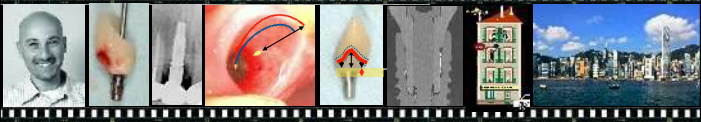




Understanding Implant Complications

Merging Biology and Technology

ITI Nordic, June 2020



Nikos Mattheos, DDS, MSc, PhD






Greetings from Hong Kong!





DENTAL TRIBUNE

The World's Dental Newspaper - Asia Pacific Edition

Published by Hong Kong www.dental-tribune.asia No. 7-8 Vol. 10

Implant treatment woes high among Japanese dental patients

Dental Tribune Asia Pacific

TOKYO, Japan: The Dignitas research survey of dentists in Japan has revealed that in 2017, 31% of dentists reported patients with health complaints due to dental implant treatment. Over 40% of the dentists reported also reported having several patients last year with problems related to implants causing a challenge.

Referring to the general risk of dental procedures, the Director of the Japanese Association of Stomatognathic Medicine, Kenji Imai, told the Dental Tribune newspaper that the data might be a factor in the increasing number of dental malpractice lawsuits. He added, as patients' awareness of dental procedures increases, the number of lawsuits is also increasing.



Other problems mentioned in reports were related to the dental implant system (ITI/Novus Implant Group, Inc.).

Success

Absence of complications:

Any **pathology** or **unpredicted alteration** which requires chairside time to be treated/ repaired



Murphy's Laws:

1. In any field of endeavor, anything that can go wrong, will go wrong

Murphy's unknown modification for Implant Dentistry:

2. Left to themselves, things always go from bad to worse
3. Nature always sides with the hidden flaw
4. If everything looks alright, you have obviously missed something

Act! what to do when things go wrong

Prevent hidden flaws and predispositions

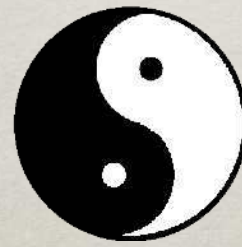
Observe! Where to look and what to see!

Biological Complications

Early failures
Inflammation:
- Peri implant mucositis
- Peri implantitis
Recession

Technical Complications

Veneer chipping / fracture
Framework fracture
Screw loosening
Screw fracture
Abutment fracture
Loss of retention
Implant fracture



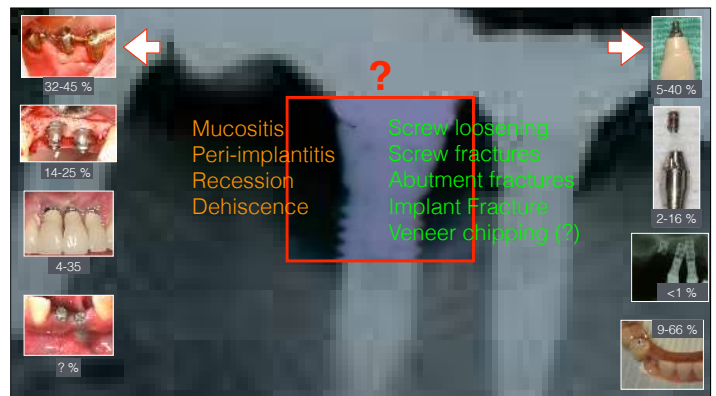
The impact of cantilevers on biological and technical success outcomes of implant-supported Fixed Partial Dentures.

P. Kim, S. Ivanovski, N. Latcham, N. Mattheos. COIR 2012



206 patients, 272 FPDs, 50 months

- Complications are **clustered**
- technical** complications: 3 times more likely to be associated with **biological** complications



Cyborgs and space

allowing users to fly, breathe, and even regenerate lost limbs. The technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

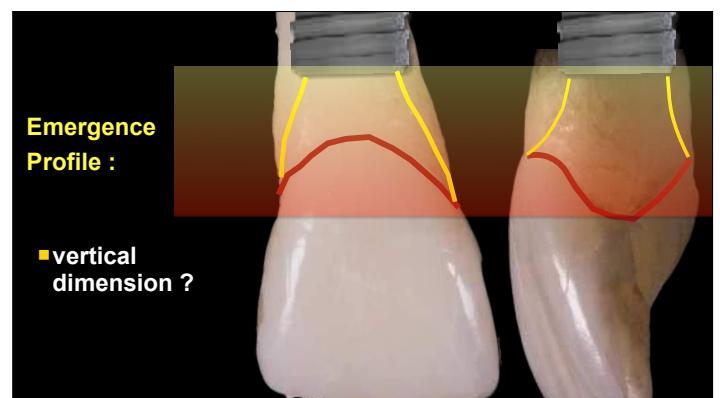
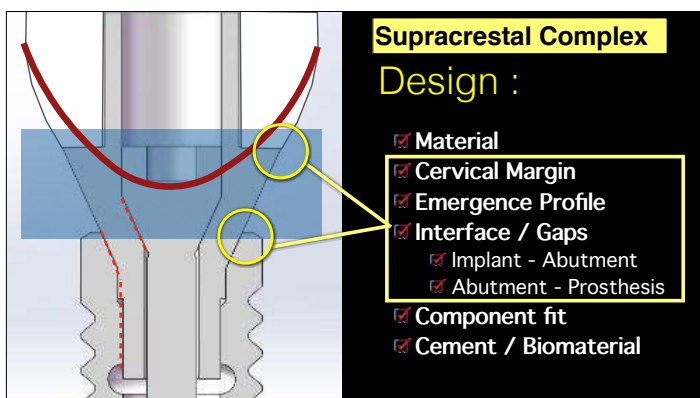
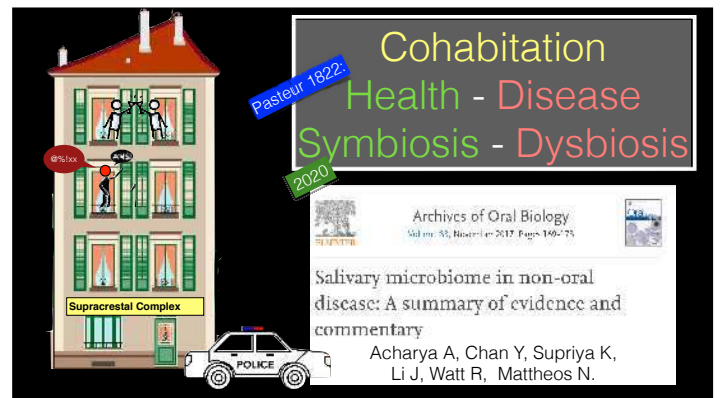
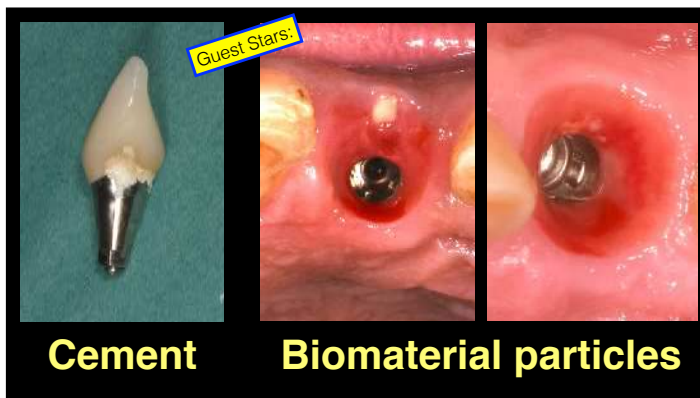
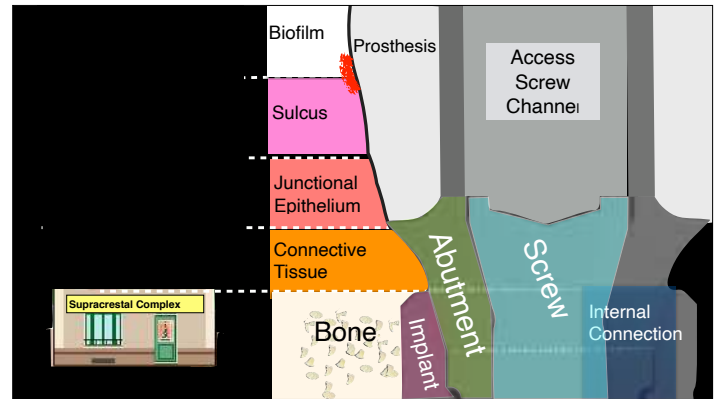
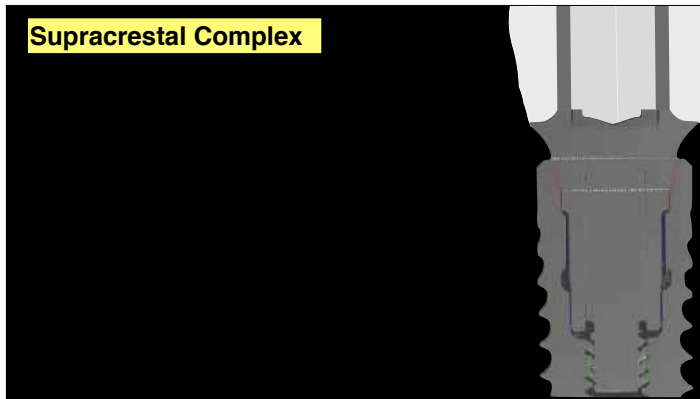
By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

By the way, the technology is still in the early stages of development, but it has the potential to revolutionize space exploration.

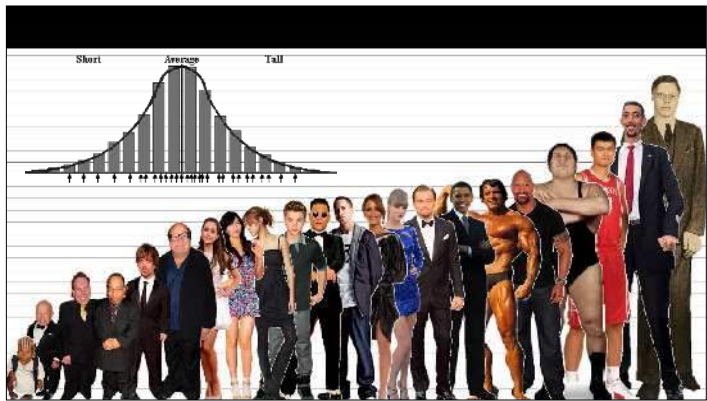
The Cyborg :

"a man-machine system that incorporates exogenous components functioning as an integrated self-regulated homeostatic system"

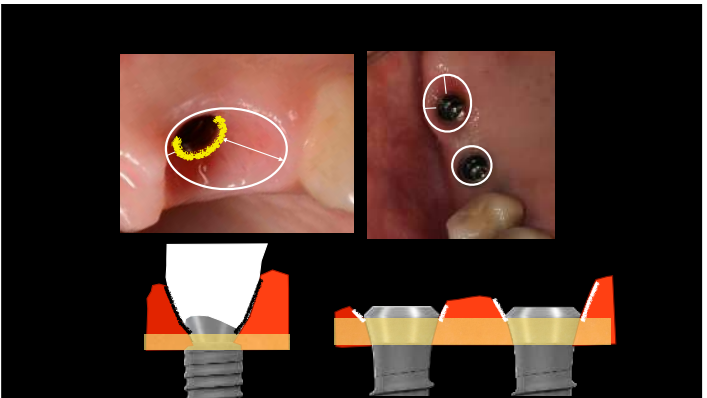
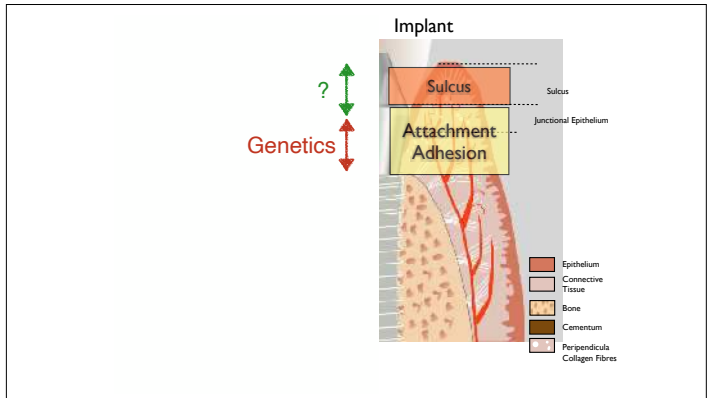


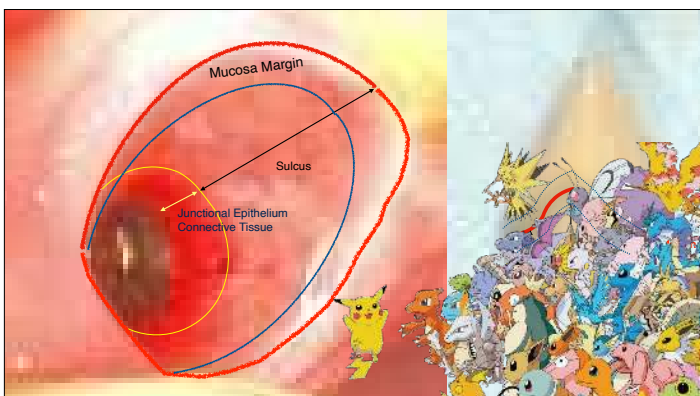
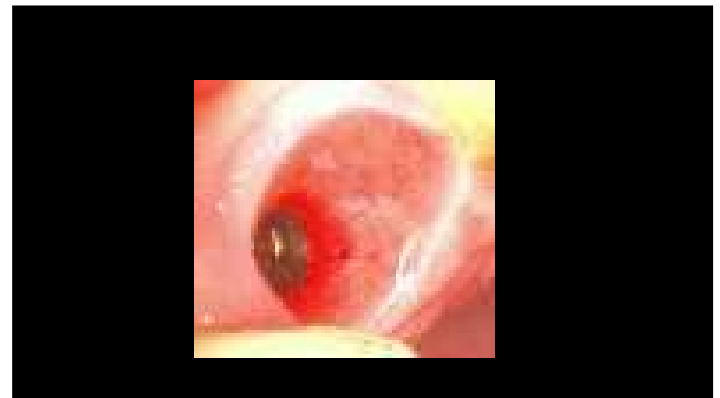
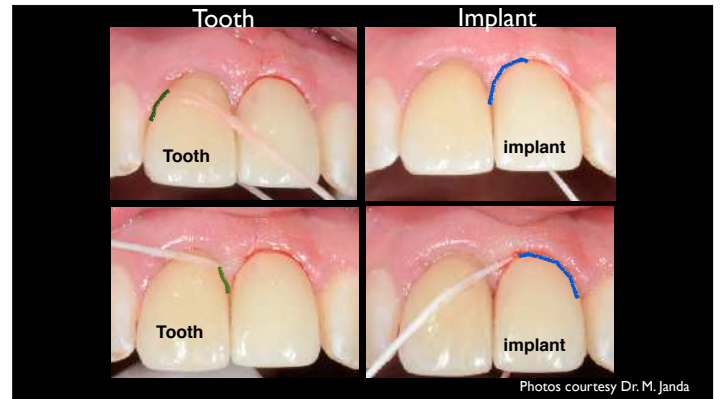
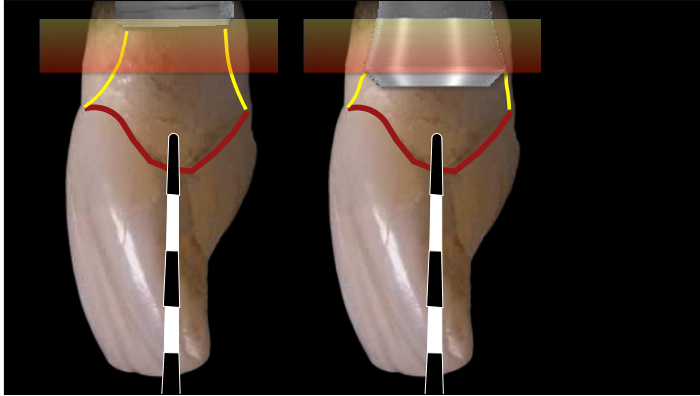
Peri-implant soft tissue height in animals		
	Animal	Total vert. dimension
Quaranta et al 2008	Monkey	3.4-5.3
Todescan et al 2002	Mongrel	2.8-4.3
Berglundh et al 1991	Beagle	3.80
Hermann et al 2001	Foxhound	2.8-3.5
Baffone et al 2013	Labrador	2.5-2.8
Farronato et al 2011	Minipigs	1.9-3.2

Peri-implant soft tissue height in humans				
	Sulcus	JE	CT	Total
Peri-implant Soft Tissue Barrier at Experimental One-Piece Mini-implants with Different Surface Topography in Humans: A Light-Microscopic Overview and Histometric Analysis Quaranta, J. Dent. Res. 2008; 87(10):1155-1161	0.5 (0.1)	2.9 (0.7)	0.7 (0.2)	4.1 (1.3)
CLINICAL ORAL IMPLANTS RESEARCH Quaranta, J. Dent. Res. 2008; 87(10):1155-1161	-	1.6 (0.6)	0.8 (0.7)	2.4 (0.7)
Biologic Width and Morphologic Characteristics of Soft Tissues Around Immediately Loaded Implants: Studies Performed on Human Autopsy Specimens Carlsson, J. Dent. Res. 2005; 84(10):1155-1161	2.7 (0.8)	1.3 (0.4)	2.5 (1.3)	6.5 (2.5)
	1.7 (0.4)	1.5 (0.5)	1.6 (0.4)	4.8 (1.3)
				Max
				Mand



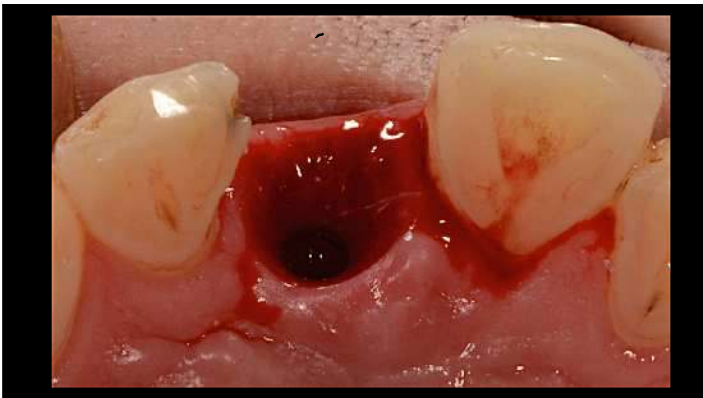
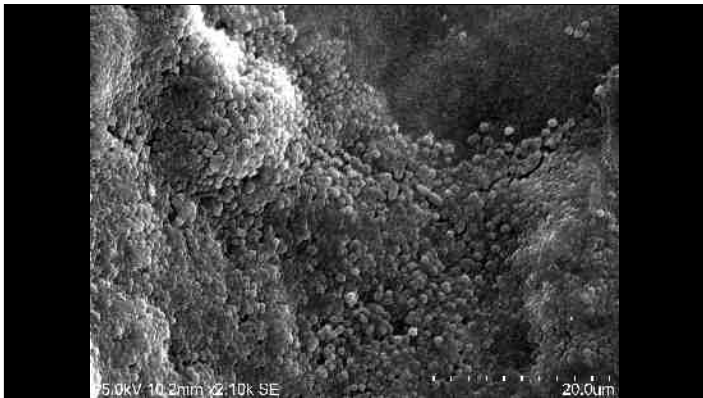
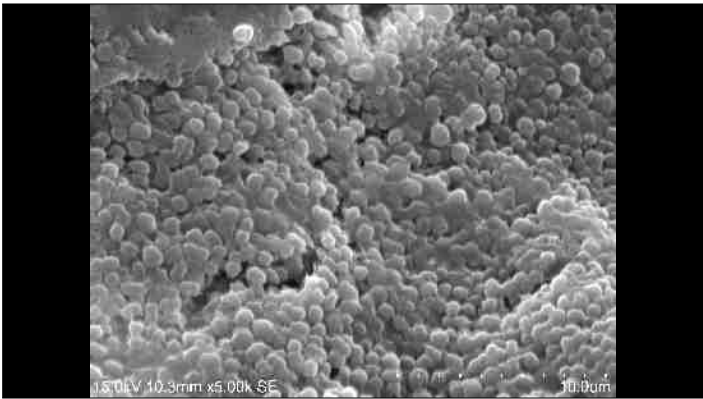
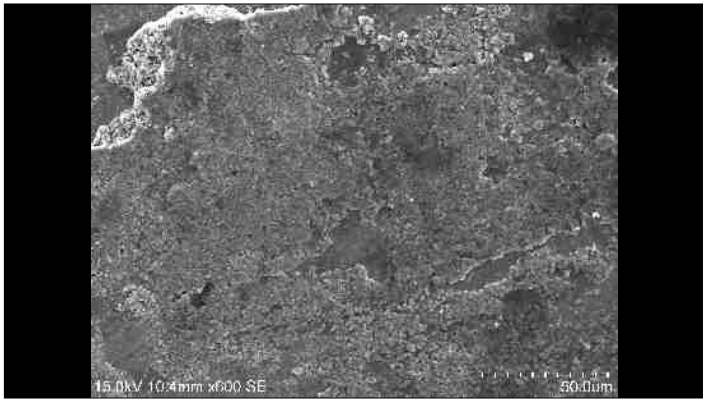
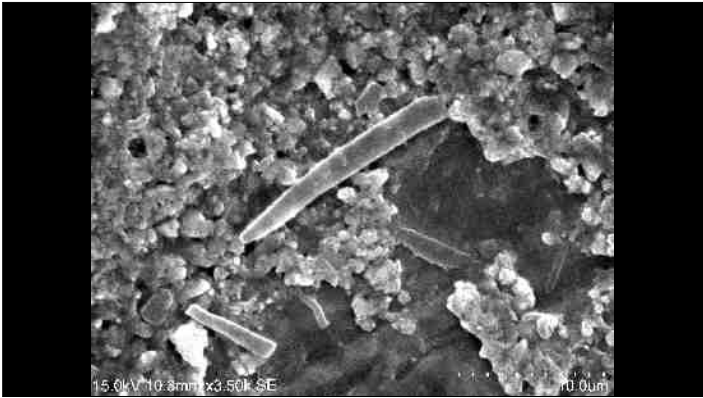
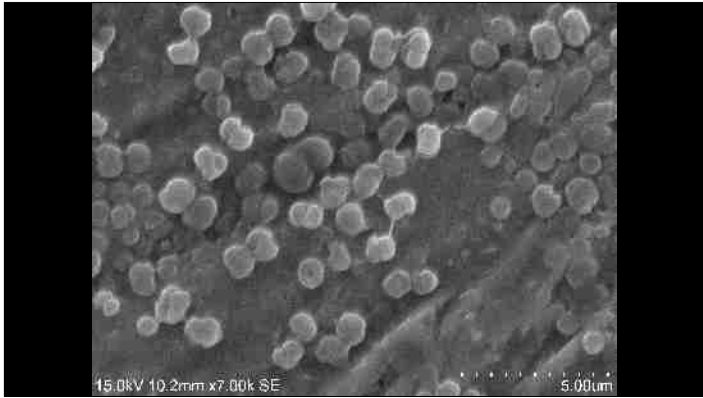
Peri-implant soft tissue height in humans				
	Sulcus	JE	CT	Total
Peri-implant Soft Tissue Barrier at Experimental One-Piece Mini-implants with Different Surface Topography in Humans: A Light-Microscopic Overview and Histometric Analysis Quaranta, J. Dent. Res. 2008; 87(10):1155-1161	0.5 (0.1)	2.5 - 4		4.1 (1.3)
CLINICAL ORAL IMPLANTS RESEARCH Quaranta, J. Dent. Res. 2008; 87(10):1155-1161	-			2.4 (0.7)
Biologic Width and Morphologic Characteristics of Soft Tissues Around Immediately Loaded Implants: Studies Performed on Human Autopsy Specimens Carlsson, J. Dent. Res. 2005; 84(10):1155-1161	2.7 (0.8)			6.5 (2.5)
	1.7 (0.4)			4.8 (1.3)
				Max
				Mand

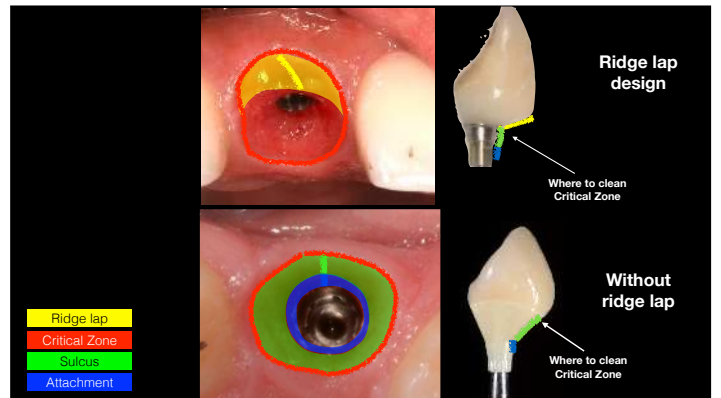
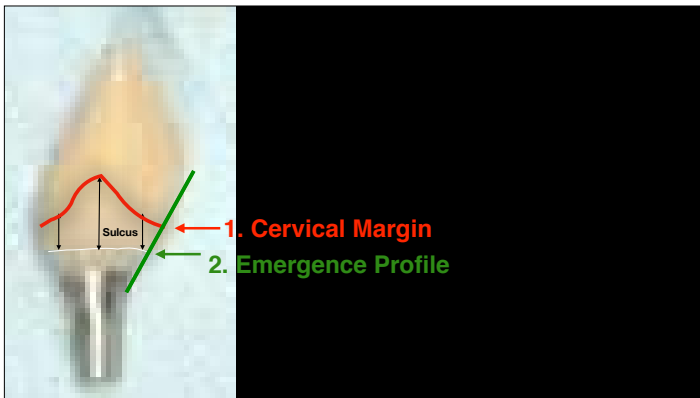
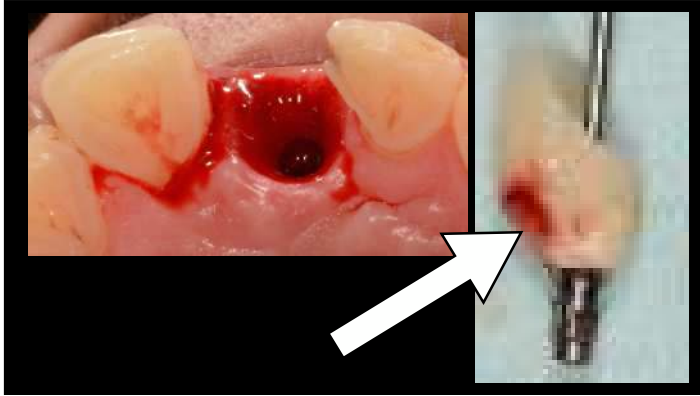


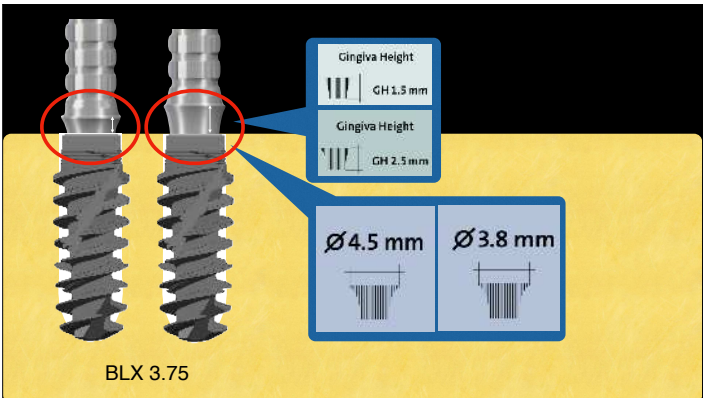
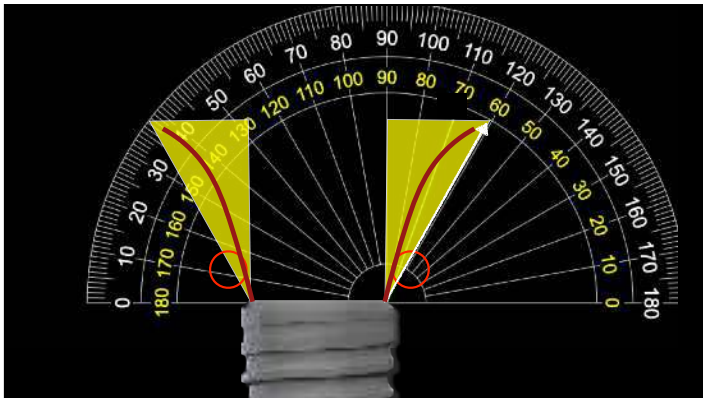
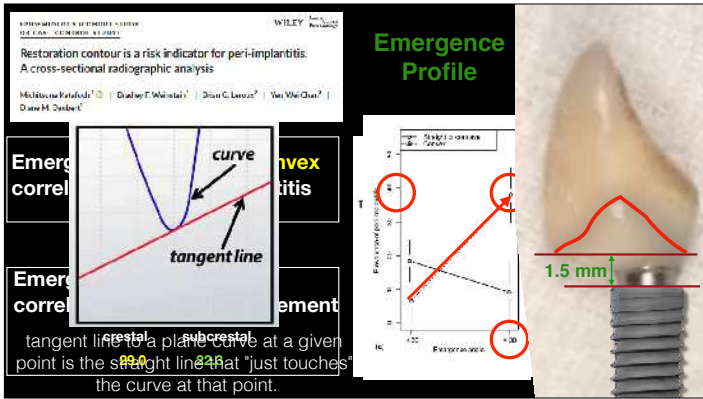
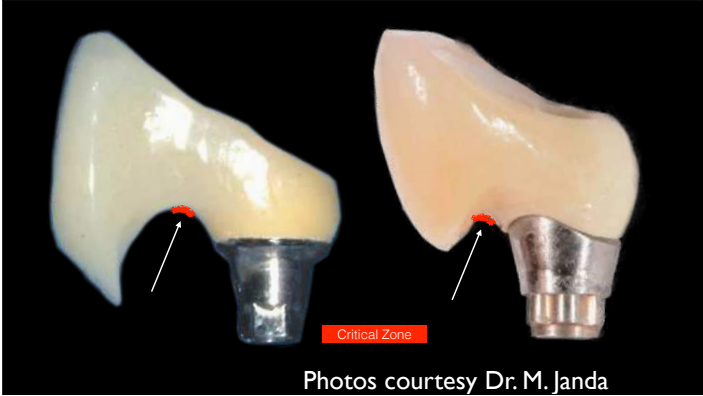


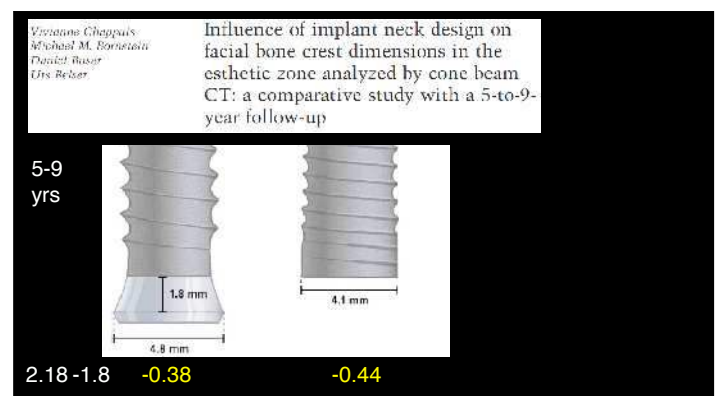
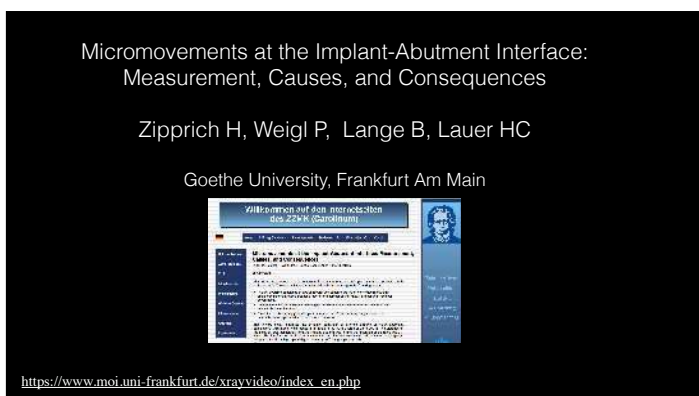
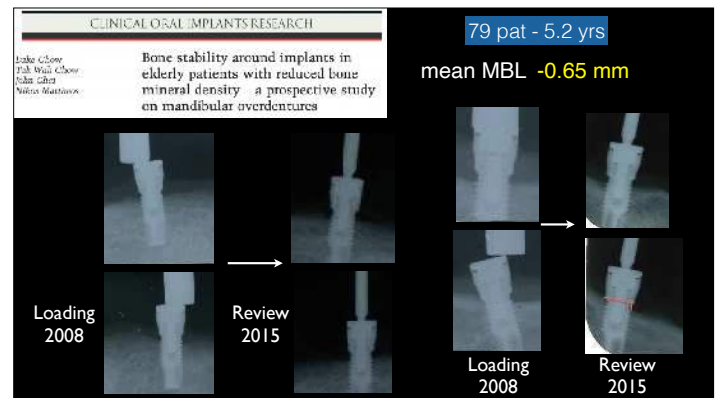
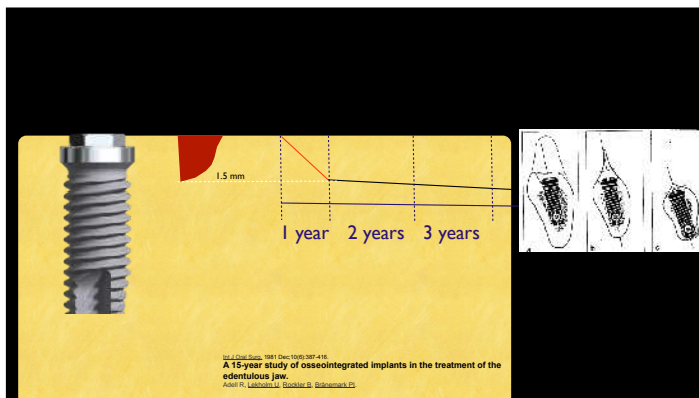
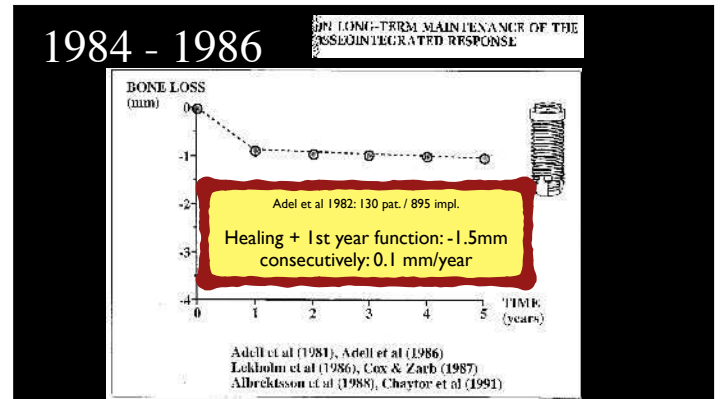
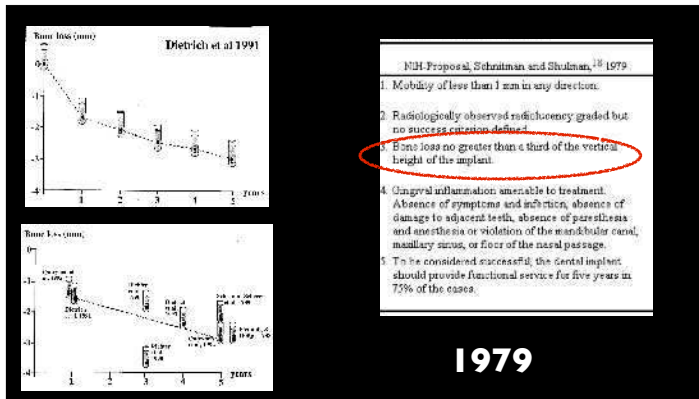
Human Clinical Trials, proving that Plaque accumulation will lead to peri-implant Mucositis, in less than 3 weeks...

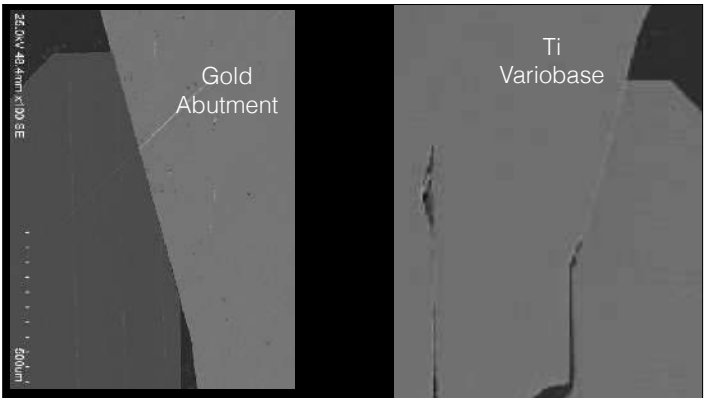
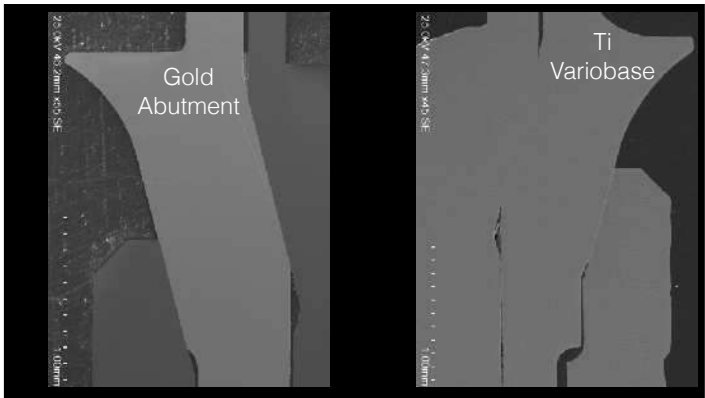
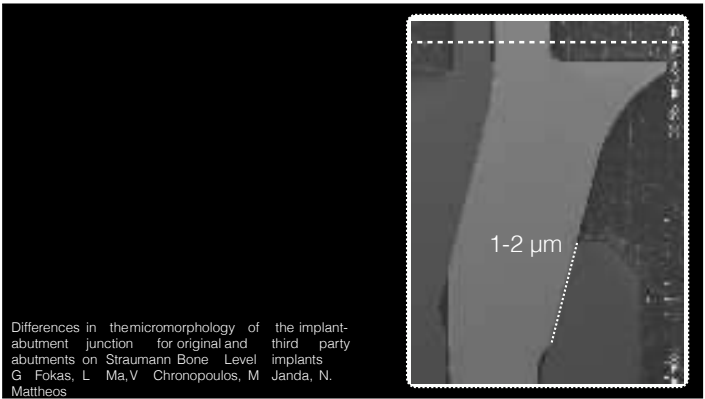
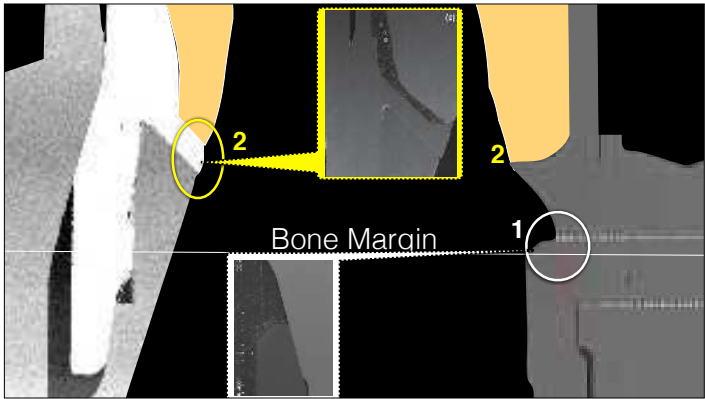
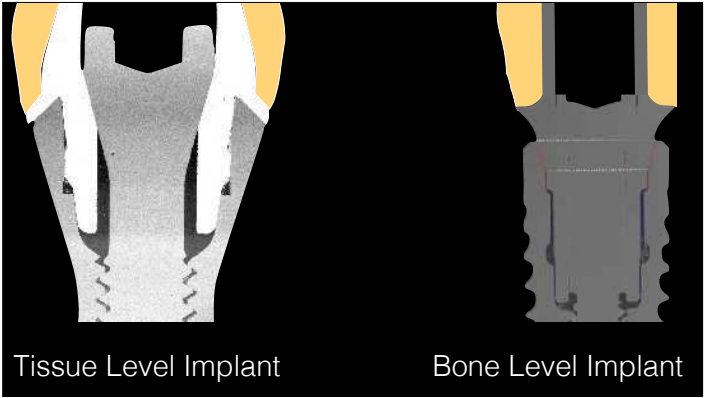
- (1) Clin Oral Implants Res. 1994 Dec;5(4): 254-9. Experimentally induced peri-implant mucositis. A clinical study in humans. Pontoriero, et al.
- (2) J Clin Periodontol. 2001 Jun;28(6):517-23. Experimental peri-implant mucositis in man. Zitzmann et al.
- (3) Clin Oral Implants Res. 2012 Feb;23(2):182-90. Reversibility of experimental periimplant mucositis compared with experimental gingivitis in humans. Salvi et al.
- (4) J Clin Periodontol. 2019 Feb;46(2):248-255. 7. The depth of the implant mucosal tunnel modifies the development and resolution of experimental peri-implant mucositis: A case-control study. Chan D et al

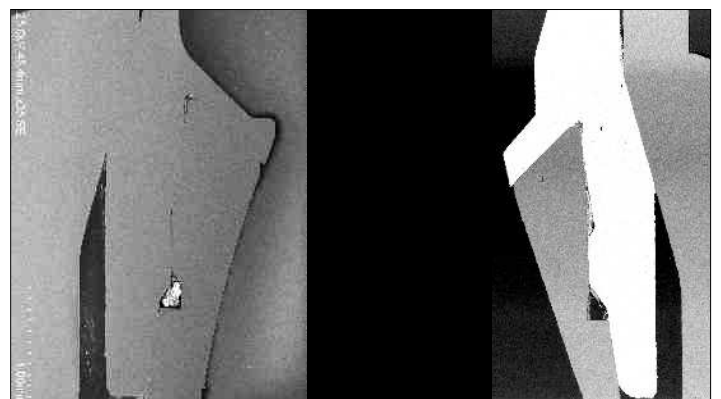
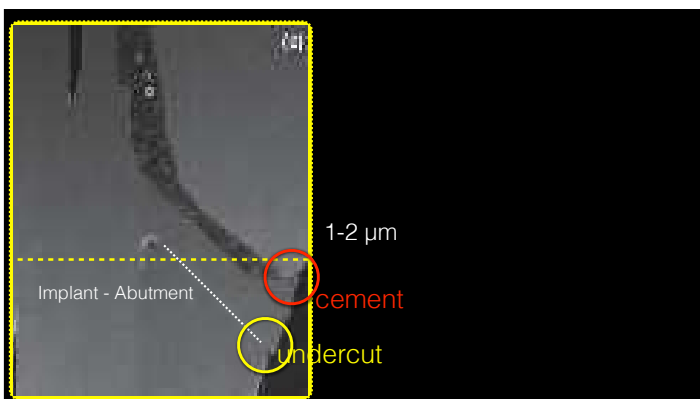
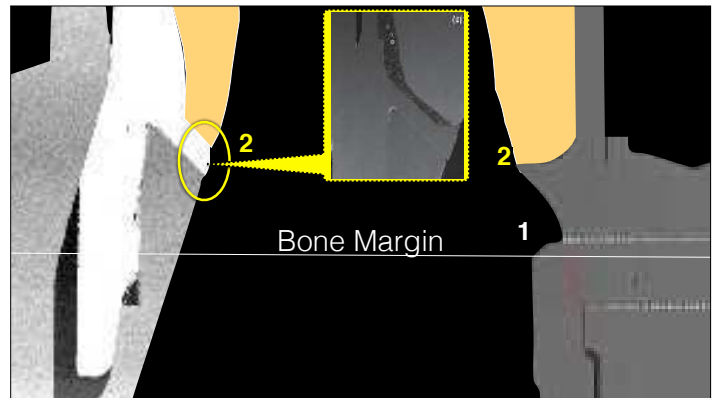
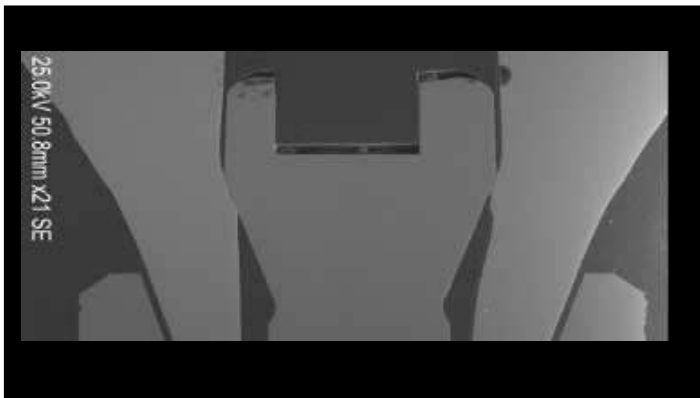
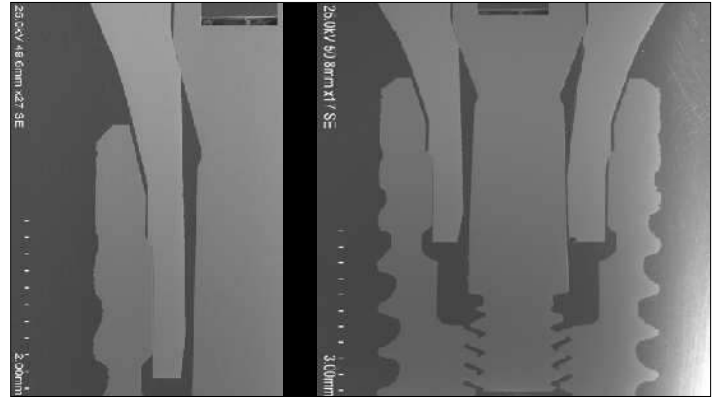
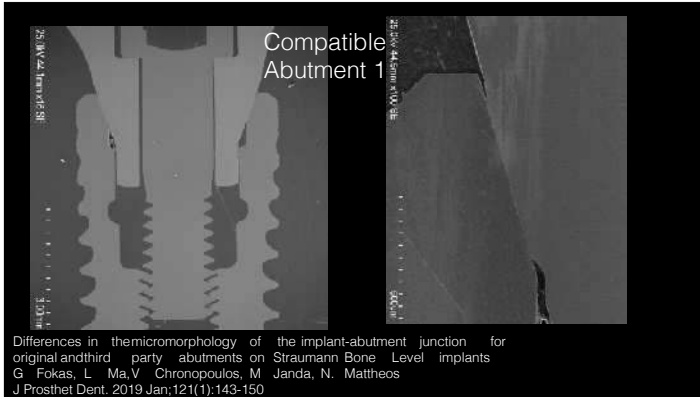


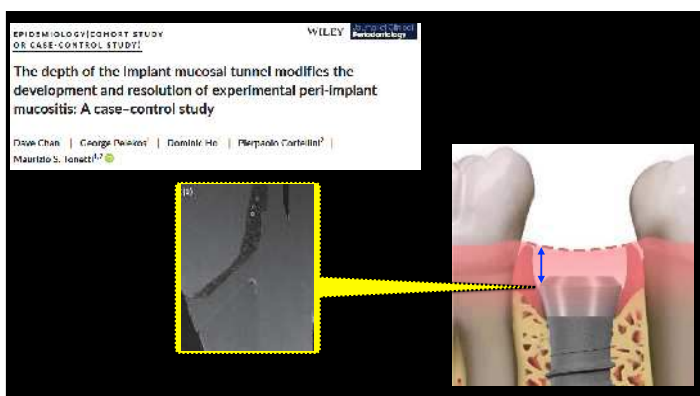
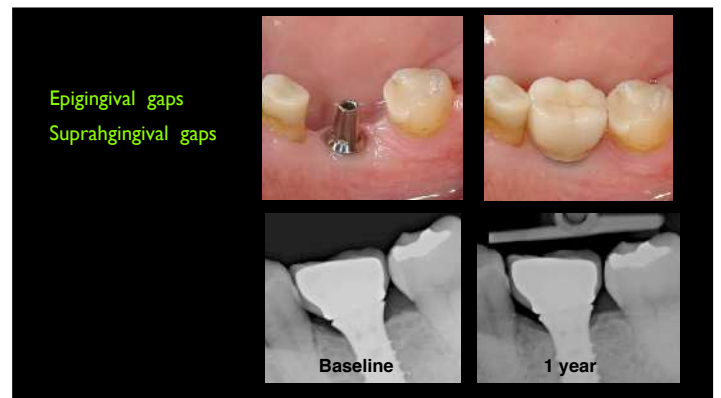
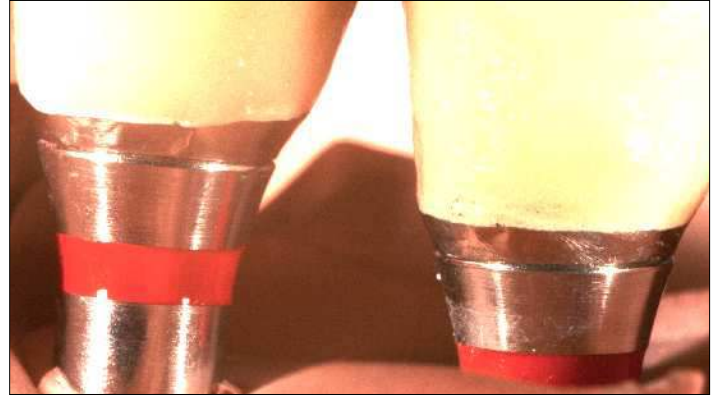


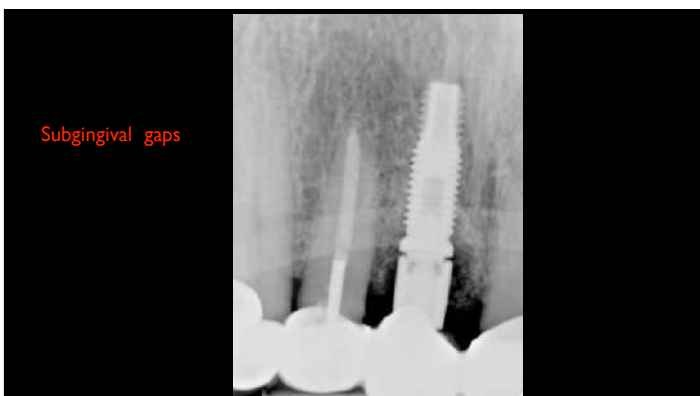
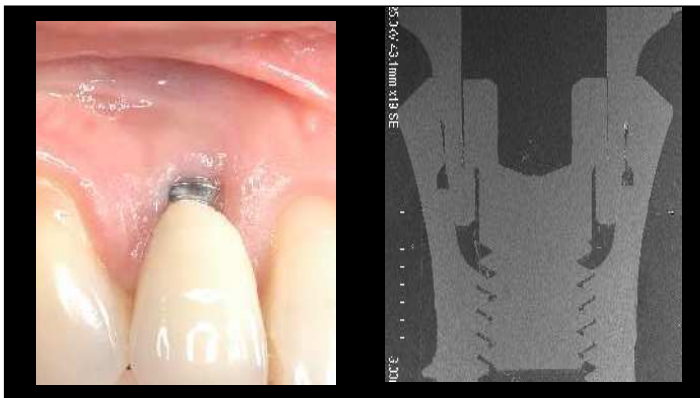












The Supracrestal Complex

☒ **Checkpoint !**

- ☒ Gaps deeper within the Surpacrestal complex can be detrimental in the long term
- ☒ Gaps can be plaque retention points or microleakage channels
- ☒ Selection of the configuration and design of implant and abutment can be critical in the long term success
- ☒ Selection of appropriate components

