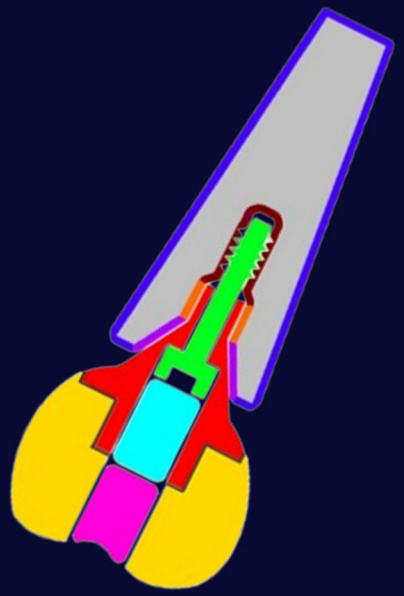
Implant mentor program 2026
Session two, day one

Princess Elizabeth Dental Training Centre

Ali Afshar DDS
Bill Holden DDS
Friday January 30th, 2026

Review from last Session

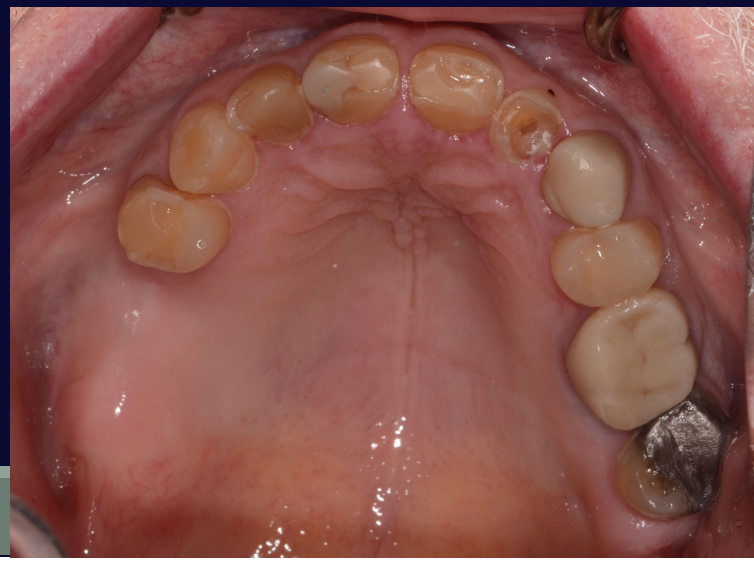


Review of the five key treatment planning concepts

2FA1

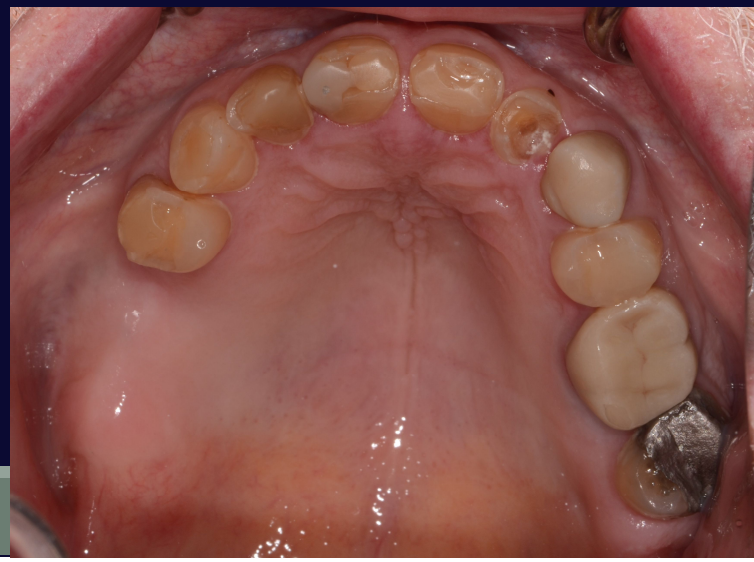
Concept 1:
First molar occlusion as a treatment goal

- Second molars are more challenging sites
- Patients with at least one functional molar in each quadrant do well
- Treat the WHOLE CASE, properly, or don't do implants…they will overload and fail
- Beware the pt with "Less Syndrome"



Shortened dental arch (SDA)

- Research tells us second bicuspid occlusion is still functional
- W.H.O. says this is the minimum
- More appropriate for the older patient
- Lower bicuspids take more wear, not clear why
- Option to drop to single bi + molar



J Oral Rehabil 2017 Jul;44(7):563-572.

Shortened dental arch and prosthetic effect on oral health-related quality of life: a systematic review and meta-analysis

K Fueki, K Baba

This systematic review aimed to compare oral health-related quality of life (OHRQoL) between tw concept and conve r implant-supported tulous space in th

In the short term, we can “get away with” second bicuspid occlusion, although it is not ideal

There was no statistically significant difference in OHIP summary scores between SDA and RPDP at 6 (SWMD = 0·24) or 12 (SWMD = 0·40) months post-treatment. Only one non-RCT had reported higher OHRQoL with IFPDP than with SDA; however, because of the small sample size, there was no significant difference in OHIP summary scores…

Do we replace second molars?

It depends on the situation.

- Available bone present (and at usable position/angle)
- Adequate keratinised gingiva
- Opposing occlusion present
- Third molar present in function
- Patient can open wide enough

Concept 1:
First molar occlusion as a treatment goal

Whenever we see a patient who is missing one or more teeth, our starting point should be

"How can I get this patient back to first molar occlusion?"

Concept 2:
Implants are only one of several options

What are our options to replace missing teeth?

(hint: there are four flavours)

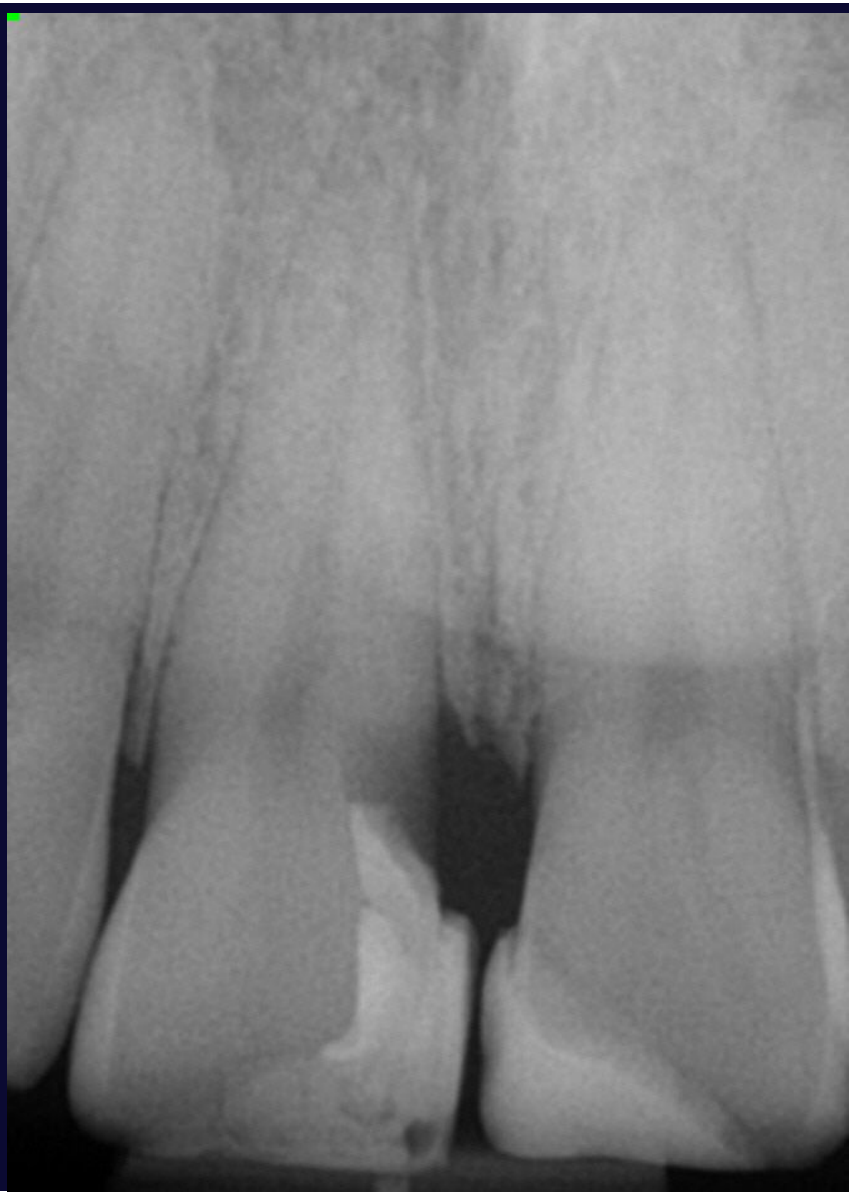
Concept 2:
Implants are only one of several options

- Remember:
  denture-bridge-implant-nothing
- Implant placement is elective treatment
- No guarantee your implant will succeed
- Neither implants, nor teeth, are forever
- Forward compatibility is important
- Aside from bone loss, a denture or retainer doesn't burn any bridges
- Remember: dental implant placement is an elective procedure

One other thing we often recommend to patients…

save the tooth/teeth with RCT and/or a crown, or perio tx!

Another form of “do nothing”.



Concept 3:
Dental implants are second stage therapy

and should be placed after stage one (disease control) therapy is complete, including cleaning, minor restorative, extractions, and endodontic treatments.

Concept 3:
Dental implants are second stage therapy

and should be placed AFTER stage one (disease control) therapy is complete, including cleaning, minor restorative, extractions, and endodontic treatments

and also after any orthodontic treatment

cast partial dentures, crown & bridge: also stage 2

Concept 3:
Dental implants are second stage therapy

- Titanium is part of a complete ~~breakfast~~ treatment plan
- Get the damned teeth cleaned first. Yeesh.
- Restorability of other teeth needs to be known as well
- Placing implants when other infection present increases failure risk
- Complete treatment plans include **both** arches

Concept 4: (a quick one)
Implants stand alone

Implants are best

NOT SPLINTED TO TEETH

esp while you are learning.

We will do so sometimes in very specific cases. For you guys, for now, just say no.

Concept 5:
Restorative-driven treatment planning

- A bit of a cliché, but a concept that helps describe our philosophy
- The implants need to go where they can support the prosthesis
- Implants were not always done this way, and sometimes still aren't
- Implant cases that can't be properly restored are **failures**, even if the implants are properly integrated and healed
- All cases in dentistry need a "quarterback"

So our five general treatment planning concepts are:

First molar occlusion as a treatment goal

Dental implant treatment is only one of four+ options

Dental implants are second stage therapy

Implants are not splinted to teeth

Restoratively driven treatment planning

And remember:
implants are not for everyone

- This is elective treatment
- Some patients are contraindicated
- Some patients are just not good candidates
- An implant is not always our treatment of choice

No one ever got in trouble for declining to treat.

Course objectives (again):

To be able to recognize when a dental implant case is straightforward, and when to refer out

To feel comfortable treatment planning, placing, and restoring single tooth implants (STIs) in these straightforward cases

To receive and use the tools to integrate this in your day-to-day practice

To recognize and manage common complications

How are we going to accomplish that in 36 hours???

WEEKEND 1

Friday January 16th	introduction, treatment planning, risk assessment pt, socket grafting, bone quality
Saturday January 17th	risk assessment procedure, restorative treatment planning, single implant restoration, introduction to bone drilling

WEEKEND 2

Friday January 30th	armamentarium, placement theory, hands on, instruments, equipment, healing abutments, case presentations
Saturday January 31st	soft tissue mgmt, paperwork, IPC, setup, complications, CBCT, drilling guides, more case presentations

WEEKEND 3

Saturday February 7th	live surgery day, dinner later that evening
Sunday February 8th	~4½ hours surg debrief, implant maintenance, implementation

(*note that session 4 is a Sunday*)

Course schedule for today:

SESSION 2, DAY 1.
Friday January 30th

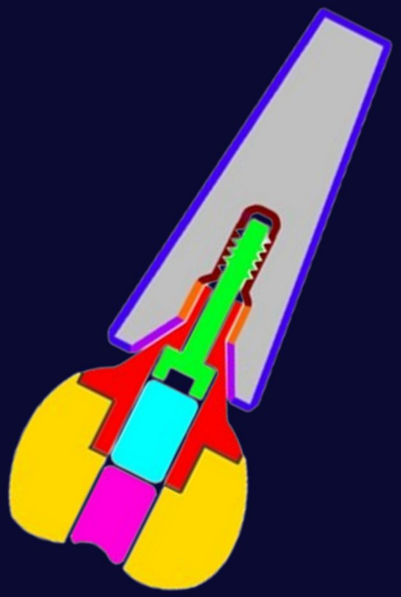
Morning

- Implant design and nomenclature
- Choosing an implant system
- Implant armamentarium
- ***Implant placement theory***
- Review of surgical instruments

Afternoon

- Motor, handpiece, and irrigation setup
- Surgical kits and drills
- Hands-on drilling, honeycomb blocks
- Hands-on drilling, plastic maxillae
- Healing abutment selection
- Healing period

Implant design and nomenclature

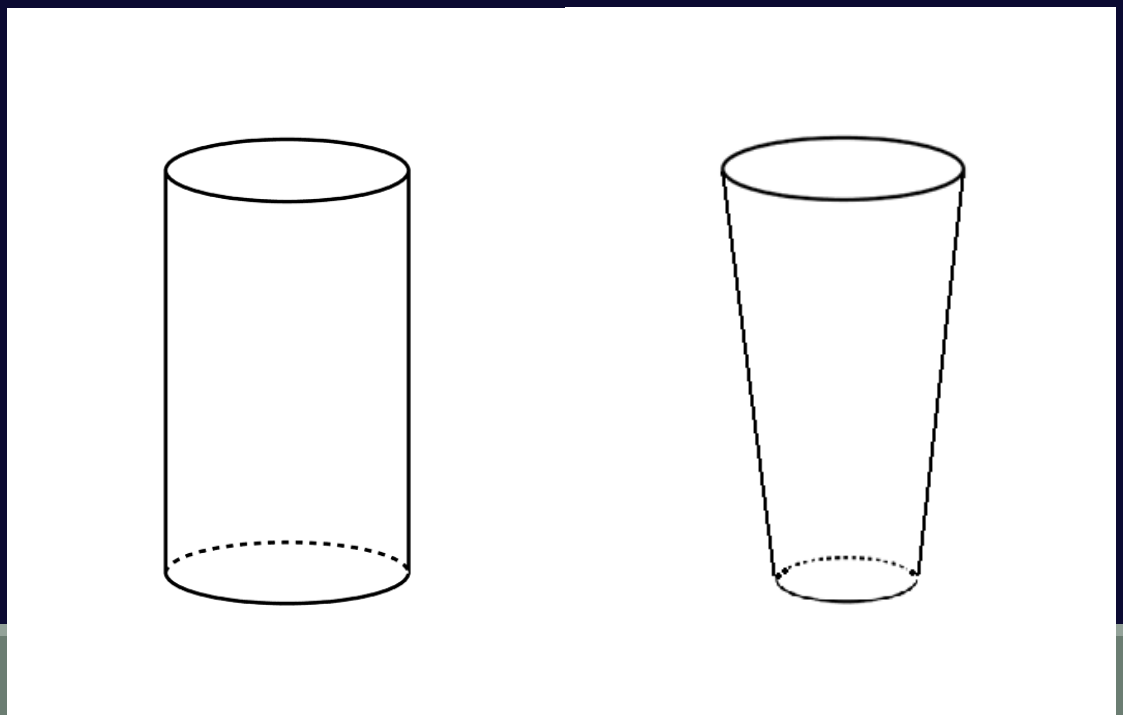


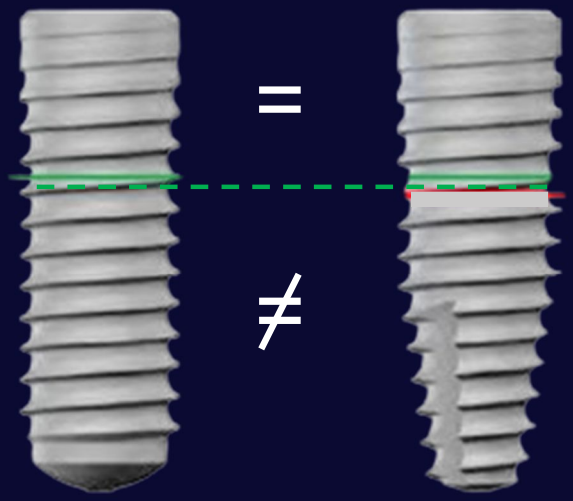
2FA2

Terms you will hear…

¿ Tapered vs straight implants ?

For the cases you will be doing, tapered implants are easier provided that you prepare the site properly and manage the insertion torque.

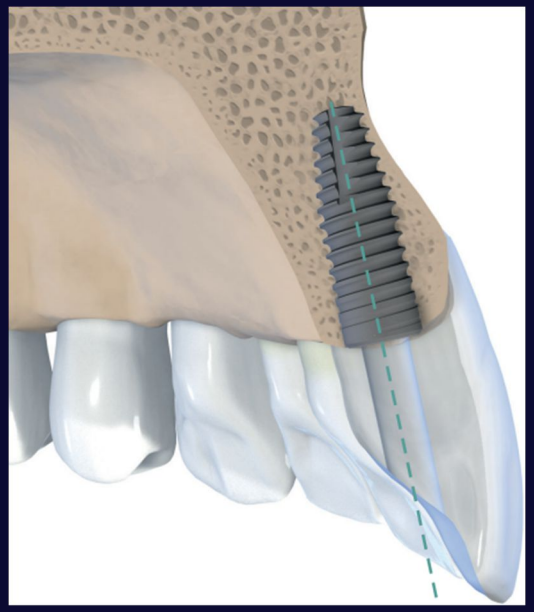




BL BLT

Tapered implant bodies…

- more safety around adjacent structures
- greater initial stability
- allow for more blood supply around body
- require more care with osteotomy



Terms you will hear…

¿ Tapered vs straight implants ?

For the cases you will be doing, tapered implants are easier provided that you prepare the site properly and manage the insertion torque.

¿ Surface treatment ?

Sales people get lots of miles out of this—we don't change our loading protocol based on this propaganda

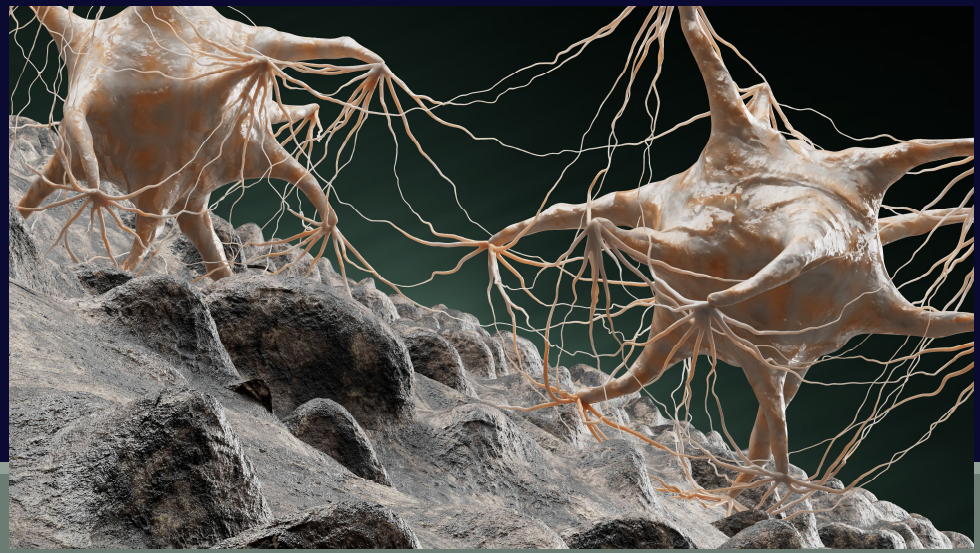
Straumann available surfaces

SLA

- Sandblasted
- Large grit
- Acid etched

SLActive

- Sandblasted
- Large grit
- Acid etched



Terms you will hear…

¿ Tapered vs straight implants ?

For the cases you will be doing, tapered implants are easier provided that you prepare the site properly and manage the insertion torque.

¿ Surface treatment ?

Sales people get lots of miles out of this—we don't change our loading protocol based on this propaganda

¿ Internal vs. external connection ?

External is much more fun…if you are a masochist. Otherwise stick with **internal.**

¿ Tissue level vs. bone level ?

Only really a Straumann question. Go bone level.

More terms you will hear…

¿ Non-indexed vs indexed connection ?

Non-indexed is a pain in the butt. Don't use it. Ever.

¿ One-piece vs two piece implants ?

Two piece implants give so much more flexibility, especially while learning.

¿ What about mini-implants ?

Not for while you're learning. An occasional tool for difficult situations in our practice. "Provisional" only according to Health Canada if under 3mm diameter, exception is Straumann BLT 2.9.

When you are starting out, stick with one system!

One more concept you need to understand

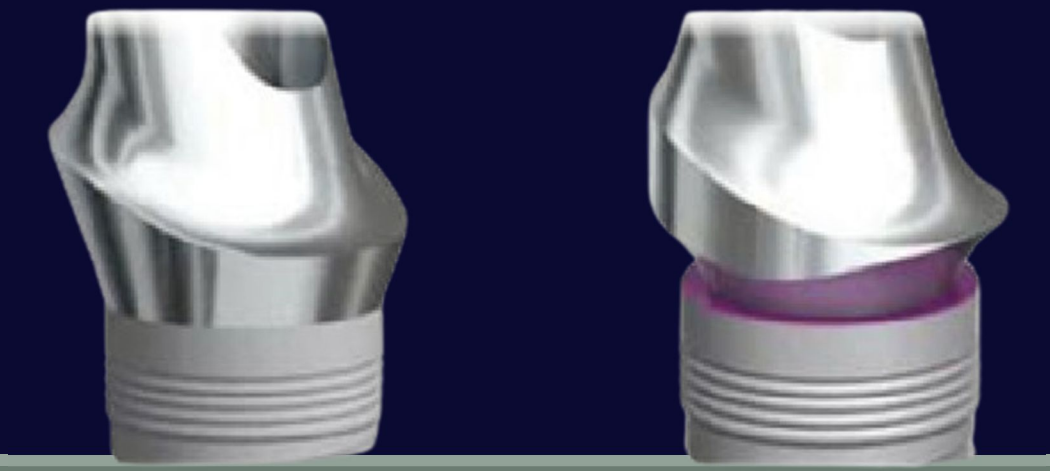
¿ Platform switched or not ?

Correct term is “medialised margin”.

Abutment margin is medial to implant margin, as if you used too small an abutment.

May reduce crestal bone loss.

All of implant dentistry is going towards medialised margin implants.



Choosing a root form implant system

2FA3

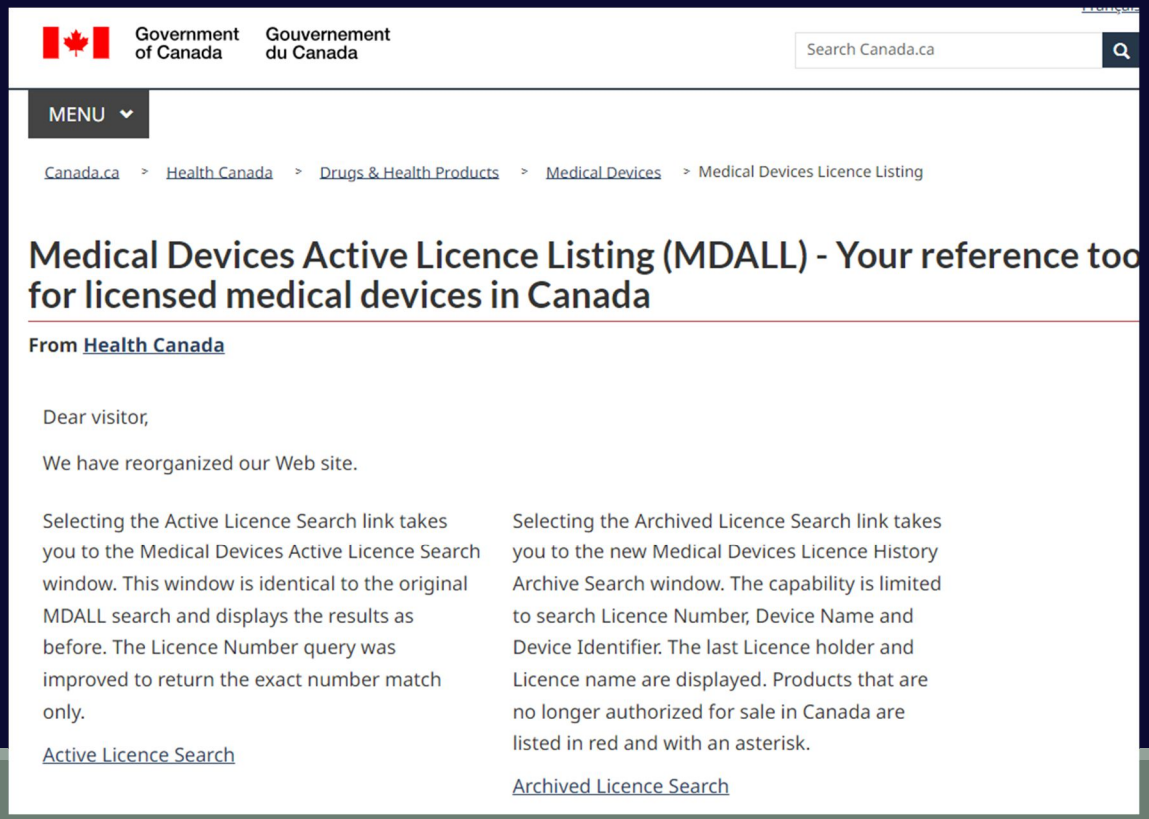
Factors in choosing the right system for you…

1. You want to invest in ONLY ONE SYSTEM when you are starting out.

Inventory is the difference between implants being a profit center *versus* a drain on your practice.

Factors in choosing the right system for you…

2. You want a system that is approved by the Medical Devices Branch of Health Canada



Factors in choosing the right system for you…

3. You want a system you can use in all common situations.

Factors in choosing the right system for you…

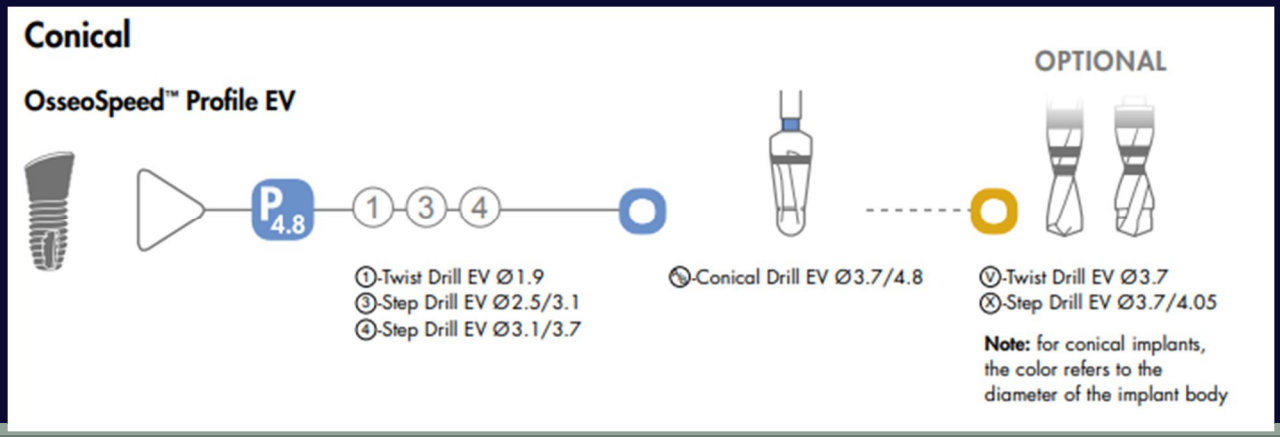
4. You want a system with a wide selection of readily available prosthetic parts, and that will have parts available years down the road. Ideally the screwdriver should be widely available.

   (typically referred to as "mainstream" systems)

Factors in choosing the right system for you…

5. When starting out, you need a company with support, typically a sales rep who can come to your location.

6. You want a system that is easy to learn, implement, and restore.



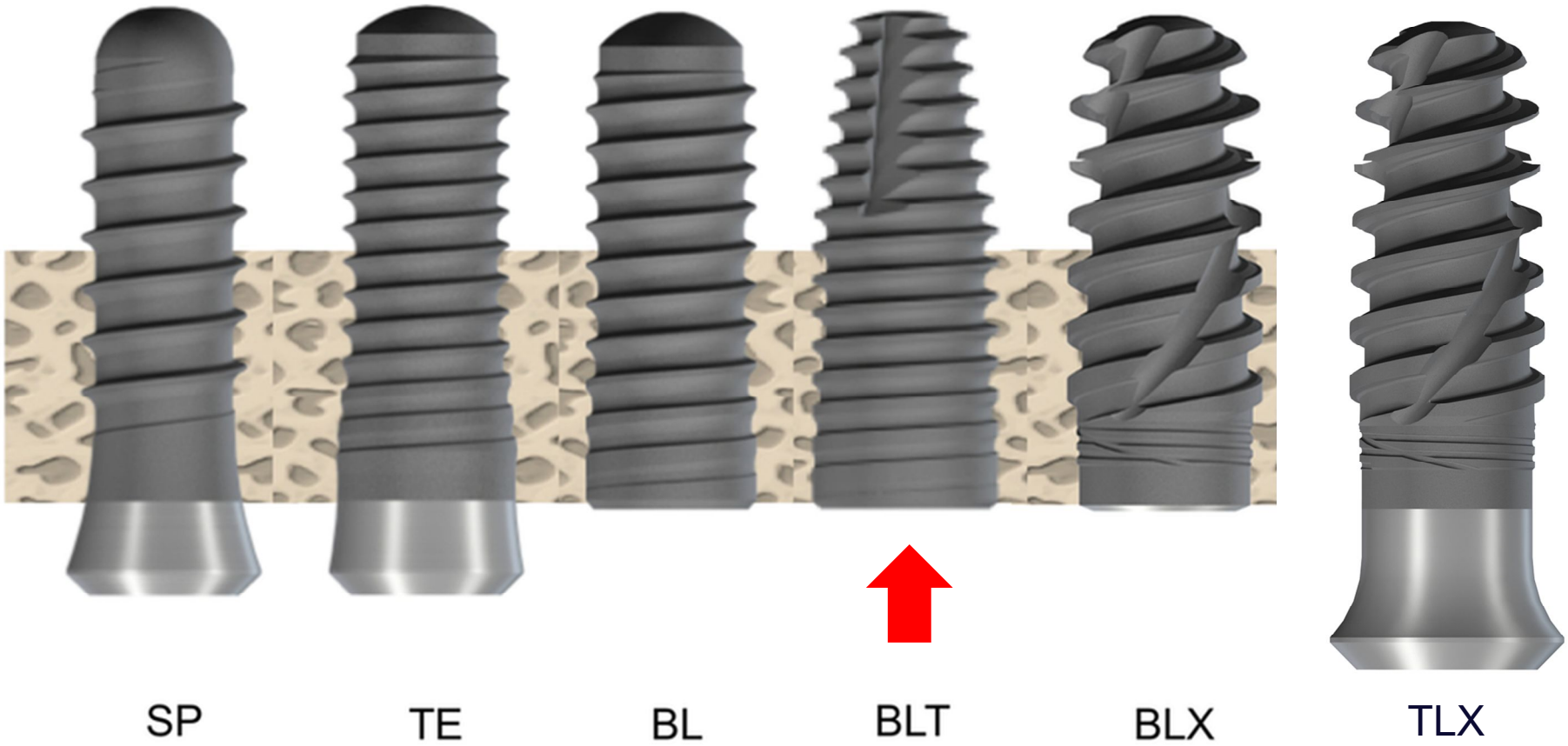
A lot of it comes down to personal preference

- Colour coding
- Kit size
- Cost over time
- Connection “feel”
- Perceived soft tissue response
- Comfort and familiarity
- Where in the world you practice

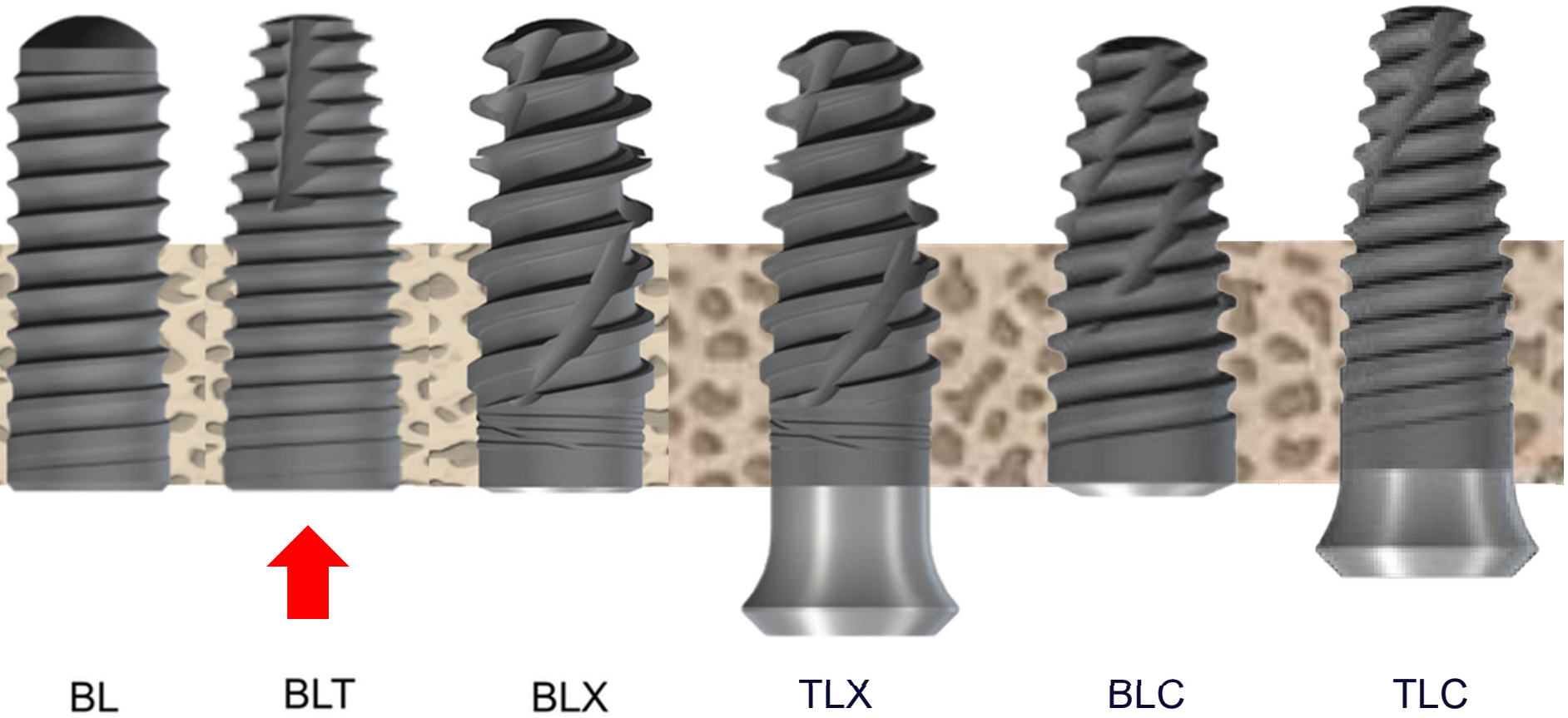
Red herrings

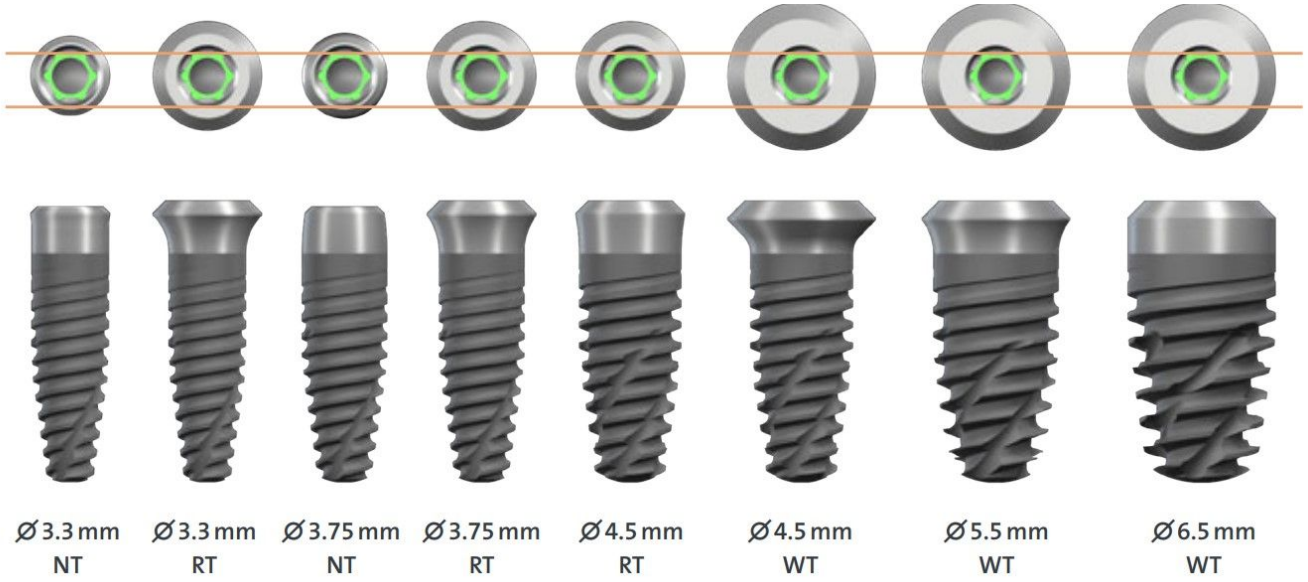
- Surface treatments & fixture alloy
- Giant startup package deals
- “Free” stuff in startup package
- Laboratory opinion
- Promise of referrals
- Unconfirmed name-dropping by sales reps

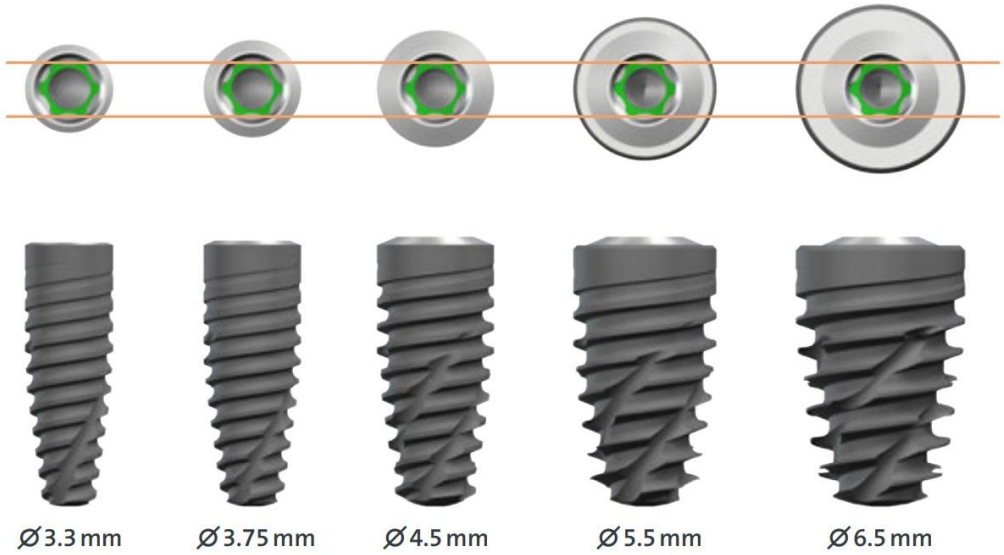
Straumann Holding AG



Straumann Holding AG







Life just got way more complicated.

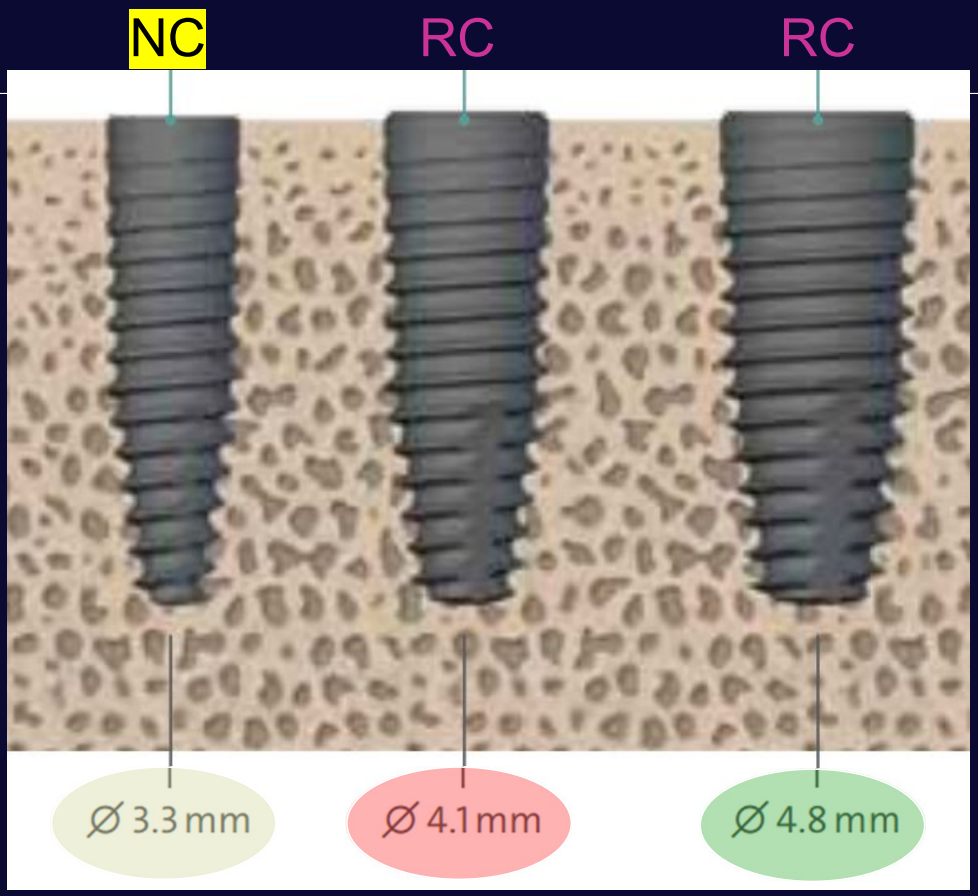
1. Stay away from tissue level.

2. Pick one system

Why we are teaching Straumann BLT…

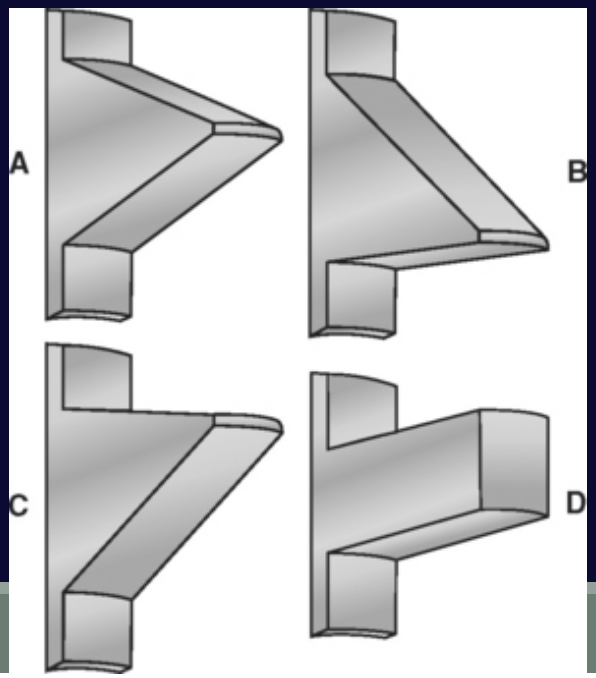
and suggest it as a starter system:

- You can use them in all situations, only one system to buy.
- One of the easiest systems to learn.
- Easy to restore, with lots of OEM restorative options.
- They have actual sales reps. Here in Edmonton.
- Lots of parts and support avail in Edmonton area.
- Options to add to your implant armamentarium later (guided, 2.9SC, full arch, etc.)


NC
RC
RC
Ø 3.3 mm
Ø 4.1 mm
Ø 4.8 mm

Straumann BLT features

- Tapered body
- V shaped threads → compressive threads towards coronal



Straumann BLT features

- Tapered body
- V shaped threads → compressive threads towards coronal
- Cutting flute, no apical hole
- “Roxolid” material, ~85% grade IV Titanium, ~15% Zirconia
- Option of SLA or SLActive surfaces
- Coronal bevel, platform switched
- Combination platform: internal bevel and “square” (four flats)

NC

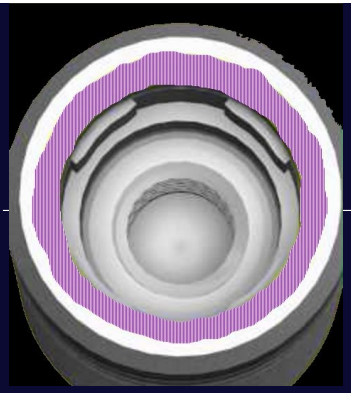
Narrow Crossfit

yellow restorative parts

yellow surgical parts

ø 3.3 mm

8, 10, 12, 14
and 16 mm
lengths



RC

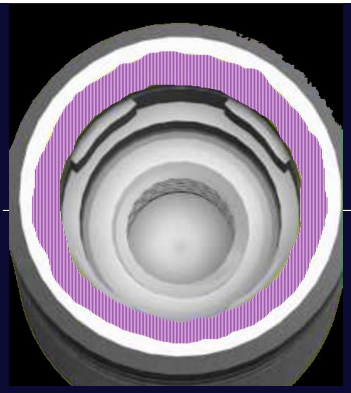
Regular Crossfit

red surgical parts

ø 4.1 mm

purple restorative parts

8, 10, 12, 14
and 16 mm
lengths



RC

Regular Crossfit

purple restorative parts

Green surgical parts

ø 4.8 mm

8, 10, 12, 14
and 16 mm
lengths

So fifteen sizes

3.3 x 08mm	4.1 x 08mm	4.8 x 08mm
3.3 x 10mm	4.1 x 10mm	4.8 x 10mm
3.3 x 12mm	4.1 x 12mm	4.8 x 12mm
3.3 x 14mm	4.1 x 14mm	4.8 x 14mm
3.3 x 16mm	4.1 x 16mm	4.8 x 16mm

straumann

BLT

pitfalls

08 mm long implants…

…arHandy but use with caution while learning. Think “crown:root ratio”, except in this case it’s “implant crown height”.

Not all of that 8 mm is necessarily in “bone-implant contact”, or “BIC”

If we go with only 08mm length, we will often go up one size in width.

16 mm long implants…

…primarily for immediate placement following extraction. Not something you will likely use for quite a while yet.

Straumann BLT 2.9s

A handy implant for us, but we suggest avoiding until you have more experience.

06 mm long implants…

…not for beginners at all.

Anteriors vs posteriors—sizing

Remember Ante's Law?

Tooth	Area(mm^2)	Implant	Area(mm^2)
Max Central	204	4.8 x 12-16	275-333
Man Incisor	160	3.3 x 14-16	200-240
Canine	270	4.8 x 12-16	275-333
Premolar	200	4.3 x 12-14	225
Molar	400+	4.8 x 16!!!	400

Average mesiodistal widths of teeth (mm)

much more valuable for determining implant size

	Maxillary	Mandibular	
Central incisor	8.6	5.3	
Lateral incisor	6.6	5.7	
Cuspid	7.6	6.8	7s
Bicuspid	6.9	7.1	
First Molar	10.4	11.4	10s
Second Molar	9.8	10.8	

(remember the Rule of 7s and 10s)

We'll also need lots of bits and parts…

- Analogs, impression copings, abutments, abutment screws, torque wrenches/drivers that we learned about last session

- Drills, extensions, guide pins, thread taps, implant drivers, healing abutments, cover screws, bone profilers and more, that we will learn about today

Implant placement theory

A step-by-step recipe to get you started

2FA4

Remember, we are teaching you a protocol to use when learning, geared towards simplicity and predictability.

Implant step-by-step procedure (v. 2026.0)

1. Records and treatment planning
2. Book adequate time including setup and cleanup
3. Ensure adequate implant inventory on hand, plus hoses, saline, etc.
4. Obtain informed consent
5. Anaesthetise, swab area w disinfectant, drape patient as desired, scrub
6. Incision and flap if indicated
7. Check 850rpm / 30N-cm / irrigation on. Lance drill to establish entry point
8. Blue 2.2 mm pilot drill to 8 mm, guide pin, confirm direction, take radiograph
9. From radiograph calculate probable implant size, reconfirm inventory
10. Blue pilot drill to full calculated length
11. Sequentially larger drills 850rpm w irrigation, check direction each step
12. Cortical drill (also thread tap if very hard bone)
13. Rinse site thoroughly with saline, remove any tissue tags, re-rinse
14. Turn off irrigation, place implant at low rpm with handpiece
15. Use torque wrench/ratchet to finish
16. Cover screw or healing abutment, suture to close if necessary
17. Inject steroids to site if desired
18. Final radiograph
19. Post op instructions

Basic information on the surgical procedures for the Straumann® Bone Level Tapered Implant

straumann®
simply doing more℠

1. Records and treatment planning

Minimum records are:

- periapical or panoramic radiograph
- medical history incl medications list
- dental charting indicating a complete examination has been done

Remember, this is the absolute minimum.

We will discuss paperwork at length tomorrow.

2. Book adequate time including setup and cleanup

Infection control compliance takes time!

Complying with both CDSA and AHS IPC regulations takes your staff a lot of time, when setting up and taking down from implant surgery. This is especially true when just starting out.

IPC will be discussed in detail tomorrow. For now, just recognise that we have to…

…use the normal clean technique you would use for restorative, plus:

1. Clear out and double wipe operatory
2. CSR double wrap and pack instruments, with spore test and quarantined
3. Sterile sided towel or drape
4. Scrub tissue area with Peridex or iodine
5. Sterile saline or sterile H_2O to rinse
6. Sterile disposable hoses for irrigant
7. Wear sterile gloves during actual placement (handling implant drills)—realistically, gown and sterile gloves the whole time

Bottom line: you need to book more time, esp while you **and your assistants** are learning

Homework: tell your staff…

…only book one implant placement per half day at first (or maybe better yet, just one per day) because of sterilisation/ quarantine requirements.

Implant placement is a full uninterupted hour.

3. Ensure adequate implant inventory on hand, plus hoses, saline, etc.

Implant parts required:

- Projected implant
- His "friends", *i.e.* additional implants in similar sizes
- Cover screw(s)
- Healing abutment(s)

Implant drill units

- All implant drill units work.
- Irrigation pump should be part of the same unit.
- Cheaper units are often louder and some tend to be less reliable. Also watch out for non-variable speed foot pedal.
- Not all E-type fittings are interchangeable. (sigh)
- Can be used for implant placement, as well as oral surgery AND a backup or portable handpiece.

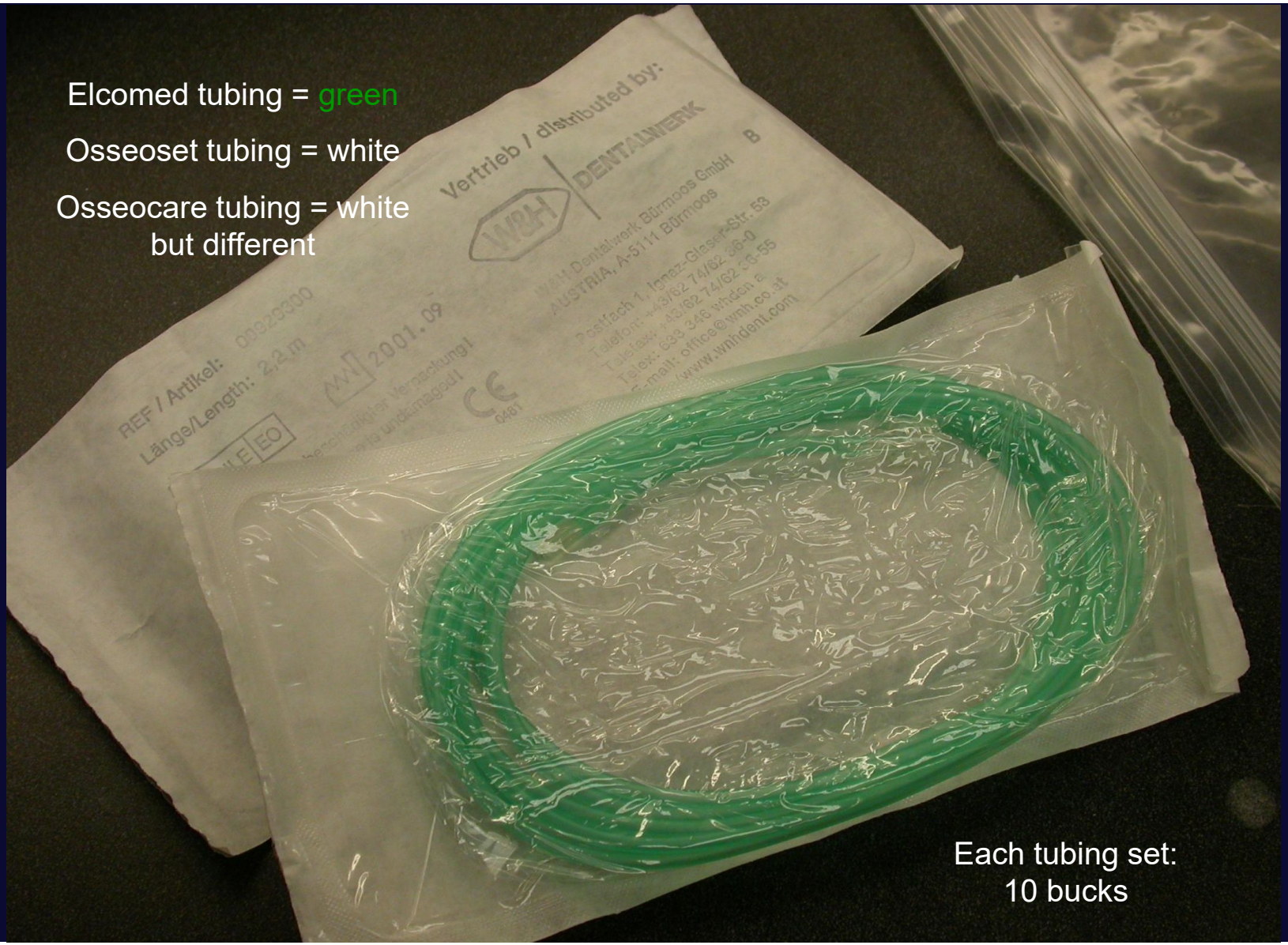
- Not really usable for rotary endo…yet.

Irrigant

- Normal saline vs. sterile water vs. D5W
- 1L vs. 500mL vs. 250mL
- Refrigerated vs. room temperature

The red circles are what we do.
Any of these are fine though.

Note recent saline shortages. 🙄


Elcomed tubing = green
Osseoset tubing = white
Osseocare tubing = white
but different
Vertrieb / distributed by:
DENTALWERK
Each tubing set:
10 bucks

We will review instruments in the next section.

Again though, use the implementation checklist.

And tomorrow we will deal with infection control and associated supplies.

4. Obtain informed consent

5. Anaesthetise, swab area w disinfectant, drape patient as desired, scrub

Topical anaesthetic

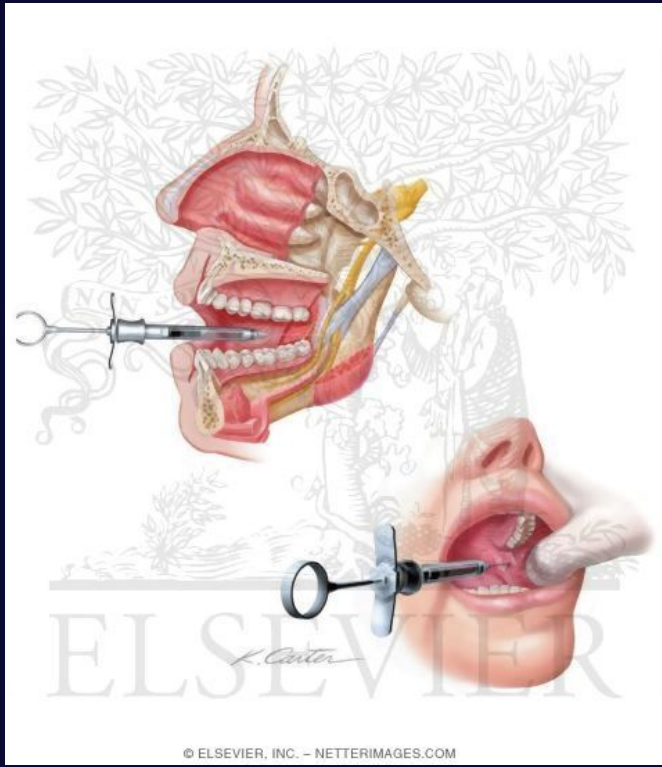
- a weak link in the infection control chain
- consider doing LA with exam gloves, then scrubbing and switching to sterile gloves
- consider disposable single-use topical

Which LA should we use?

Do we want / need vasoconstrictor?

Do we want / need sedation?

On the lower…mn block or infiltration?



Dosage and administration

SEPTANEST N (articaine 4 % with 1:200,000 epinephrine)

SEPTANEST SP (articaine 4 % with 1:100,000 epinephrine)
As with all local anaesthetics the dosage varies and depends upon the area to be anaesthetized, the vascularity of the tissues, the number of numeral segments to be blocked, individual tolerance and the technique of anaesthesia.

Adults
- For most common operations, one infiltration with 1.7 mL SEPTANEST is sufficient. In all cases, the injection must be administered slowly (About 1 mL/min).
- For an infiltration in the interdental septum, a quantity of 0.3 to 0.5 mL is indicated as generally sufficient.

Do not exceed the equivalent of 7 mg/kg articaine hydrochloride body weight which corresponds, for a subject weighing 60 kg, to 6 standard 1.7 mL cartridges. The duration of anaesthesia during which an operation can be performed using SEPTANEST N is up to 45 minutes. The duration of anaesthesia during which an operation can be performed using SEPTANEST SP is up to 75 minutes. The lowest dosage needed to provide effective anaesthesia should be administered.

How much LA can / should we use?

NOTICE TO DENTISTS
IN ACCORDANCE WITH BYLAW 19(7) OF THE ALBERTA DENTAL ASSOCIATION AND COLLEGE

On February 13, 2013, a Hearing Tribunal found Dr. * guilty of unprofessional conduct and he was sanctioned. Dr. * admitted he was guilty of unprofessional conduct that displayed a lack of knowledge, skill or judgment in the provision of dental services or that contravened the standards of practice, the Standards for Use of Conscious Sedation in Non-Hospital Dental Practice, March 2006 (the "2006 Sedation Standards") and/or the Code of Ethics because:

He failed to obtain or document the patient's informed consent for an increase in the length of treatment from 4.5 hours to 7.0 hours;

He exceeded the maximum recommended dose of triazolam administration to the patient;

He exceeded the administration of a reasonable dosage of local anesthetic by administering 21 carpules to the patient;

He failed to keep or maintain appropriate dental records;

He inappropriately or improperly charted the use of nitrous oxide;

He failed to report the hospitalization of his patient within two days of sedation which is a failure to report a Reportable Incident to the ADA+C as required by the 2006 Sedation Standards.

Swab area with disinfectant

Chlorhexidine gluconate 2%

vs.

CHG 0.12% (Peridex)

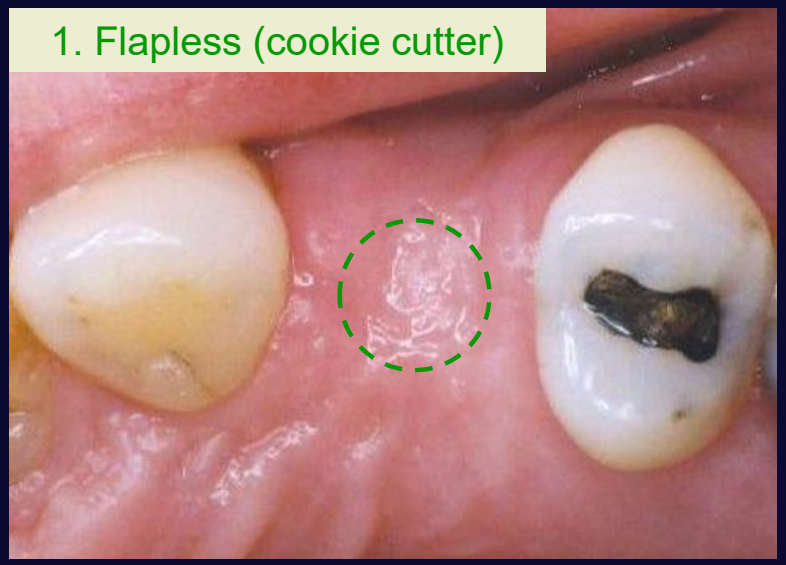
vs.

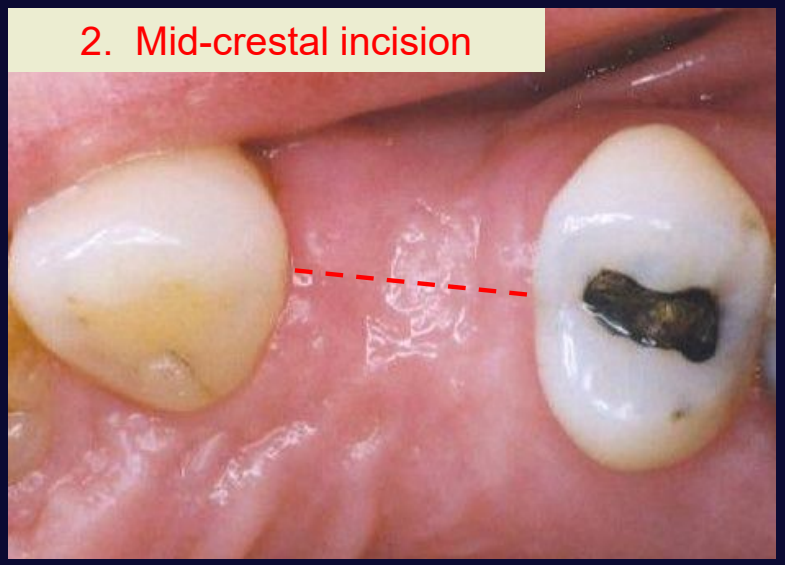
Betadine

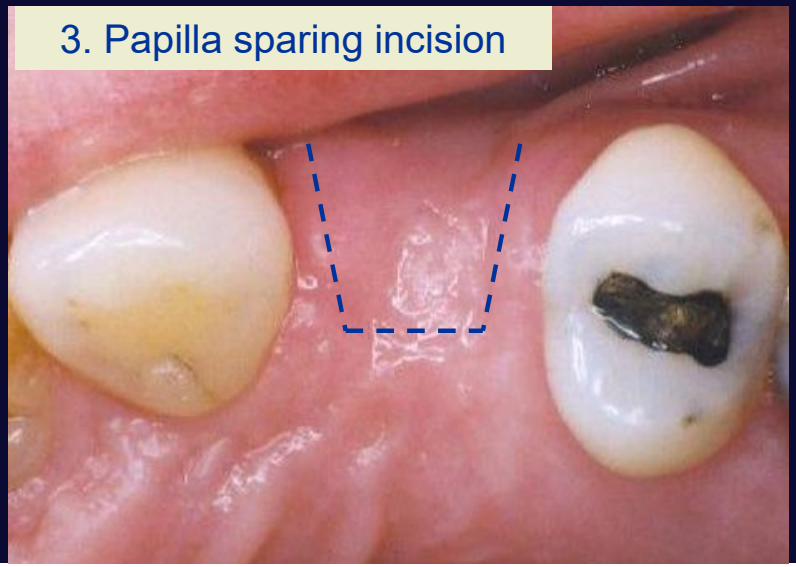
Does shellfish allergy mean you cannot use iodine?

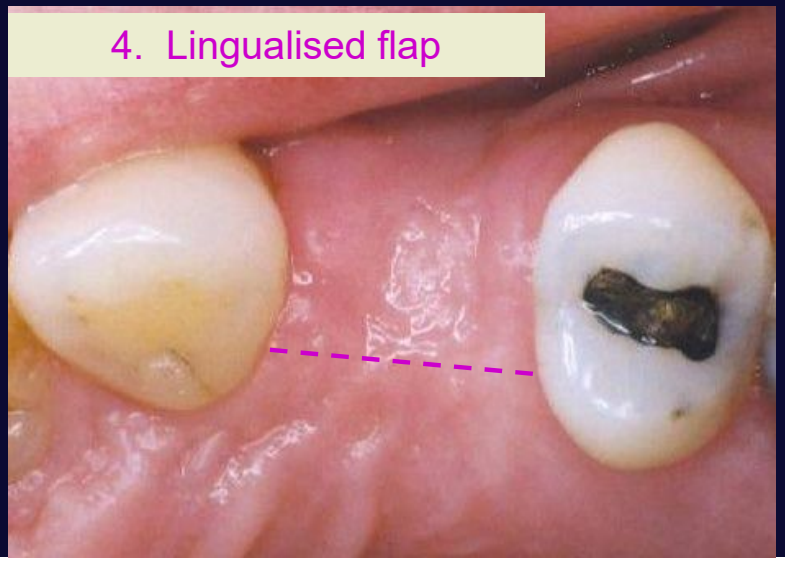
Swab vs. rinse vs. both

6. Incision and flap if desired

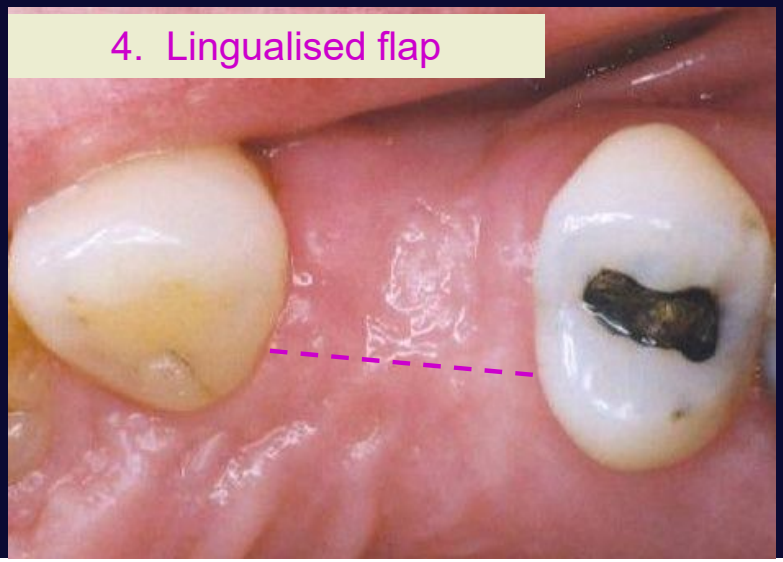

1. Flapless (cookie cutter)

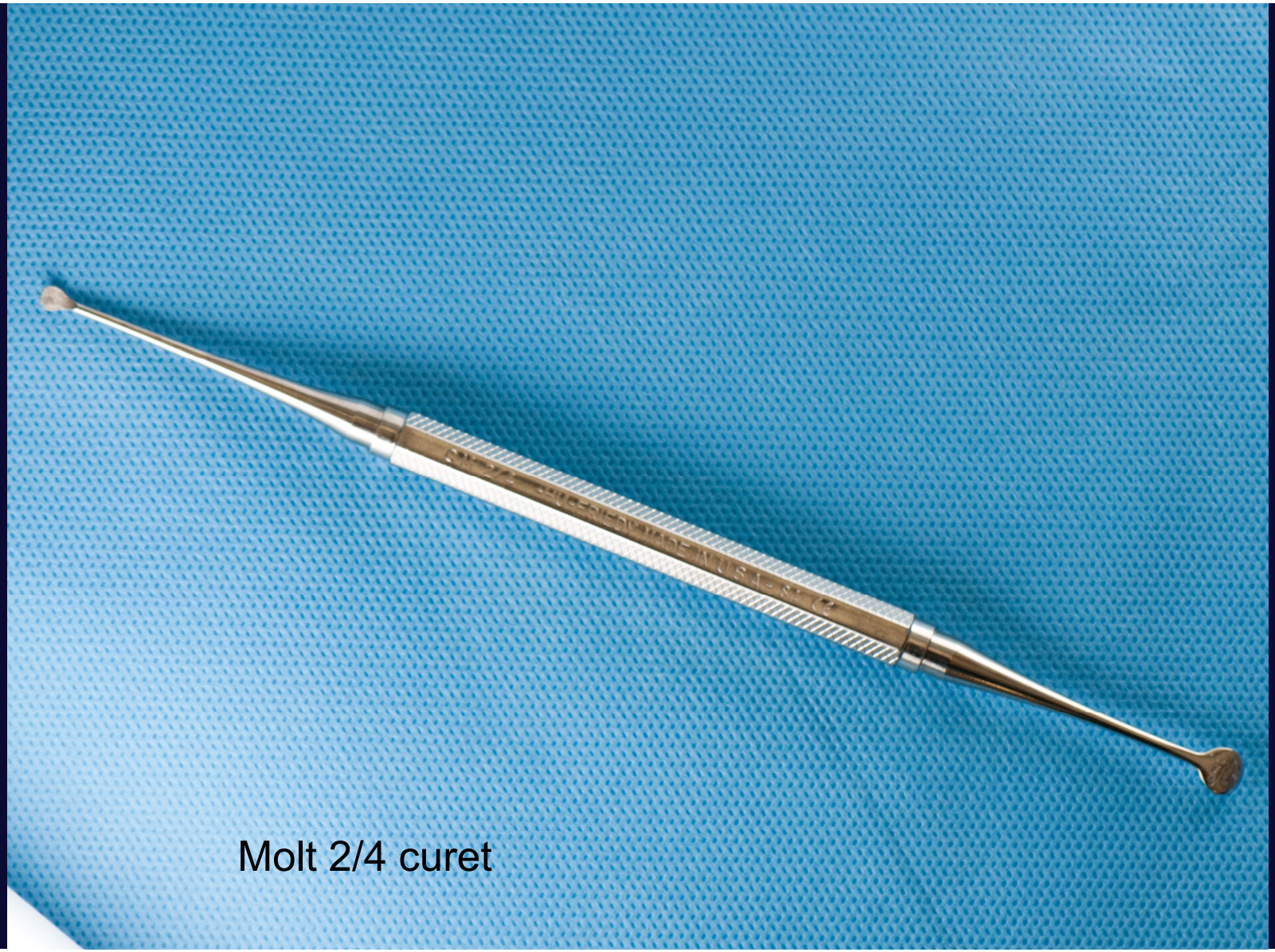

2. Mid-crestal incision


3. Papilla sparing incision


4. Lingualised flap

The vast majority of cases you do in the beginning will be with this approach.

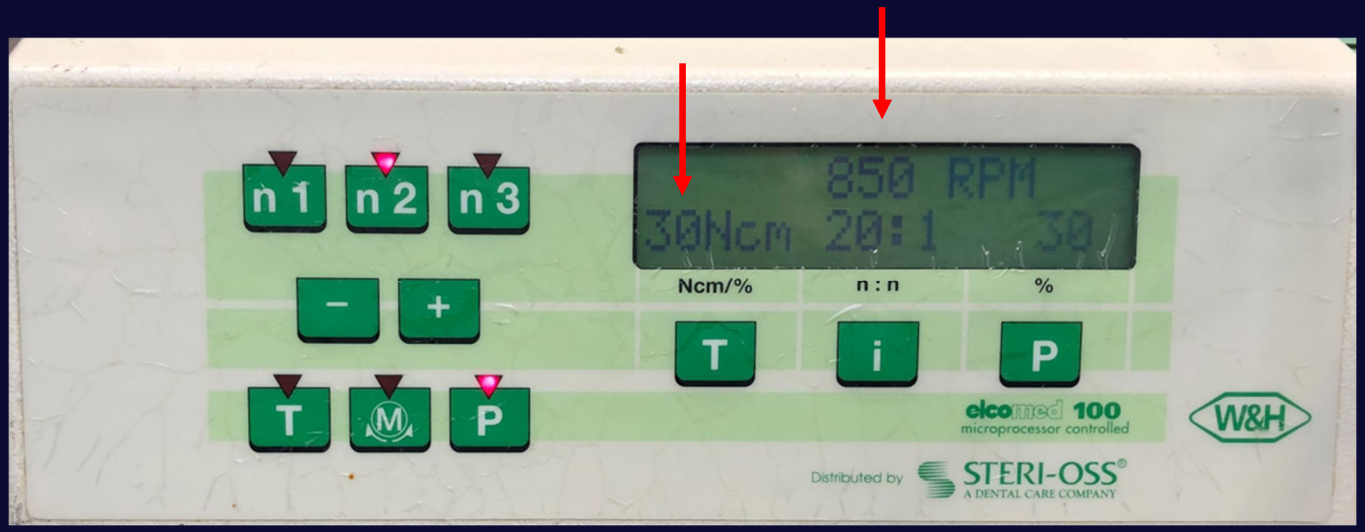




Molt 2/4 curet

7. Check 850RPM / 30N-cm / irrigation on

Lance drill to establish entry point



Why we have gone to 850 / 30

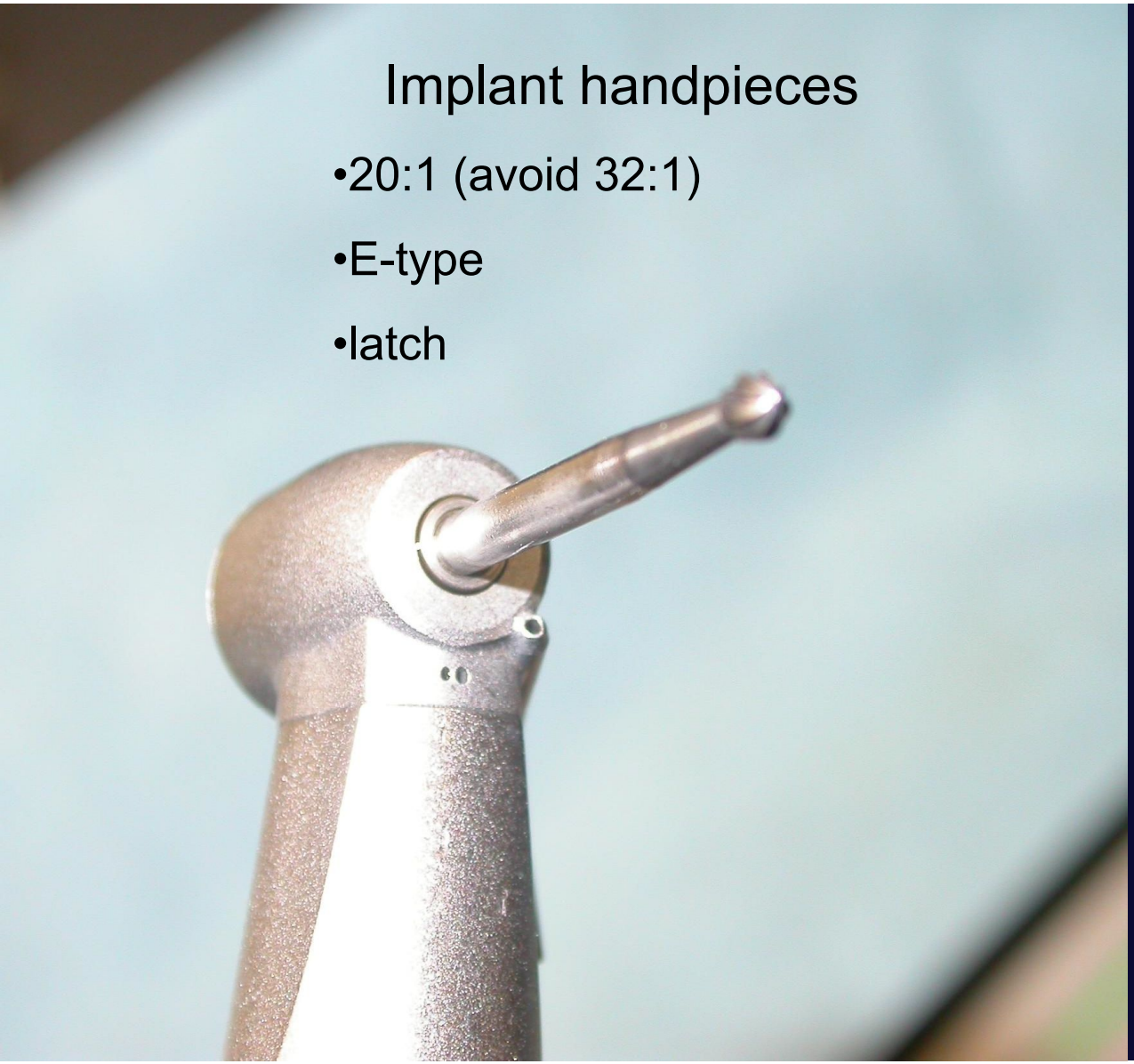
- Functional for all stages of procedure
- We observed students were frequently confused
- We observed students rarely running at full displayed speed anyway
- General dentists have the touch to handle tapping and placement
- Manufacturer's recommended protocols are for only average bone densities encountered anyway

Only thing you have to adjust is turning off irrigation for placement.

You are welcome to use implant companies' suggested protocols if you prefer, or to tinker (*e.g.* 1000 / 35).

Implant handpieces

- 20:1 (avoid 32:1)
- E-type
- latch



20:1 often have a green band

(1:5 is red, 1:1 is blue)

Note irrigation tubing port (may be clip-on)

Drilling, and therefore implant position, has three components:

I. Platform location—"Where do we start drilling?"
Easy to learn

II. Implant angulation—"What direction should it point?"
Harder

III. Platform depth—"How deep do we sink the implant?"
Hardest thing to learn!

I. Position of the implant platform

In most instances, the adjacent or contralateral teeth will dictate.

Knowledge of average tooth M-D dimensions is essential.

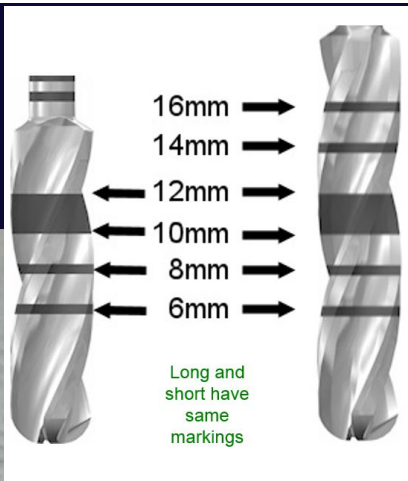
Time to use the Lance Drill

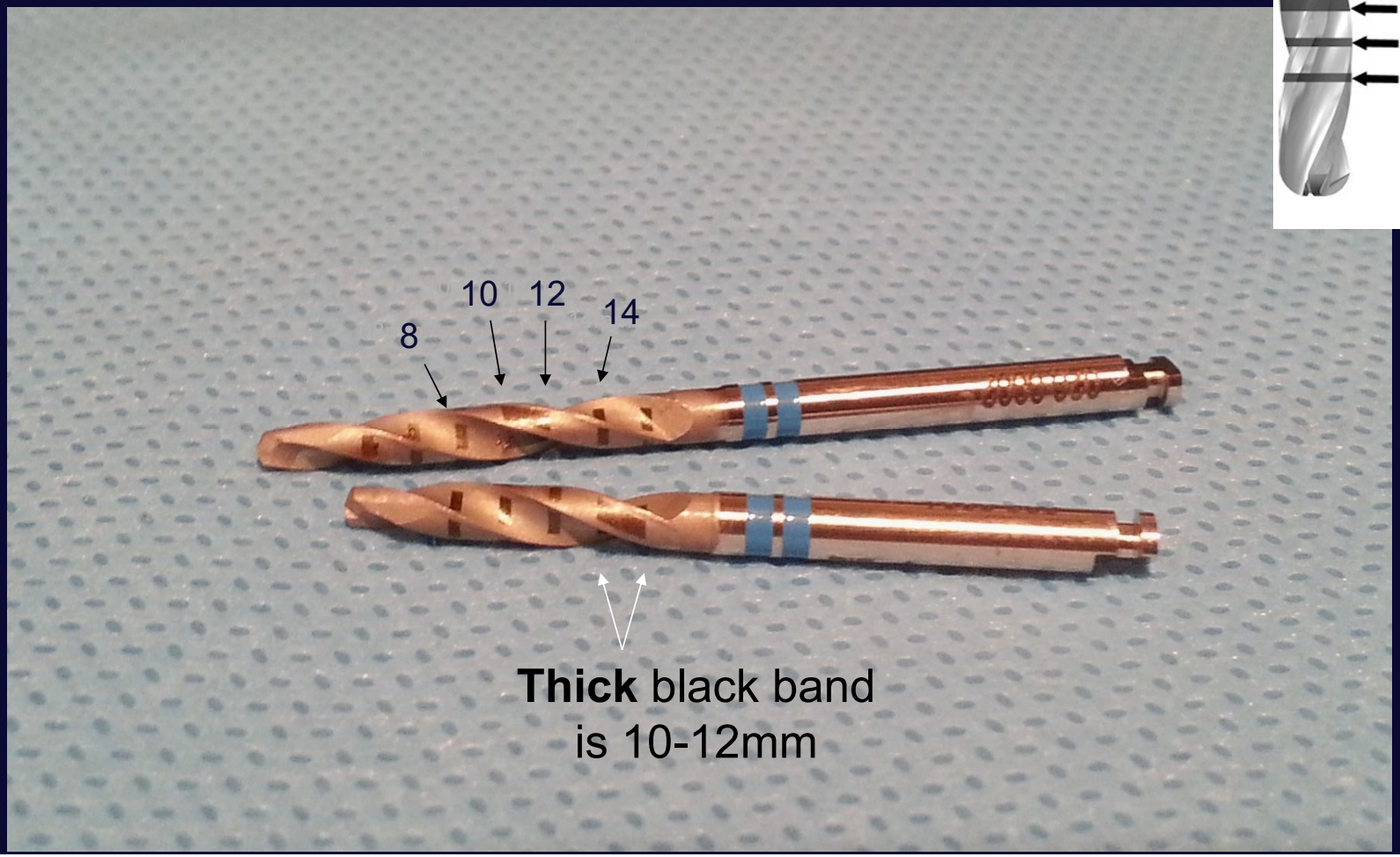
(Straumann calls it a “Needle Drill”)

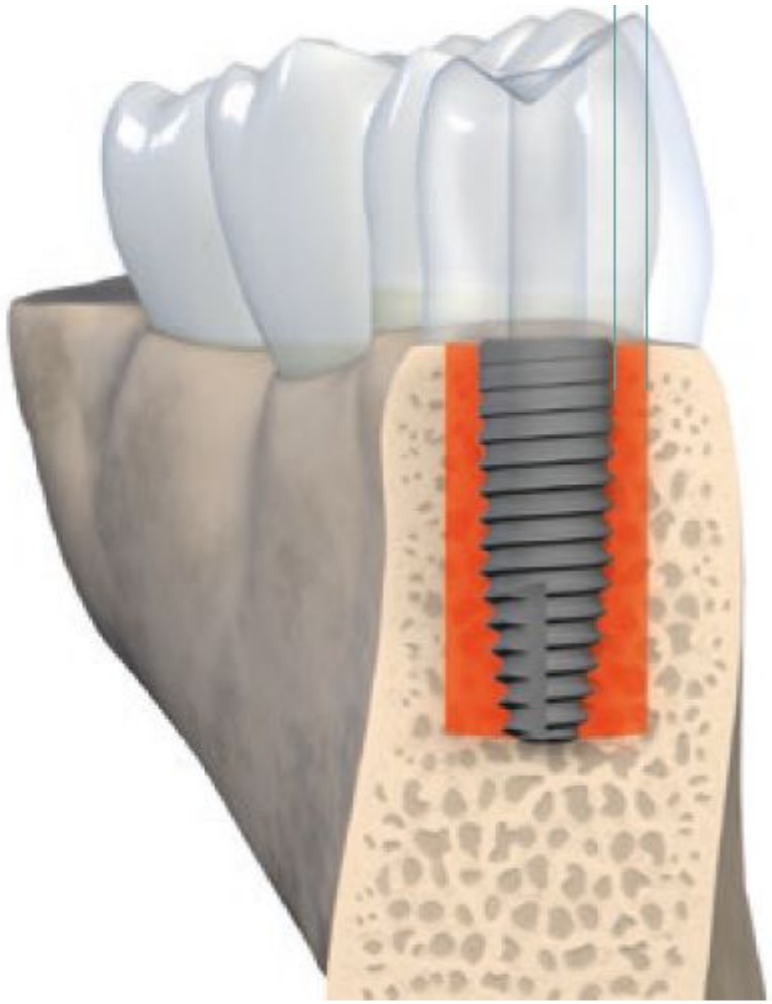

Lance drill
NSK

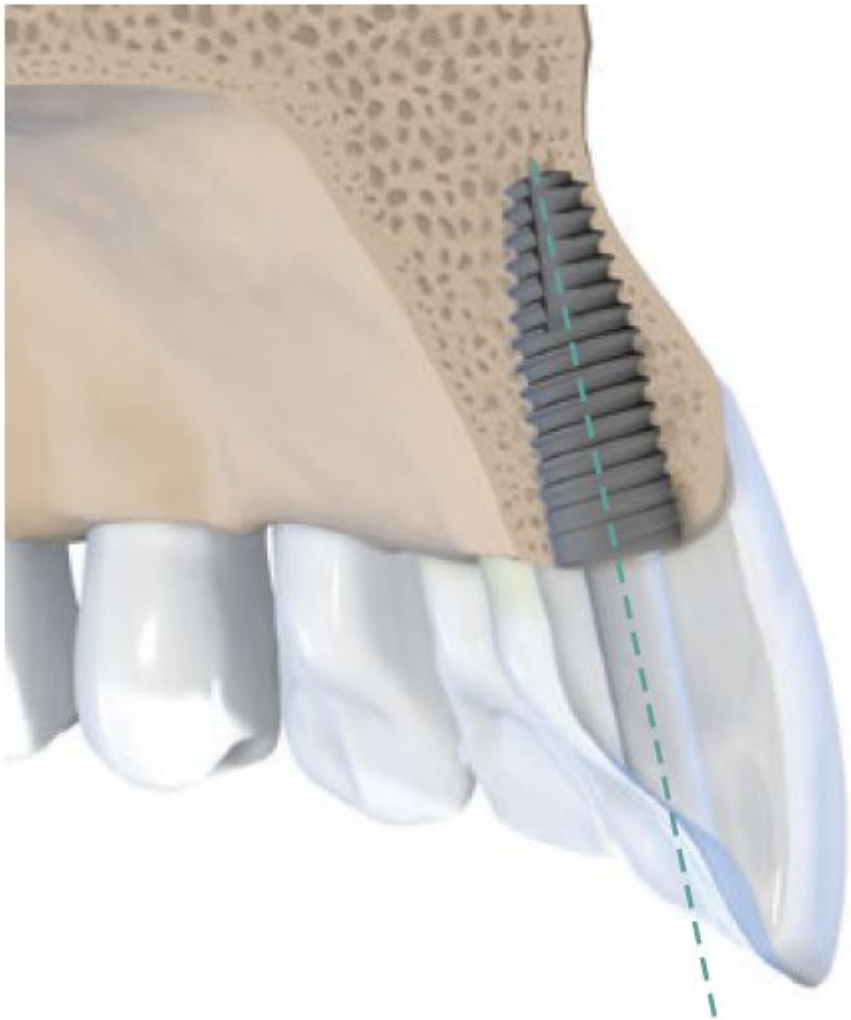
8. Blue pilot drill to 8mm, guide pin, confirm direction, take radiograph

Straumann 2.2 mm pilot drill, short and long







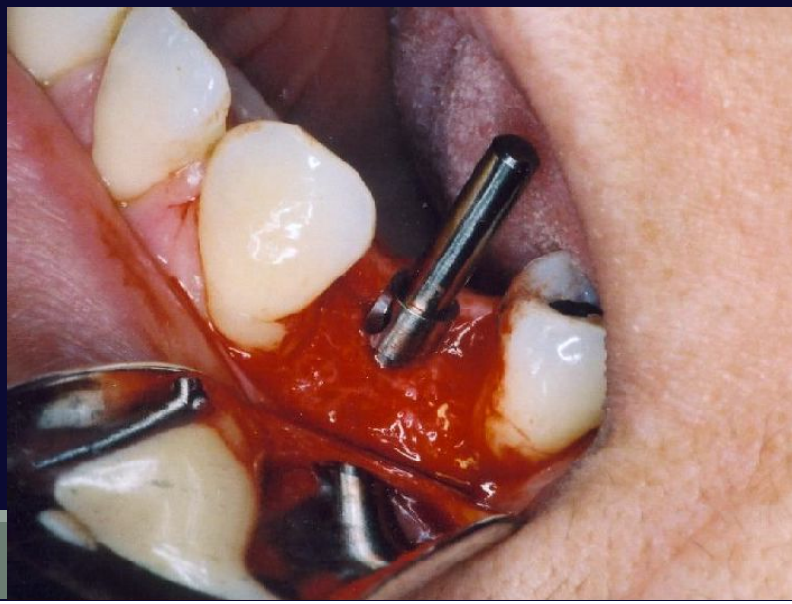


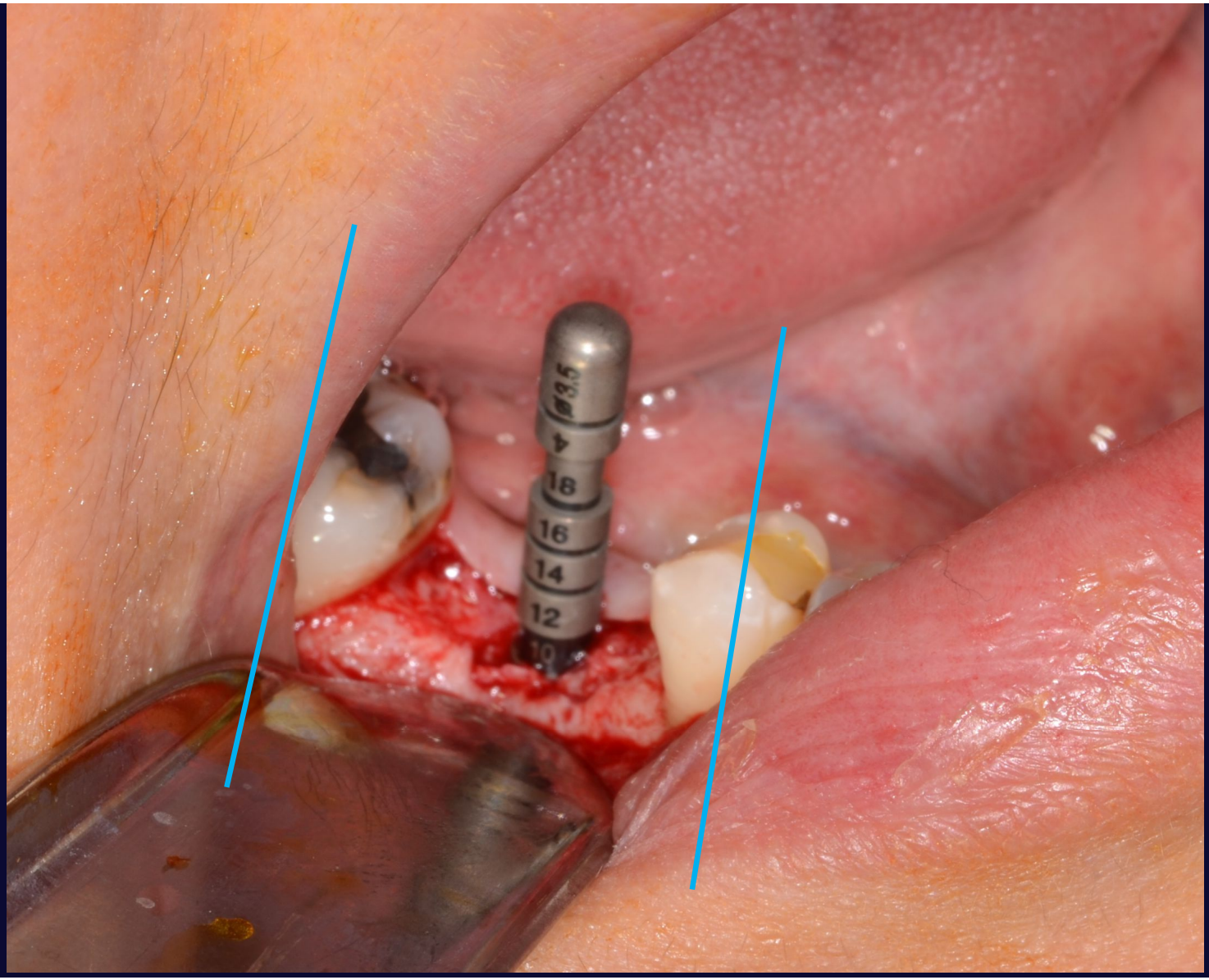
The Straumann super-tall guide pin

Climb out of your chair!

View angulation from three aspects…

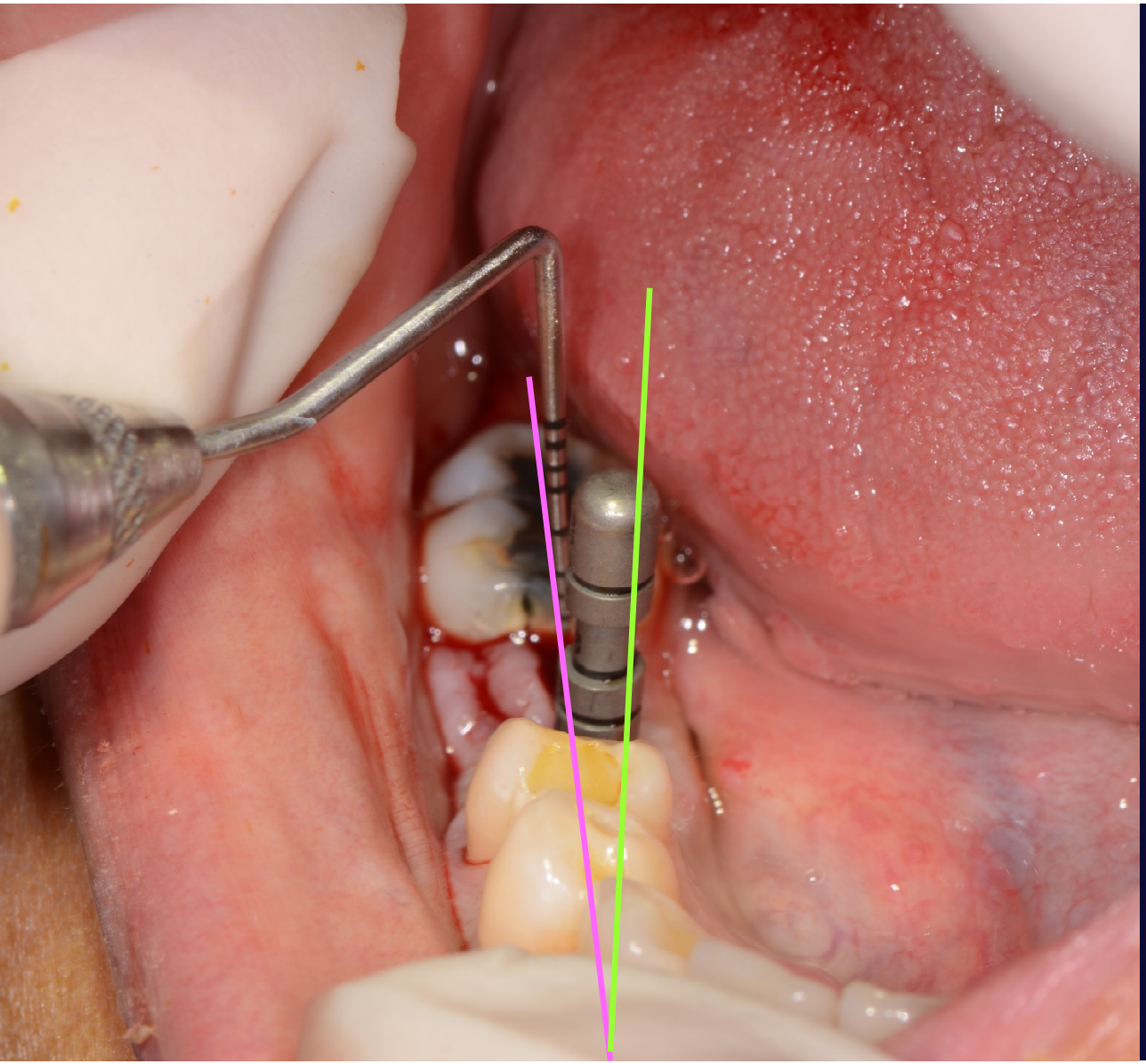
- From buccal compared to adjacent teeth
- From anterior—look down central grooves of adjacent teeth
- Look straight down pin





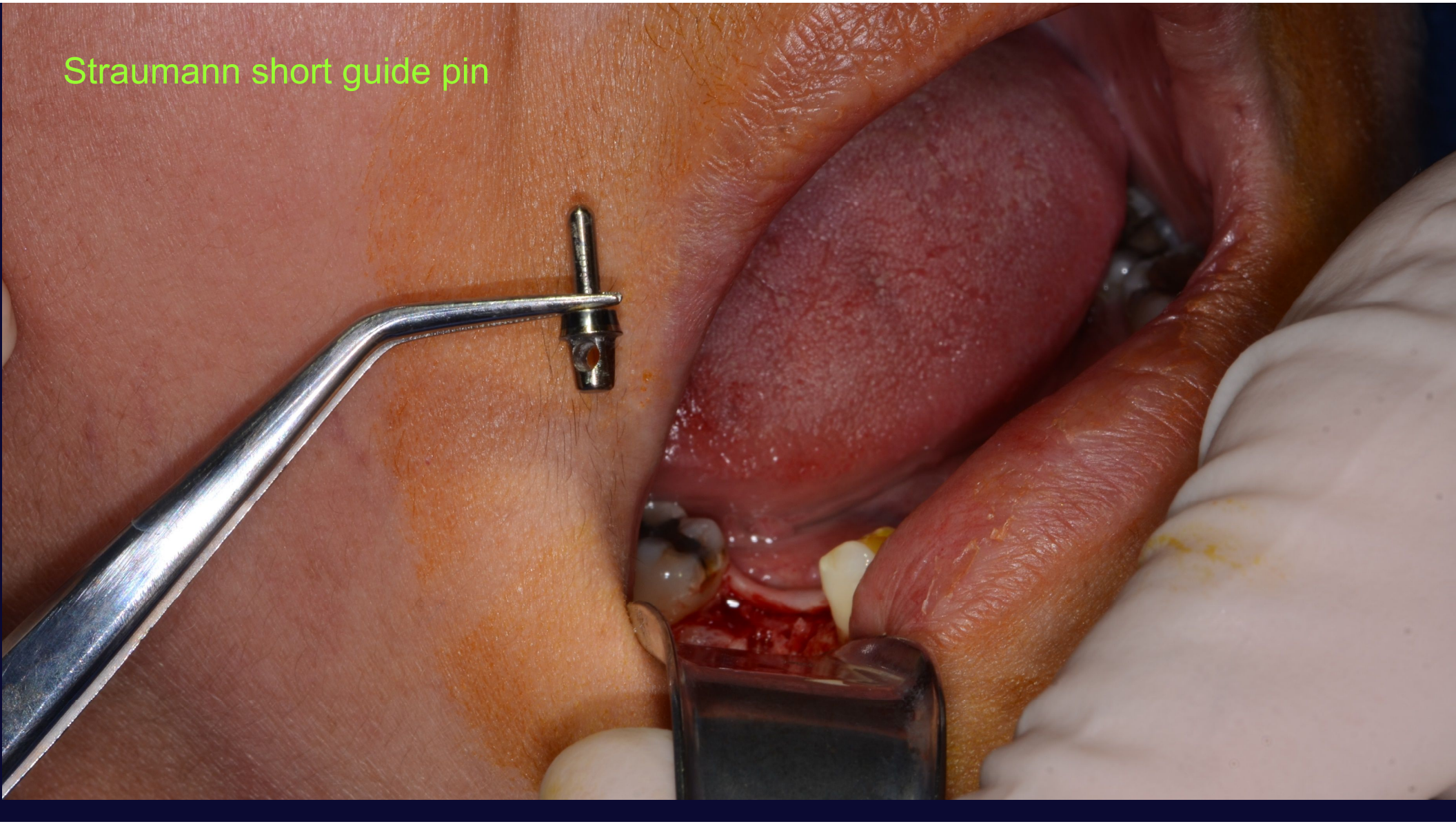
a. from the buccal


b. view
from space



c. down the central grooves

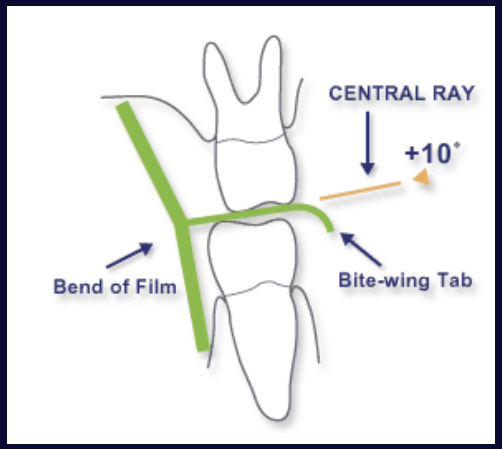
(Brittiny's bowling alley)

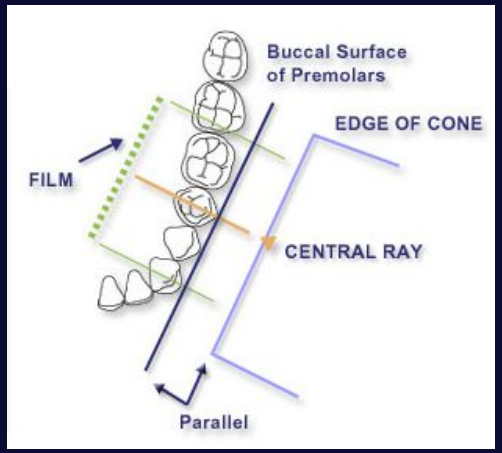

Straumann short guide pin

To get the best sense of your position, you need both short AND long guide pins

We require a periapical radiograph, taken at a bitewing angle.

Sometimes you will need two (2) radiographs, one to see the apex, and one to see the crestal bone.





Kischner or Lindemann side-cutting bur

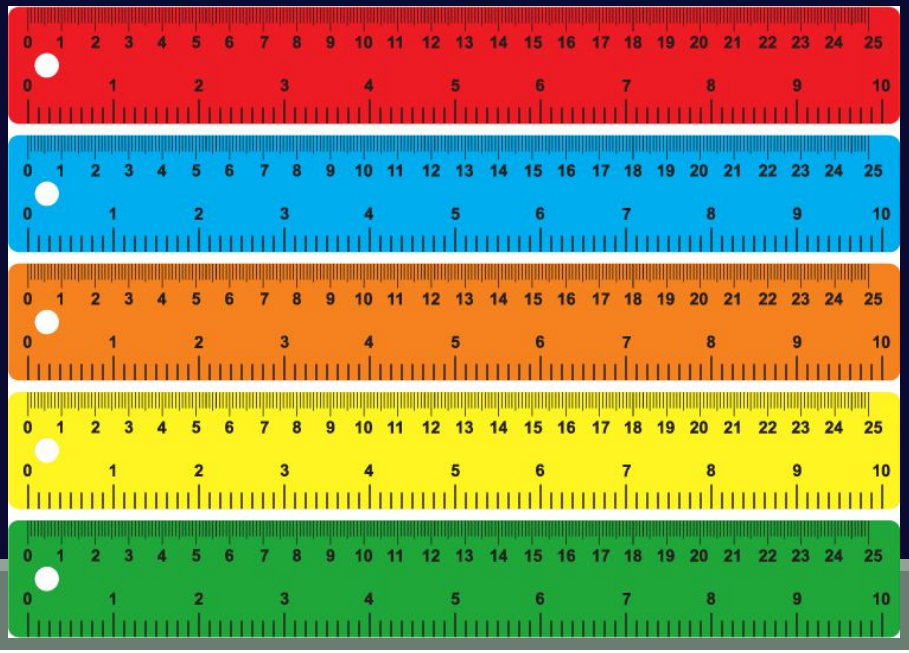
- can be handy to transport osteotomy

Straumann sells a Lindemann with standard depth markings

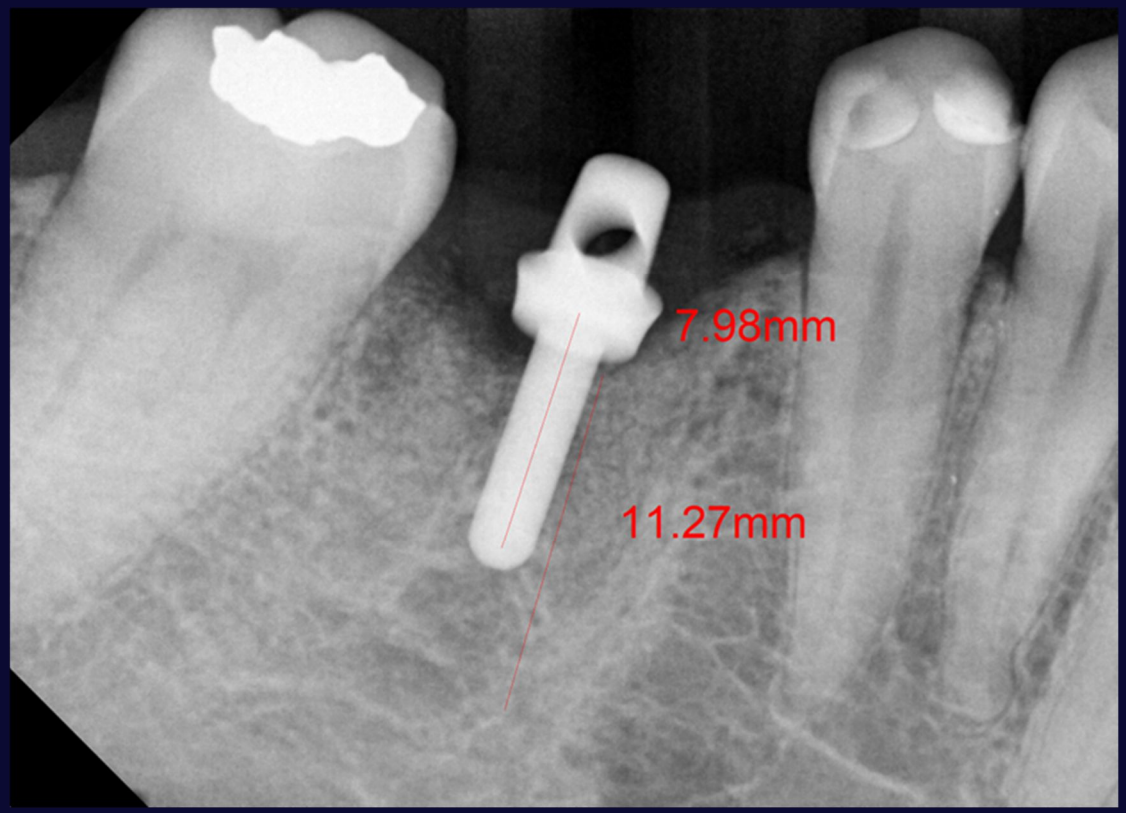
9. From radiograph calculate probable implant size, re-confirm inventory

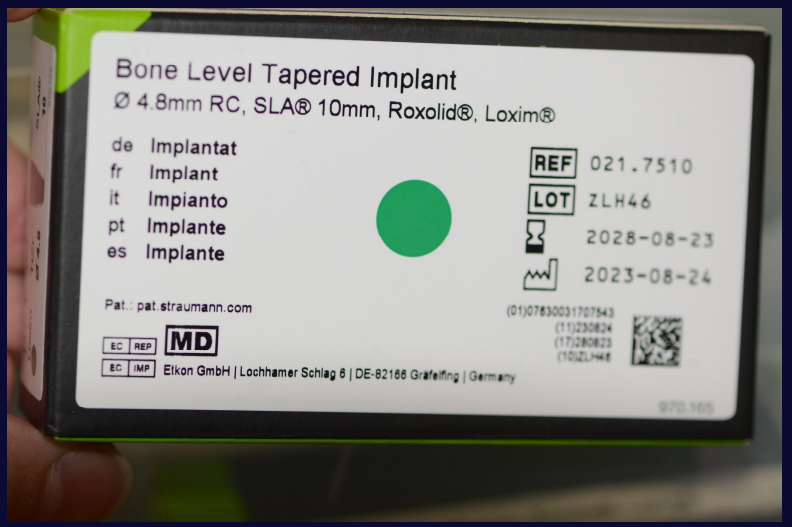
Homework project

Figure out how to use measuring utility in your radiography software

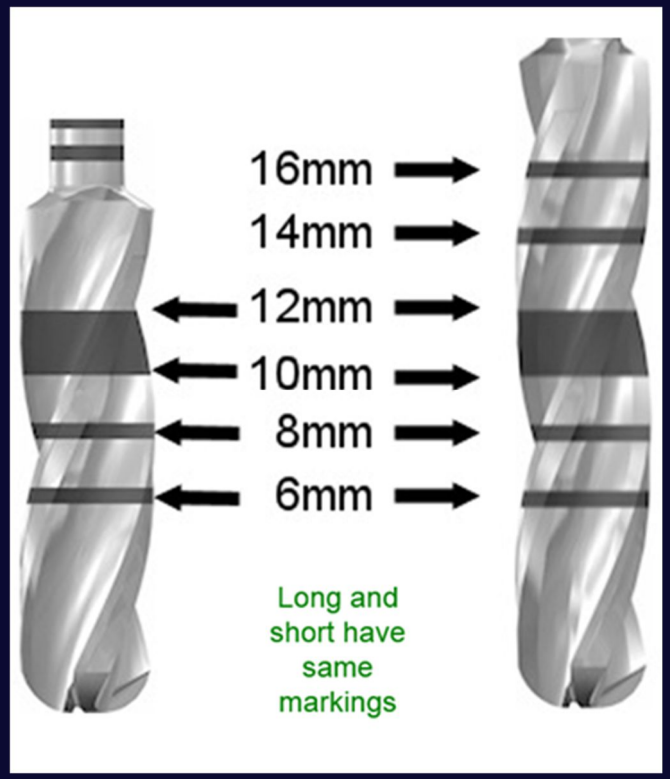


Once you settle on size, reconfirm inventory





10. Blue pilot drill to full calculated length

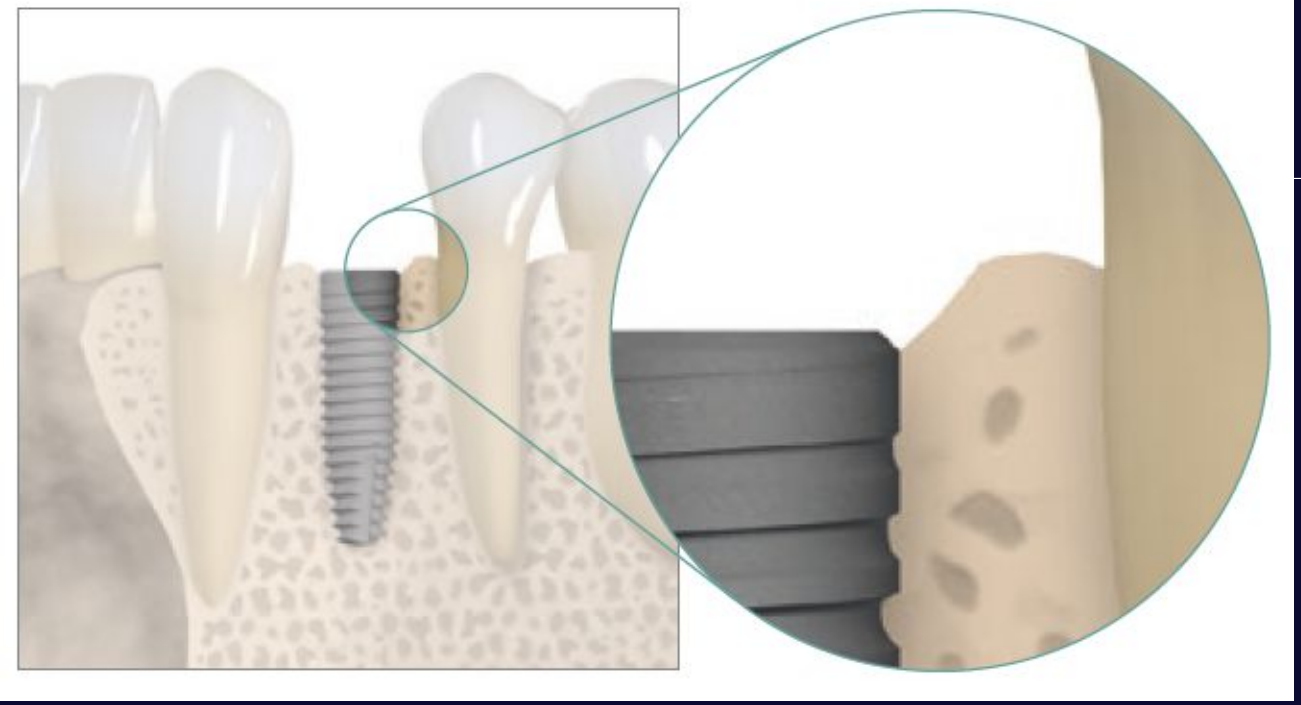


3. How deep do I sink the platform?

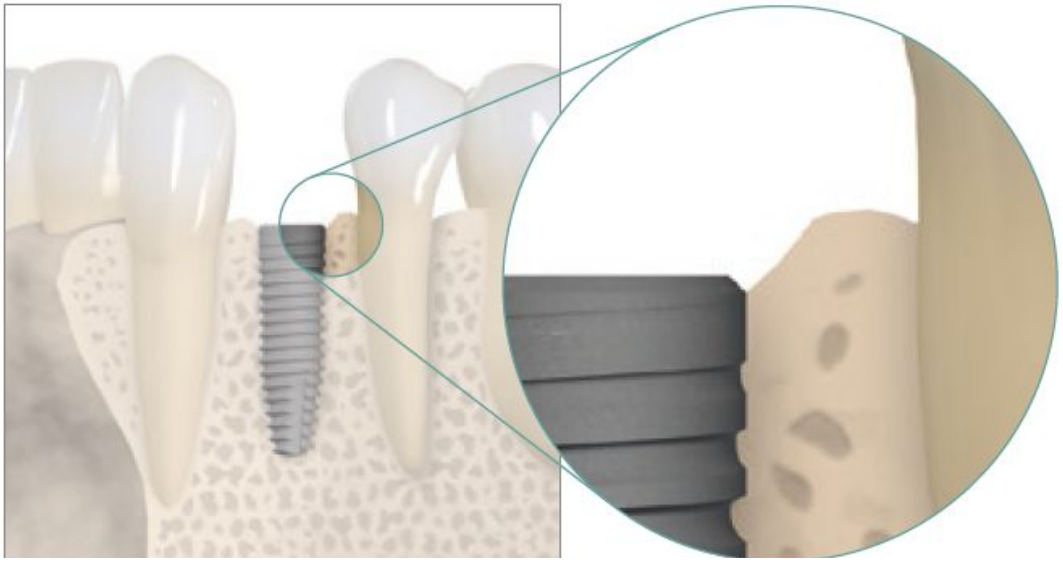
factors

- depth of collar in bone
- depth of collar to soft tissue at crest
- inter-arch clearance, if limited
- risk from inadvertent loading
- height of available bone
- note that bone is rarely flat in the site

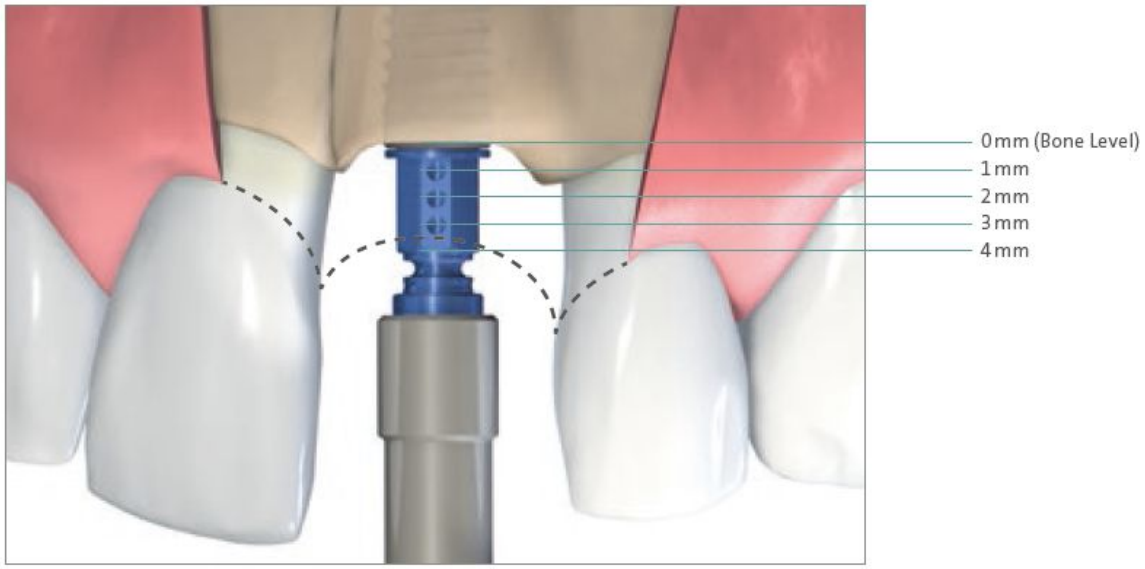
Remember these are bone level implants



In the posterior, the adjacent bone will usually be a good gauge for platform depth…but may not be flat



Posterior:
bone dictates

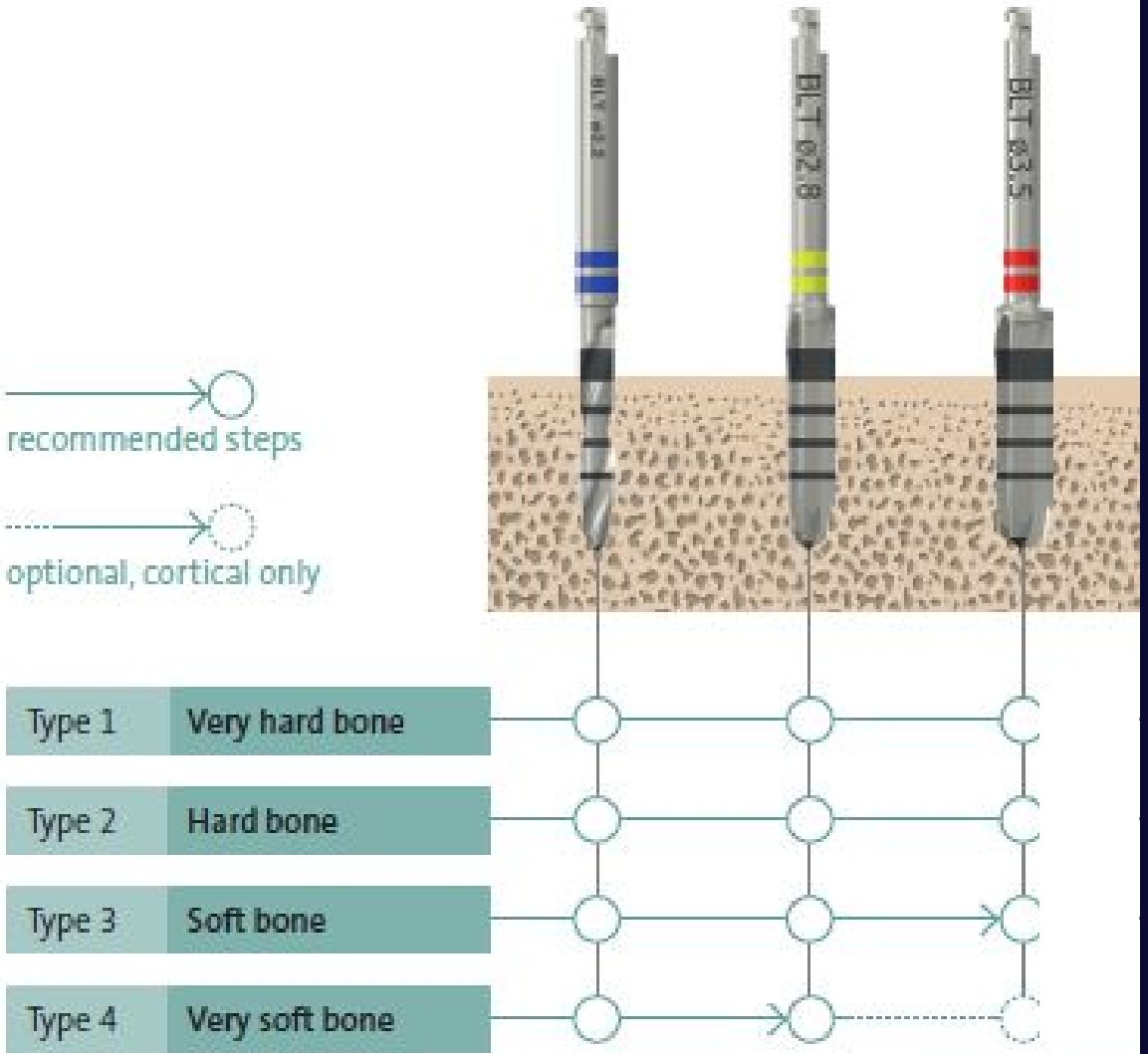


Anterior:
gingival zenith
dictates

3. How deep do I sink the platform?

- Much more leeway in posterior—use the bone rather than the soft tissue as a guide
- ***If in doubt, go 2-3 mm past the gingival zenith***
- This is one of the hardest things to teach (and learn) in implantology—requires experience to judge

11. Sequentially larger drills at 850rpm with irrigation, check direction each step


BLT Ø2.8
BLT Ø3.5
recommended steps
optional, cortical only
Type 1
Very hard bone
Type 2
Hard bone
Type 3
Soft bone
Type 4
Very soft bone

The abbreviated Straumann BLT kit—
only for BLTs

Note: Straumann trays are being
transitioned to modular

Take home message: the trays you use in training may not be the same as what you get when you purchase a system.

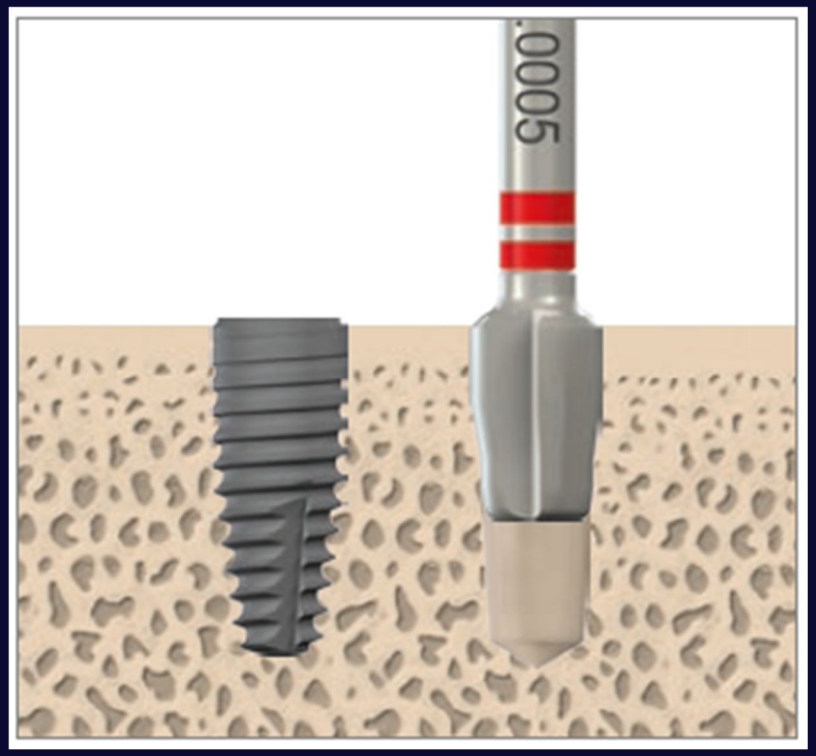
Drill sequences and mechanics

- Plan your drilling sequence once implant size chosen
- Don’t trust the markings in the box, staff can put drills, etc., away in the wrong holes!
- Continually re-assess positioning

Drill sequences and mechanics

- Plan your drilling sequence once implant size chosen
- Don't trust the markings in the box, staff can put drills, etc., away in the wrong holes!
- Continually re-assess positioning, and guard against drifting
- Irrigation and "pumping" action
- You are a drill press
- Each subsequent drill will be easier
- Noobs tend to over-prepare osteotomies…get in and get out
- Get out of your chair if you can't see!

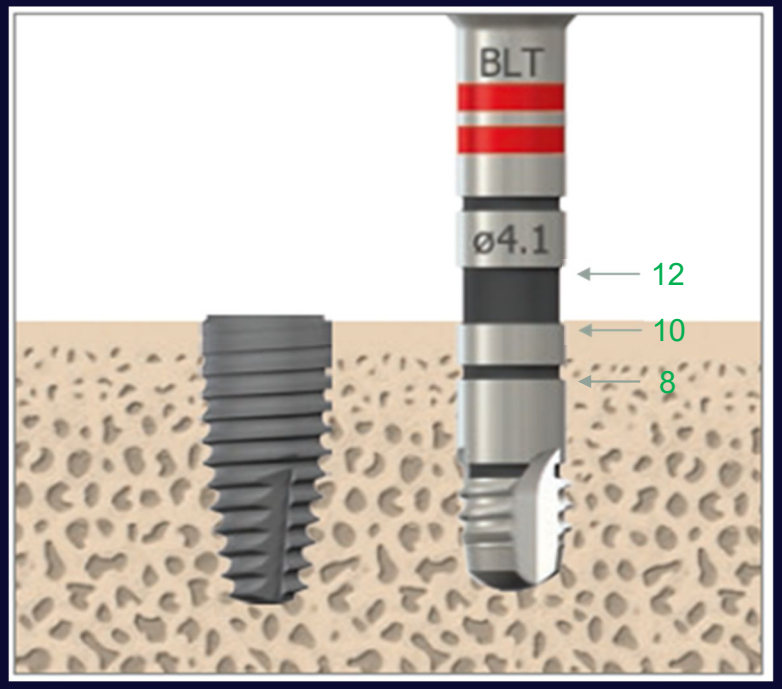
12. Cortical drill, + thread tap if very hard bone



Cortical drill…

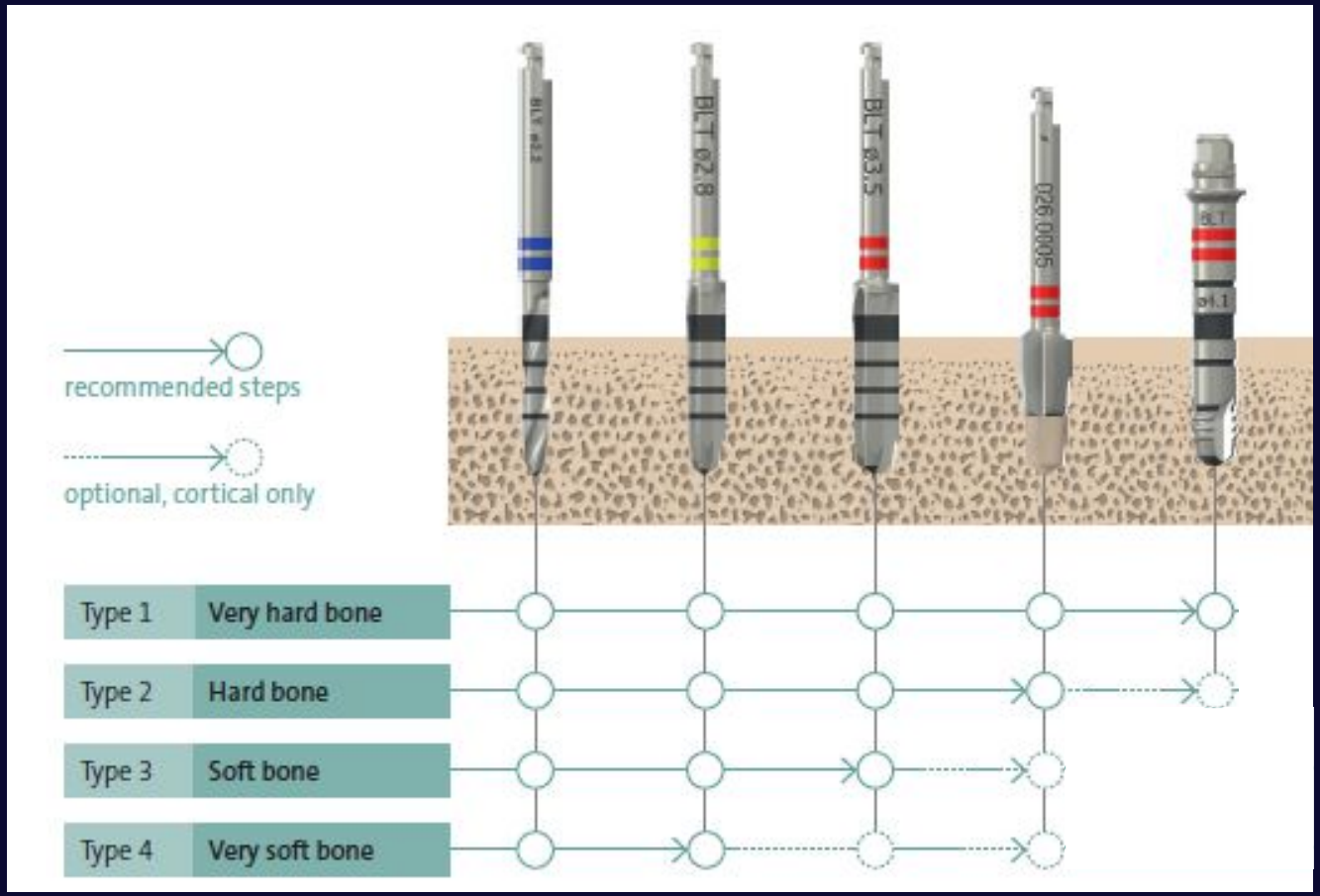
- converts osteotomy to “tapered”
- important to prevent pressure necrosis at cortical

12. Cortical drill, + thread tap if very hard bone



Thread tap…

- only used in very dense (cortical) bone
- rarely used in our office
- can be removed with torque wrench if stuck


recommended steps
optional, cortical only
Type 1
Very hard bone
Type 2
Hard bone
Type 3
Soft bone
Type 4
Very soft bone
BLT Ø2.8
BLT Ø3.5
026.0005

13. Rinse site thoroughly with saline, remove any tissue tags, re-rinse

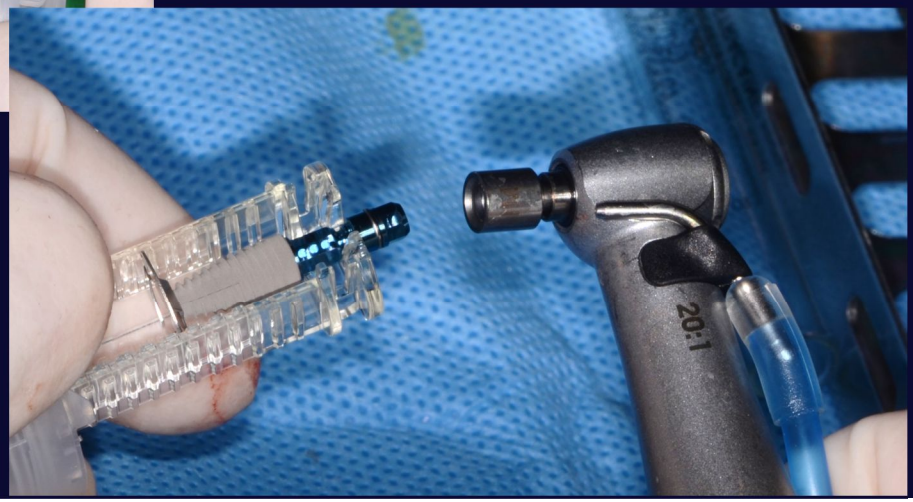
- caution if potential sinus perforation
- why are tissue tags bad?

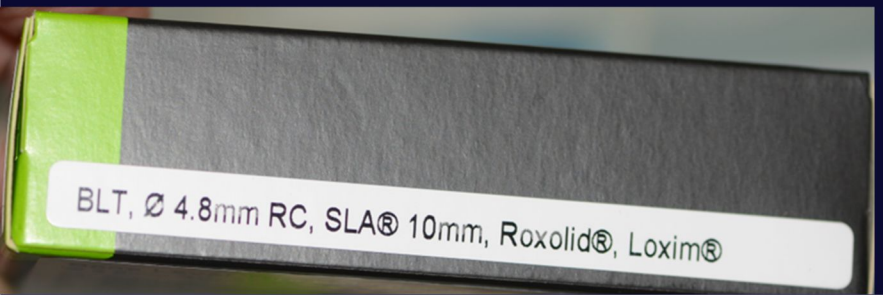
14. Turn off irrigation, place implant at low rpm with handpiece

The humble Loxim fixture mount


BLT RC
Loxim TiZr
Ø 4.8
SLA®
10

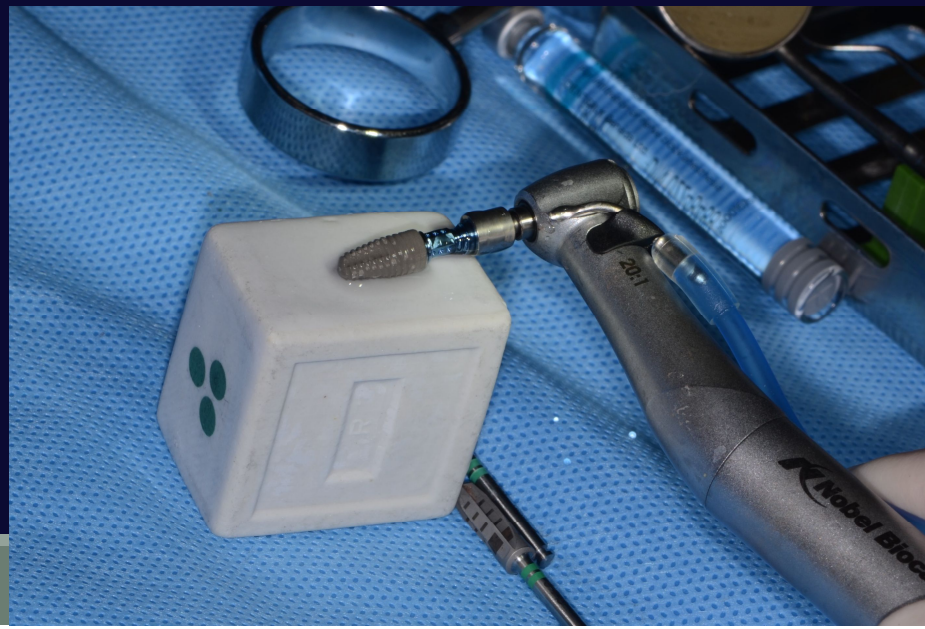

20:1


20:1


BLT, Ø 4.8mm RC, SLA® 10mm, Roxolid®, Loxim®

Optional: "dunk" implants in gentamycin solution

- benefits of local vs systemic antibiotic
- gentamycin is only antibiotic shown to promote angiogenesis
- we do not use in pregnant pts



15. Use torque wrench/ratchet to finish

How tight?
Torque for implant placement

Refers to the rotational force that must be used to overcome the relative resistance of the bone

Searching for the “happy medium” between initial stability and pressure necrosis

Optimum varies by situation, but typically **between 15 and 45 N-cm** for Straumann BLT

Concept of initial stability

Represents **mechanical** fixation of the implant to bone

Relaxation occurs over first two weeks

Sometimes called “primary stability”

Secondary stability

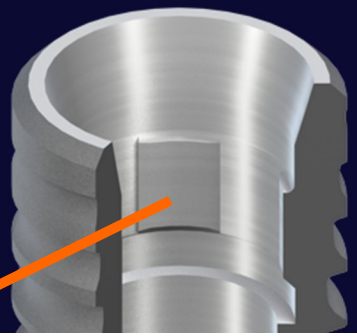
The ‘Biologic Contribution’, represents ongrowth of bone

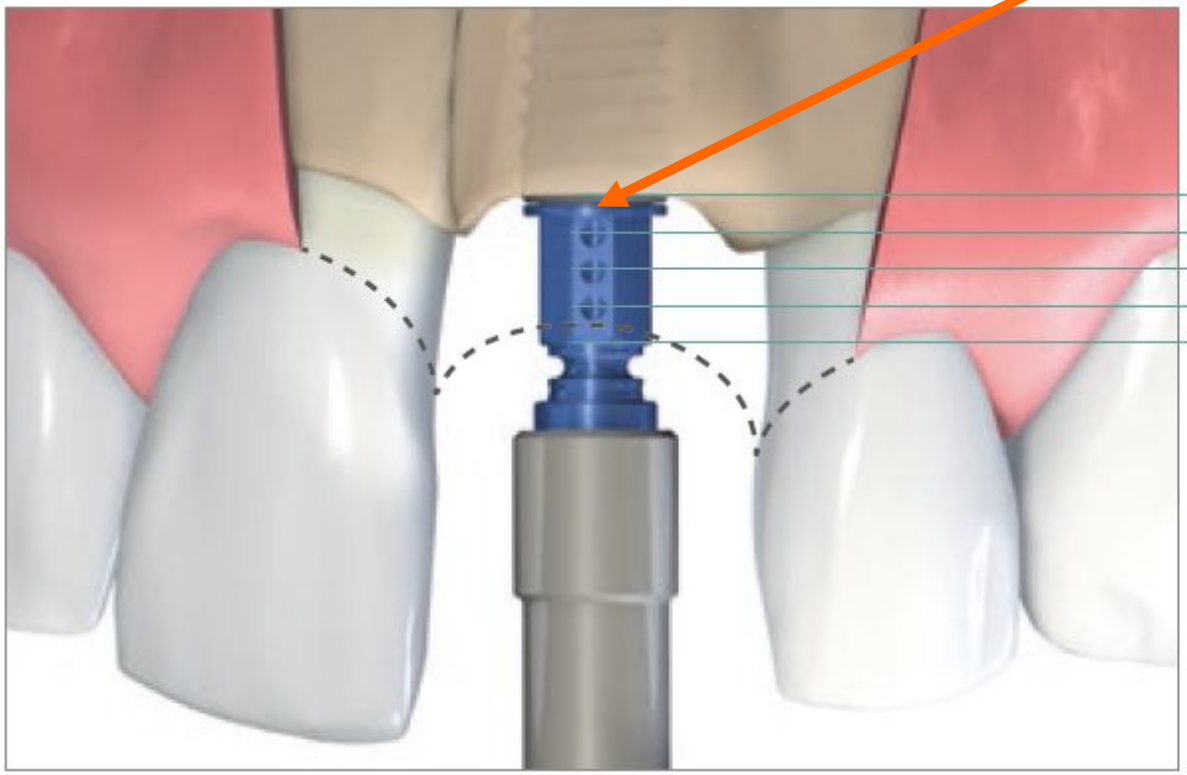
May or may not add to initial stability

Final implant position should be

1. One of the flats to the buccal
2. Desired platform depth
3. “Acceptable” initial stability
   NOT a specific number of N-cm,
   will vary with situation

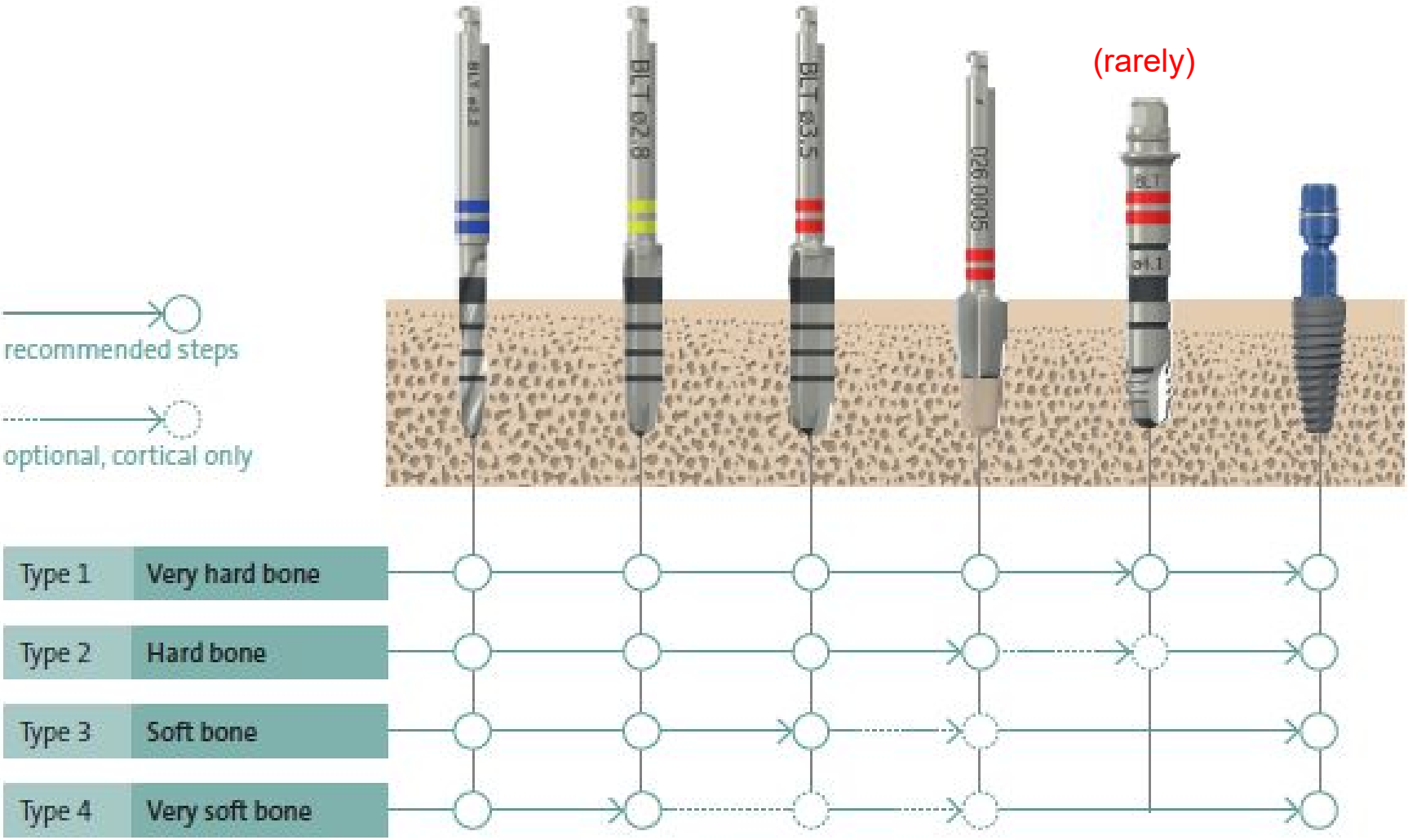
By convention, one of the four flat areas of the crossfit cxn is placed to the buccal





Assessment time

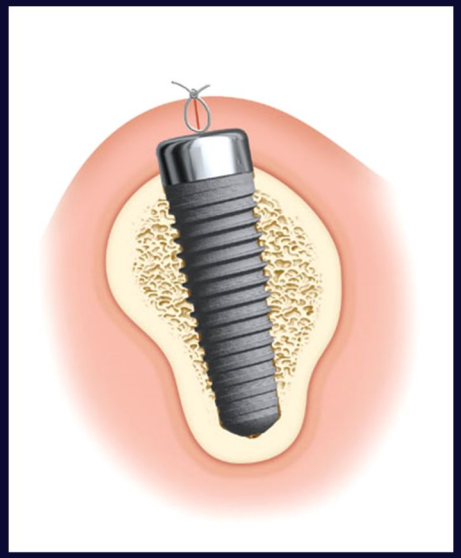
- M-D and BL position
- Implant angulation
- Platform depth
- Initial stability
- Orientation (flat to buccal)


(rarely)
recommended steps
optional, cortical only
Type 1
Very hard bone
Type 2
Hard bone
Type 3
Soft bone
Type 4
Very soft bone

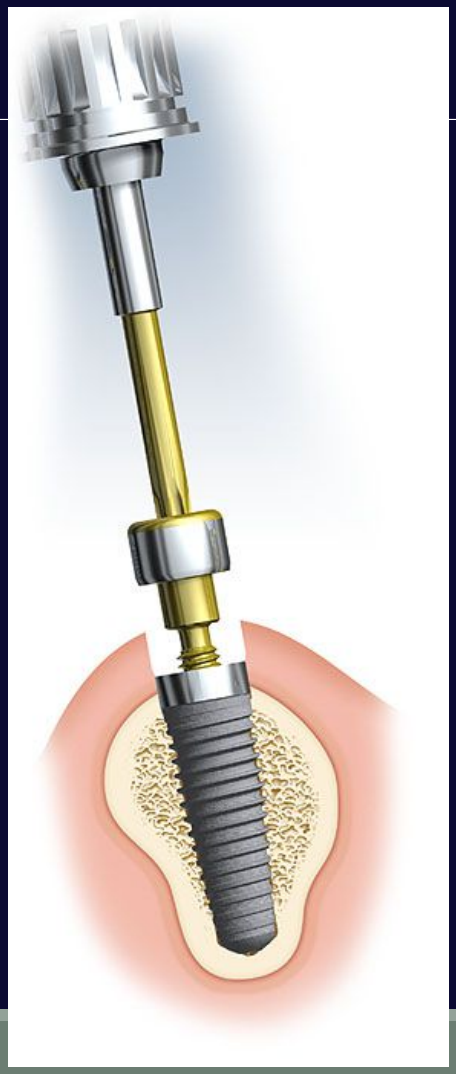
16. Cover screw or healing abutment, suture to close if necessary

Classic two stage placement

cover screw and suture



One stage procedure



Place healing abutment
instead of cover screw

Much more common nowadays

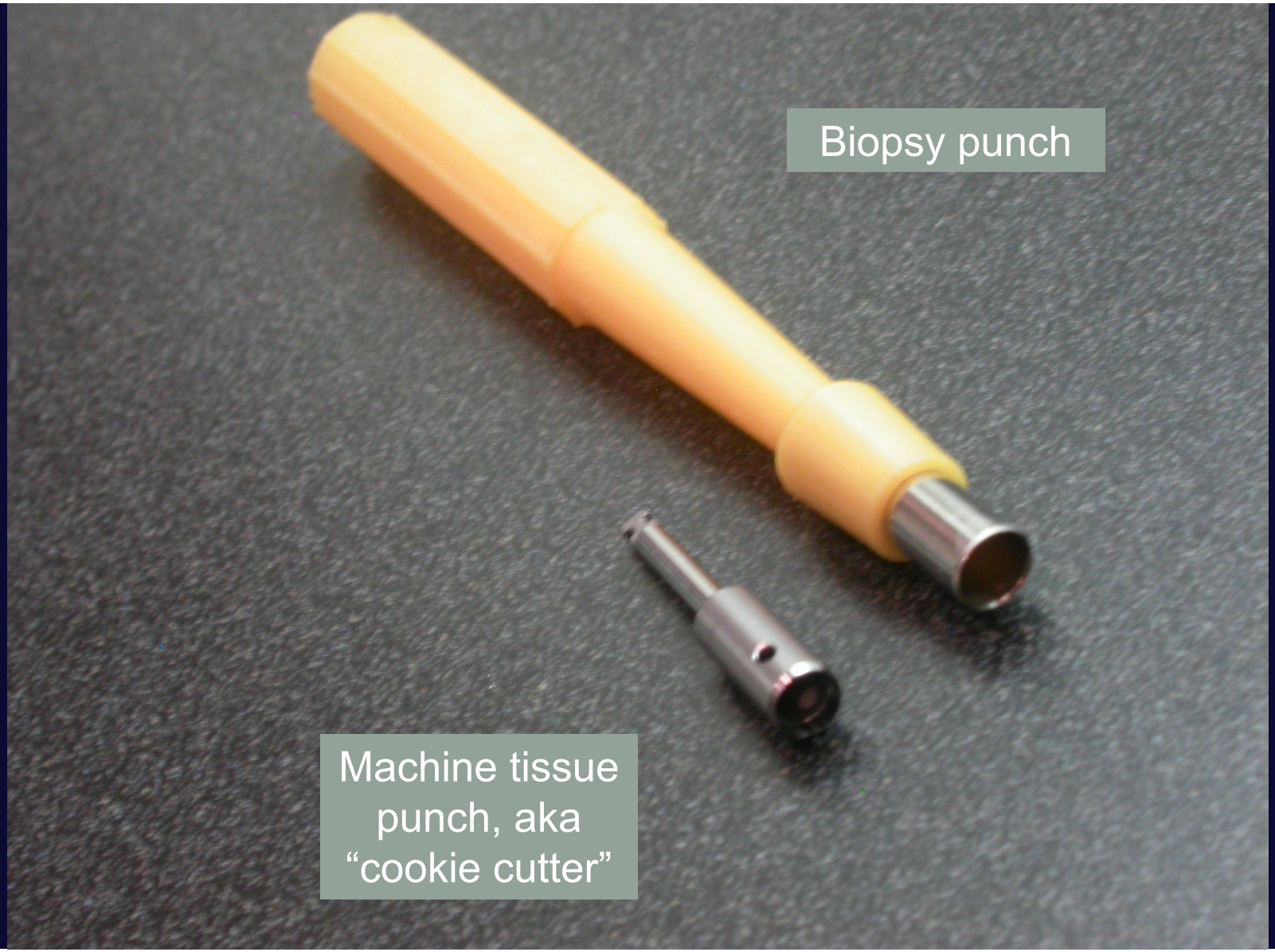
One stage versus two

Generally we do single stage (placing a healing abutment at the time of surgery)

- Saves a surgery
- Saves time and cost
- Saves the pt being frozen 2nd time
- Helps to develop emergence profile
- Bloodless impression appointment
- *May* contribute to progressive loading

We will place a cover screw when:

- Poor initial implant stability, *e.g.* a spinner
- Primary closure desired over extensive graft
- We want more KG to grow over the site to use later


Biopsy punch
Machine tissue punch, aka “cookie cutter”

Handy to cut the edge out of a flap prior to closure.

We will discuss further tomorrow during Soft Tissue Management.

17. Inject steroids to site if desired

An under-utilised drug in dentistry:

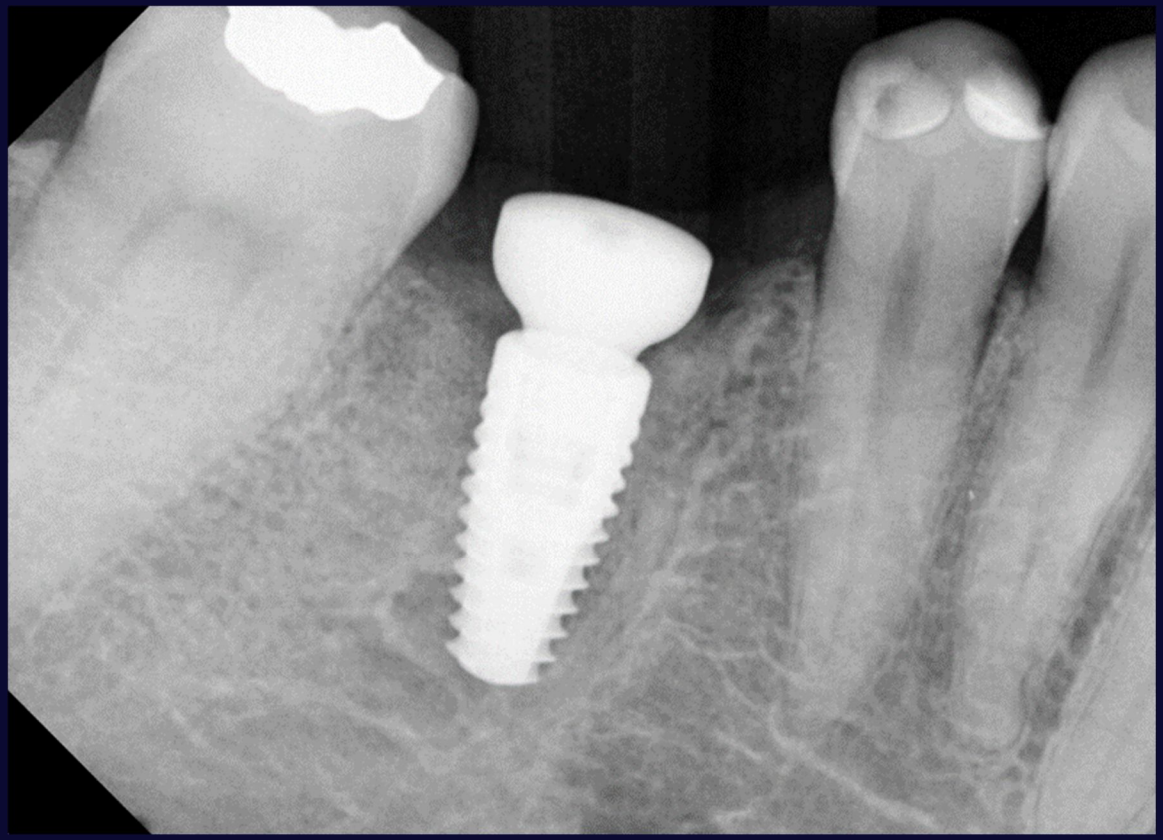
dexamethasone 4mg/mL

usually 40 units (0.4 mL) SC injection

may use 20 units (0.2 mL) if only 10mg/mL available

Do NOT inject IM

18. Final radiograph(s)

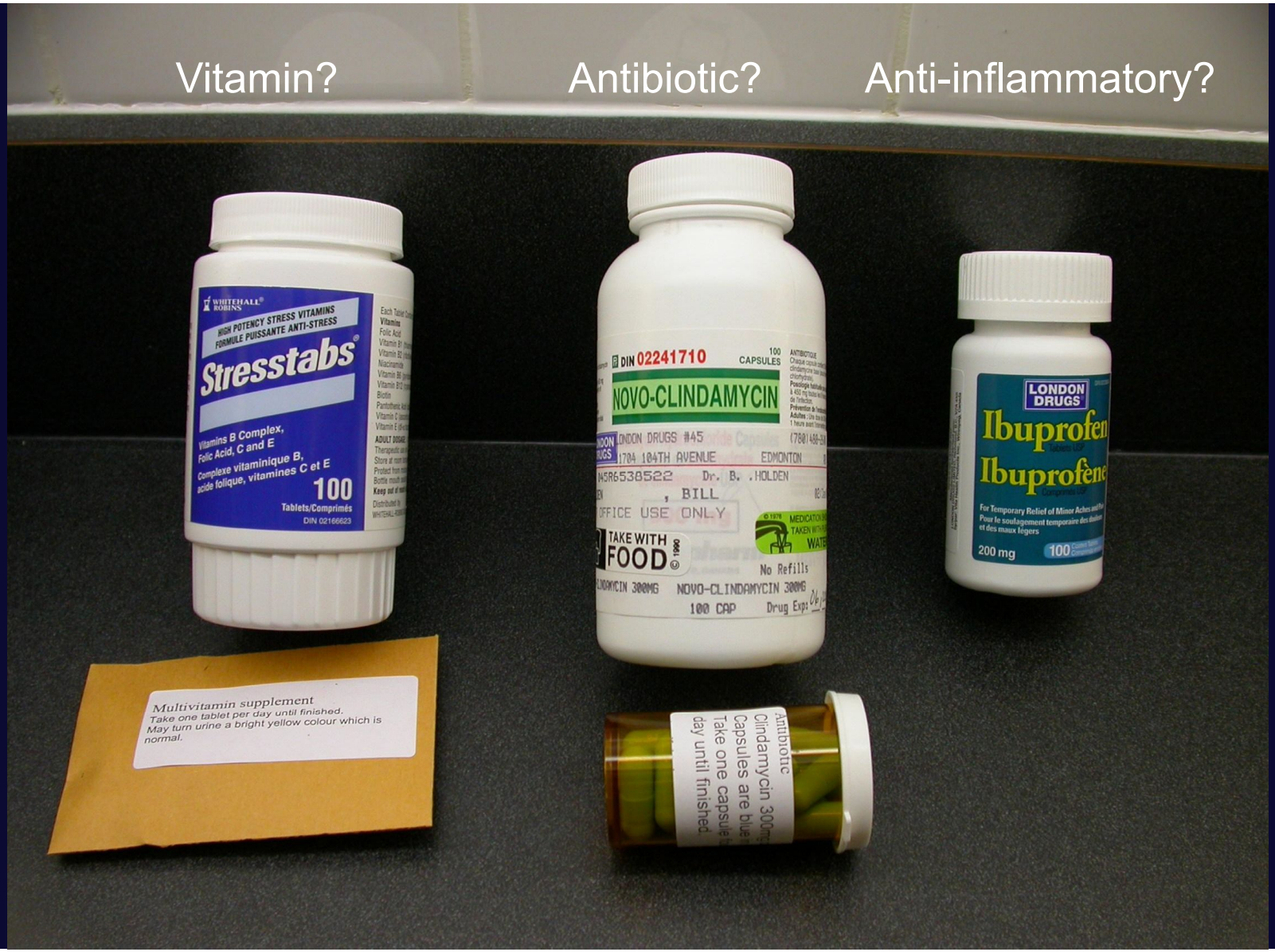


19. Post-op instructions

Vitamin?

Antibiotic?

Anti-inflammatory?



Vitamins?

1. Theoretical benefit to Bs + C for first few days
2. Based mainly on research following wisdom tooth removal
3. Some of that research only looked at vitamin C
4. Not all vitamin supplements are the same, read the label

Not necessary for the straightforward cases you guys are doing.

Analgesics

1. Most simple cases require 2 x 200mg ibuprofen when the freezing is wearing off…and that's it
2. Sometimes more if concurrent extraction
3. More complex cases: ketorolac 10mg x 20, 1 q4-6h
4. Acetaminophen: note 3g daily maximum. (Was 4g.)
5. Acetaminophen w codeine: only in rare cases.
6. If pt needs anything stronger, something is wrong.

Pain and infection ↑ with time flap open

Antibiotics– a crash course

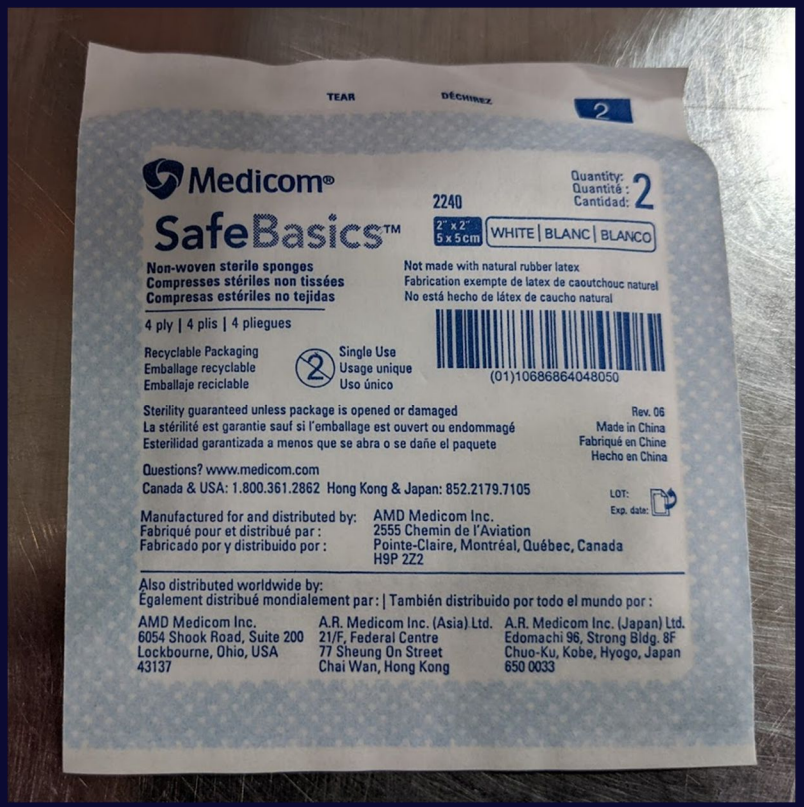
1. Most simple cases do not need antibiotics at all
2. Most cases needing antibiotics require one pre-op dose…and that's it
3. Cases with local infection can be extended 4-10 days
4. Choices are amoxycillin 500mg, 2g 1h preop +/- tid x5d
   clarithromycin 500mg q12h x7d
   clindamycin 300mg, 600mg 1h preop +/1 qid x4d
5. If mx sinus is involved—different bugs…use
   amoxycillin w clavulinic acid (500F) q12h x7d
   clarithromycin 500mg q12h x 7d

clarithromycin similar to azithromycin 500mg qd x 5-7d

Post op handouts

Review post surgical handout, and why

Review medication handout, and why



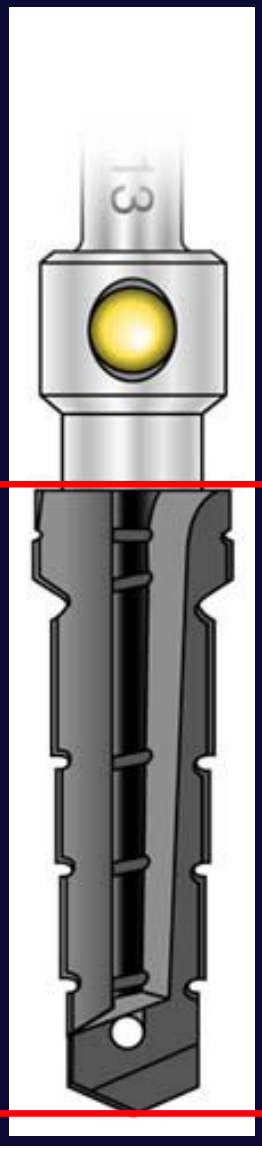
Implant step-by-step procedure (v. 2026.0)

1. Records and treatment planning
2. Book adequate time including setup and cleanup
3. Ensure adequate implant inventory on hand, plus hoses, saline, etc.
4. Obtain informed consent
5. Anaesthetise, swab area w disinfectant, drape patient as desired, scrub
6. Incision and flap if indicated
7. Check 850rpm / 30N-cm / irrigation on. Lance drill to establish entry point
8. Blue 2.2 mm pilot drill to 8 mm, guide pin, confirm direction, take radiograph
9. From radiograph calculate probable implant size, reconfirm inventory
10. Blue pilot drill to full calculated length
11. Sequentially larger drills 850rpm w irrigation, check direction each step
12. Cortical drill (also thread tap if very hard bone)
13. Rinse site thoroughly with saline, remove any tissue tags, re-rinse
14. Turn off irrigation, place implant at low rpm with handpiece
15. Use torque wrench/ratchet to finish
16. Cover screw or healing abutment, suture to close if necessary
17. Inject steroids to site if desired
18. Final radiograph
19. Post op instructions

Y!

Danger: implant drills are longer than the implants they are sized to.

The "Y" distance.

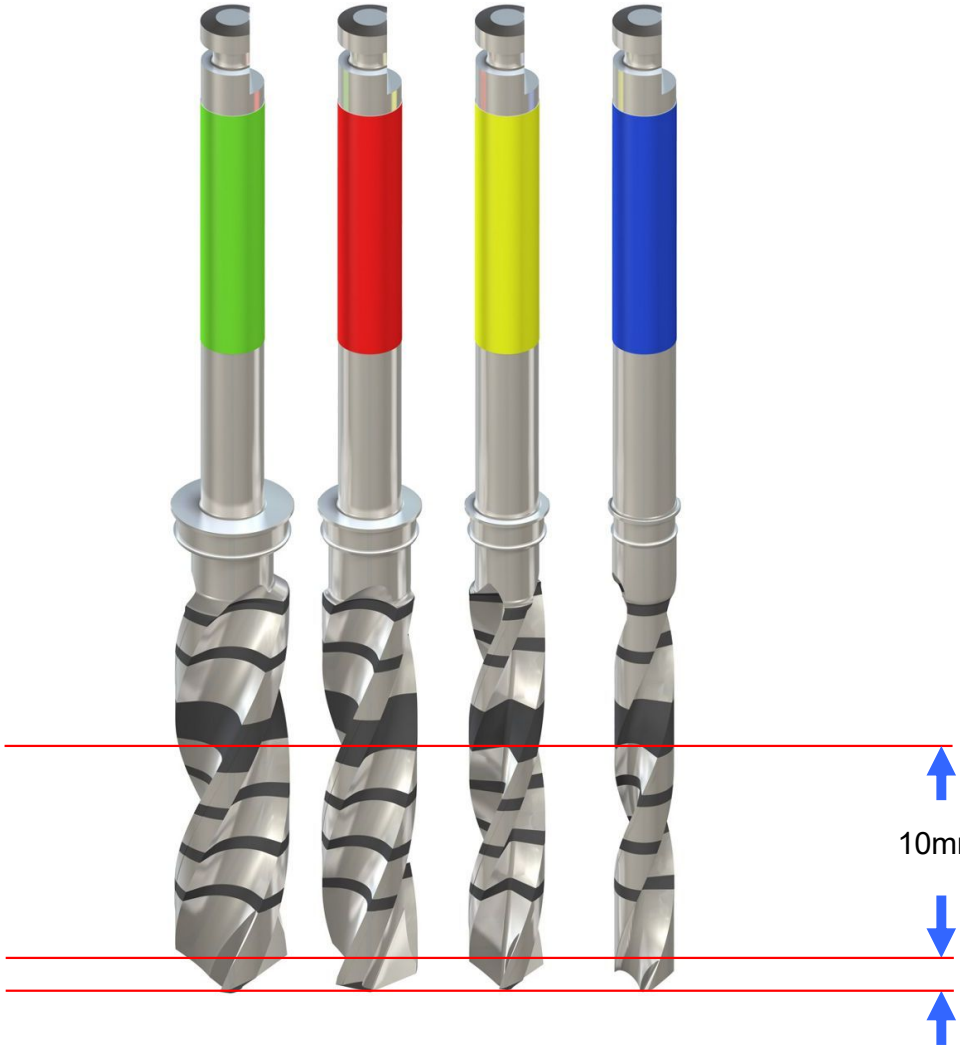


14.3 mm

13.0 mm

Y = 1.3mm

Y!



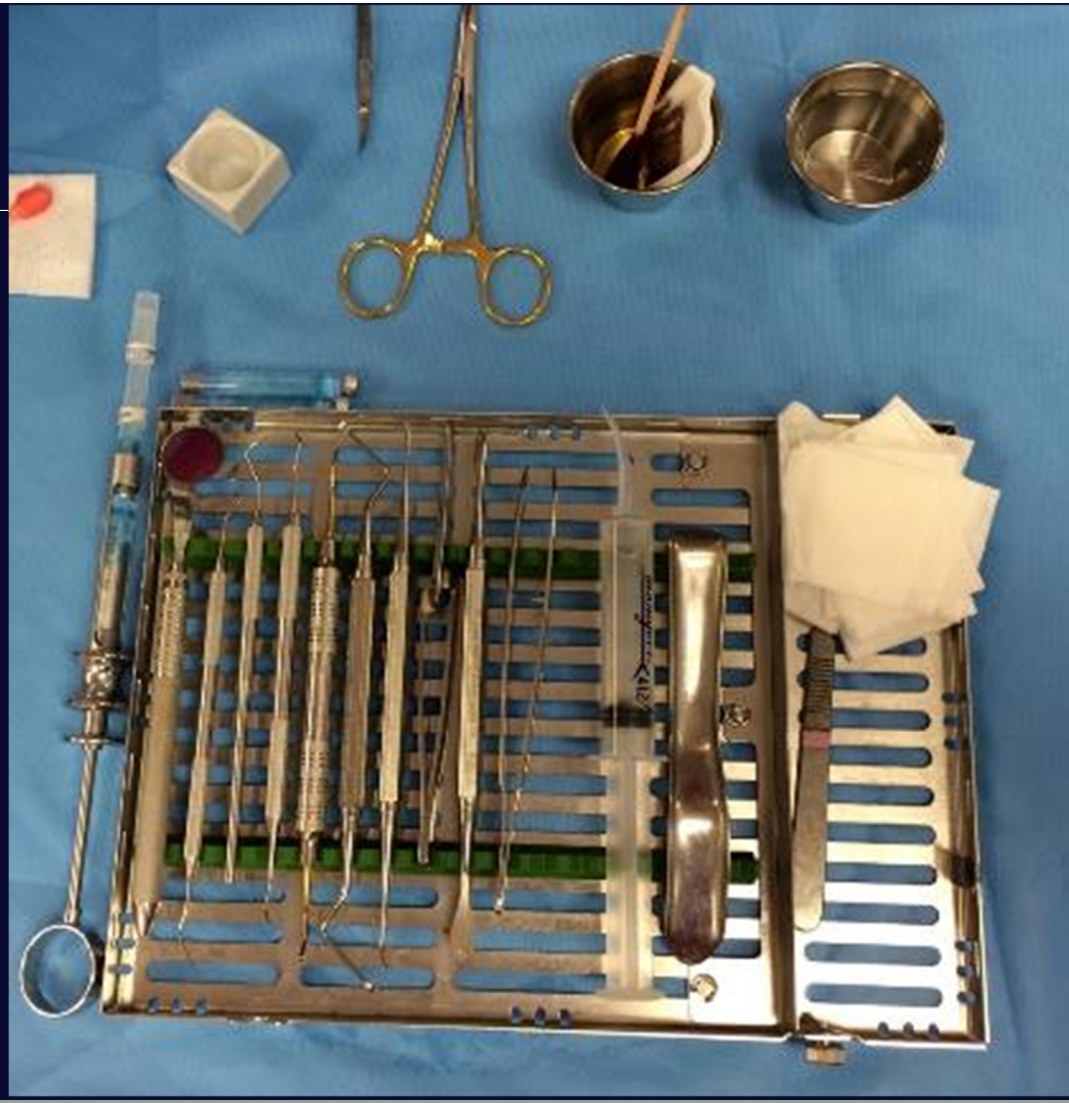
Review of surgical instruments

"Choose your weapons!"

2FA5

Instrument list

- XCP or whatever radiographic holder you prefer
- Air-water syringe tip
- Your typical exam kit—mirror, explorer, probe, cotton pliers, articulating paper forceps if desired
- Needle driver and Scissors
- Scalpel handle with millimetres marked
- Anaesthetic syringe
- Minnesota retractor
- Molt 2/4 curet
- Periosteal elevator, small to medium in size
- 60 cc irrigation syringe, Monoject 412 works well
- Ceramic dish for bone, a dappen dish or old Alvogyl jar will work to start
- Iodine cup for saline, or two if you want to toss used small parts into saline
- One additional instrument to keep clean for handling saved bone, use an old Hollenback or any old instrument you have laying around



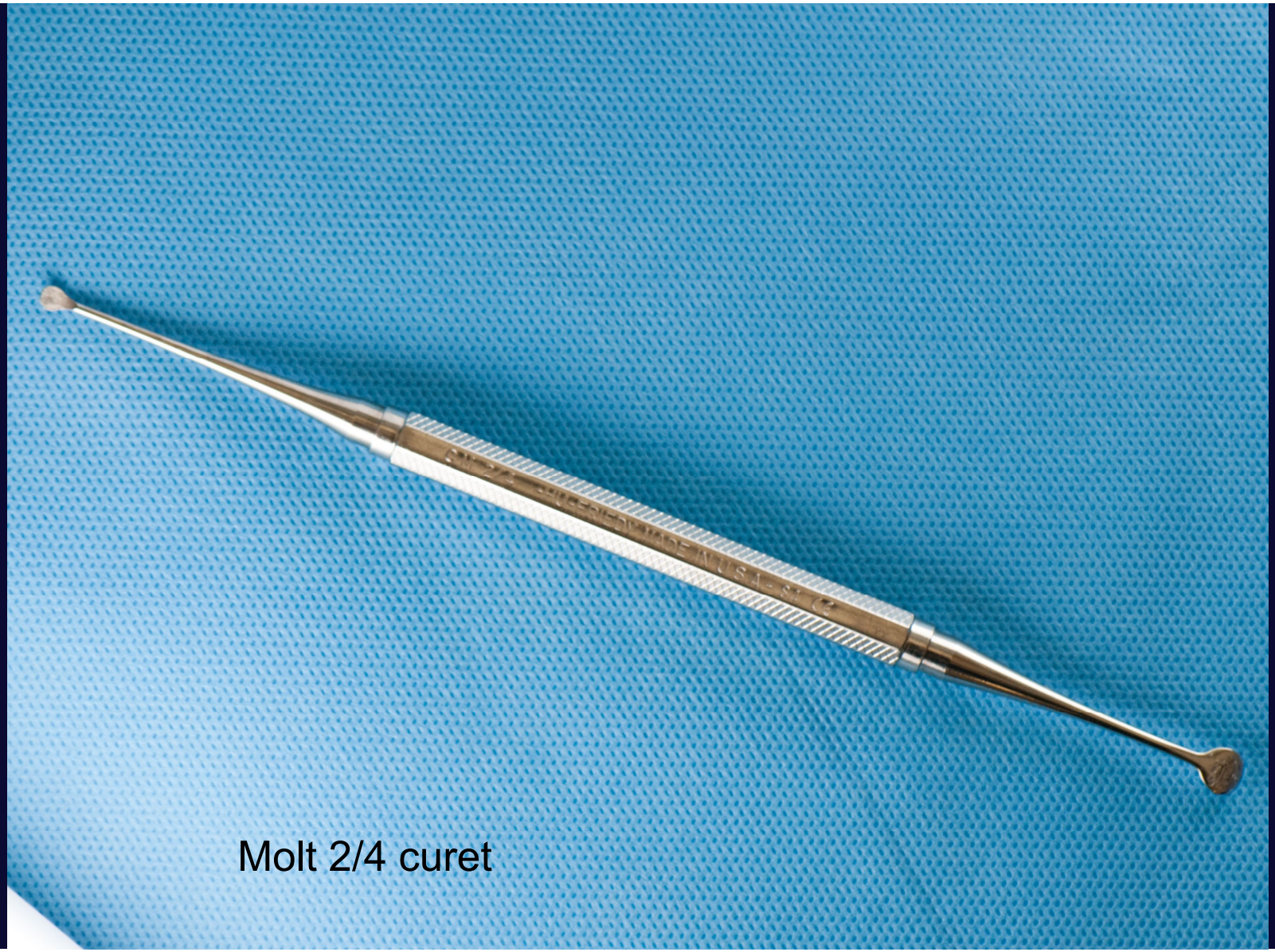
Our typical cassette

Again, most are instruments you already know/have

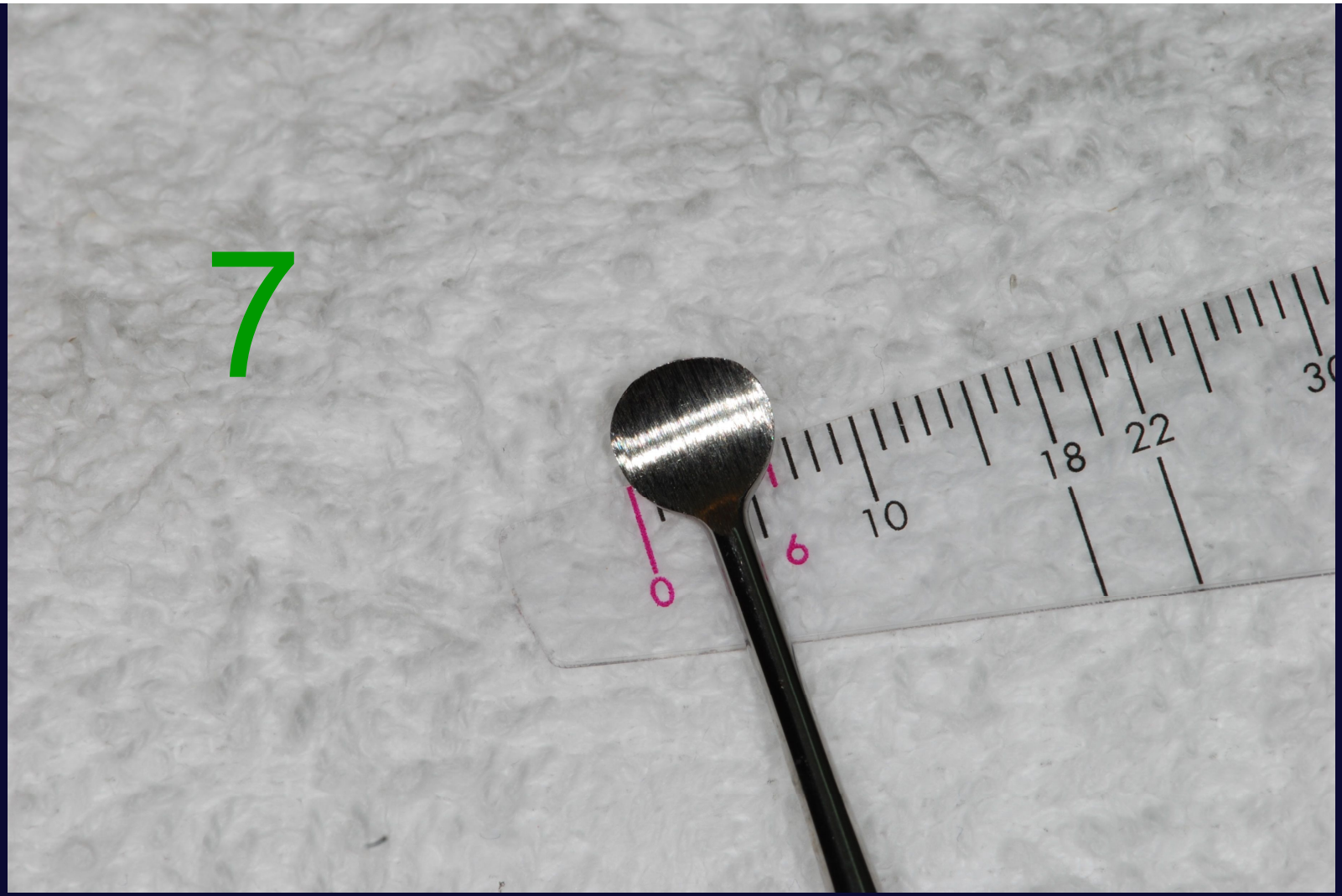
The Surgical Room has put together two cassette options to purchase if you prefer.

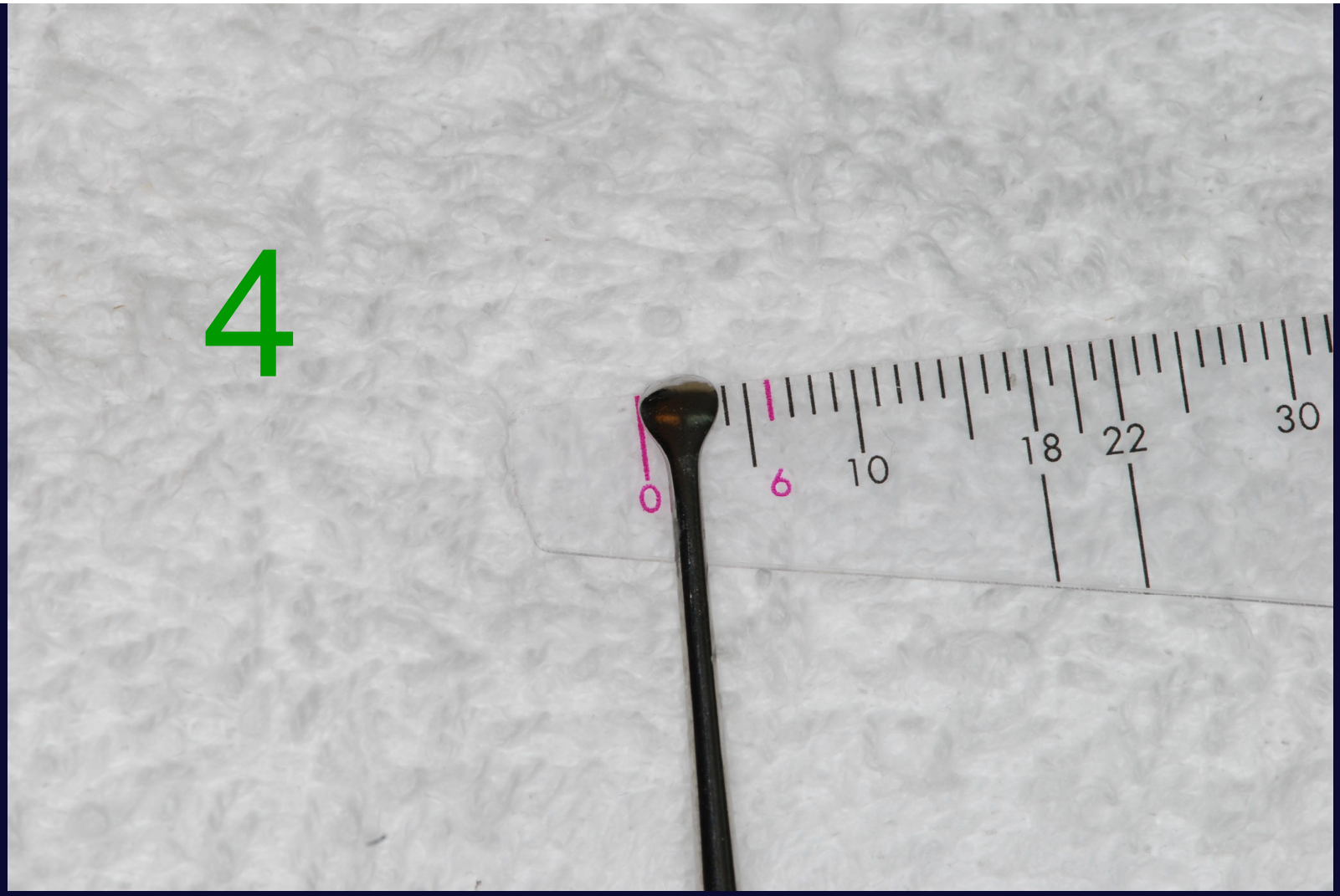
Their options include a Hu-Friedy set, or a DentalUSA set.

The instrument list is on your thumb drive.

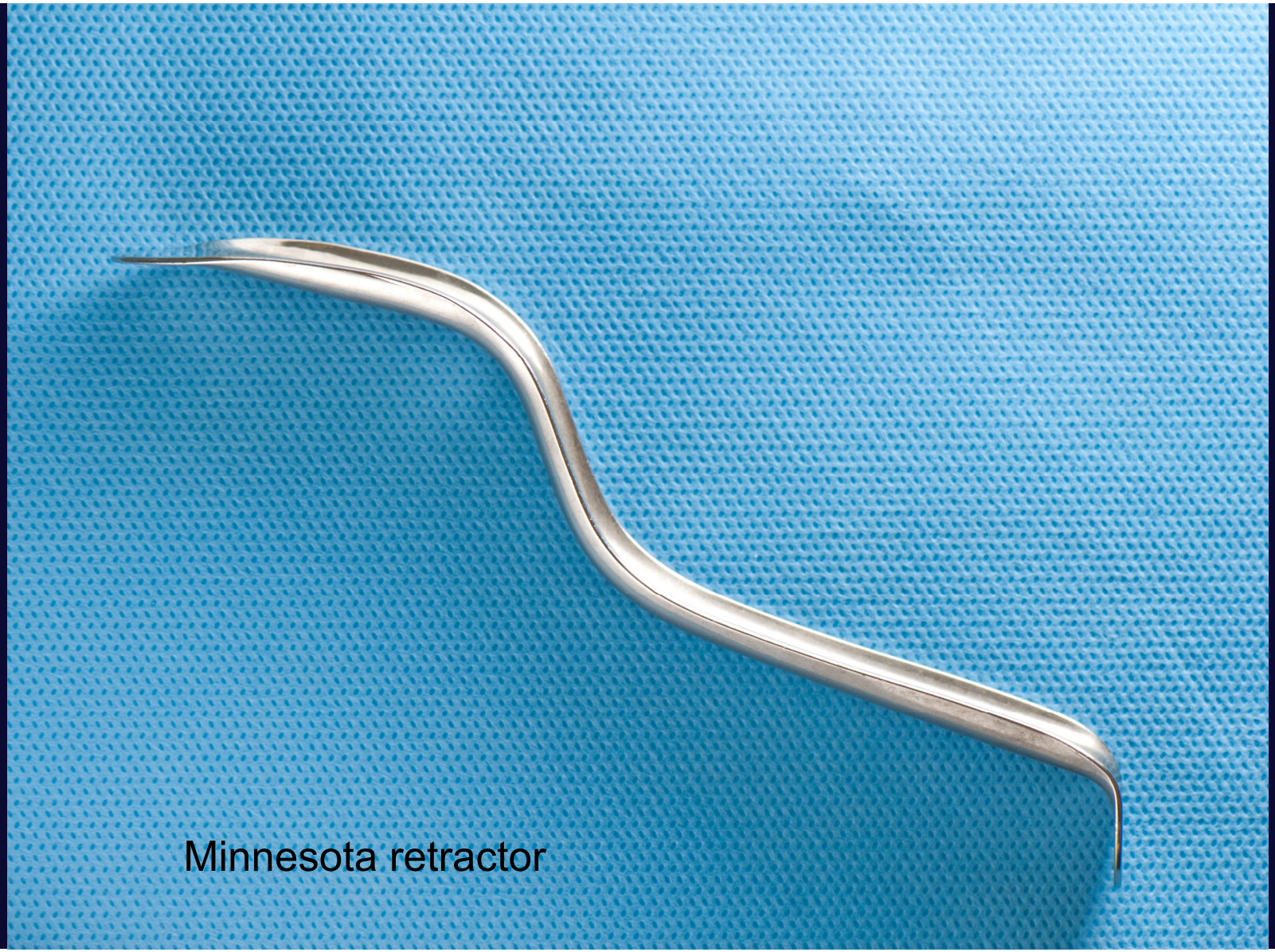


Molt 2/4 curet


7
0
6
10
18
22



Think of it as the “Molt 4/7 Curet”


Minnesota retractor


Suction tip choices

Healing period

2FA5

How long until you can load your STI?

- What does “loaded” mean?
- Minimum: **12 weeks (3 months)**
- If in doubt, four to six months is safer, esp in the maxilla
- Concept of “progressive loading”
- Temporaries and healing abutments must be out of occlusion—
  the “daylight rule”
- Dentures or mastication can “load” an implant through the tissue
- If going minimum times, hold abutment with haemostat while
  torquing the abutment screw

In straightforward cases, initial stability is everything.

Review…healing times following extraction

- Remember, grafted sites heal slower than those with just a blood clot
- At the least, you want soft tissue healed over an extraction site, think 4-6 weeks as a minimum
- Immediate placement, or wait for healing, none of this “delayed immediate” nonsense
- We typically wait twelve weeks

Extraction

-12 weeks healing-

Implant

-12-24 weeks healing-

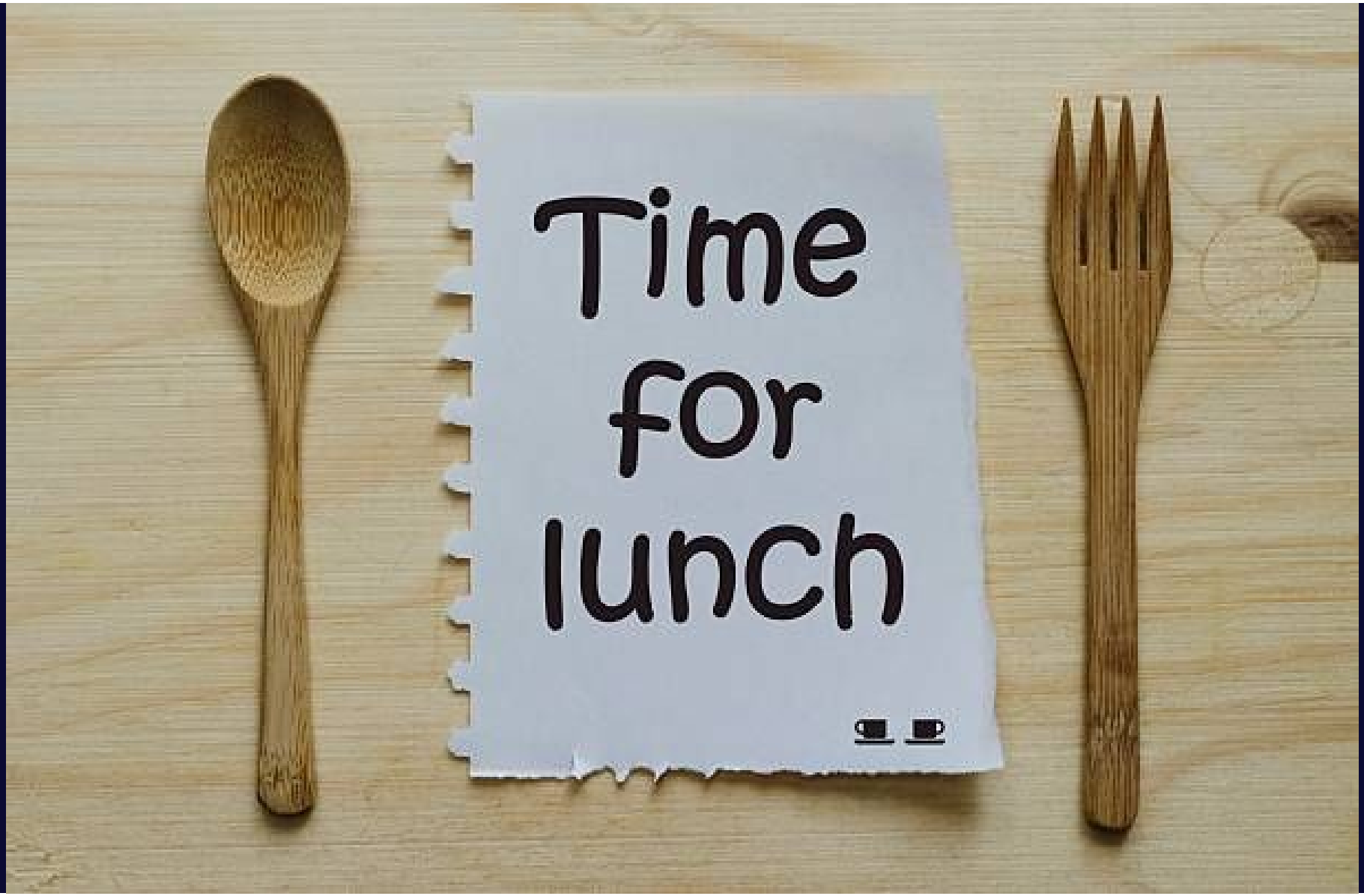
Impressions

-2-3 weeks lab time-

Insert restoration

…and these are all minimums

What if the patient lives here???


Time
for
lunch

Hands on motor/handpiece, surg kit, & irrigation

2FP1

Equipment: the grand tour

- Motor unit—switch, fuse, adjustments, 850/30
- Foot pedal
- Motor cord—autoclavable (note E-type cap)
- 20:1 handpiece—latch/button, disassembly, irrigation port
- Handpiece rest
- You now own a spare handpiece

What to do when it doesn't work?

Irrigation setup

- Using the correct tubing
- Cannulae and ports can be fragile
- Note bayonet
- Peristaltic pump (paddlewheel)
- Filling dishes, priming line
- Precautions with drill extension or guides

Again, what if it doesn't work?

Why is irrigation critical?

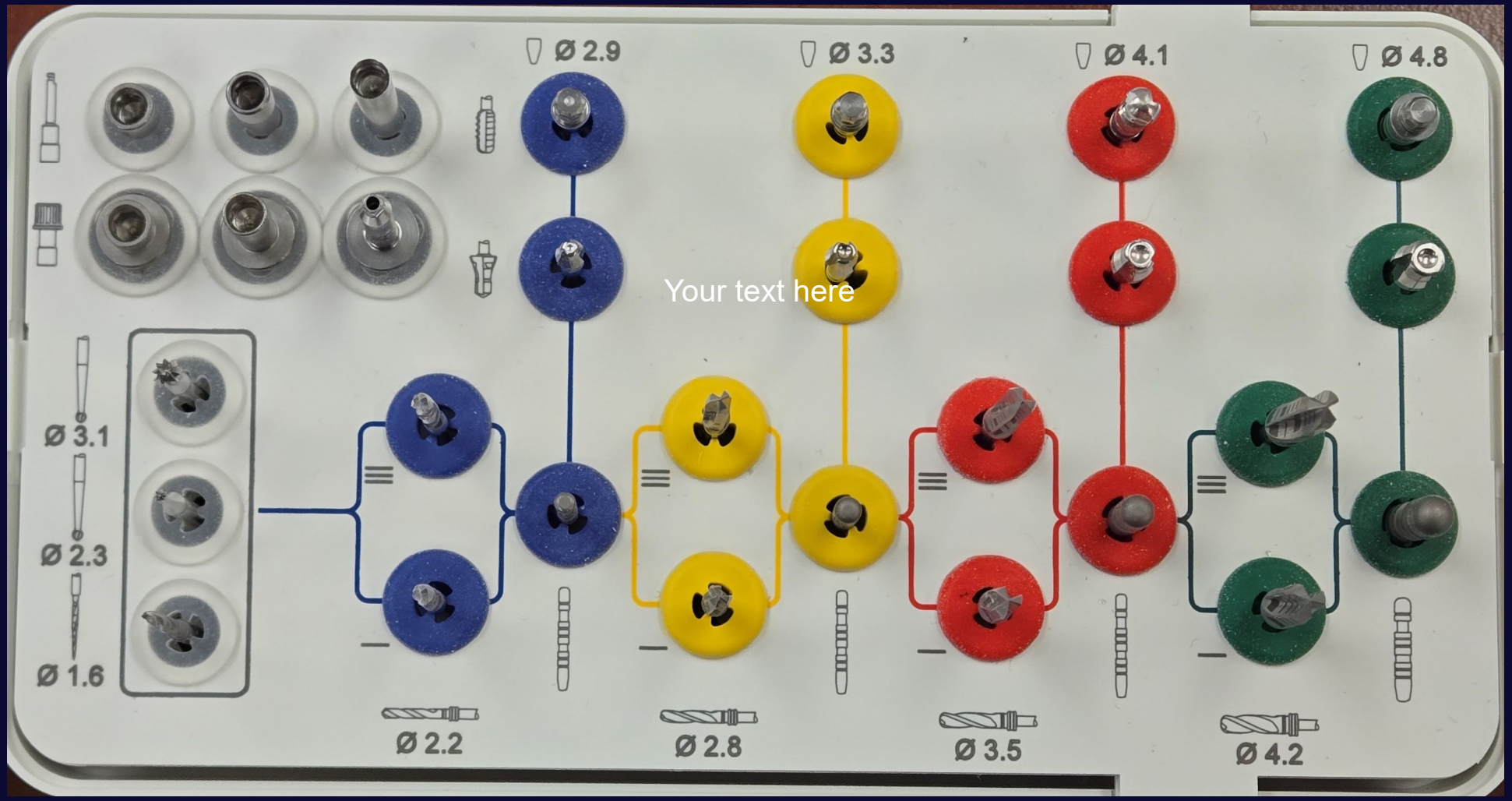
*Bone will **die** at 40C for 7min or 47C for 1min* ☠

We must keep bone cool during drilling.

- sharp drills, let them do the work
- intermittent drilling, “pumping” action
- copious irrigation
- chilled coolant, either saline or H_2O

Tour of the surgical kit

- Assemble the torque wrench
- Lance and other prep drills, drill extension
- Pilot drill and guide pins, short and long
- Sized drills
- Cortical drill, thread tap
- Implant drivers and torque wrench
- Screwdrivers
- Other stuff

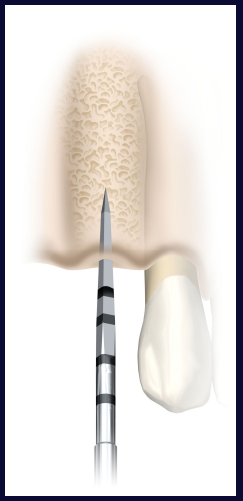


Current modular kit

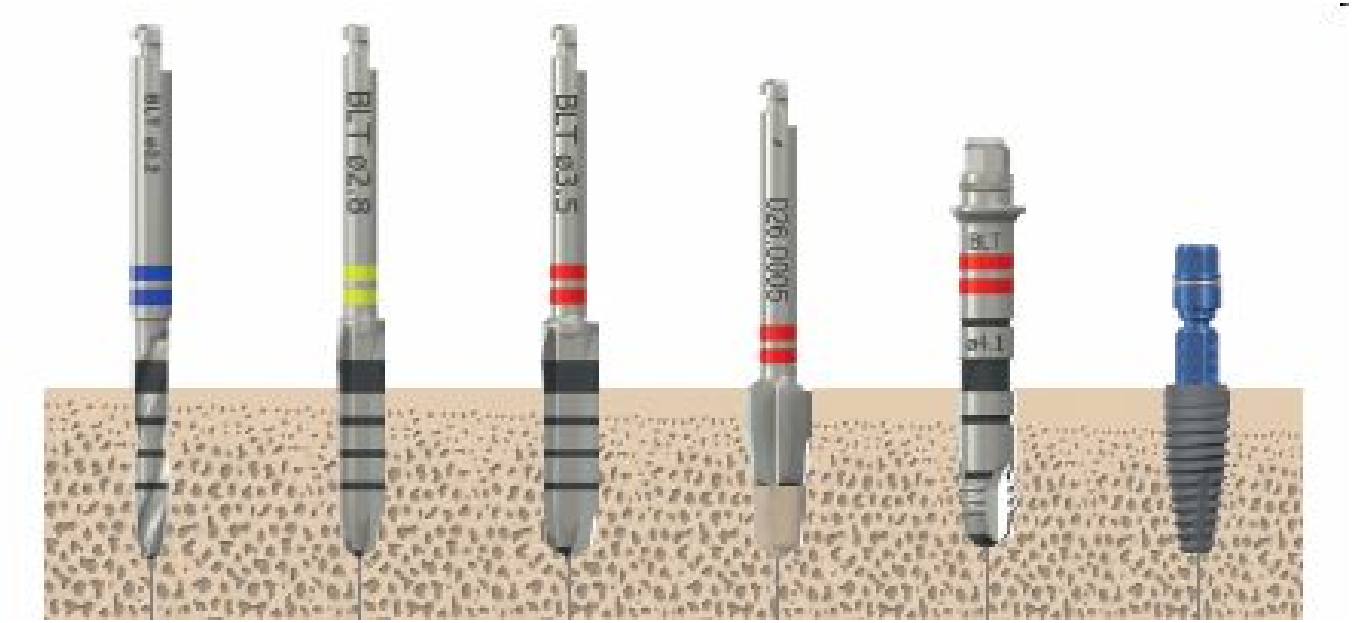
Remember: surgical kits are not sacred!

You will find that you add, subtract, and move around components based on your preferences. We tend to:

- Bag the supplied round burs and store separately
- Add a lance drill
- Add short Straumann guide pin
- Add cookie cutters
- Add a Kirschner or Lindemann side-cutting drill

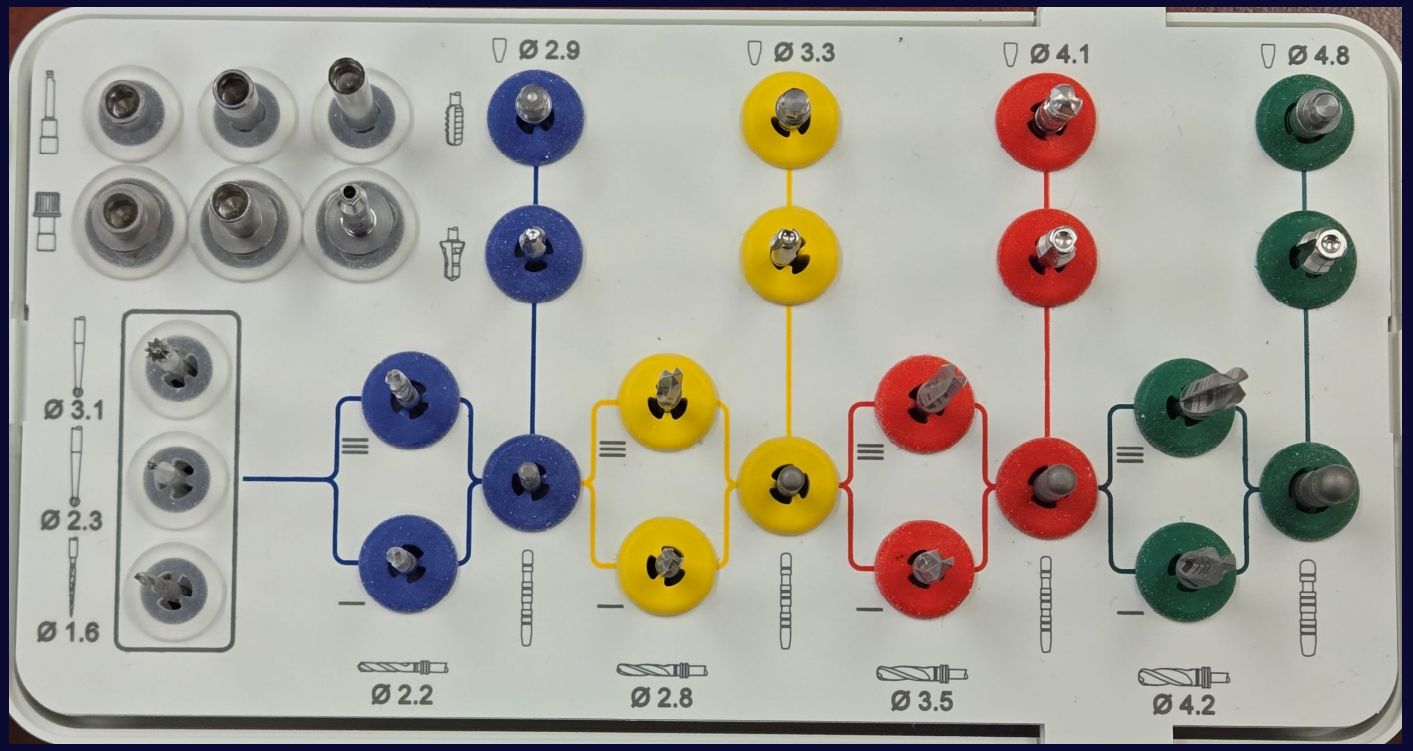


4.1 x 10 sequencing



Drilling sequences

- 3.3 x 12 mm implant
- 4.8 x 10 mm implant
- 4.1 x 08 mm implant

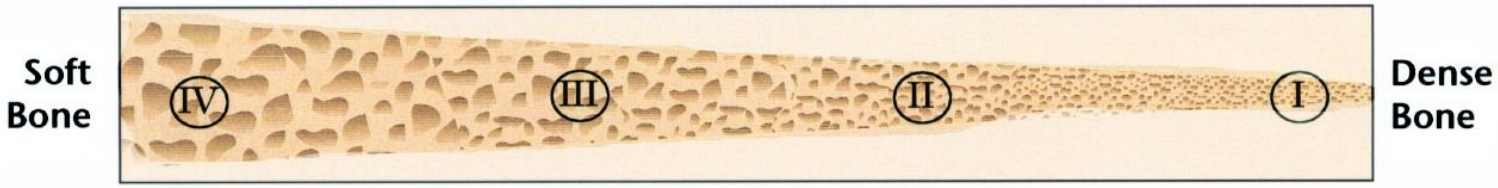


Osteotomy drilling mechanics

2FP2

Bone quality

For many years surgeons have categorized bone quality encountered in the following manner[1]:

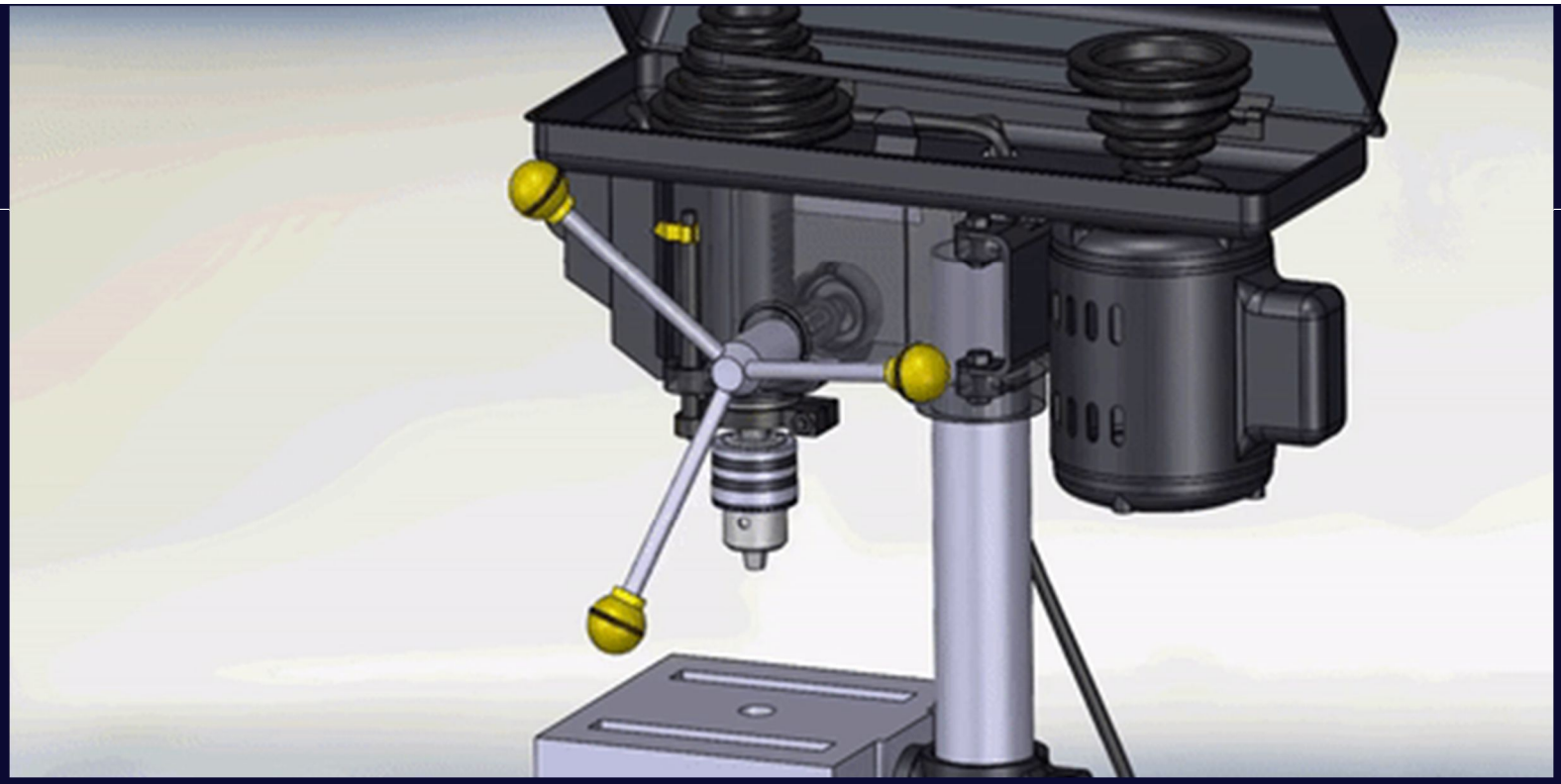


Type I	Almost the entire jaw is comprised of homogenous compact bone
Type II	A thick layer of compact bone surrounds a core of dense trabecular bone
Type III	A thin layer of cortical bone surrounds a core of dense trabecular bone of favorable strength
Type IV	A thin layer of cortical bone surrounds a core of low density trabecular bone

Drilling blocks

A different drilling style from operative dentistry

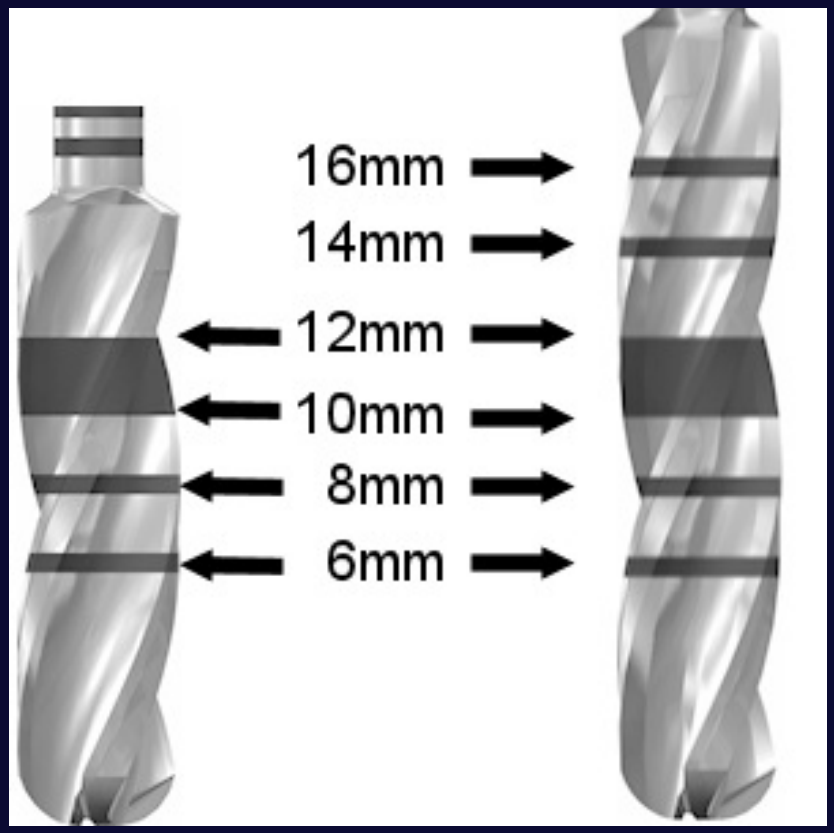
- Full speed when drilling, no “picking”
- Intermittent motion to keep drills cool, think “pumping motion”
- Enter the osteotomy at speed
- Drill always in motion inside the osteotomy
- Remember, most common rookie mistake is to OVERprepare the osteotomy…get in, get done, get out



✓

x

Review drill depth markings



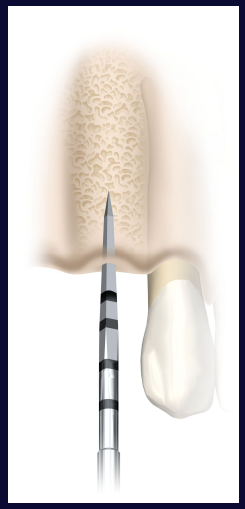
- Long and short have same markings
- Beware the occasional 4mm marking on some drills
- Other brands may be different

Hands-on drilling time

2FP3

Block drilling

- Set unit at 850 RPM
- Identify 8 mm line on blue 2.2mm pilot drill, when turning and when not
- Drill into blocks with both lance and pilot drills
- Try all four different blocks
- Try entering at a slope
- ***__do not__ drill holes through into table top place on maxilla model if you have to—usually safest on the tray***



Osteotomy prep in maxilla I

- Maxilla models, drill unit at 850 rpm
- Stick with flapless for now if gingiva present
- Establish entry point with lance drill
- Blue 2.2mm pilot drill to 8mm, place long guide pin
- Now assess angulation:
  - From buccal
  - Bird's eye view down pin
  - Down central grooves in quadrant
- Once you are happy, extend pilot hole to full length

do not drill holes in Colleen's table!

Osteotomy prep in maxilla II

- Maxilla models, drill unit at 850 rpm
- Stick with flapless for now if gingiva present
- Yellow 2.8mm and Red 3.5mm drills to full length
- Again, at each step, assess angulation:
  - From buccal
  - Bird's eye view down pin
  - Down central grooves in quadrant
- Use red cortical drill to complete osteotomy

do not drill holes in Colleen's table!

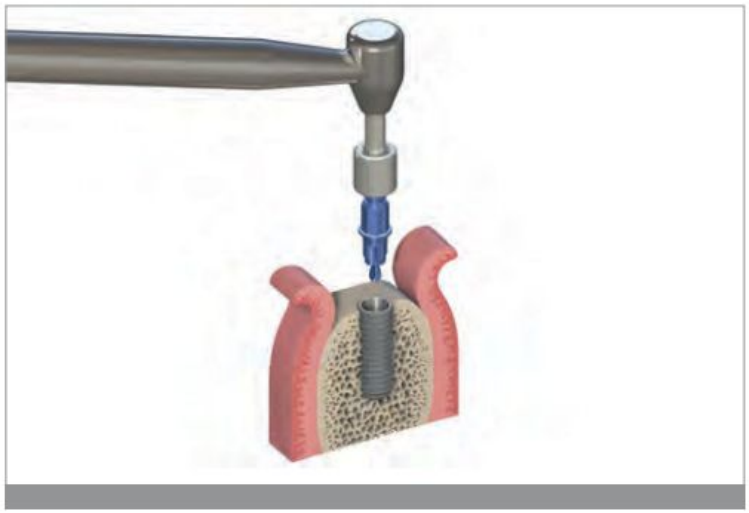
Before we can finish up and place our implant on the maxilla, we need to review a few more concepts:

- Thread tapping (rarely required, but still need to know)
- How to open the implant pkg
- Carrying implant with the driver and Loxim
- Placement torque
- Use of the torque ratchet driver
- Orientation of the lobe

Thread tap hands on

- Use implant (external hex) machine driver
- Machine still at 850/30 but slow down by letting up on foot pedal. Irrigation not necessary.
- Do not angle handpiece
- Let thread tap walk itself in to osteotomy
- Depth markings the same as on the Straumann drills
- Must put handpiece in *reverse* to remove screw tap
- Can use torque wrench if/when stuck in the bone

The Straumann Loxim carrier



Torque (“initial stability”) for implant placement

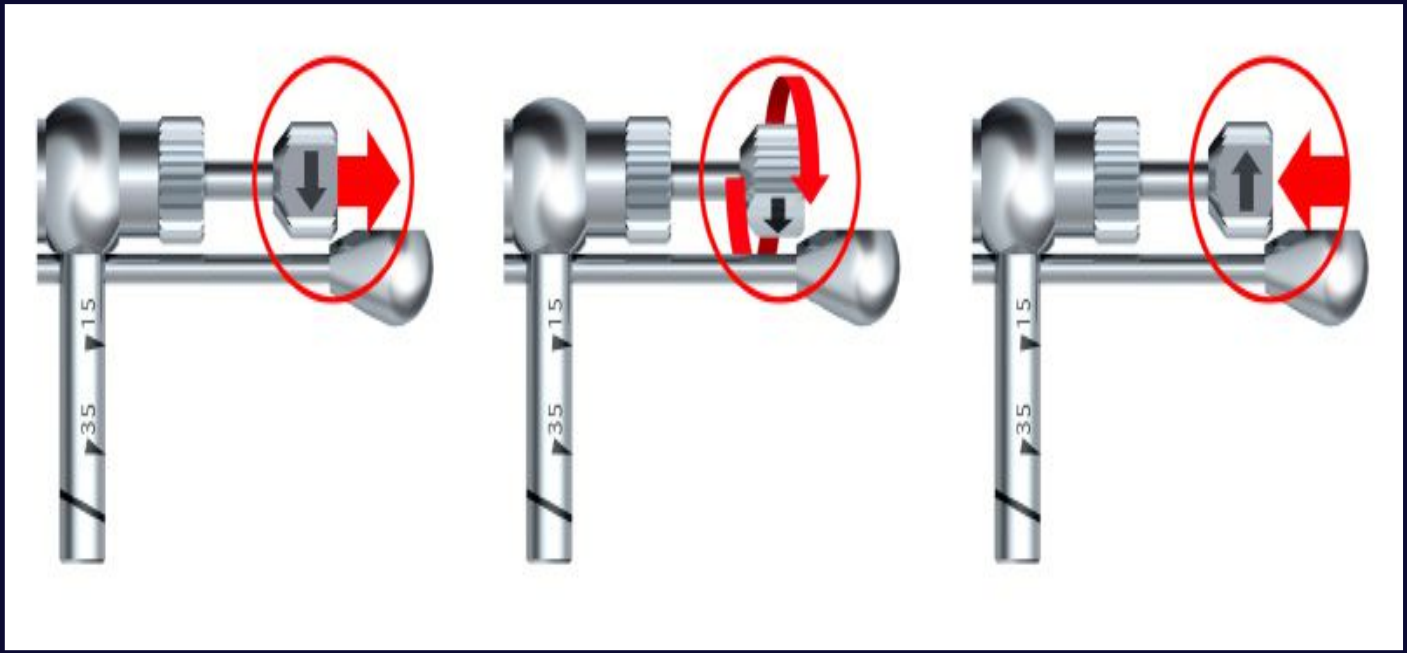
for tapered implants

35 to 45 N-cm considered ideal

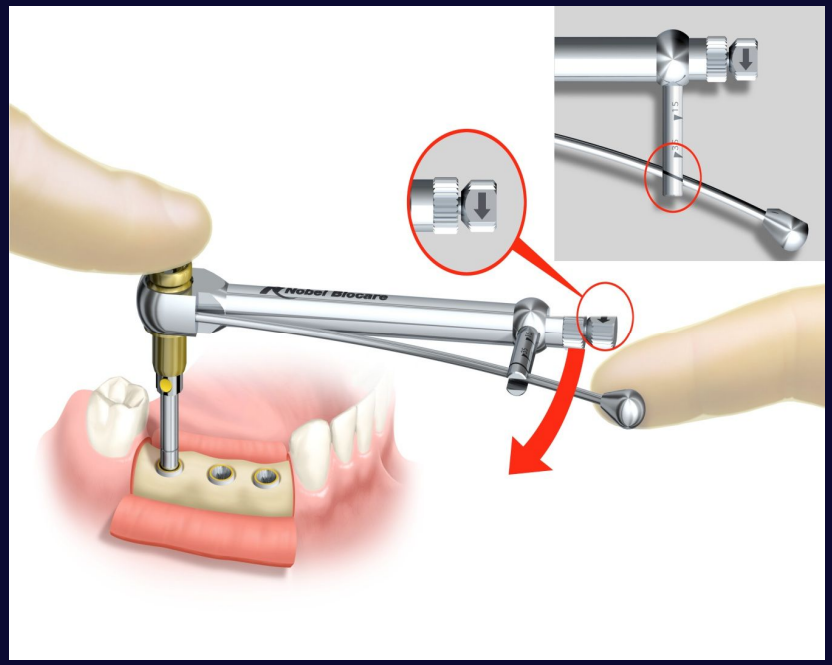
…but you won’t always get this, especially with small implants or in the maxilla

Aim for 15 to 45 and sleep well.

Modern torque wrenches allow direction change without removing driver



Tinkering



Looking for the “perfect storm” of depth, orientation, and initial stability.

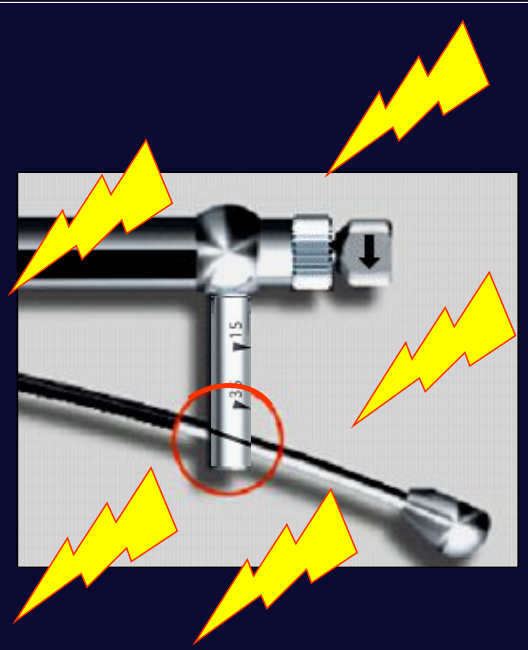
Osteotomy prep in maxilla III

- Maxilla models, drill unit at 850 rpm
- With a partner, dispense implant and affix to handpiece using driver and Loxim
- Complete placement with torque wrench
- Tinker to get implant to perfect storm…
  - Platform depth
  - Initial stability 5-45, ideal ~35
  - One dot on Loxim to buccal

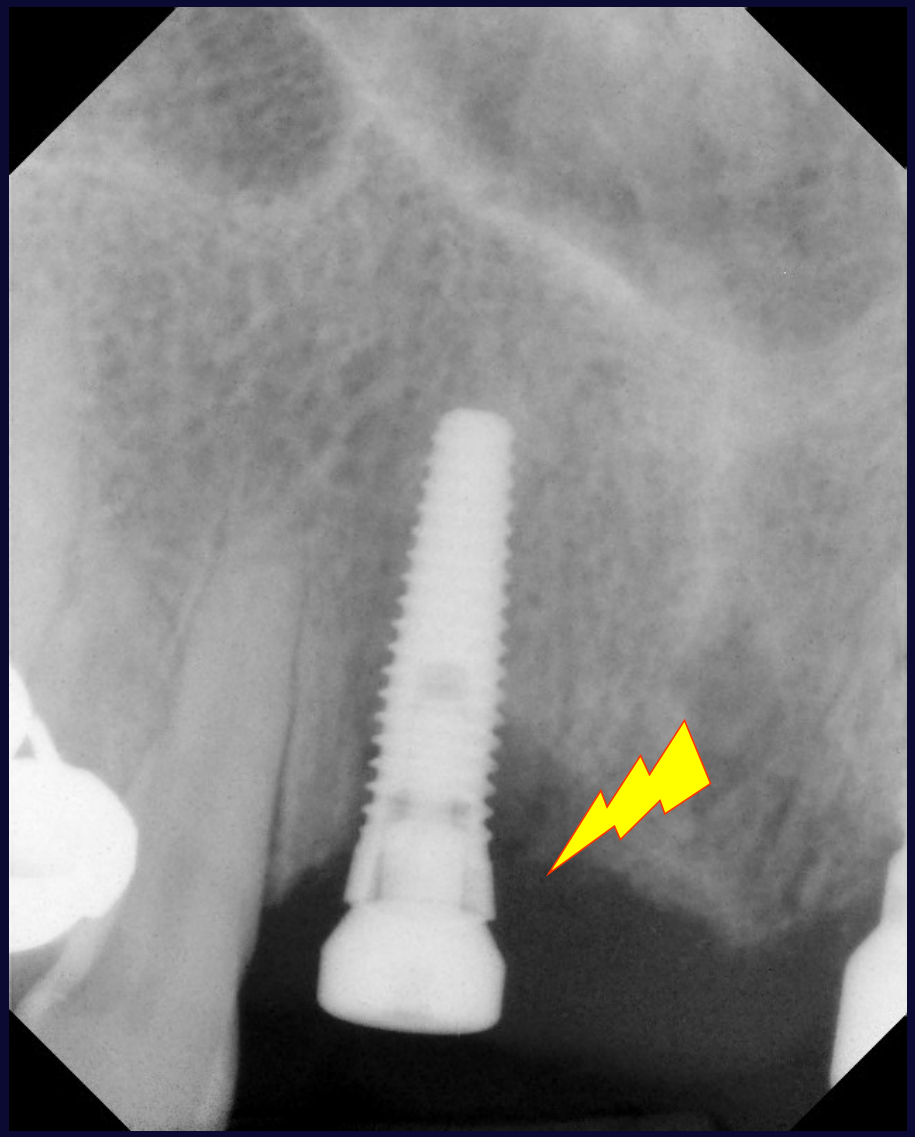
Critique your placement with your partner

Too much torque…

When finishing placement by hand, if your implant does not seat with 45 N-cm... *bypassing* the ball on the manual torque driver will easily achieve **200** N-cm, and even **300** N-cm with effort!



- damage may occur to smaller implants
- fracture of the buccal plate, or worse, is possible



The “flowered” implant

Implant damaged by too much insertion torque

What to do if the implant will not seat fully at 55-60 Ncm?

1. back implant out, keeping clear of saliva
2. place implant somewhere clean and safe
3. further modify site

   e.g. re-drill, re-use cortical drill, use thread tap
4. rinse implant w saline and re-insert

Putting it all together

- Place two implants start to finish in maxilla
- One flapped, one flapless (if gingiva present on this year's models)
- Complete with healing abutment (or cover screw)
- Refer to step-by-step sheet if req'd
- Critique each others' placements

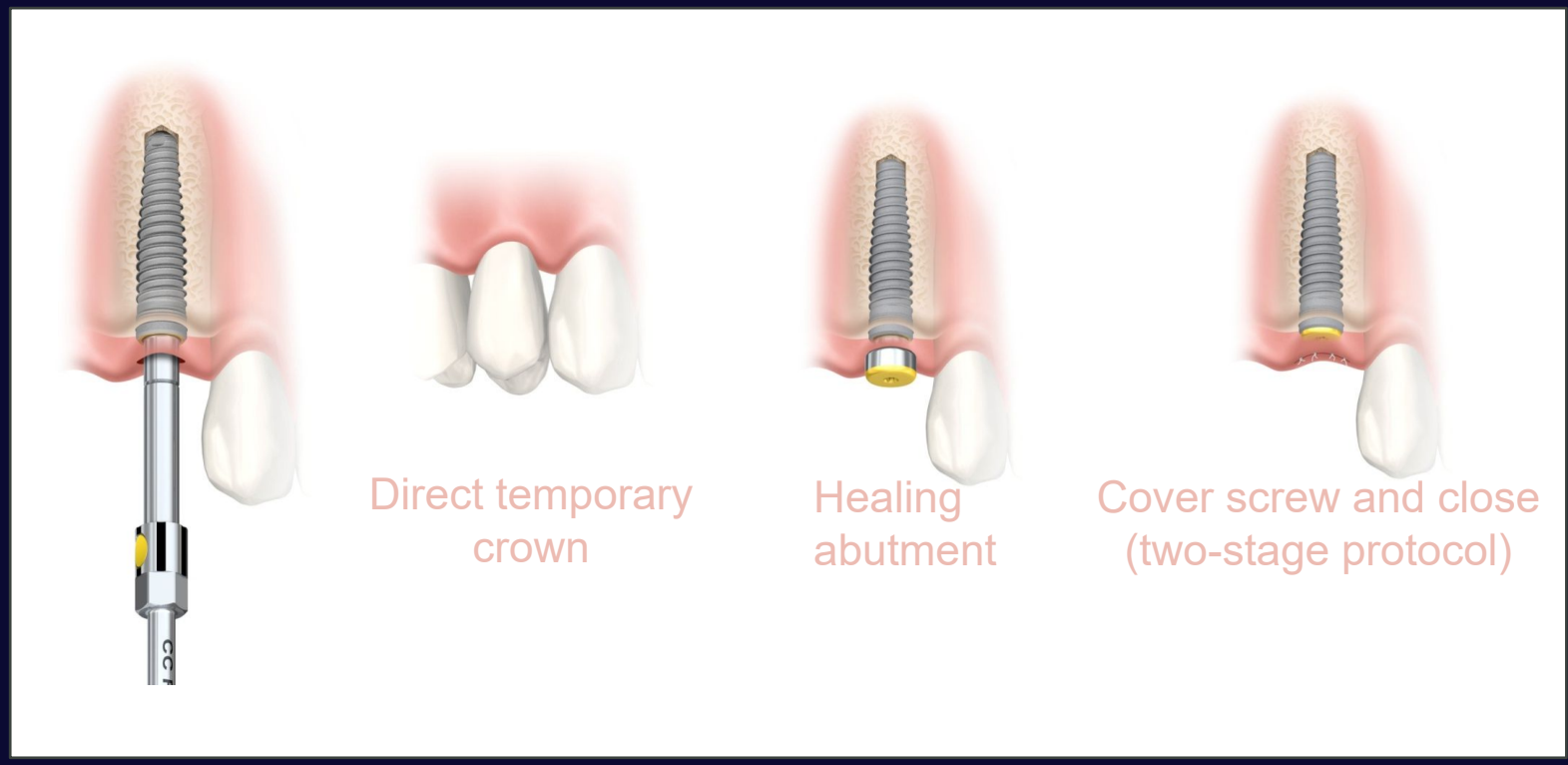
Healing abutment selection

2FP4

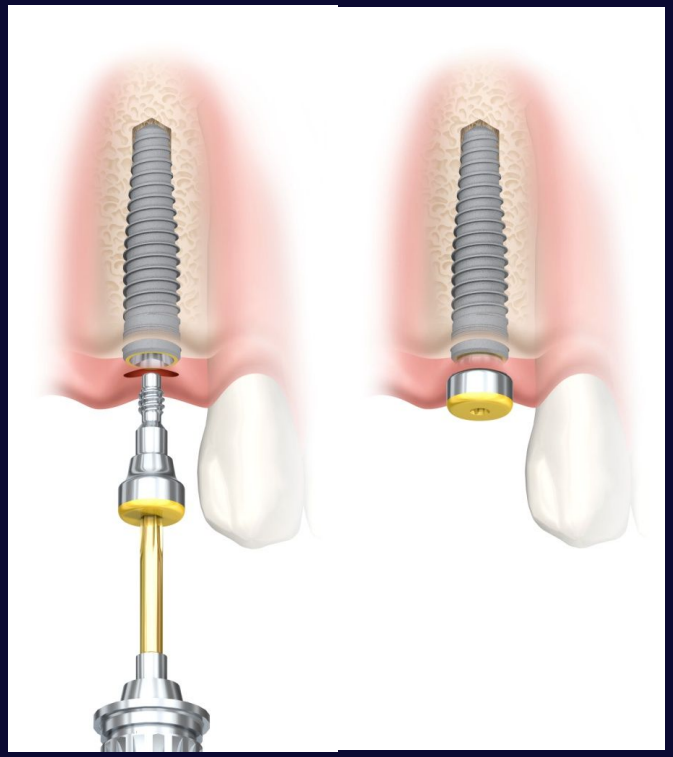
Decision time:

Cover screw, healing abutment, or direct temporary crown?

There are three options for finalizing the placement



90+% of the time you will be placing a healing abutment.



Healing abutment selection

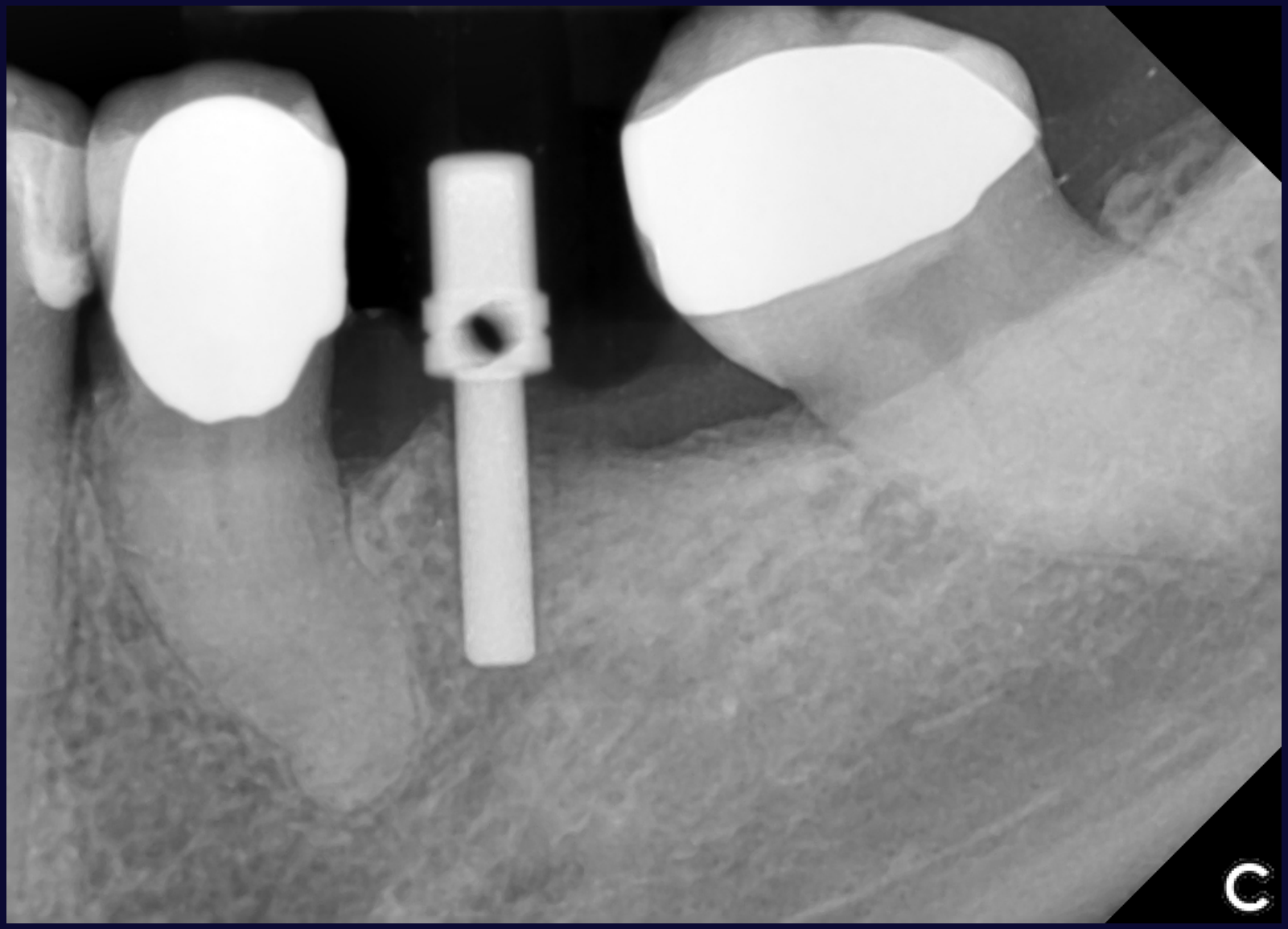
- When to use a healing abutment versus a cover screw
- Hands-on review of different healing abutment shapes and sizes
- If in doubt, go flared
- What to do when healing abutment will not seat

Let's look at and handle some healing abutments

Ø 4.5 mm, H 2.0 mm	Ø 5.0 mm, height 2.0 mm
Ø 4.5 mm, H 4.0 mm	Ø 5.0 mm, height 4.0 mm
Ø 4.5 mm, H 6.0 mm	Ø 5.0 mm, height 6.0 mm
Ø 6.0 mm, H 2.0 mm	Ø 6.5 mm, height 2.0 mm
Ø 6.0 mm, H 4.0 mm	Ø 6.5 mm, height 4.0 mm
Ø 6.0 mm, H 6.0 mm	Ø 6.5 mm, height 6.0 mm

What if the healing abutment will not seat?

Bone profiling sets are intended to be used for removal of surrounding bone and soft tissue remnants around an implant head/platform.


C

Straumann BL has a NC and a RC guide and three different flares of bone profiling drill that will all fit on either guide.