Implant Ninja's



Little PDF of Implant Wisdom

Everything you really need to know

Part 1:

Super Simple Implant Treatment Planning

Introduction

Treatment planning single implant procedures can be quite simple.

Unfortunately it's not usually explained simply, so we end up thinking that there is some mystical power that goes into it. That we need to know more. That it cannot really be that simple.

Well, the truth is, that it is.

Sure, some implant topics are complicated but single implants where there is enough bone and low risk factors, is a piece of cake.

Watch, I'll show you in this little ebook download.

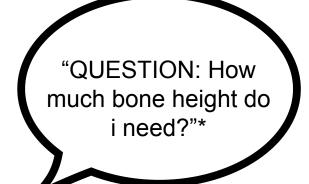
5 steps

I'm going to take you through **5 levels of questioning** that you can use to pretty much plan any single implant case.

No fluff.

Let's get er done.

#1 Bone Height





Answer: 8 & 10mm

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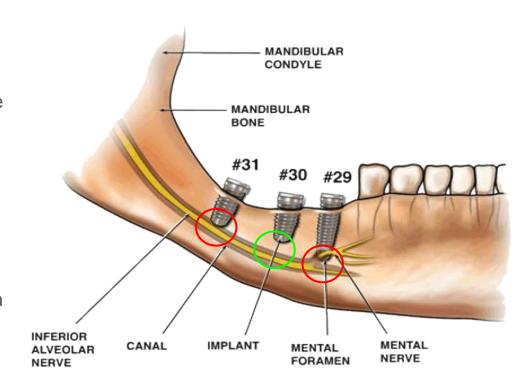
*(that's what she said)

Why 8 & 10?

To be on the safe side, **8mm** of bone height is a good minimum requirement. As long as you have 8mm, you're good.

EXCEPT at the posterior mandible. In the posterior mandible, I look to look for **10mm** because we need to stay **2mm away** from superior border of the IA nerve canal.

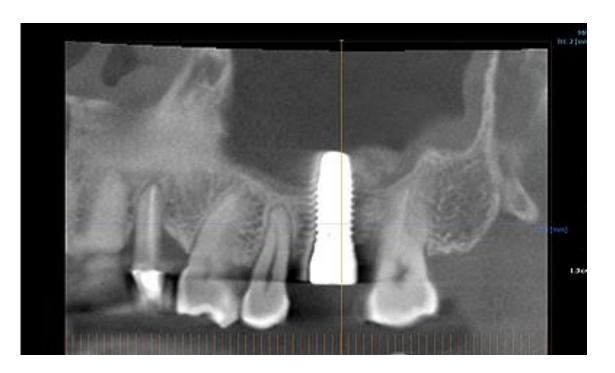
So, we're still just using 8mm of bone height as a minimum, but we're just trying to keep our 2mm safety distance.



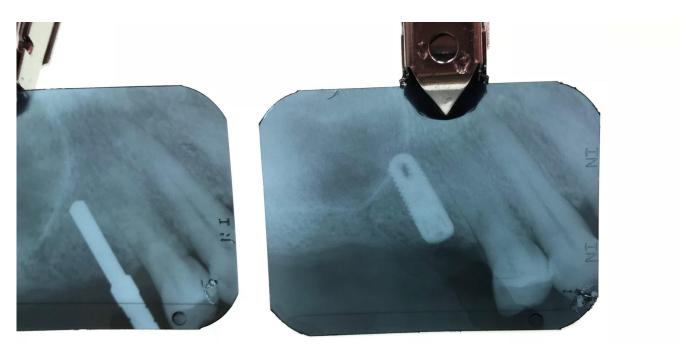
How does that height look? I know you don't know the exact measurements right now, but you should try to get good at estimating heights based off of adjacent teeth roots. This will help you work-up the case quick fast.



See how deep this one is? Totally unnecessary. A shorter implant could have been placed. 8mm in length is sufficient.



Now THAT'S better. We had only 8mm in length. I placed an 8mm implant and allowed it to engage the floor of the sinus.



Can I go shorter?

Shorter implants can sometimes be a good alternative. I'm not saying it's not an option. It is ALWAYS possible to make an argument for this or that exception.

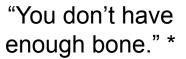
The point of this guide is to give you some **solid rules of thumb** that will help you land in a predictable and safe zone. Sure, you can push the envelope if you want. But use these basics as a safety reference and then use your own judgement.

And, yes, I do use the occasional 6mm implant. If for some reason I can't or don't want to elevate the sinus.

But what if...



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Your options if you don't have sufficient bone height:

If you're in the Posterior Maxilla: sinus lift

(That's pretty predictable and easy to recommend)

- If you're in the Posterior Mandible: vertical augmentation.
- If you're in an Anterior tooth site: vertical augmentation

Options #2 and 3 are less predictable. Vertical bone augmentation is not easy. You should recommend alternatives (bridge & partial) to implant therapy in this scenario as well.

#2 Mesio-Distal Space



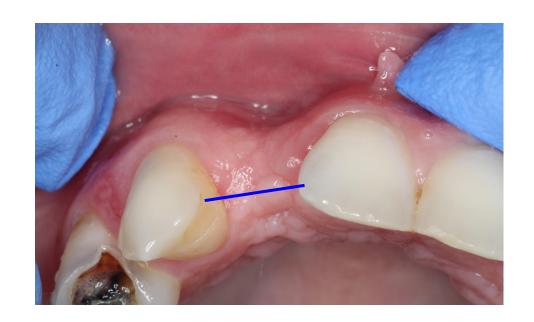
"QUESTION: how much mesio-distal space do i need?

Answer: 7mm

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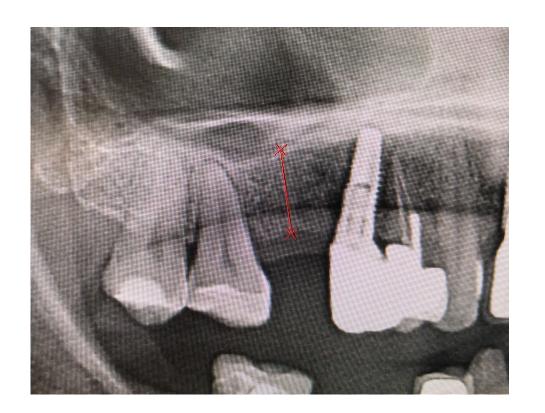
You'll want to measure this at the adjacent teeth crowns from contact to contact.

But you'll also need to measure the distance from root to root.



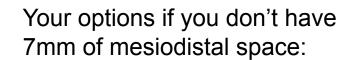
This one is a little tricky because there is definitely enough bone between the root and the implant but it is a bit narrow between the crown and the adjacent tooth.

Remember 7mm is still your minimum. Stick to the rules of thumb and you'll have an easier time planning these.



But what if...

"You don't have enough mesio-distal space."



- Refer to ortho to open up the space or...
- You can lightly adjust the adjacent (enameloplasty) teeth crowns if its a minor adjustment

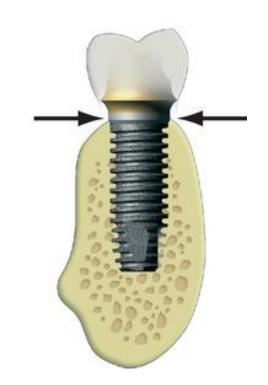
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Exceptions:

Its okay to have 6mm of mesio-distal space for Maxillary laterals, mandibular centrals of laterals.

For these sites you can use 3mm diameter implants.

#3 Bucco-lingual width





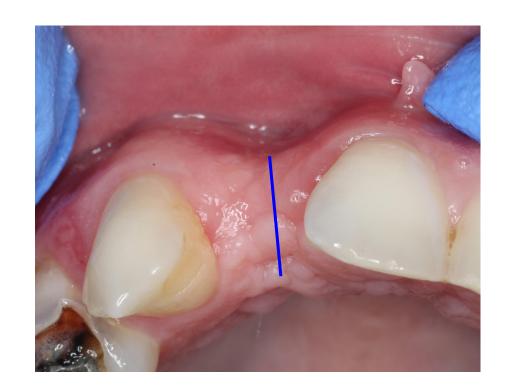
"QUESTION: how wide should a one's bone be? Just wondering..."*

Answer: 7mm

When it comes to bucco-lingual width, looks and even "feels" can be deceiving.

Always anticipate there is less bone than it feels like there is.

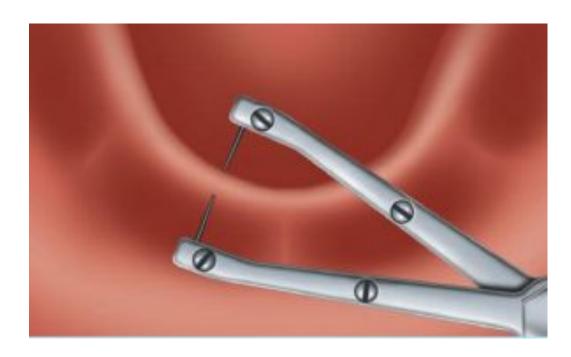
A cone beam will give you the most accurate read. But to be an implant ninja, learn to use your thumb and index finger to be a good predictor of width.



Bone Sounding

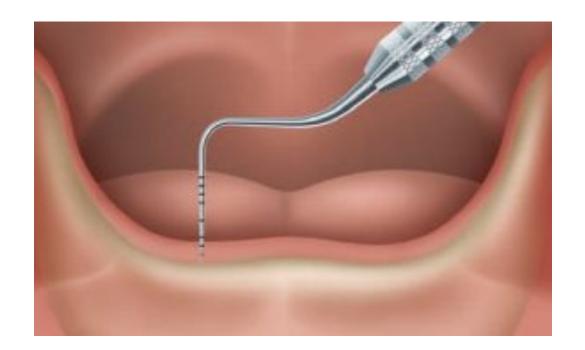
There are "bone sounding" instruments you can use to pierce the gums and measure how wide the ridge is.

Of course, you'll have to get your patients numb before doing this.



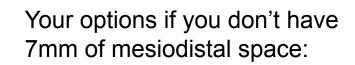
Bone Sounding

You can also bone sound with a perio probe. Although this is really only useful to probe for vertical height, not really that useful for assessing width.



But what if...

"You don't have enough bucco-lingual width."



- 1) Guided Bone Regeneration with delayed implant placement or...
- Ridge Split with immediate implant placement



Exceptions:

It's okay to have 6mm of bucco-lingual width for Maxillary laterals, mandibular centrals of laterals.

For these sites you can use 3mm diameter implants.

Think that was too easy?

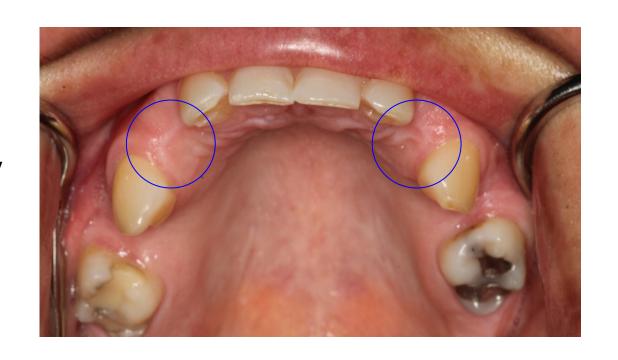
Alright cool guy, let's take a look at a case.

Would you place implants here on this patient?

They came in saying, "I want implants here at my canines."

Let's assume there is enough height.

Looks easy right?



Not so fast pal...

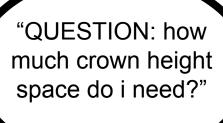
See? This one was a trick question. I still have to share with you the last measurement to look at when planning these cases.





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#4 Crown Height Space

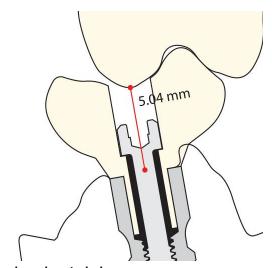


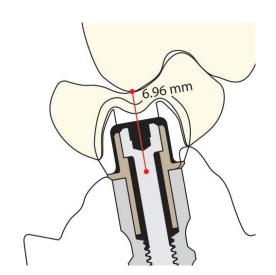


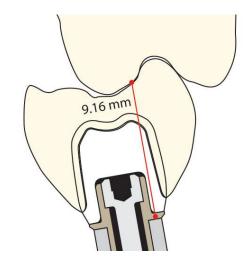
Answer: 8-10mm

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You need enough clearance so that you can fit all of those components inside of your implant crown. 8-10 is the perfect amount of space for single crowns.





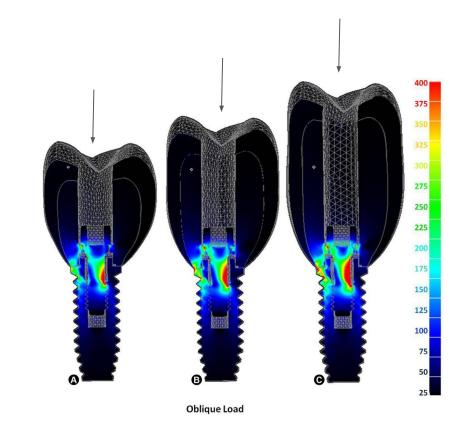


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But bigger is not necessarily better.

For stresses applied like this. (axially aka straight up and down)

There is no difference in stress distribution for different crown heights.

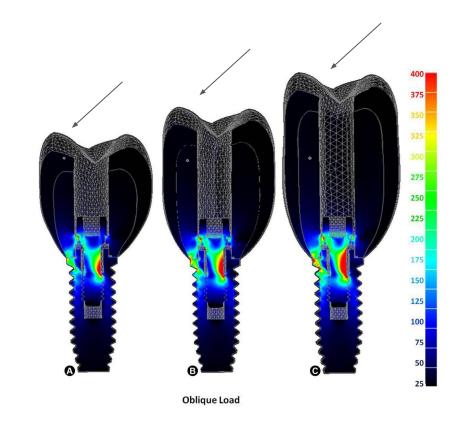


Stresses applied like this (non-axial aka oblique load) lead to different stress distribution in the different crown heights.

The stress concentration in oblique load for 15mm crown is almost double of a 10mm crown.

That can lead to:

- Screw Loosening
- Screw Fracture
- Abutment Fracture



In this case we essentially had NO crown height space. That implant would have gone unrestored and the patient would have been pretty upset to say the least...



But what if...

"You don't have enough crown height space."



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Your options if you don't have at least 8mm of mesiodistal space:

- Refer to ortho to open up the space or...
- Adjust opposing tooth if it is just a small adjustment

#5 Stable Occlusion

So, once upon a time...

I worked at an office that was super fast paced. (You know what i'm talking about)

They sat a patient in front of me and quickly wanted me to place an implant at #11 because he had already accepted treatment and paid (before ever seeing me).

The treatment planning coordinator rattled off some things about insurance and patient is taking a vacation or whatever. (I hate it when these external factors confuse the true clinical decisions...)

Anyhow, I quickly assessed the site and decided that there was enough bone height and width and mesiodistal space.

So I proceeded to place the implant in 20 minutes like a boss.

The implant healed no problem and I was worry free for 4 months. The patient came back to restore the implant and easily took impressions.

That's when the trouble started...

The patient came back with the abutment/crown broken in these two pieces.

What happened?





This is the crown I had made

Well, this what what the patient looked like.

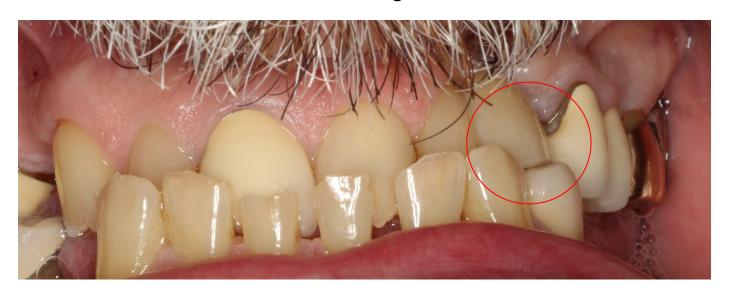


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Here's a closer look.

It is the ONLY tooth that is occluding in his entire mouth!!

OMG I can't believe that happened! It was a hell of a restorative appointment. But that's what I get for not being thorough.



Some of the best advice I got was from an old prosthodontist was,

"Hurry up and slow down."

Emphasizing that when you're trying to do things well, doing them slow ends up being faster than doing them in a rush and having to redo your work.

...anyway to have a successful outcome, you must first properly assess the remaining dentition.

Is there a stable occlusion that will allow your implant to succeed? That is a definite prerequisite for placing an implant.

So here's a list of all of the items we covered. Keep them top of mind when treatment planning implants and you'll avoid a lot of potential issues!!

- #1 Bone height: 8 & 10mm
- #2 Mesio-distal space: 7mm
- #3 bucco-lingual width: 7mm
- #4 Crown height space: 8-10mm
- #5 Stable occlusion!

Part 2: Implant Surgery

Now, I could spend a lot of effort trying to explain implant surgery to you with pictures.

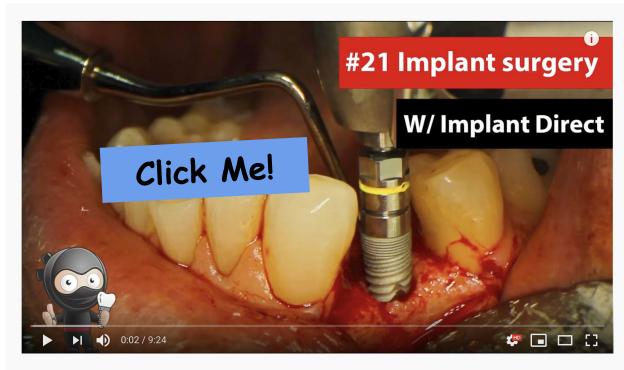
But pictures don't do it justice.

Lucky for you, my Youtube Channel exists.

For play-by-play for surgical videos, go check out my channel, starting with this video.



Search



Narrated #21 Implant Surgery



Question: Should I take x rays during the surgery?

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Answer: Hell yes.

I thought I was a cool guy for a while until I saw some x rays on my own implants that looked eerily close to what you see here.

Don't be a cool. Be safe.



Photo credit: @nehavaish15

Alright, so the implant is placed.... now what?

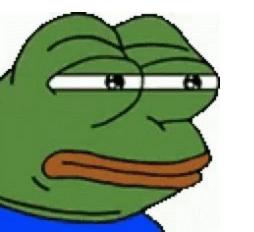
It's time to restore!!



Not so fast, spongebob.

Make sure you waited long enough before you mess around with the implant...

How long is "long enough" you ask?



Here's a good rule of thumb:



In the Mandible, wait 3 months before restoring.



In the Maxilla, wait **4 months** before restoring.



If the patient is a smoker or diabetic, or has a wound healing disorder, **ADD an extra 2 months**.

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After the waiting period, you're ready to restore!



...so now what?

Part 3: Uncovery & Impressions

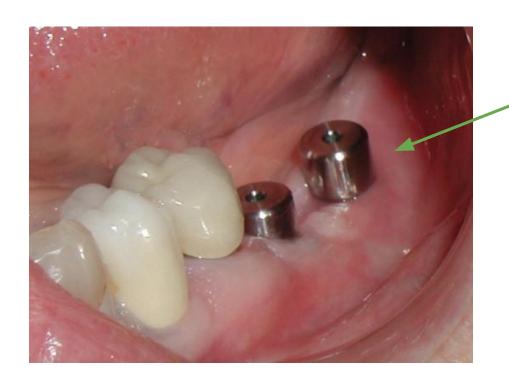


If your site looks something like **THIS...**

(See how it has the healing abutments on the implants already?)...you're in luck!

It's going to be a breeze to take impressions on this.

I'll walk you through this in slide 87. If the site looks like this, skip to that slide.



Okay, looking back on this, there isn't much **keratinized tissue** on the buccal part of this implant site.

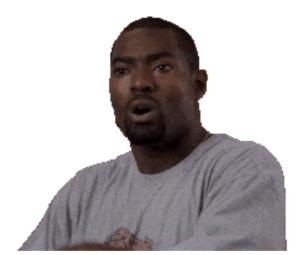
That is a little troublesome because the site will accumulate a bit more bacteria and be harder for the patient to clean.

(Basically, **it's not the end of the world** if you don't have keratinized tissue here but it's certainly better for long term maintenance & health.)

But what if you can't see the implant?



damn son...



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You're going to have to do some digging and "uncover" the implant.

(this is often called a "phase 2" appointment.

Not to worry, let me help you out.

Here are the possible scenarios:

Uncovery Scenarios:

Difficulty level

- 1. Cover screw is showing through the _____ Noob gums
- 2. Everything is fully buried Intermediate

3. Everything is fully buried and bone has grown over the cover screw



LEGENDARY

Let's look at the first scenario:

Cover screw is showing through the gums

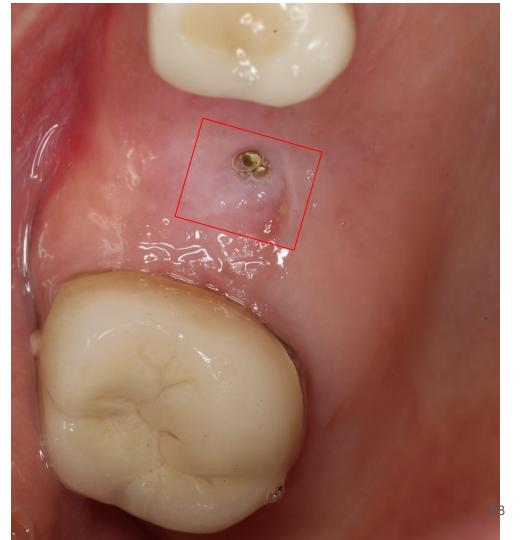
The cover screw can be seen through the tissue so you know exactly where the implant is. This is pretty easy peasy...lemon squeezie.

Word of caution: if the cover screw is showing through the tissue, maybe there is some bone loss around the implant. Make sure to take an x ray to check.

In these cases where you can actually see the cover screw, you can simply apply local anesthesia and cut a little window with a 15 Blade.



This is what a cover screw looks like, just FYI...

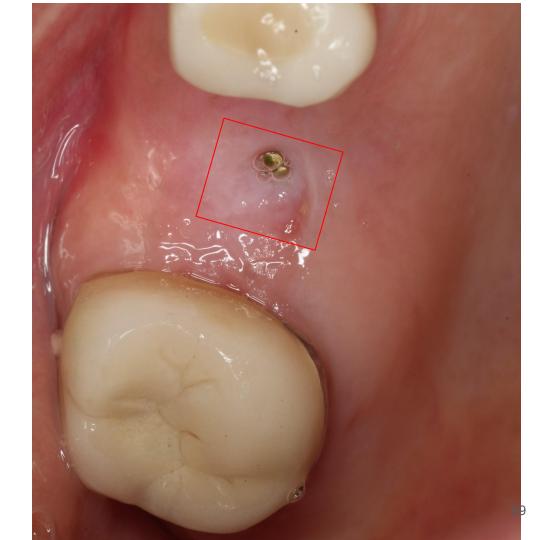


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After removing the tissue, and the cover screw, place a healing abutment onto the implant.



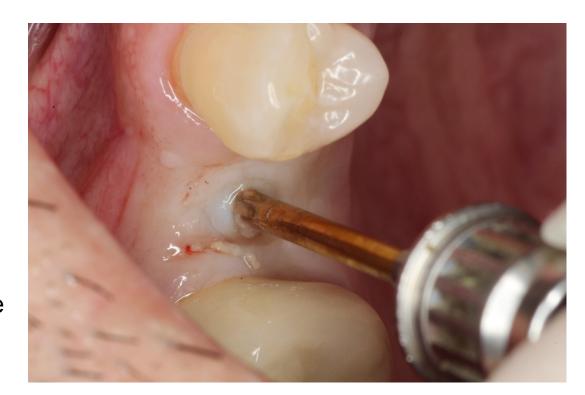
This is what a healing abutment looks like, just FYI...



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Sometimes you can remove the cover screw without doing any cutting.

But it's usually better to cut a little to release the tissue because the cover screw will often stay stuck under the tissue if you don't do any cutting.



Some minor tissue removal is often all it takes to access the cover screw. This picture isn't pretty but it got the job done...

You can also use a narrow platform tissue punch to remove the tissue quickly.





Let's look at the second scenario:

Everything is fully buried

In these, the gingiva has grown over the implant and you have to find it. Sure, you have to cut the gums and reflect a small flap, but it's not very difficult to do.

Finding the Implant Site

I like to first get the patient numb and then probe around into the tissue with a **perio probe**. You can often feel the hardness of the cover screw so you'll know where to cut.

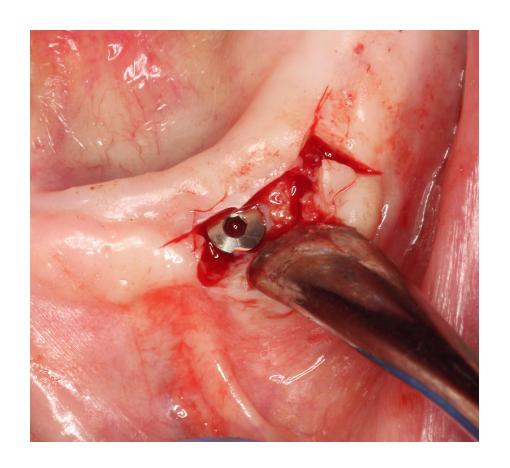
If you're 100% sure about where the implant is, you can use a **tissue punch**.

(But keep in mind, using a tissue punch removes some keratinized tissue we discussed!!)

You basically just have to flap where the site is and you'll find the cover screw of the implant peeking at you.



Again, this is what a cover screw looks like, just FYI...



Then you take the cover screw off, put a sterilized healing abutment on and then wait 2 weeks before taking the final impressions.



Again this is what a healing abutment looks like, just FYI...



Now, let's look at the final scenario

Everything is Fully Buried and bone has grown over your implant.

Efffff...

Difficulty level??



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OK OK in all seriousness, it's not THAT hard. It's still totally doable.*

You just have to have the right tools and have enough time and patience to remove some of the bone that's covering the implant.

I'll show you an example...

First, give some anesthetic at the site where the implant was placed. I use septocaine and I inject all along the ridge.





By the way, I have another video on this on this on youtube. Check it out here!

Then I make a crestal incision from one adjacent tooth to the other. There are a few different designs for flaps. In this case I am going all the way to the adjacent teeth and then...



I am cutting into the sulci of the teeth. You can also choose to do a papilla sparing design to help preserve the papillae. I didn't have much mesio-distal space here and I didnt want to cut the adjacent teeth's papilla to thin and risk loosing it.



Then I reflect the flap to the buccal. I do this carefully. The more conservative I am with the tissue, the less I disrupt the vasculature and less changes I make to the papilla.



Sometimes bone grows over the implant. My go-to, is to use the periosteal elevator to scrape some of that bone off from the cover screw. However, in this case, there was too much bone overgrowth so...



I had to resort to using the handpiece to carefully remove some of the bone that was blocking the cover screw. You have to be **SUPER GENTLE** here as you can damage the implant platform. You can also use a smaller bur on an electric handpiece to have better control.



Once the cover screw has been removed, make sure you can secure a healing abutment on the implant.

You have to make sure the healing abutment can go all the way down because if the healing abutment does not seat properly, that means your impression coping might not seat properly when it's time for impressions.

Okay, so now your implant is placed (and uncovered) and it's ready to restore!

This is totally you...



Taking an Impression

You might be wondering, do I take open tray impressions or closed tray? Does it even matter? What am I doing with my life? Errr, getting off topic there...

Open Tray



Closed Tray



VS

Which one is better?

<u>For single units</u>, in terms of accuracy <u>it does not matter</u> whether you use open or closed tray techniques. So use what is most convenient--that's usually a closed tray impression technique.

For multiple units, I like to use **open tray** because I can splint the impression copings together with light-cured triad, locking them in place.

For patients with **small openings**, use **closed tray** impression copings all the way!

For <u>divergent implants</u>, open tray can be easier to dislodge from the patient's mouth.



That said, no impression coping will save you from this mess. For **crazy divergence**, don't use impression copings. Instead, order NON-ENGAGING titanium temporary cylinders. Life saver right there. This tip alone is worth \$2,000. Lucky you... You'll thank me later:)

Another pearl that will save you one day... (This tip is \$\$\$)

For **patients with small openings** it can be nearly impossible to deliver a screw retained implant crown for a molar.

I've even had patients referred to me just to deliver other people's crowns LOL

If your implant driver and wrench don't fit in the mouth, just **use your implant** handpiece with the little latch attachment insertion tool.

For a step-by-step walkthrough of open tray impressions. Click this picture and watch the youtube video I made for you.

Closed tray impressions, on the other hand are pretty darn easy. I think you'll have no problem with those at all.



Impression Technique for Single Implant

Okay, so lets recap:

implant DONE

uncovery DONEzo

Impression Nailed it!

Now to deliver this shiznit.

Part 4: Delivery

Delivering a Screw Retained Crown

Removing healing abutment

Some clinicians tap on the healing abutment with the back of an intraoral mirror. The sound it makes can often help you determine if the implant is stable. It's a quick and dirty way to assess.

Also, this patient has a huge healing abutment. This makes it convenient to restore but can also squish the papilla.



This is what the mirror handle test sounds like. Check out this video to compare what a problem implant sounds like. Can you tell which one is an issue?

A non integrated implant or a loose abutment on that implant will sound like a dull thud.



Irrigating with Chlorhexidine

Once the healing abutment is removed, I like to irrigate the internal aspect of the implant with chlorhexidine. There is some evidence to show delayed healing of wounds with Chlorhexidine now, so be careful what you use it for.



Apply topical anesthetic

I apply topical anesthetic to the tissue just in case my crown will squish the tissue and cause pain while inserting.

If you had taken some time to mold the tissue prior to restoration, pain should not be much of an issue right now, but let's just pretend that you did not prep the emergence profile with a custom healing abutment or temporary.



Check Seating

Sometimes screw retained crowns bind on the mesial and distal aspects. At this point, I like to make sure the crown looks properly seated and that it is not binding anywhere.



Check your contacts

Use floss to check your contacts. If one contact is too tight, it could mean that the abutment is not properly seated. Adjust as needed to get it to seat fully.

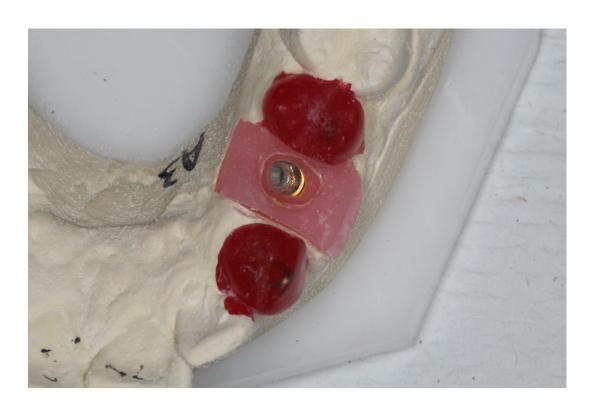


This is what the crown looks like before going in. It is a single piece screw retained crown. The laboratory cements the entire crown portion onto a small titanium base to create this prosthesis.



Model

This is what the model looks like. I actually don't like for the adjacent teeth to be filled with resin, like is shown here. Instead, I like it to be with regular old die stone--or digital! :) but oh well.



After you place the crown, be sure to take an x ray so you can confirm that it is properly seated. Make sure there is no shadow at the junction!





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Check occlusion

At this point, get your occlusion so that it is slightly lighter than the occlusion on the adjacent teeth. You will adjust it again after you fully torque it down.



Torque

If its properly seated, proximal contacts are good, and occlusion is good, make sure to polish the areas you adjusted and then you can go ahead and torque it down.



Torque

Torque values vary depending on manufacturer recommendation but are typically 30-35 Ncm.



Retorquing

Literature suggests that you should re-torque the screw after waiting some time. The amount of time is not nailed down exactly. But 10 minutes is a safe bet. 10 min after the initial torque, go ahead and torque that screw one more time.

Re-check occlusion

Even though you've already adjusted occlusion, check occlusion again once you have torqued the crown. You'll want to relieve it so that the occlusion on the implant is minimal. When the patient bites down lightly into MI there should be no occlusion on the crown.



Plug the Access

Plug the access hole with a barrier so that the screw head does not get damaged if you ever have to re-access the hole. I like to use teflon tape. I used a cotton pellet in this picture.



Leave room for composite

Make sure to push the plugging material down far enough so that you have enough room for composite to bind and not fall out. I like to leave 3mm of room at least.



Place composite

Place composite into access hole and make sure it does not interfere with occlusion.



Check occlusion again

Even though you did your best, the composite is still probably interfering with the occlusion. You also want to check excursive movements--like when the patient grinds to the right and left. Remove those and relieve any added contacts from the composite.



Done!

Polish the composite surface and...your done!



Delivering a Cement Retained Crown

Put the abutment onto the implant. You have to gently feel it and make sure it engages into the implant before you go and tighten it down. This is a learned feel. It is super important that you make sure it fully seats.

After its in position, go ahead and take an x ray to verify that the connection is flush.



Place the crown onto the abutment. See if the incisal edges match up to where you wanted them. Does it seem to be seating properly just at-a-glance?

If so, you're likely on the right track.

Go ahead and check the crown fit as if it was a natural tooth. Here you see me checking contacts.



You didn't forget the steps to seating a crown did you?

Let's refresh anyway:

- Check the contacts!
- Assess marginal fit. In my opinion, if it's seated at the margin, it's fitting properly, right?
- Check occlusion! For single implant crowns, surrounded by adjacent natural and healthy teeth, let's leave the implant just slightly out of occlusion.

The nice thing about implants is that the margins should be perfect because the crowns are milled precisely to fit the abutment and you can check this out of the mouth.

Anyway, you do want to make sure that your crown seats fully. So if the contacts are good, take a look at the margin.

It's easiest to assess at the lingual side. You can use a perio probe to feel the margin there because the tissue is a little more rigid and the margin can be a little more superficial on the lingual.



Now that you've:

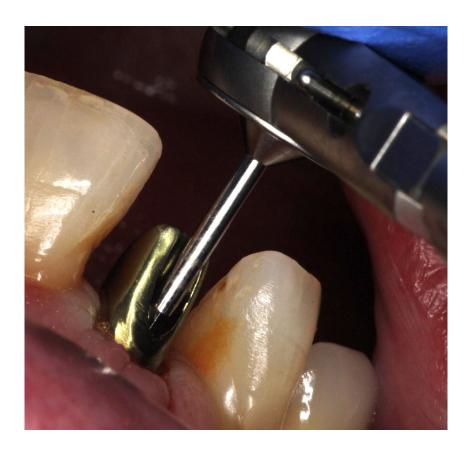
- verified radiographically that the abutment is seated fully
- You've tried on the crown and it seems to line up well at the incisal edges and has a reasonable occlusion (you didn't do your final occlusion check or any adjustments to occlusion at this point.)

It's time to torque the abutment.

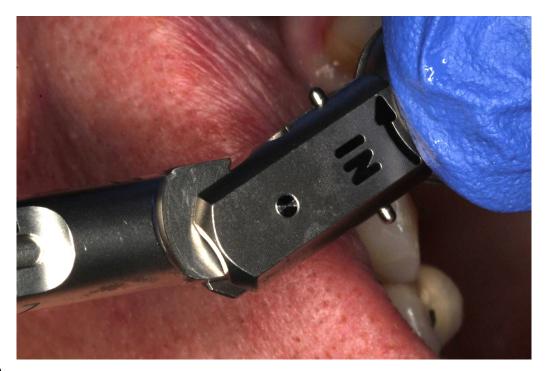
I like to place the little driver bit onto the screwhead by itself first. This just seems to be easier than trying to engage it while it's attached to that whole big torque wrench contraption.



After I engage the screwhead with my fingers, I attach the wrench onto the the little driver bit.



Most implant systems have you torque the abutment screw down to about 30 Ncm.



Then I'll go ahead and place the crown on the abutment and check the occlusion with articulating paper.

If there are healthy adjacent teeth and the occlusion is stable, I want to leave this implant crown slightly out of occlusion.



So at this point, I'm going to adjust this to eliminate the marks.

The "centric occlusion" marks are the ones that the patient makes when you tell the patient to "tap tap"

Let's relieve these.

The "eccentric marks" are the blue marks you get when you have your patient grind side to side. You want to completely eliminate these contacts so that there is no chance they are putting these eccentric forces on the implant.



Place some teflon (if you don't have teflon, use cotton pellets) inside the access hole so that you don't get any cement inside accidentally.



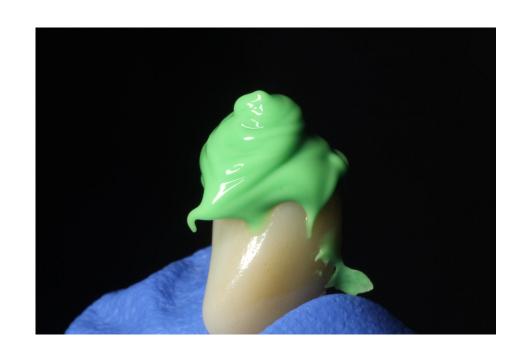
I push it in a little so that I am 100% sure that it is not messing with my occlusion.



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To help you NOT overfill your crown with cement, you can use this little trick.

Fill your crown with light body PVS and let it overflow.



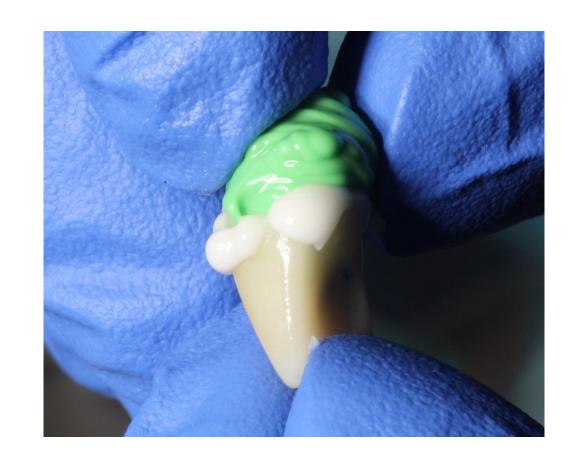
Then I mix the cement or just use the little extrusion tip. I like to use Fuji Cem. I like that it's radiopaque!



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I fill the crown with cement and then I plug the little PVS thing we made into it and it extrudes the cement. Don't push TOO hard or else you might remove almost all of the cement.

But for implant crowns, a little goes a long way!



Then I seat the crown and hold it as it sets. I then check all the margins with an implant curette.

There are a variety of implant curettes.

The plastic ones use to be recommended but I really don't feel they work well.

I used a titanium curette here and it works well at the margin but it can scratch up the crown. Notice at the cervical aspect that I accidentally scratched the crown here.



Lastly, recheck your occlusion! Doing most of your adjustment beforehand is best because then you can polish it outside of the mouth too. But in this case, I saw that the occlusion was close and I just decided to do the adjustment in the mouth after I cemented it. It's a faster way to do it, but less ideal. I used a zirconium polishing bur after this to get it smooth.



There are a ton of different types of adjustment burs out there. This is the one that I used. Use whatever you use for your natural-tooth crowns.





"What if yo momma strips?

Answer (to Dwight's question):
I like to use a screw removal kit. It's saved my life a couple times. I show how to use it in this video.

Part 5: Other Important Shiznit

Absolute Contraindications

IV Bisphosphonates

Oral Bisphosphonates sometimes pose little risk, but IV is no joke. This is a deal breaker for me.

Absolute Contraindications

Radiation Therapy

Above 65Gy there is a significant risk for ORN. Trust me you don't want ORN. But even at 55Gy I still refer out to an oral surgeon, I like to keep it predictable for myself. At 55 Gy, the implant is most held in mechanically NOT by osseointegration.

Absolute Contraindications

Any Uncontrolled Medical Condition

I know this is vague, but I ask patients if they've had any hospital visits in the last 2 years. Any condition must be diagnosed and monitored/treated by the appropriate physician. Bottom line: If patients are not on top of their healthcare, I can't help them.

- Bisphosphonates
 - FOSAMAX (Alendronate)
 - Zolendronic acid (Reclast or Zometa)
 - Didronel
 - Boniva
 - Aclasta
 - Atelvia
 - Actonel
 - Aredia
 - Binosto
 - Skelid
- Antiresorptive agents:
 - Denosumab
 - Xgeva
 - Prolia
- Antiangiogenic agent used in cancer chemotherapy
 - Sunitinib (Sutent)
 - Bevacizumab (Avastin)
- Corticosteroid
 - Long-term Prednisone with fosamax

Here's a list of RED FLAG MEDS I have laminated and use to screen my patients.



Here's a list of some of the frequently prescribed meds...

Prescriptions

- Amoxicillin
 - 500 mg tabs
 - Disp: 18 tabs
 - 2 g 1 hour prior to surgery
 - 1 g 6 hours initial dose
 - 1 tab tid for 3 days

Prescriptions

- Clindamycin (If allergic to amoxicillin or if swelling/pain worsens after 4 days)
 - 300 mg tabs
 - Disp: 12 tabs
 - Take 2 tabs 1 hour prior to procedure
 - Take 1 tab 6 hours after
 - Take 1 tab tid for 3 days

Prescriptions

Pain Meds

- **Tylenol #3** (acetaminophen with codeine)
- Take 1 tab qh6 prn pain

Anxiety

- Rx: Valium 5 mg
- Disp: 1
- Sig: Take 1 tab 1 hour prior to procedure
- * No driving within 8 hours of taking Valium*

That's all for now!

Thanks for taking the time to look this over my friend. I truly think that this will be helpful for you to look back on throughout your implant learning journey.

The warmest regards from my family to yours :)

Cheers!

Ivan Chicchon



PS: If you're looking to learn to place dental implants or even full arch dental implants, I run an educational program called Implant Ninja. It's pretty ass kicking. I know this implant stuff can be intimidating, but it really can be broken down to be super intuitive and easy.

Feel free to give us a shout at implantninja@gmail.com

I'm looking forward to being in touch sometime!

www.ImplantNinja.com