OSSTEM IMPLANT

2023 OSSTEM IMPLANT

4th

CONSENSUS REPORT

OSSTEM IMPLANT

2023 OSSTEM IMPLANT **CONSENSUS REPORT**

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Contents

I CHIEF EDITOR Greeting

Dear Directors,

We are delighted to present the 2024 consensus report, reflecting your dedicated efforts and contributions. We express our gratitude to all the directors for their commitment in realizing the annual publication of this booklet from 2021 until now.

After numerous discussions spanning online and offline platforms, we've collated a comprehensive list of 13 consensus issues for the year, touching upon 3 common topics, 6 surgery topics, and 4 prosthodontics topics.

Furthermore, the Osstem Global Consensus Meeting at the end of 2023, has paved the way for Osstem Implant Consensus to capture global interest.

Taking this opportunity, I aspire for uncharted issues and definitions within the realm of dental implants, on both national and international levels, to be clearly defined through profound discussions. Our goal is to transform this gathering and subsequent report into an authoritative resource recognized by dental professionals worldwide.

We hope that the Osstem Global Consensus Meeting, following the Harvard Consensus Conference, Toronto Conference, and ITI Consensus Conference, will become a stepping stone to garner worldwide praise. Once again, we extend our gratitude not only to the directors who actively took part in this Consensus Meeting but also to all those who have subscribed to the Osstem Implant Consensus Report. We trust that this report will, in some small way, enhance comprehension of both your clinical practice and the fundamental principles of dental implantology. We eagerly anticipate your sustained interest in the times ahead.

Osstem Implant Consensus Report
Chief Editor Jo In-ho.

I MEETING Schedule

Duration 2023. March. 13 ~ 2023. December. 17 (Total 8 rounds of times)
Place Seoul Magok Osstem Implant Twin Tower
Annual Schedule

Division	Date and Time
1st meeting	Surgery 1st March. 13 Prosthodontics 1st March. 20
2nd meeting	Surgery 2nd June. 19 Prosthodontics 2nd June. 12
3rd meeting	Common/Surgery 3rd /Prosthodontics 3rd August. 14
4th meeting	Surgery 4th / Prosthodontics 4th October. 23
Announcement of Results	December. 17

Attendees

Part	Director	Title	Name of Dental Clinic
Surgery	Kim Kyoung-Won	Director	Twin Dental Clinic
	Kang Chung-kyu	Director	K-Dental Clinic
	Kwon Young-sun	Director	Seoulsha Dental Clinic
	Kim Yong jin	Director	Woori Dental Hospital
	Kim Jin	Director	MISORO Dental clinic
	Kim Chin-gu	Director	Yonsei 9 Dental Clinic
	Park Jeong-cheol	Director	Hyo Dental Clinic
	Park Chang-joo	Professor	Hanyang University College of Medicine (Dental office)
	Sun shan-pao	Director	Yonsei Tower Dental Clinic
	Son Young-whee	Director	e-Good Dental Clinic
	Yang Seung-min	Professor	Samsung Medical Center
	Oh Sung-hwan	Director	Oseunghwan Healing Dental Clinic
	Lee Dae-hee	Director	Lee Dae-hee Seoul Dental Clinic
	Im Se-ung	Director	The Wise Dental Hospital
	Lim Pil	Director	NY feel Dental Clinic
	Jung Jong-cheol	Director	Sammoa Dental Clinic
	Joo Seong-Chai	Professor	DongGuk University Dept. of Dentistry
	Choi Ho-cheol	Director	Neo Dental Clinic
	Han Se-jin	Professor	Dankook University Dental College
	Hur Yin-shik	Director	Huh Insik Dental Clinic
Prosthodontics	Cho In-ho	Director	Twin Dental Clinic
	Koh Jung-woo	Director	Seoul Plus Dental Clinic
	Kim ki-seong	Director	Namsang Dental Clinic
	Kim Jong-eun	Professor	Yonsei University Dental Hospital
	Kim Hak-hu	Director	Guoldam Dental Hospital
	Noh Gwan-tae	Professor	College & School of Dentistry, Kyunghee University
	Park Jong-hun	Director	Du-ri dental Clinic
	Park Hwee-woong	Director	Seoul Ace Dental Clinic
	Bae Jung-in	Director	Seoul Gangnam Dental Clinic
	Shin Hyung-kyun	Director	Seoul Orthodontic Clinic
	Lee Soo-young	Director	Seoul Line Dental Clinic
	Lee Jun-seok	Professor	Dankook University Dental Hospital
	Jeon Jin	Director	Seoul Samsung Dental Clinic
	Cho Young-jin	Director	Seoul Deep-rooted Dental Clinic
	Joo Hyun Chul	Director	Seoul S Dental Clinic

Common part

Common part

Issue 1

(1) What is the general insertion torque value for implant placement?
(2) What is the insertion torque value for immediate loading and the locking torque of the upper abutment screw?

Consensus 1

(1) It is recommended that the minimum implantation torque should exceed 20Ncm, and the maximum implantation torque should not exceed 50Ncm(Based on TSIII implant placement in normal bone).

(2) In case of Immediate loading, a 40~50Ncm torque value is recommended, and a locking torque of the upper abutment screw is recommended to be 15~20Ncm.

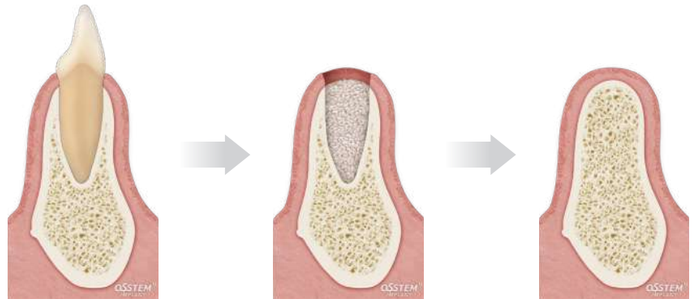
Reference
Presented by Dr. Cho In-ho

Issue 2

Which term do you prefer to use between 'socket preservation' or 'ARP(Alveolar Ridge Preservation)', to describe how to preserve the soft and hard tissues at the site of future implant placement by managing the socket after extraction?

Consensus 2

The term 'socket preservation' will be used primarily to refer to the method of preserving the soft and hard tissues of the future implant placement site by managing the socket after extraction, with the term 'ARP(Alveolar Ridge Preservation)' used interchangeably. The term 'socket preservation' is mainly used in North America, and the term 'ARP(Alveolar Ridge Preservation)' is mainly used in Europe.



Socket preservation = ARP(Alveolar Ridge Preservation)

Reference
Presented by Pf. Park Chang-joo

Issue 3

Should complication's troubleshooting data and countermeasures be covered by Osstem Example?

Consensus 3

It is concluded that data on complication's troubleshooting and how to deal with it should be covered by Osstem Example's Curriculum Day 7, session 1, titled with Implant maintenance.
In addition, it is concluded to generate and distribute Consent Form of Implant Surgery for the purpose of clinical treatment.

Reference — **Presented by Pf. Yang Seung-min, Dr. Shin Hyung-kyun**

• Federal Trade Commission (FTC). Standard Terms and Conditions of Consent for Implant Surgery. No. 10071

Surgery part

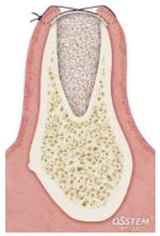
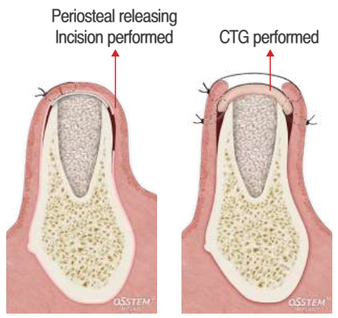
Surgery part

Issue 1

How to differentiate socket preservation protocol?

Consensus 1

Socket preservation = ARP(Alveolar Ridge Preservation) protocol can be performed by exposing the membrane or by primary closure(periosteal releasing incision or CTG).
Indications and contraindications for each protocol will be discussed later.

Exposing the membrane	Primary closure
	

Reference

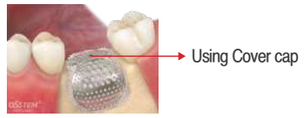
Presented by Pf. Yang Seung-min

Issue 2

How to differentiate the GBR(or OssBuilder used) surgery protocol?

Consensus 2

The two types of GBR(or OssBuilder used) surgery are as follows;
Submerged GBR and non-submerged GBR(=Transmucosal GBR).
Indications and contraindications for each procedure will be discussed later.

	Submerged GBR	Non-Submerged GBR (=Transmucosal GBR)
GBR Surgery		
OssBuilder Surgery		

* In the case of surgery using OssBuilder, additional collagen membrane may be required.

Reference

Presented by Pf. Yang Seung-min

Issue 3

What is the best terminology for a medical guide device to guide the placement, direction, and depth of an implant? Surgical guide, OneGuide template, or Template

Consensus 3

The term 'OneGuide template' refers to a medical guide device to guide the position, direction, and depth of an implant.

Reference

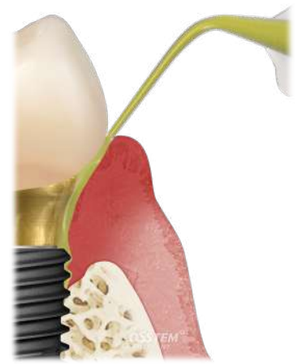
Presented by Dr. Kim Kyoung-won

Issue 4

How to proceed antibiotic therapy during Peri-implantitis treatment?

Consensus 4

Treatment of peri-implantitis involves mechanical debridement(cleaning) followed by antibiotic therapy, and antibiotic therapy can be systemic or topical.
A number of evidences have suggested that topical antibiotic therapy is effective against peri-implantitis.
Mechanical debridement(cleaning) needs further discussion.



Reference

Presented by Pf. Yang Seung-min

• Pier Carmine Passarelli, et. al. Local/Topical Antibiotics for Peri-Implantitis Treatment:A Systematic Review. Antibiotics 2021, 10, 1298

• Manuel Toledano-Osorio, et. al. A Systematic Review and Meta-Analysis of Systemic Antibiotic Therapy in the Treatment of Peri-Implantitis. Int. J. Environ. Res. Public Health 2022, 19, 6502

• Giovanni Boccia, et. al. Local and Systemic Antibiotics in Peri-Implantitis Management: An Umbrella Review. Antibiotics 2023, 12, 114

Issue 5

How to present the treatment protocol depending on the defect classification of the GBR part?

Consensus 5

The defect classification of GBR part is categorized into type 1-4 based on implant placement(including cases where implants cannot be placed), and then treatment protocol for each type is presented.

1) Type 1 : Contour defect

Ridge appearance defects is found,
but standard bone that allows
implant placement exist.

- Treatment protocol
  : Alveoloplasty
  : Buccal volume augmentation(With collagenated bone graft material)

Consensus 5

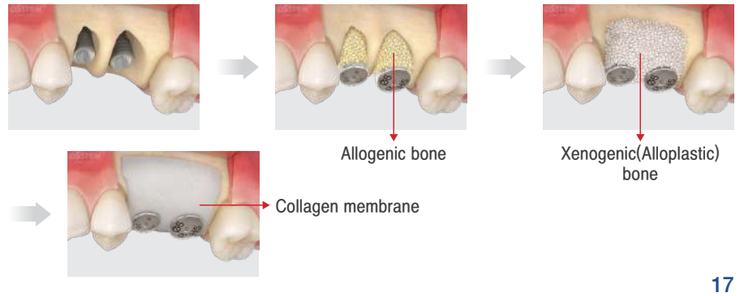
2) Type 2 : Extraction socket wound

① Type 2-a : Intact surrounding bony wall

- Treatment protocol
  : Immediate implant placement
  : Internal socket graft with allogenic bone graft

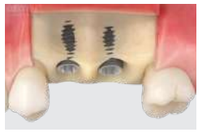
② Type 2-b : Presence of bony wall defect

- Treatment protocol
  : Immediate implant placement
  : Internal socket graft with allogenic bone
  + External socket graft with xenogenic(alloplastic) bone
  : Graft site stabilization with collagen membrane



3) Type 3 : Dehiscence & fenestration defect

① Type 3-a : Contained defect



Graft can be supported by adjacent bony structure

- Treatment protocol
  : Defect must be repaired using xenogenic(alloplastic) bone
  : Graft site stabilization with collagen membrane
  : Membrane stabilization is essential


Xenogenic(Alloplastic) bone


Collagen membrane

② Type 3-b : Non-contained defect

Graft can not be supported by adjacent bony structure

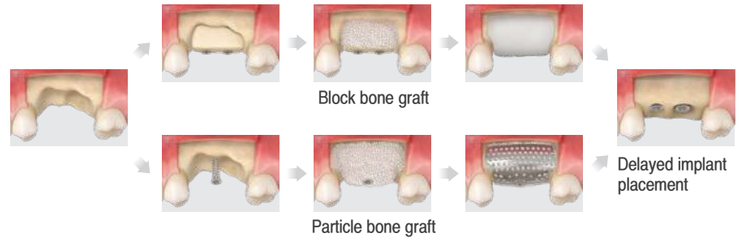
- Treatment protocol
  : Defect must be repaired using xenogenic(alloplastic) bone
  : Graft site stabilization with rigid membrane
  : Membrane stabilization is essential


Xenogenic(Alloplastic) bone
Ridge membrane

4) Type 4 : Compound defect(NSIP defect)

Compound defect(horizontal & vertical), not suitable for implant placement

- Treatment protocol
  : Augmentation GBR procedure first, using block bone or particle bone
  : Graft site stabilization with rigid membrane
  OssBuilder or collagen membrane with bone tack(such as sausage technique)
  : Delayed implant placement


Block bone graft
Delayed implant placement
Particle bone graft

Reference

Presented by Dr. Son Young-whee, Park Jeong-cheol, Park Chang-joo(Pf.), Kim Yong jin, Kim Chin-gu

- Carlo Tinti, Stefano Parma-Benfenati. Clinical Classification of Bone Defects Concerning the Placement of Dental Implants. Int J Periodontics Restorative Dent. 2003 Apr;23(2):147-55
- Giovanni Zucchelli, et. al. Soft-tissue augmentation procedures in edentulous esthetic areas. Periodontology 2000. 2018 Jun;77(1):111-122
- Goran I Benic, Christoph H. F. Hämmerle. Horizontal bone augmentation by means of guided bone regeneration. Periodontology 2000. 2014 Oct;66(1):13-40
- Guideline: Cologne Classification of Alveolar Ridge Defects. 8th European Consensus Conference of BDIZ EDI. 2013; 2-10

Issue 6

What is the indication and when is the surgery timing of APF(Apically Positioned Flap), FGG(Free Gingival Graft), and CTG(Connective Tissue Graft)?

Consensus 6

The indication and timing APF(Apically Positioned Flap), FGG(Free Gingival Graft), and CTG(Connective Tissue Graft) are summarized based on placement timing in the healed site as below.
In the future, the indications and timing of APF, FGG, and CTG based on the term 'AM(Attached Mucosa)' and immediate placement need to be further discussed.

	APF (Apically Positioned Flap)	FGG (Free Gingival Graft)	CTG (Connective Tissue Graft)
Indication	AM increased	AM increased	Soft Tissue Volume increased
When to perform surgery	Upon second surgery after GBR	- Before implant placement - During implant healing time - When connecting Abutment	- Before implant placement - During implant healing time - When placing implants - When connecting Abutment

Reference

Presented by Pf. Yang Seung-min

Prosthodontic part

Prosthodontic part

Issue 1

What is the minimum thickness for each material required for fabricating implant prosthesis?

Consensus 1

The minimum thickness for each material may vary depending on the situation, but in general, it is considered to be Gold 1mm, PFM 1.5mm, Zirconia 1mm, and Glass ceramic 1.5mm.

Material	Gold	PFM	Zirconia	Glass ceramic
Minimum Thickness	1mm	1.5mm	1mm	1.5mm

Reference

Presented by Dr. Lee Soo-young

Issue 2

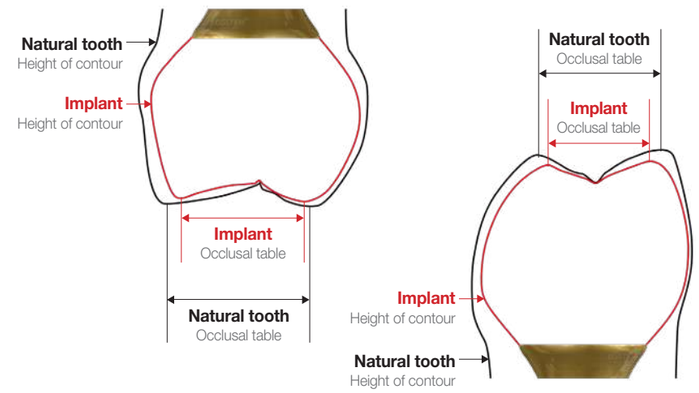
What is the appropriate occlusal table size of the crown for fabricating implant prosthesis?

Consensus 2

The height of contour and the occlusal table of Implant should be distinguished.
It should be kept similar to the natural tooth since the occlusal table of implant crown and natural teeth is not significantly different, but it can be reduced as follows;

(1) B-L width

- If the basal bone width is sufficient, no reduction is required
- If the basal bone width is insufficient, both height of contour and occlusal table should be reduced by less than 20% in only molar implant crown

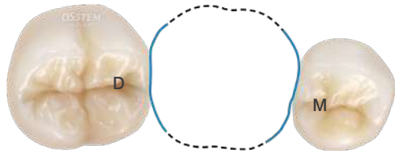


Consensus 2

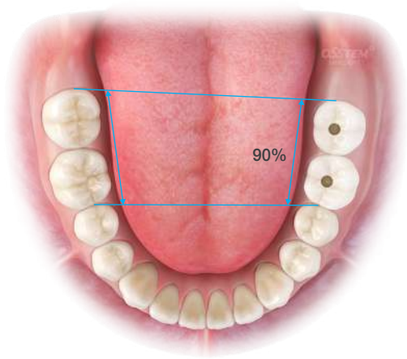
Since the occlusal table of implant crown and the natural tooth are not significantly different, it should be kept similar to the natural tooth, but it can be reduced as shown below.

(2) M-D Width

- M-D Width is naturally determined in the area of the tooth support defect



- In the free end case, it is appropriate for the occlusal table to be reduced by about 10% only in molars



Reference

Presented by Dr. Cho Young-jin

- Hasan Sarfaraz, et. al. A three-dimensional finite element analysis of a passive and friction fit implant abutment interface and the influence of occlusal table dimension on the stress distribution pattern on the implant and surrounding bone. The Journal of Indian Prosthodontic Society. 2015 Jul-Sep;15(3)
- L G Bakaeen, et. al. The effect of implant diameter, restoration design, and occlusal table variations on screw loosening of posterior single-tooth implant restorations. Journal of Oral Implantology. 2001;27(2):63-72
- Mei Mei, et. al. Influence of reducing buccolingual width of artificial crown of implant prosthesis on distribution of biting force and masticatory efficiency. Zhonghua Kou Qiang Yi Xue Za Zhi. 2012 May;47(5):264–7

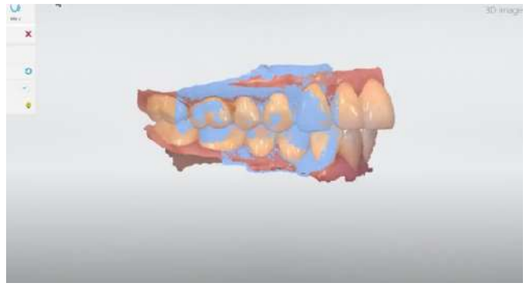
Issue 3

In digital prosthodontics, should the full arch be scanned in a small number of unilateral cases?

Consensus 3

Unilateral scans are recommended for small spans, as performing scanning for long period of time can degrade accuracy as data accumulates during the stitching process.

However, you can also add a full arch scanning if you need same tooth and accurate maxilla and mandibular occlusal relation.



Reference

Presented by Pf. Kim Jong-eun

- Guth, M. et. al. Accuracy of intraoral scanners for full-arch impressions: a systematic review and meta-analysis. Clinical oral investigations 20.3 2016: 477-489
- Wesermann, T. et. al. Accuracy of digital impression systems in prosthodontics: a systematic review and meta-analysis. Quintessence international 48.6 2017: 545-556

Issue 4

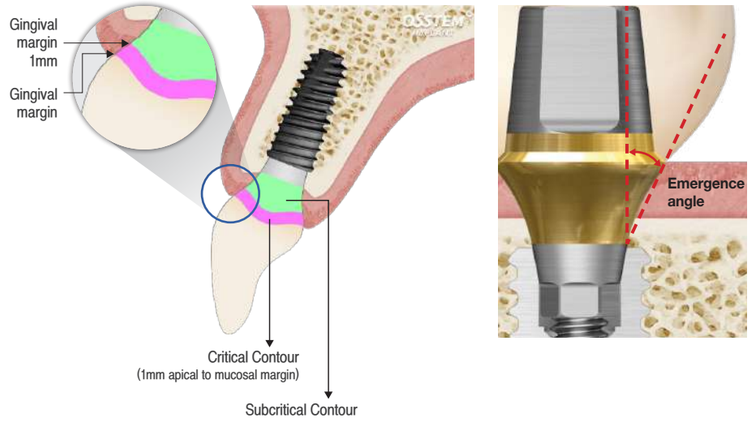
What is the appropriate emergence profile and angle in implant prosthetics?

Consensus 4

The emergence profile is recommended to be concave in the deep gingival margin and convex S-line from 1mm below the gingival margin.

* If the abutment cuff is lengthened due to the deep depth of implant placement, it is recommended to realize straight up design and then concave – convex shaped design.

Emergence angle is recommended not to exceed 30°.



Reference

• Michitsuna Katafuchi, et. al. Restoration contour is a risk indicator for peri-implantitis:A cross-sectional radiographic analysis. Journal of Clinical Periodontology. 2018; 45(2): 225–232

• André Barbisan Souza, et. al. Histological and micro-CT analysis of peri-implant soft and hard tissue healing on implants with different healing abutments configurations. Clinical Oral Implants Research 2018; 29(10):1007-1015

Presented by Dr. Park Jong-hyun

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