Endodontic Lab 724

Laboratory Session V

February 3, 2022

Remember the fish

Today's Plan of Attack

8:00-8:15	Quiz
8:15-9:15	Review access, overview of grading criteria, intro to cleaning, shaping, apical gauging
9:15-9:45	Instructor demo on acrylic block
9:45-11:45	Acrylic block- WL, C & S, apical gauge, fit master cone
	Mandibular Premolar Access, WL, C & S, apical gauge
11:45-12:00	Review and prepare for next week

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Armamentarium for Access

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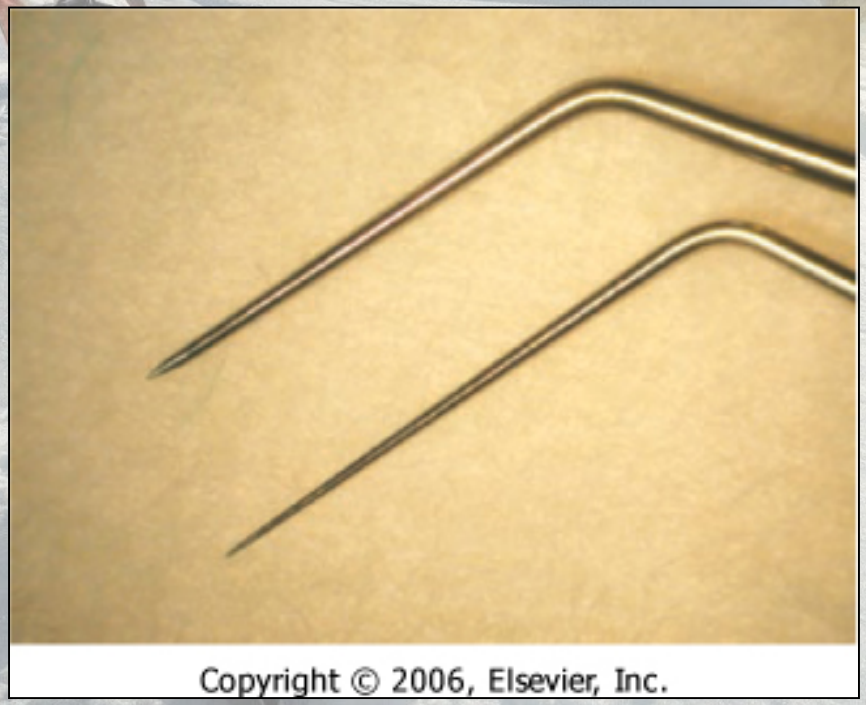
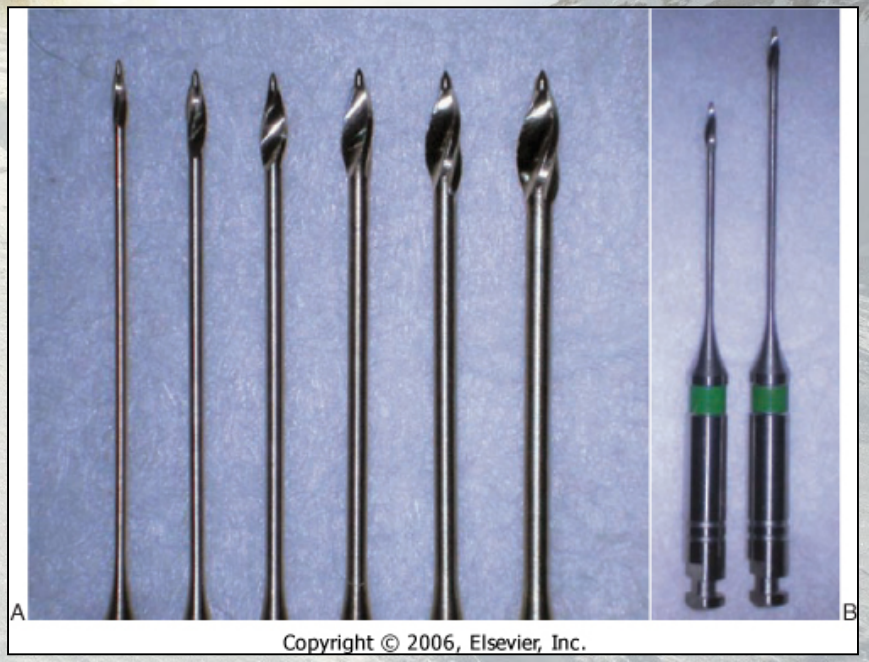
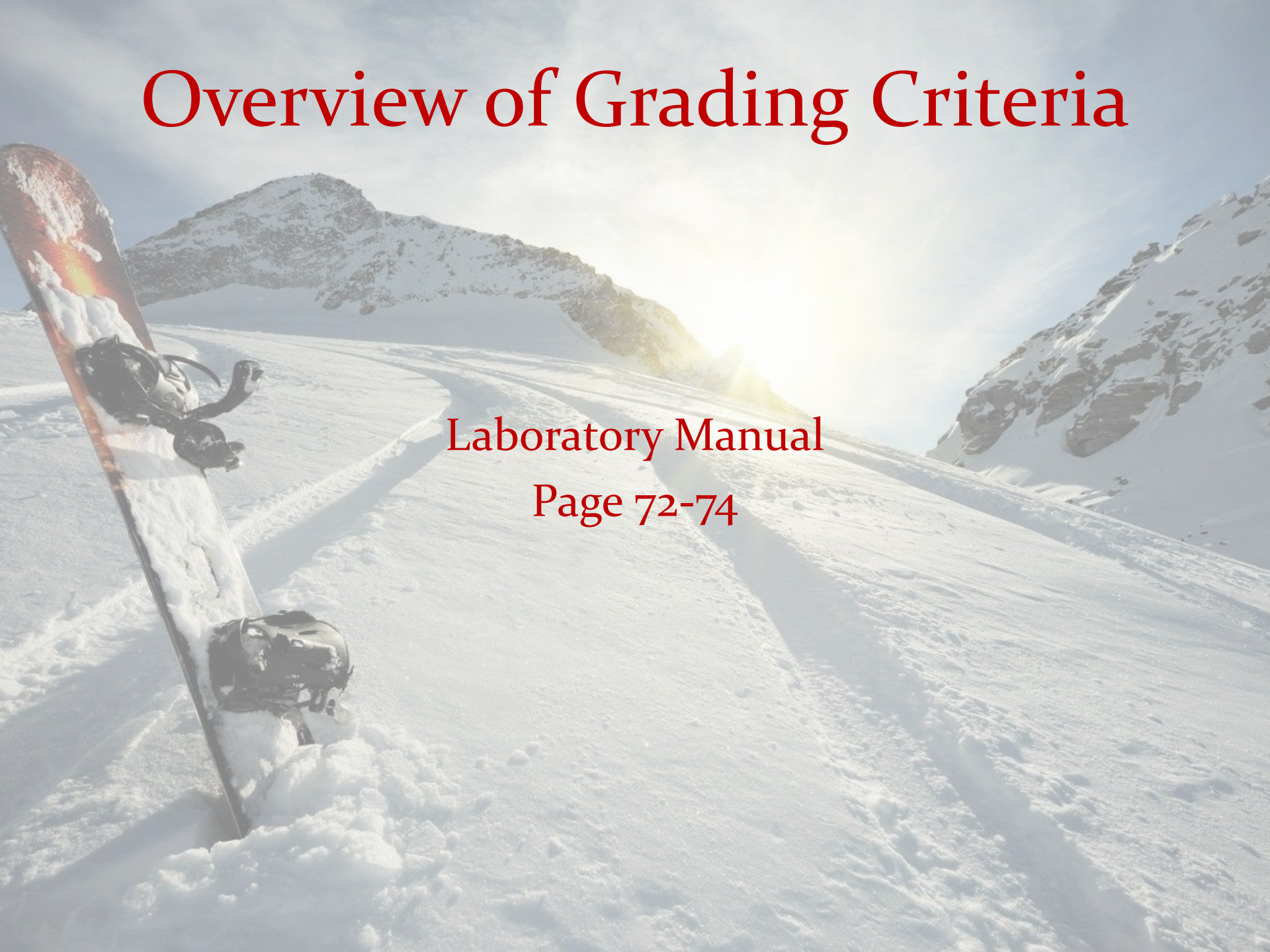




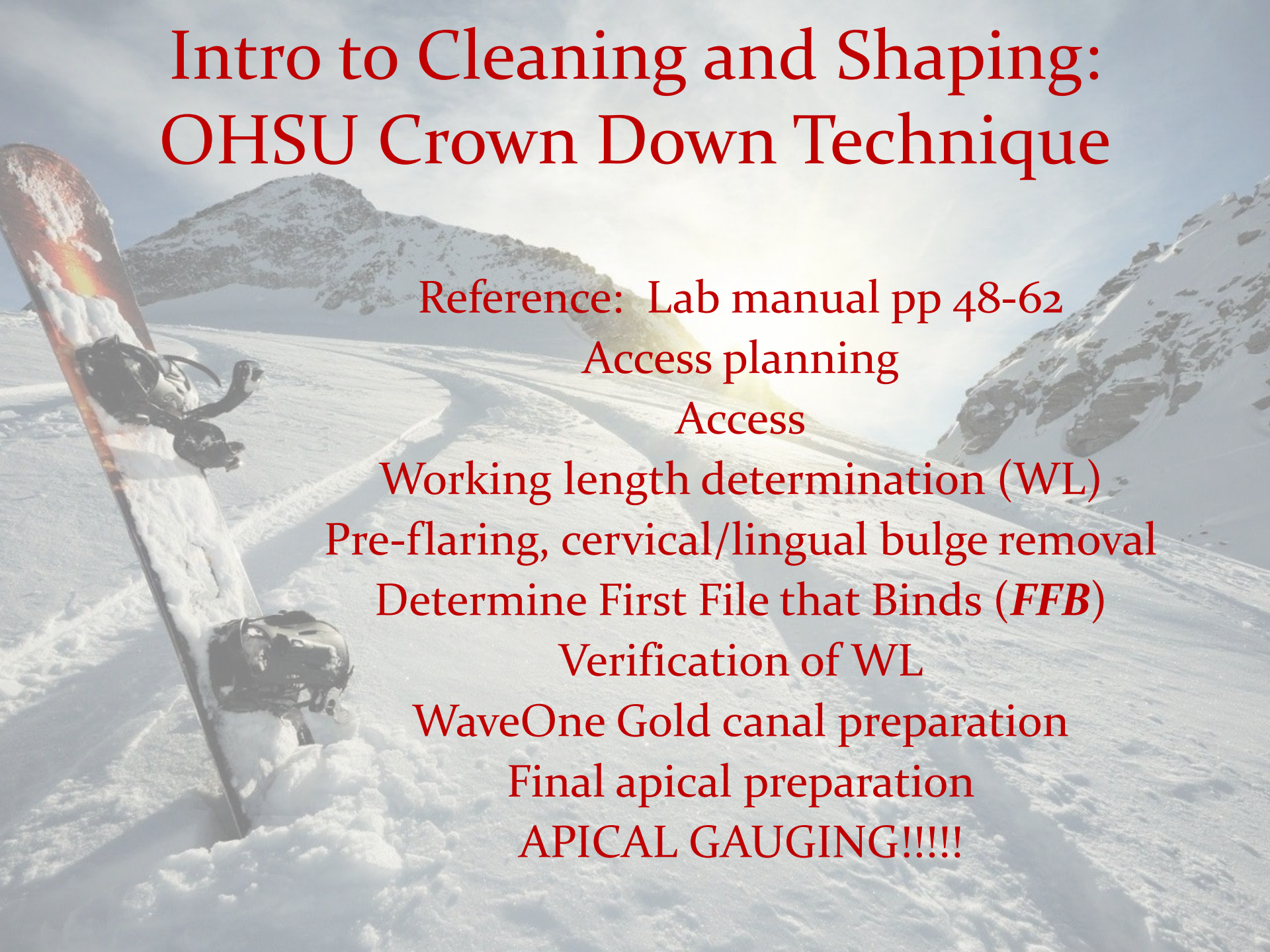
Overview of Grading Criteria



Laboratory Manual

Page 72-74

Intro to Cleaning and Shaping: OHSU Crown Down Technique



Reference: Lab manual pp 48-62

Access planning

Access

Working length determination (WL)

Pre-flaring, cervical/lingual bulge removal

Determine First File that Binds (***FFB***)

Verification of WL

WaveOne Gold canal preparation

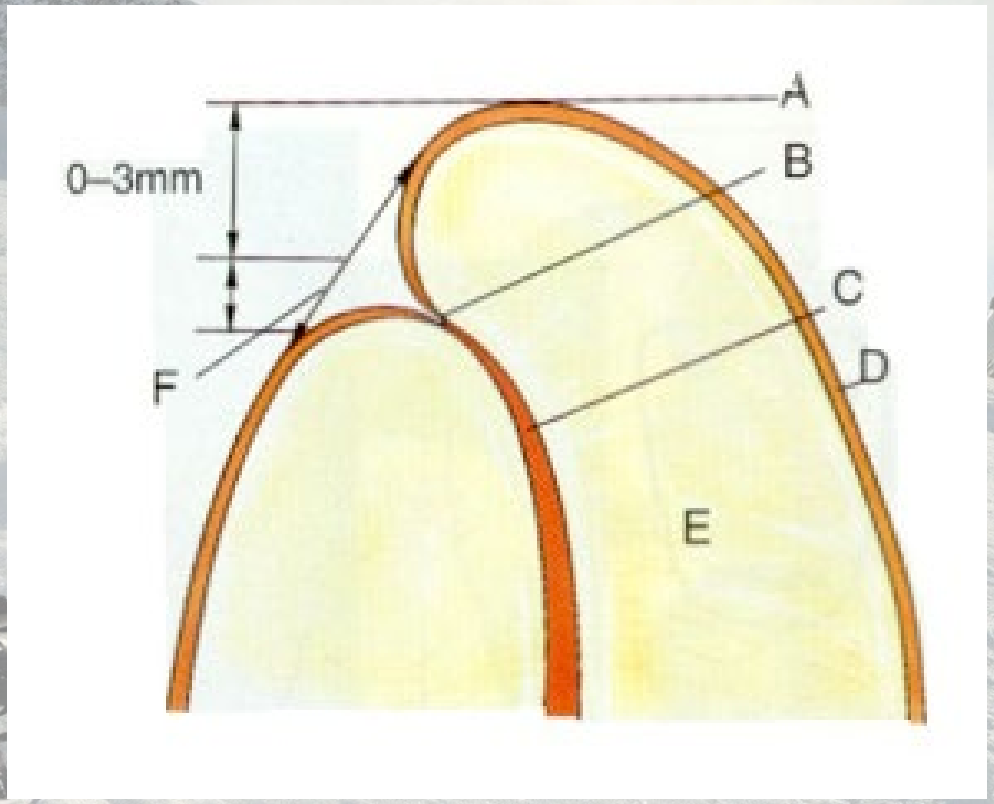
Final apical preparation

APICAL GAUGING!!!!!

Access planning

(pp 54)

- Case assessment (pp 76-77)
- Access planning
- Cusp tip/incisal edge to pulp chamber distance
- EWL (estimated working length) determination
  - Cusp tip/incisal edge to **radiographic apex** minus 1 mm
- Rubber dam placement
  - Remove from patient's nose!!!!!!
  - Make sure rubber dam is under the wings of the clamp
  - In lab, do not clamp the tooth you are working on



A- Radiographic Apex
B- Apical Constriction
F-Apical Foramen

Access

Haven't we covered this enough already?


Yeah, but now we're gonna throw you a curveball
Before using Gates-Gliddens to remove the bulge/shoulder….

Working Length Determination

-You should already have determined EWL preoperatively(Length of tooth less 1 mm)

-Use glide path files (10,15) and reciprocal reaming to EWL, instead of just to the apical third (EAL in clinic)

If you cannot “get” to EWL with #10 file, pre flare with Gates- Glidden drills and try again.

Pre-flaring and cervical bulge/lingual shoulder removal with Gates-Gliddens

Enough said!!

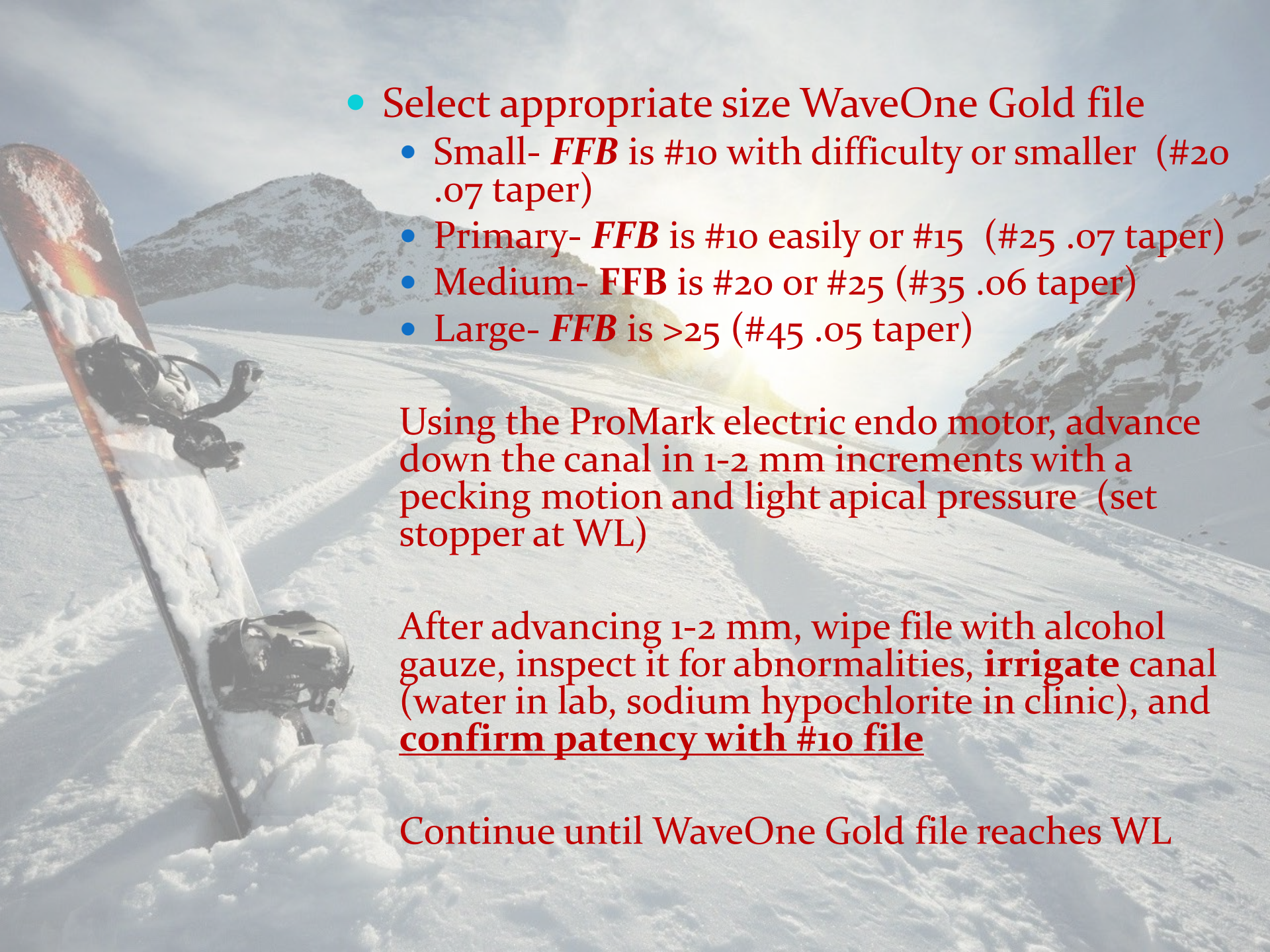
Determination of **FFB**

- ***F*** irst
- ***F*** ile (.02)
- ***B*** ind at WL after Gates-Glidden use

Verification of EWL

- Take a radiograph with the ***FFB*** (at least #15)
  - If EWL appears correct, it becomes WL and is recorded in the worksheet table (page 22 for today's project) and "Endo working lengths" form in axiUm
  - If an adjustment of more than 1 mm is needed (+ or -), re-verify with a new radiograph, and record.

WaveOne Gold
Canal Preparation

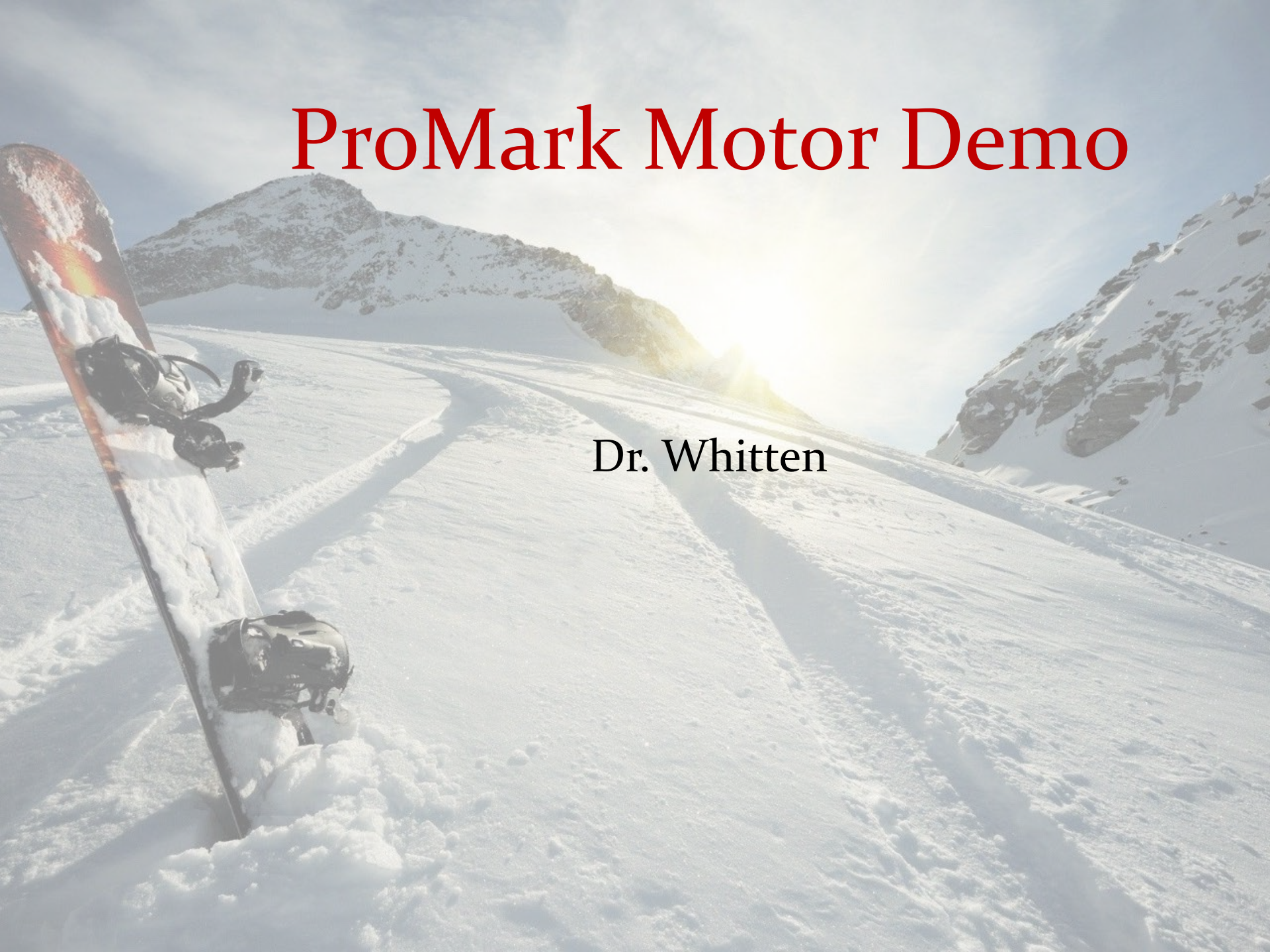


- Select appropriate size WaveOne Gold file
  - Small- ***FFB*** is #10 with difficulty or smaller (#20 .07 taper)
  - Primary- ***FFB*** is #10 easily or #15 (#25 .07 taper)
  - Medium- **FFB** is #20 or #25 (#35 .06 taper)
  - Large- ***FFB*** is >25 (#45 .05 taper)

Using the ProMark electric endo motor, advance down the canal in 1-2 mm increments with a pecking motion and light apical pressure (set stopper at WL)

After advancing 1-2 mm, wipe file with alcohol gauze, inspect it for abnormalities, **irrigate** canal (water in lab, sodium hypochlorite in clinic), and **confirm patency with #10 file**

Continue until WaveOne Gold file reaches WL



ProMark Motor Demo

Dr. Whitten


Plastic Block Video

Final Apical Preparation (Apical Matrix)

So how big is big enough you ask?


Ahhhhhhhh, good question!!!

Guidelines: (p 49-50)

-at least 3 sizes larger than ***FFB***

-at least size 40 in most larger canals

-at least size 25 in any canal

-“take what the canal will give you”

-clean shavings in the flutes

-what you instructor tells you (later, your gut)

Final Apical Preparation (creation of the apical matrix)

Goal- Evaluate apical prep after WaveOne Gold and create an .04 tapered canal prep in the apical 1-3 mm **as needed**

How?

Example- The ***FFB*** is #15.

The primary WaveOne Gold was used and taken to WL. This means the canal is now at a size 25 (at least) .07 taper at WL. Using the "3 sizes larger than ***FFB***" rule (#20, 25, 30) and a reciprocal reaming motion, now take:#30 .04 hand file to WL (irrigate, **patency** with #10)

Evaluate apical prep with *Apical Gauging* to decide if additional apical enlargement with the next .04 hand file is needed (35 .04 this example)

Repeat as needed till gauging confirms apical size and taper

(see page 51)

Apical Gauging!!!!

Apical gauging is used to:

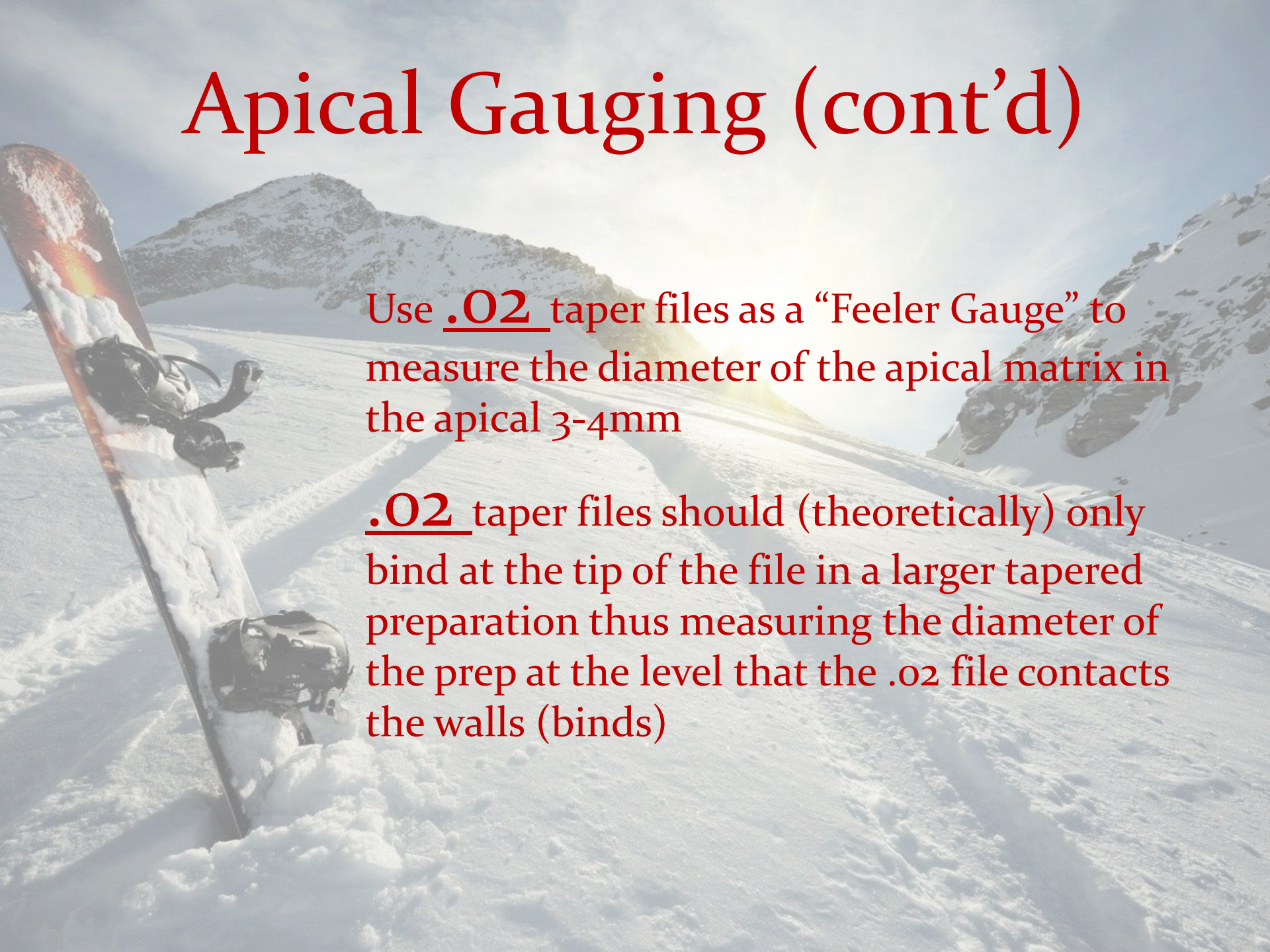
verify the taper of the apical matrix that will provide the necessary linear resistance form for obturation

AND

determine the “precise” size of your apical preparation, size/taper of master gutta percha cone and to help prevent “apical slippage” or overfill

Non-Surgical Endodontic Treatment
"SCHOONERDONTICS"

Apical Gauging (cont'd)

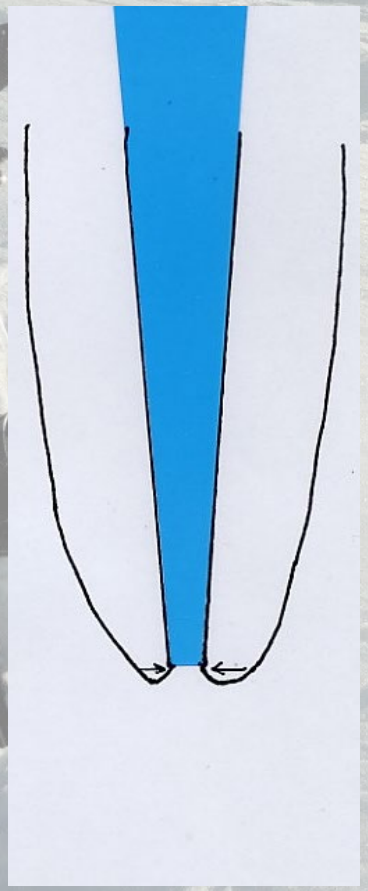


Use **.02** taper files as a "Feeler Gauge" to measure the diameter of the apical matrix in the apical 3-4mm

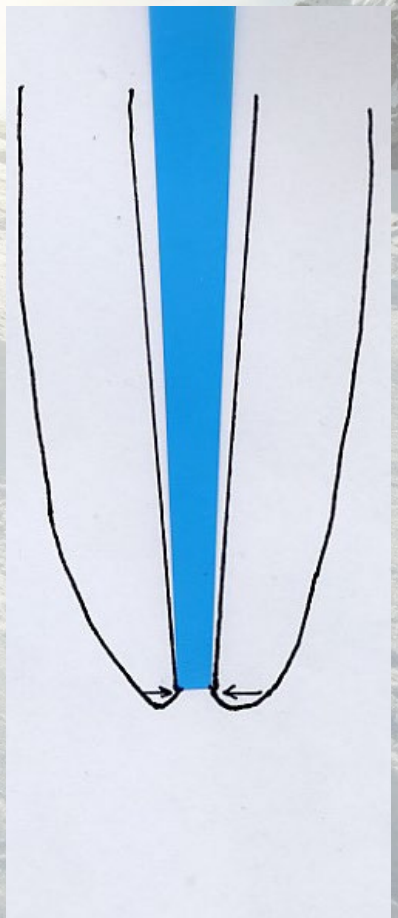
.02 taper files should (theoretically) only bind at the tip of the file in a larger tapered preparation thus measuring the diameter of the prep at the level that the .02 file contacts the walls (binds)

Apical Gauging (cont'd)

.04 taper file



.02 taper file



Apical Gauging (cont'd)

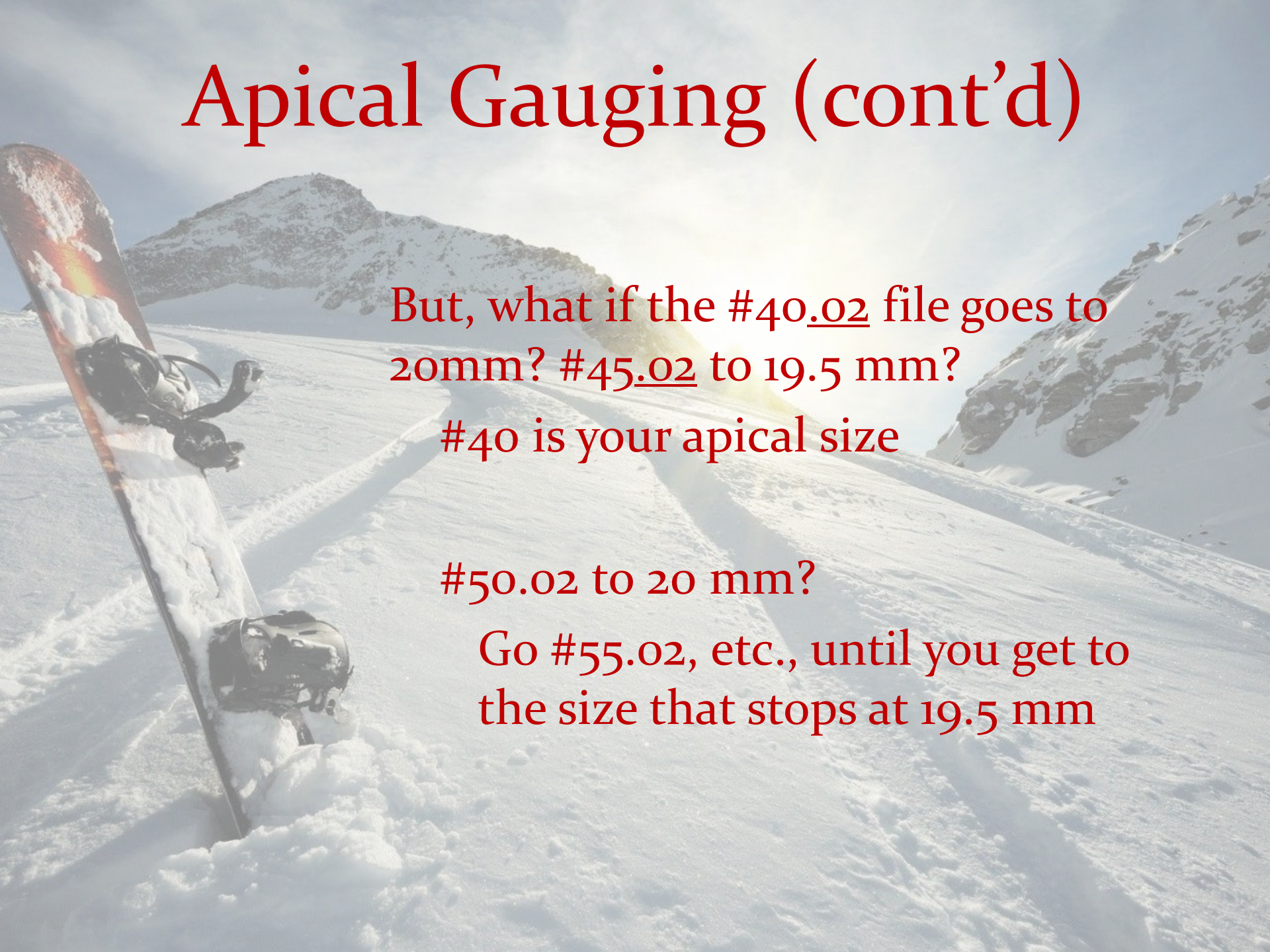
Example: ***FFB*** #20. Medium WaveOne selected, C & S to size #35 .06 to WL of 20mm (3 sizes larger than ***FFB)***:

place #35/**.02** to WL with moderate apical pressure

If the **.02** taper file meets resistance at WL, that tells you the apical size is at least #35, but may be bigger (don't assume it is not bigger)

Place the #40**.02** file in the canal with moderate apical pressure. If it stops 0.5 mm or so from WL, you have now verified #35 as your apical size

Apical Gauging (cont'd)



But, what if the #40.02 file goes to 20mm? #45.02 to 19.5 mm?

#40 is your apical size

#50.02 to 20 mm?

Go #55.02, etc., until you get to the size that stops at 19.5 mm

Apical Gauging (cont'd)

Most important

What if #35.02 file goes to 21mm? Your apical size is larger than #35 and if you obturate with a #35 gp point you will most likely over extend the fill. So…

apically gauge with successively larger .02 files until you reach the size that cannot be taken beyond 20mm(remember to always try the next larger size to verify it can not get to 20 mm)

Apical Gauging (cont'd)

If the final apical size is different than what you thought (ie #40.02 instead of #35.02), you now need to create an .04 taper apical matrix by working the #40.04(pineapple) file to 20 mm with reciprocal reaming

Apical Gauging (cont'd)

Ok, the final apical size has been "precisely" verified and can be recorded in the worksheet table and axiUm.

Now we can verify an .06 taper has been achieved by:(Apical size has been apically gauged as #35.02)

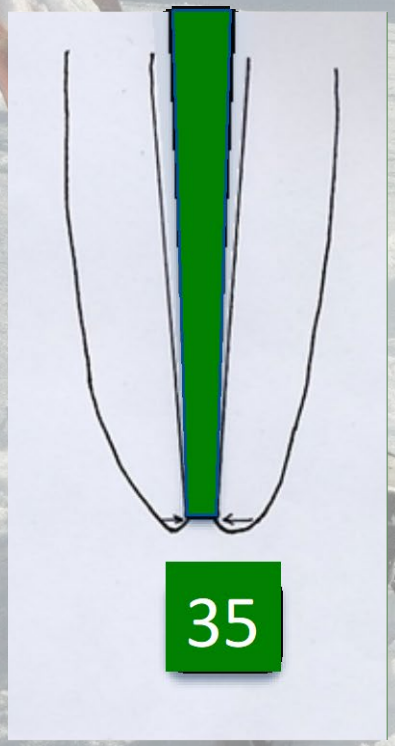
#40.02 file ~ 19.5mm

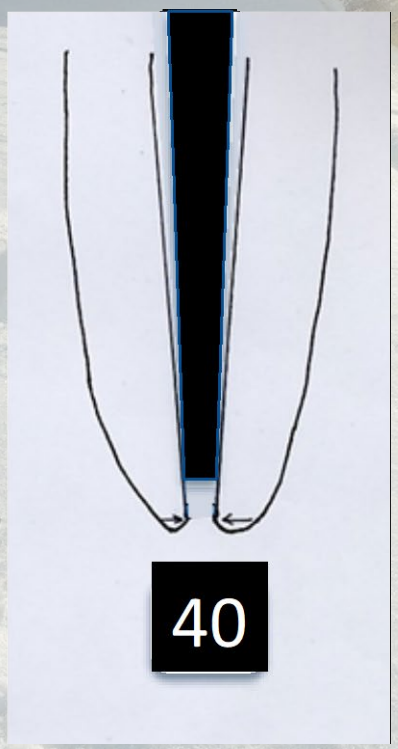
#45.02 file ~ 19.0mm

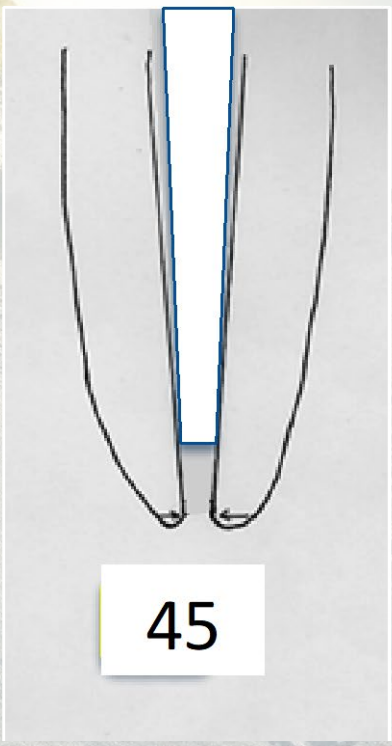
#50.02 file ~ 18.5 mm

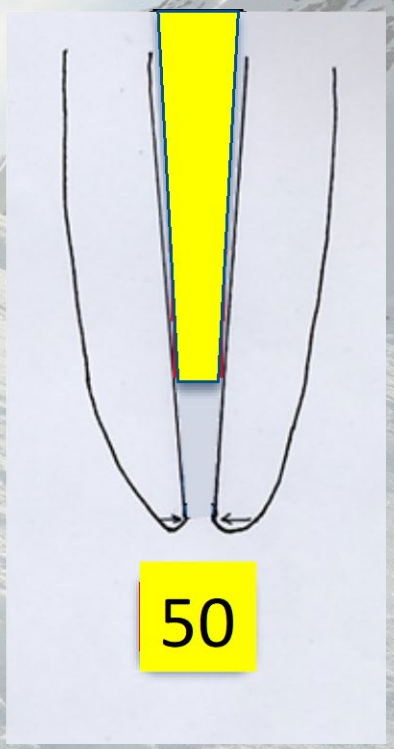
#55.02 file ~ 18.0mm

Check taper with sequentially larger .02 taper files









Irrigation

<u>Do not bind needle in the canal</u>

Use blunt ended, side notched irrigation needle

1 ml of irrigant between each instrument use (after WL verification)

Use water in lab, 2% sodium hypochlorite in clinic

Patency

After each irrigation (hence after each file)

Take #10 file 0.5mm beyond WL to assure the canal is open (patent) to the foramen and to agitate the irrigant

Review

- Access
- Estimated Working Length
- Gates-Gliddens
- Determine ***FFB***
- Verify WL with radiograph
- WaveOne Gold
- Final Apical Preparation (Apical Matrix)- if needed
- **APICAL GAUGING**

Projects

Acrylic block

-Establish WL, GG, *FFB*, WaveOne Gold, create apical matrix, apical gauge

-Instructor and self assess p. 22

Projects

- Mandibular Premolar
  - Mounted with preop B-L image
  - Halfway access check
  - Establish EWL, GG, *FFB*, verify WL with radiograph, WaveOne Gold, create apical matrix (as needed), apical gauge
  - Enter information in worksheet table (p 22) and in “endo working lengths” form in axiUm
  - Instructor and self asssessment (p 22)
  - Instructors swipe “endo working lengths” form

Remember

- Irrigate
- Patency
- Rubber dam- ***ALL*** work on mounted teeth done under rubber dam isolation (unless otherwise instructed)including working radiographs
- **GATES GLIDDENS!!!**


But first….


Fish toss!!

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Next Week

Obturation mandibular premolar

Next week's theme: Valentine's Day


And remember…


“A day without endo is
a day without sunshine”