Implant CPR :
Failures and Complications

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Arora Periodontics

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"Implant Success"

1- Original Treatment plan is performed without complications

2- All implant placement remain stable and functional without problems

3- Peri-Implant hard and soft tissue remains healthy

4- Both the patient and the clinician are pleased with the result

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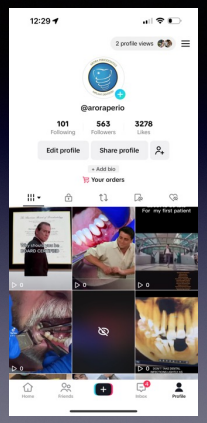

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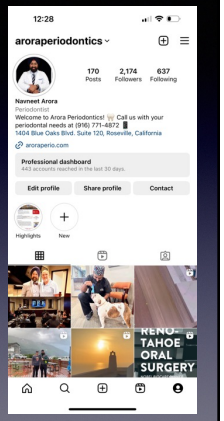

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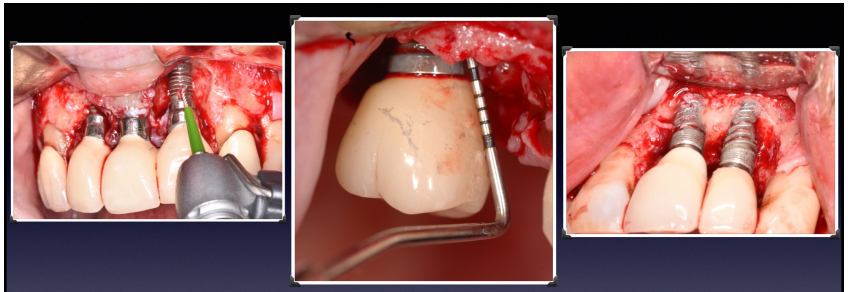

Peri-Implantitis

A DESTRUCTIVE inflammatory reaction affecting the soft and hard tissue of an implant/ implants in function.

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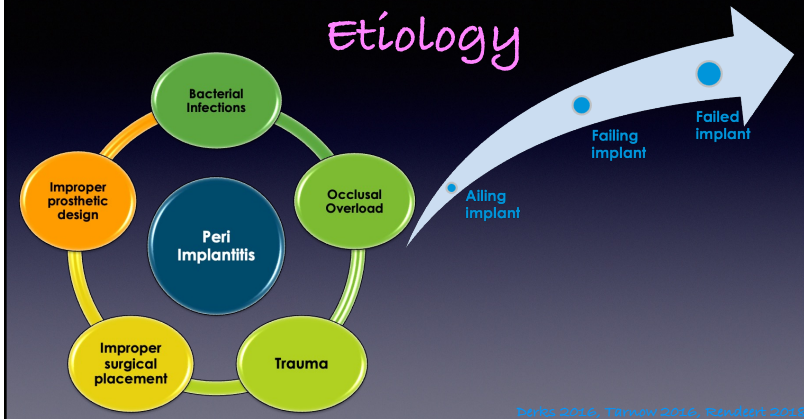
Etiology



Berglundh 2018, Tarnow 2016, Rondeau 2015

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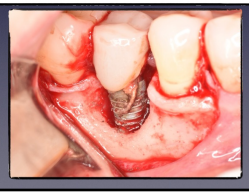
Classification of Peri-Implantitis (Froum, Rosen 2012)

Types	Characteristics
Early	PD ≥ 4 mm (bleeding and/or suppuration on probing) Bone loss < 25% of the implant length
Moderate	PD ≥ 6 mm (bleeding and/or suppuration on probing) Bone loss 25% to 50% of the implant length
Advanced	PD ≥ 8 mm (bleeding and/or suppuration on probing) Bone loss > 50% of the implant length

PD, probing depth.



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Peri-implant Disease is Increasing

(Fransson C et Al 2005, Koldstand OC et al 2010)

36 Mil- Fully 120 Mil- At least- 1 Tooth Loss	50- 90% Mucositis	12- 43% Peri-Implantits

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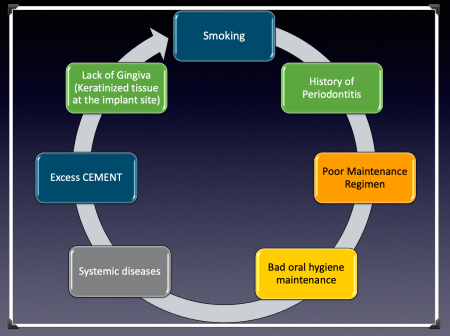
Risk Factors

Dental Plaque Accumulation and Pathogenicity

Host Susceptibility



Early
Late Complications

Mombelli 2002, Stach 2014, Serino 2009, Alissa 2012, Casado 2013, Chrcanovic 2015, Froum 2008 ETC ETC

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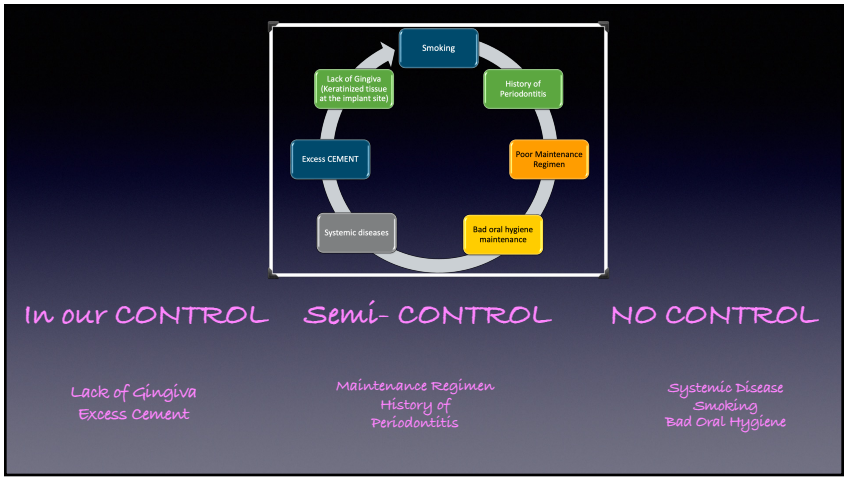

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NON SMOKERS	DEPENDS	95% SUCCESS RATE
SMOKERS 1 cig/day	2.77 increase	89% SUCCESS RATE
SMOKERS 10 cig/day	2.77 to 4.75 X increase in progression	Lower
SMOKERS 20 CIG/DAY	4.75 X increase in progression	LOWEST

Goodaore et all.2003, Baim 1996

INCRESE in Pophyromonas Gingivalis, Aggegatibacter Actinomycetemcomitans, Tannerella Forsythensis

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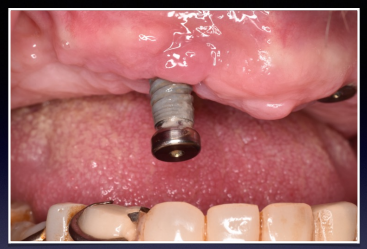

Implant failure rate is dose dependent

5 Year Survival Rate 91.8 % 663 Implants in 159 Patients

Non Smokers 96.4 %

Former Smoker 90.4 %

Current Smoker 85%

MUNDT 2006

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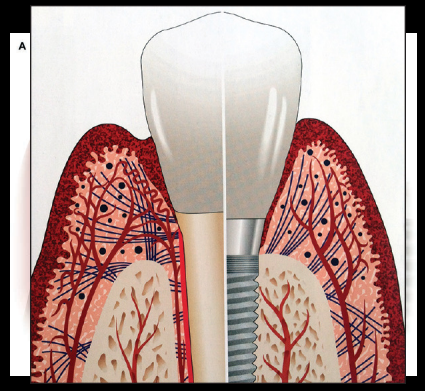
Biological Difference

- Shorter JE Non Keratinized
- More Fibroblasts and blood vessels
- Fibers are Perpendicular- Circular, TransSeptal Fibers



- Long JE Non Keratinized
- Direct BIC
- More Collagen Fibers ; Less Fibroblasts and blood vessels
- Periodontontal Fibers are parallel to implant surface

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Non Surgical Treatment

Manual debridement with Mechanical Instruments	Localized Antibiotic Delivery	Subgingival Irrigation
SubGingival Implant Debridement LASER Therapy	Promote bone gain, attachment gain, reduce BOP, reduce pocket depth	CO2, ErYag Nevins 2014 Ting et al 2022 (SR)

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Surgical Treatment FLOWCHART

Implantoplasty	Limited Open Flap Debridement	
Implant Debridement	Open Flap Debridement	Resective TX
Implant Debridement	Open Flap Debridement	Bone Grafting/ Membrane
Implant Removal/ Explantation	BONE Graft/ MEMBRANE	Replacement/ LET IT BE

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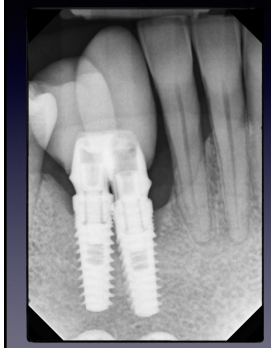
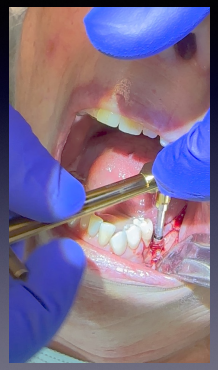
When do I EXPLANT ???



- 50 % or more BONE LOSS
- MOBILE
- Severe Exudate/ Pain
- Implant Body Fracture
- Damage to the Internal structure
- Just POOR placement



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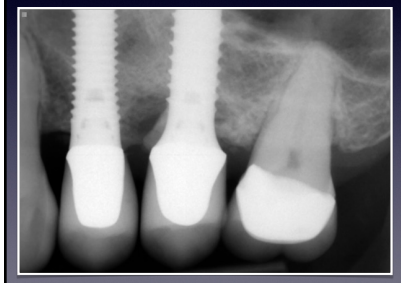
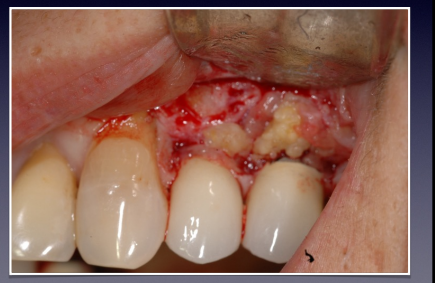
65% of 185 failed implants showed excess cement when examined under magnification (Wadhwani 2012)
81% of the 42 implant diagnosed with peri-implant disease showed signs of residual cement(Wilson 2009)





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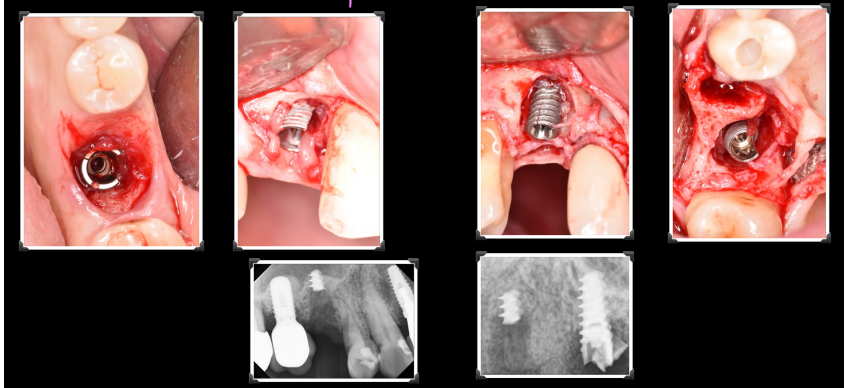
Implant Fracture



Poor Product #Poor placement # 3rd party Components # Poor Restoration
Occlusion # Accident # Bad Chewing Habits

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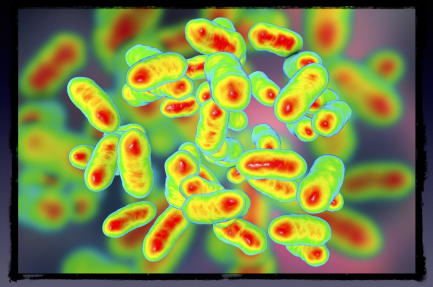
MicroFlora of Peri-Implant Diseases



Bacteria in Peri-implant diseases are similar to bacteria in periodontal disease
Patient who have lost their teeth due to periodontitis have an increased risk of developing Peri-Implantitis

Mombelli 2002, Roccuzzo 2011

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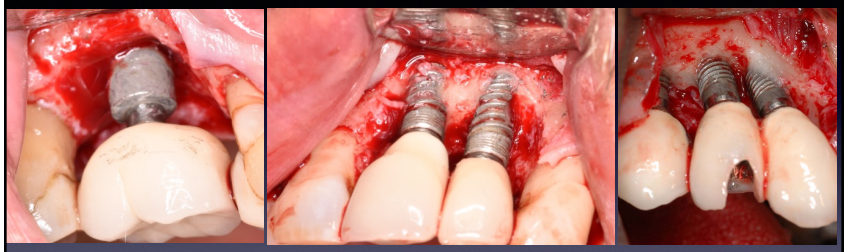
Disrupt, Dilute, Dextoxify



Curettes, Ultrasonics, Air abrasives, Lasers- ErYAG, CO2 , Prophy cups,
Antibiotics- Tetracycline, Citric acid, CHX

Simion 2016, Froum 2016

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Detoxification - KEY TO SUCCESS

SALINE, CHX, Citric Acid

Implant Debridement	SALINE	17 % graft Adhesion	
Implant Debridement	CHX	48.7% graft Adhesion	50 % Surface Detoxification
Implant Debridement	CITRIC ACID	90 % graft Adhesion	100 % Surface Detoxification

24% EDTA, 40% Citric Acid

Gamal, Forum 2022,
Monje et al 2022

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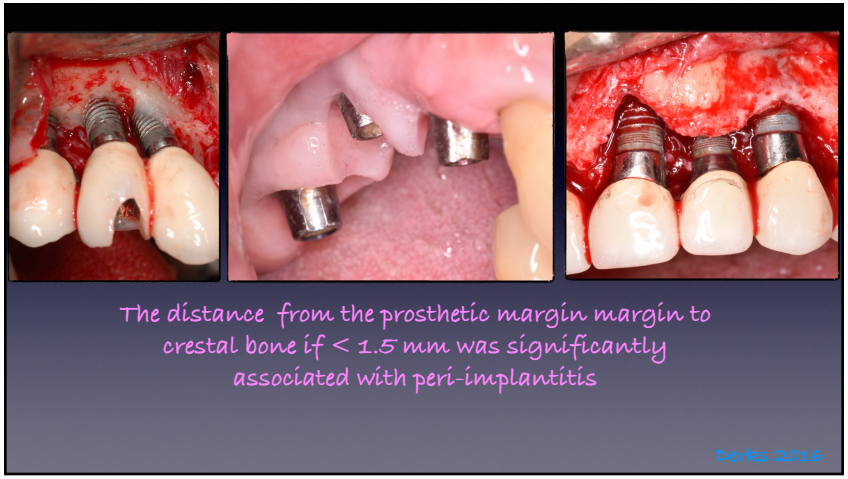

The distance from the prosthetic margin margin to crestal bone if < 1.5 mm was significantly associated with peri-implantitis

Derks 2016

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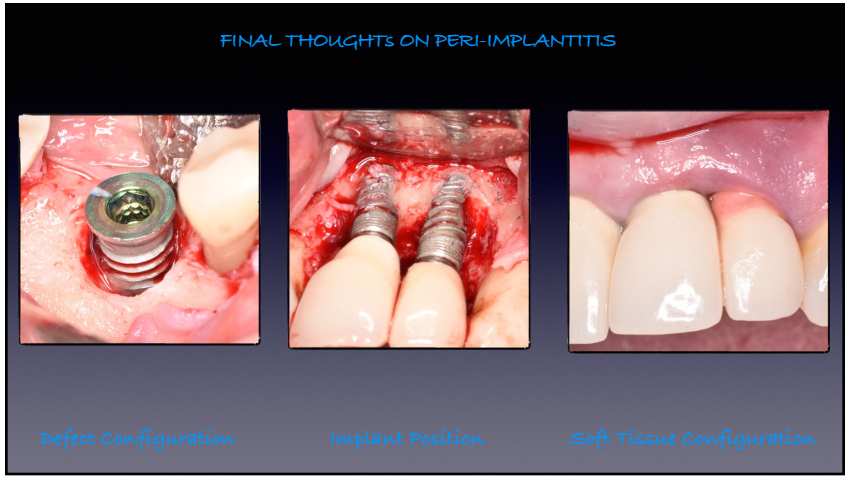

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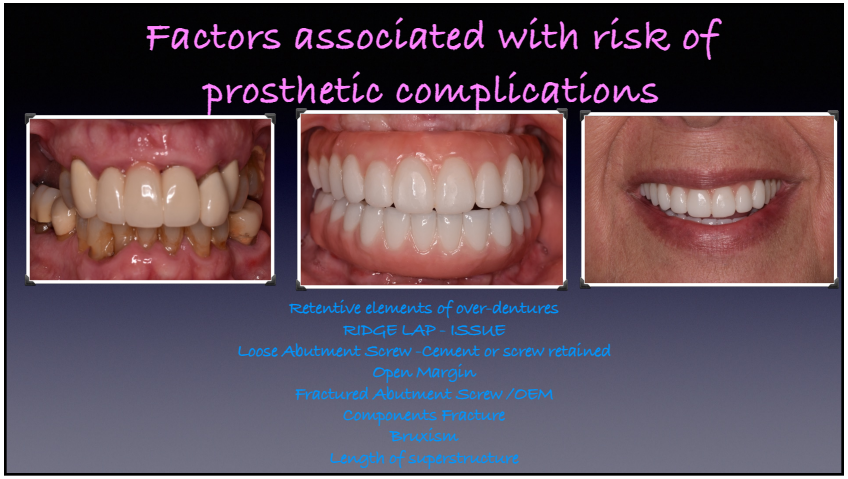

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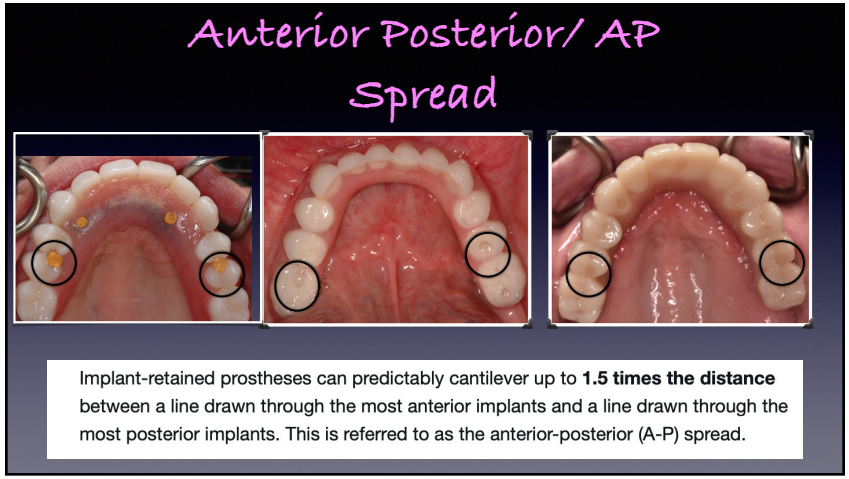

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Minimum space requirements:
Bar & clip: 14mm
Hybrid: 10-12mm
LOCATOR®: 8mm
C&B: 7-8mm

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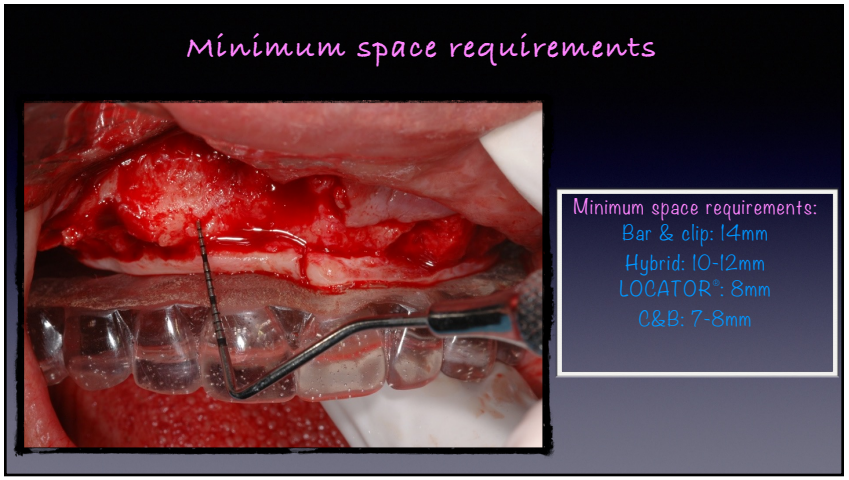
Minimum space requirements
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Bar & clip: 14mm
Hybrid: 10-12mm
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MYTHS
MYTH-1 We should not probe implants
MYTH- 2 We don't clean around implants
MYTH -3 Implants ALWAYS last forever

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THE MANTRA
DISAPPOINTMENT = EXPECTATION / REALTY

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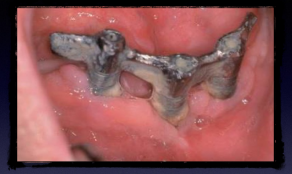
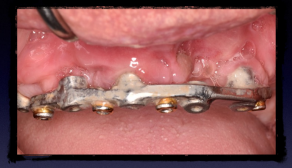
Maintenance Regimen





3mm with NO BOP
Gentle probing, evaluate plaque, Prophy cup and polish
3mm with BOP or 4-6mm with NO BOP
Debride with curette, NaOCl, CHX, Arestin
6mm + , BOP, Pus, Pain etc
Surgical debridement and regeneration if needed, Systemic Antibiotics

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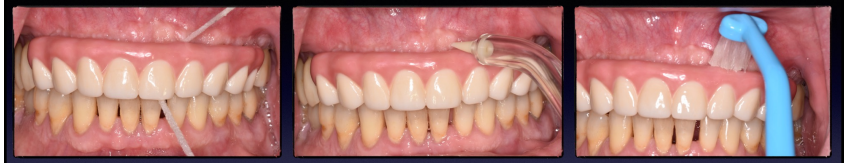
Home care



Brush twice a day

Floss 2 times a day

Rinse with Listerine/ essential oil 2 times a day

Use EndTufted/ ProxyBrush

Use NaOCl/ H2O2 for cleaning super structures

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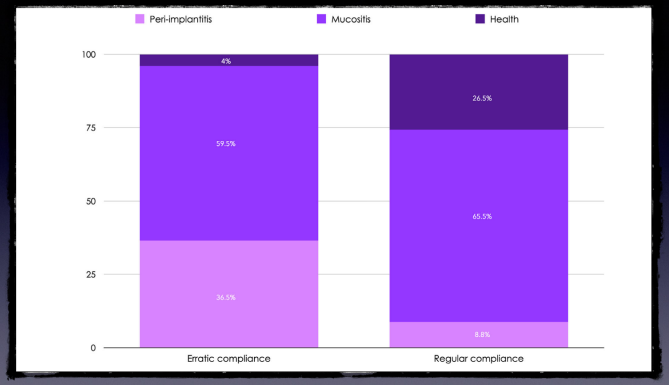

Influence of the level of compliance with preventive maintenance therapy upon the prevalence of peri-implant diseases

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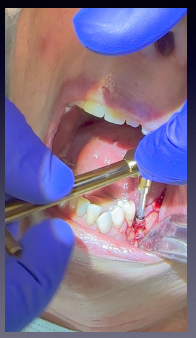
Techniques to remove failed/ failing integrated Implant

- Osseointegrated implant is not like a tooth extraction
- Counter Torque Ratchet - BTI
- Piezo surgery tips (Stacchi 2008)
- Elevators/ Forceps
- High speed burs (Froum 2005)
- Trephine Burs (Sakakura 2005, Esposito, Froum 2005)



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	Free hand Placement	Using Surgical Guide	Guided Surgery Placement	XGuide/ XNav/ Yomi placement
Number of implant placed	70 - 75 %	5 to 10 %	15 to 20 %	less than 1 %
PreOp Preparation	Xray / CBCT	IOS, CBCT (MAYBE) or just Xrays and impression	IOS, CBCT, CASE PLANNING	IOS, CBCT, CASE PLANNING
Cost to the patient	$$	$$	$$	$$(Maybe slightly more)
Cost to the dentist	$	$	$$	$$$ + $

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EARLY COMPLICATION	LATE COMPLICATIONS
Overheating of Bone	Occlusal Complications
Lack Of Primary Stability	Esthetic Failures
Infection	Implant/ Prosthetics Fracture
Implant Position	Peri-Implantitis
Anatomical Complication	Loose Restoration

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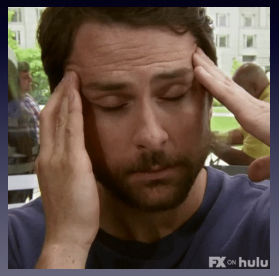
CONSIDER !!!!!!

- Implants are usually an irreversible process therefore careful planning is the key
- Better to be safe than sorry
- Discuss with the patient before what you think may be a potential complication for that particular case. Because latter it will be an EXCUSE
- Prevention Is better than CURE



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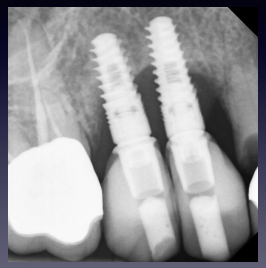
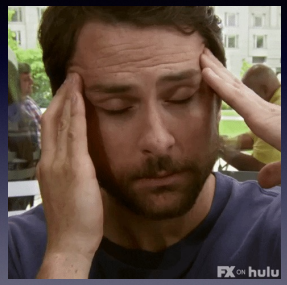
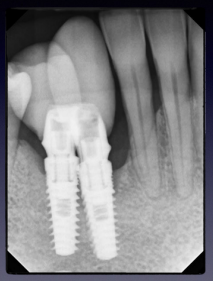
CONSIDER !!!!!!







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Final Thoughts

- GUIDED / Navigation Surgery
- SCREW retained if possible
- Forced MAINTENANCE every 3- 4 months
- ANNUAL Exams - PA's not BiteWings
- Keep an Implant Log
- Don't do stupid #%%Y$
- Don't interchange parts
- PRAY PRAY PRAY