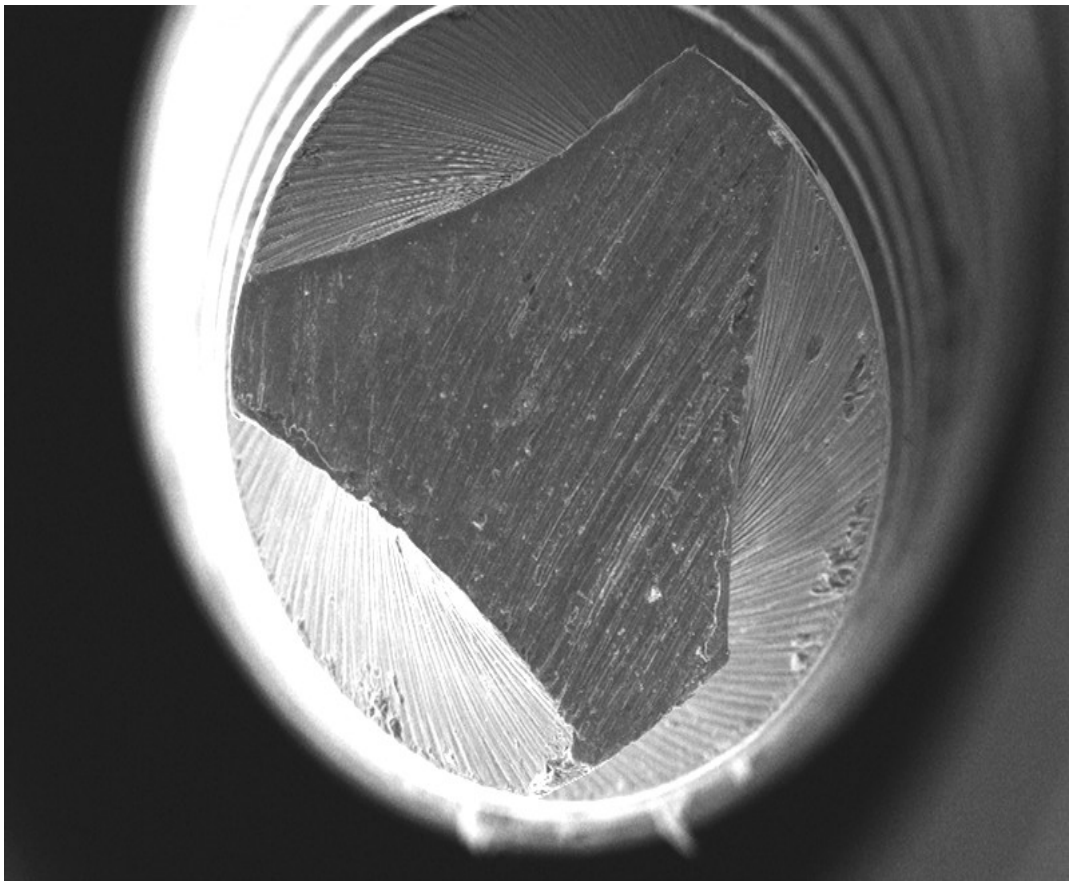
have a tendency to screw-in



Rotary Instruments with a *Constant taper* and a *Radial Land*

Requires more pressure to cut and are subjected to more stress (surface contact is increased)

Berutti et al.*J Endodon* 2003;29:15-19



Rotary Instrument with a *large cross-section* (central mass) and a *constant taper* are too stiff in taper higher than 4% to shape curvatures without risks of mishaps