

Consensus Conference Panel Report: Crown-Height Space Guidelines for Implant Dentistry—Part 2

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According to the consensus panel, excessive crown height space (CHS) conditions relate to a CHS that is more than 15 mm. An increased CHS of more than 15 mm is primarily a result of the vertical loss of alveolar bone from long-term edentulism. Other causes include genetics, trauma, and implant failure.

Treatment of excessive CHS before implant placement includes orthodontic and/or surgical methods. Orthodontics in partially edentulous patients is the method of choice because other surgical or prosthetic methods are usually more costly and have higher risks of complications. Several surgical techniques may also be considered, including block onlay bone grafts, particulate bone grafts with titanium mesh or barrier membranes, interpositional bone grafts, and distraction osteogenesis. A staged approach to reconstruction of the jaws is often preferred to simultaneous implant placement, especially when large vol-

The International Congress of Oral Implantologists sponsored a consensus conference on the topic of Crown Height Space on June 26–27, 2004 in Las Vegas, Nevada. The panel communicated on several occasions before, during, and after the meeting, both as a group and among individuals. A consensus of one opinion was not developed for most issues.

*However, general guidelines emerged related to the topic. The following article is Part 2 of a summary of several of the guidelines that should be of benefit to the profession at large. (Part 1 appeared in *Implant Dentistry* 2005;14:312–321.) (*Implant Dent* 2006;15:113–121)*
Key Words: *interarch space, crown height, implant treatment plans, implant prosthetics*

ume gains are required. Significant vertical bone augmentation may even require multiple surgical procedures.

Distraction osteogenesis has several advantages over onlay bone grafting techniques for vertical bone growth. Vertical bone gains are not limited by factors such as graft size or expansion of the existing soft tissue volume. There is no donor site morbidity, and the surgery may be performed in an office setting. However, distraction requires patient compliance, and bone volume gains are unidirectional. In addition, clinical studies on distraction osteogenesis have found that secondary bone augmentation procedures are often required for dental implant placement.^{20,21} C.M. Misch has presented a unique approach to plan intentionally a combined use of vertical distraction and horizontal onlay bone grafting to 3 dimensionally reconstruct the deficiency. Osseous distraction is performed first to increase vertically the ridge and expand the soft tissue volume. Second, an onlay bone graft is used the complete the repair of the defect (Figs. 1–8).

If too much CHS is present, bone augmentation may be preferred to prosthetic replacement. Surgical augmentation of the residual ridge height will reduce the CHS and improve implant biomechanics. Augmentation will often permit the placement of wider body implants with the associated benefit of increased surface area. Prosthetics is the most common method to treat excess CHS but should be the last option used. Gingival colored prosthetic materials (pink porcelain or acrylic resin) on fixed restorations or changing the prosthetic design to a removable restoration should often be considered when restoring excessive CHS.

In the maxilla, a vertical loss of bone results with the ridge positions also more palatal. As a consequence, implants are often inserted more palatal than the natural tooth position. Removable restorations have several advantages under these clinical situations. The removable prosthesis does not require embrasures for hygiene. The removable restoration may be removed during sleep to decrease the effects of an increase in

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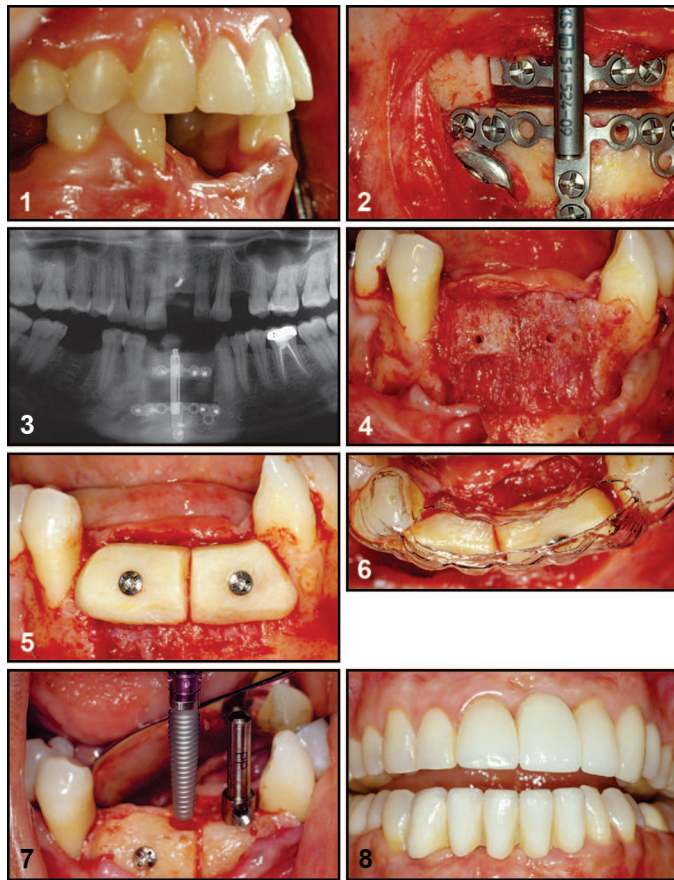


Fig. 1. Craig M. Misch has presented a unique approach to bone augmentation by combining vertical distraction and horizontal onlay bone grafting to reconstruct 3-dimensional deficiencies. This figure shows a deficient anterior mandible. Reprinted with permission from C.M. Misch.

Fig. 2. A vertical distractor is positioned for the augmentation procedure. Reprinted with permission from C.M. Misch.

Fig. 3. A panoramic radiograph of the patient with the distractor in position. Reprinted with permission from C.M. Misch.

Fig. 4. This distractor is removed after the vertical augmentation. Reprinted with permission from C.M. Misch.

Fig. 5. An onlay bone graft is positioned on the ridge to augment the site horizontally. Reprinted with permission from C.M. Misch.

Fig. 6. A surgical template shows the block graft in place. Reprinted with permission from C.M. Misch.

Fig. 7. After ≥ 4 months of bone maturation, the implants are inserted into the grafted site. Reprinted with permission from C.M. Misch.

Fig. 8. A transitional restoration is positioned on the endosteal implants. Reprinted with permission from C.M. Misch.

CHS on nocturnal parafunction. The removable restoration may improve the lip and facial support, which is decreased from the advanced bone loss. The overdenture may have sufficient bulk of acrylic resin to decrease the risk of prosthesis fracture. The increase in CHS permits denture tooth placement without infringing of the substructure.

Removable implant restorations with an excessive CHS should consider some soft tissue support when the implant support system is not

overengineered. A rigid overdenture requires the same considerations for support as a fixed prosthesis because it is rigid during function. Misch²² describes the “hidden cantilever” beyond the cantilevered bar with a rigid implant overdenture. When the overdenture does not have movement during function, the cantilever does not stop at the end of the cantilevered substructure but ends at the last occlusal contact position on the prosthesis, often the distal of a second molar.

The position and type of overdenture attachments may render a rigid overdenture during function, even when distal cantilevers do not exist on the substructure. For example, when 3 anterior implants are splinted together and a Hader clip is used to retain the prosthesis, if the Hader clips are placed at angles to the midline, the attachments have limited movement and result with a rigid overdenture during function. Misch²² suggests that the prosthesis movement, not the individual attachment movement, should be evaluated. Excessive CHS with overdentures should often consider more than 1 direction of prosthesis movement.

According to M. Marinbach, there are 2 crown height considerations with removable prostheses that have some mobility and soft tissue support. The first is the crown height of the attachment system to the crest of the bone. The higher the crown height distance, the more the forces applied to the bar, screws, and implants. The second CHS to consider is the distance from the attachment to the occlusal plane. This crown height represents the increase in prosthetic forces applied to the attachment. Therefore, an O-ring may be 7 mm from the crest of bone, resulting in a lever action of 7 mm applied to the implants. The distance from the rotation point of the O-ring to the occlusal plane may be 8 mm. Under these conditions, a higher lever action to the prosthesis exists than to the implant interface and results in increased instability of the restoration during lateral forces.

The ideal CHS for a fixed prosthesis is between 8 and 12 mm. This dimension allows an ideal 3 mm of soft tissue, 2 mm of occlusal or porcelain thickness, and a ≥ 5 mm height for the abutment. A CHS of >15 mm may be of concern in fixed restorations. The replacement teeth are elongated and often need the addition of gingival tone materials in esthetic regions. There are higher impact forces on implants compared with teeth, and coupled with an increased crown height, result in increased moment forces on implants and increased risk of component and material fracture. These problems are especially noted when associated with less favorable biome-

chanics on cantilevered sections of fixed restorations.

A CHS of more than 15 mm means a large amount of metal must be used in the substructure of a traditional fixed restoration to keep porcelain to its ideal 2-mm thickness. Fine tuning techniques for traditional fixed restorations allowed T. Dabrowsky to manufacture and monitor a multiple full-mouth cement retained prosthesis with a large CHS, delivered in various centers across United States. He confirms that a CHS of more than 15 mm requires a large amount of metal to support properly a uniform porcelain layer at its ideal 2-mm thickness.

Controlling surface porosities of metal substructures after casting as their different parts cool down at different rates becomes increasingly difficult. Furthermore, when the casting is reinserted into the oven to bake the porcelain, the heat is maintained within the casting at different rates, so the porcelain cools down in different regions at different rates.²³ If not controlled properly, both of these factors increase the risk of porcelain fracture after loading.²⁴ For excessive CHS, considerable weight of the prosthesis (approaching 3 oz of alloy) may affect maxillary trail placement appointments because the restoration does not remain in place without the use of adhesive. Because noble metals must be used to control alloy's heat expansion or corrosion, costs of such implant restorations are dramatically increased. Proposed methods to produce hollow frames to alleviate described problems or the use of special custom trays to achieve the passive fit of similar screw retain porcelain to metal restorations, double or triple the labor costs.²⁵

An alternative method to fabricate fixed prostheses in interarch situations ≥ 15 mm is the fixed complete denture or hybrid prosthesis, with a smaller metal framework, denture teeth, and acrylic resin to join these elements together. The reduced metal framework compared to a porcelain to metal fixed prosthesis has less dimensional changes and may more accurately fit the abutments, which is important for a screw-retained restoration. It is less expensive to fabricate than a porcelain to metal fixed prosthesis, is highly esthetic (premade denture teeth), easily

replaces teeth and soft tissue in appearance, and is easier to repair if fracture occurs. Because resin acts as an intermediary between the teeth and metal substructure, the impact force during dynamic occlusal loading may also be reduced. Therefore, this type of fixed prosthesis is often indicated for implant restoration of a large CHS case. On occasion, undercontoured interproximal areas are designed by the laboratory in restorations of large CHS to assist oral hygiene and have been referred to as a "high water" restoration. This is an excellent method in the mandible, however, it results in food entrapment, affects air flow patterns, and may contribute to speech problems in the anterior maxilla.

REDUCED CHS

Less than ideal space for prosthetic replacement of the dentition may be caused by several factors, including skeletal discrepancies (deep bite), a reduced vertical dimension of occlusion from attrition or abrasion, minimal bone atrophy following tooth loss, and supra-eruption of unopposed teeth. Traditional prosthetic and restorative procedures are indicated to restore the proper occlusal vertical dimension (OVD) and plane of occlusion. However, on occasion, even when the opposing arch is corrected, the CHS may still be inadequate ($I < 8$ mm). The 8-mm requirement for CHS consists of 2-mm occlusal material space, 4-mm abutment height, and 2 mm above the bone for the biologic width dimension.

The OVD may be increased by orthodontics in partially edentulous patients and is the preferred method. This process may also require a surgical component with orthognathic surgery, such as a LeFort I osteotomy and superior repositioning. Prosthetics is the most common method used. However, this procedure often requires treatment of at least 1 entire arch.

When the opposing teeth are in the correct position and the CHS is insufficient, additional space may be gained surgically with osteoplasty and soft tissue reduction of 1 arch, provided adequate bone height remains after the procedure for predictable implant placement and prosthetic sup-

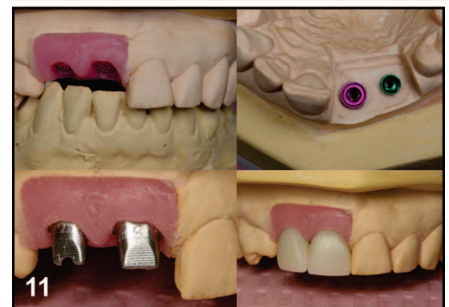
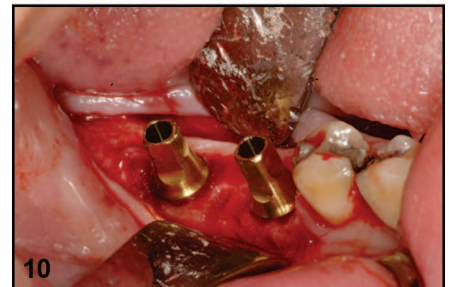


Fig. 9. Reduced CHS may be increased during implant insertion by performing an osteoplasty before implant insertion. Reprinted with permission from C.E. Misch.

Fig. 10. The implants in position after an osteoplasty. The CHS is more ideal. Reprinted with permission from C.E. Misch.

Fig. 11. Reduced CHS in a fixed restoration may use a custom abutment with less taper, larger diameter, and roughened for improved cement restoration. Reprinted with permission from J. Finley.

port (Figs. 9 and 10). If a removable implant supported prosthesis is planned, an aggressive alveoloplasty should often be performed following tooth extraction to provide adequate prosthetic space. Additional prosthetic space can be obtained in many clinical situations by soft tissue reduction, especially in the maxilla. Soft tissue reduction should be performed in conjunction with second stage surgery if the implants heal in a submerged location. This process allows the thicker tissue to protect the implants from uncontrolled loading by a soft tissue supported prosthesis during healing. If the implants heal permucosal, the reduction pro-

cedures should be performed during implant placement. Soft tissue reduction procedures may include gingivectomy, removal of connective tissue, or apically repositioning flaps. Efforts should be made to maintain adequate keratinized tissue around the implants. Soft tissue reduction also has the benefit of decreased probing depths around the implants.

However, the definition of CHS is from the bone to the occlusal plane, and, therefore, although the prosthetic space is improved, the CHS remains similar when only soft tissue reduction is performed. Too little CHS can be further complicated when the surgeon places the implant above the bone. When the CHS is less than ideal, J.M. Finley states there are several prosthetic factors to consider:

1. Available space to use
2. Taper of abutment
3. Surface area of abutment
4. Cement type
5. Surface finish
6. Occlusal topography and material
7. Load placed on restoration
8. Fit of restoration to abutment
9. Retention of prosthesis
10. Implant manufacturer
11. Platform to occlusal plane dimension

The consequences of decreased CHS include a decrease in abutment height, which may lead to inadequate retention of the restoration, inadequate bulk of restorative material for strength or esthetics, and poor hygiene conditions compromising long-term maintenance. In addition, the final restoration flexes inversely to the cube of the thickness of material. A fixed prosthesis half as thick will flex 8 times as much, and will further result in loss of cement retention, loosening/fracture of fixation screws, and/or porcelain fracture.²⁶ Inadequate thickness of occlusal porcelain or acrylic, or unsupported occlusal material caused by inadequate metal substructure design may also result in complications, such as component fracture.

According to J.M. Finley, different implant companies have different minimum restorative requirements. Having the occlusal space above the abutment of 1 mm and reducing the abutment height to the top of the retaining screw may determine the min-

imum restoration space. The smallest minimum restoration space is observed with Osseotite® (4.21 mm; 3i Implant Innovations, Inc., Palm Beach Gardens, FL), Replace Select® (4.35 mm; Nobel BioCare™, Zurich, Switzerland), BioHorizons® (4.5 mm; BioHorizons Implant Systems, Inc., Birmingham, AL), and Frialet® 2 (4.56 mm; Essenmed). Astra® (6.6 mm; Astra Tech LTD, Gloucestershire, UK), Lifecore® (6.84 mm; Lifecore Biomedical, Inc., Chaska, MN), and Straumann® (7.05 mm; Straumann, Andover, MA) find the largest restoration space requirements.

When a cemented restoration is desired, the CHS may influence the restoration technique (indirect *vs.* direct). Because additional abutment height for retention may be gained by a subgingival margin, the indirect technique of making an implant body level impression has considerable advantage. Making direct intraoral impressions of the abutments for cement retention that are subgingival more than 1 mm is often difficult. An implant body level impression often permits the subgingival restoration to be placed more than 1 mm subgingival because the crown margin can be positioned in the laboratory with higher accuracy and, therefore, a benefit in a reduced CHS, especially when the soft tissue is several millimeters thick. The indirect technique permits custom abutments, which can provide an increased diameter and increases the surface area for retention. A custom abutment may also be fabricated to decrease the total occlusal convergence angle to increase retention for cemented prostheses (Fig. 11).

The retention and resistance difference between a 3 and 5-mm high implant abutment may be as high as 40% for a 4.5-mm diameter abutment. Less than 3 mm of abutment height indicates a screw retained crown, 3–4 mm requires a screw retained or resin cemented restoration, and more than 4 mm of abutment height allows the operator's preference (Table 1). Splinting implants together whether they are screw retained or cement retained can also increase retention.

Conditions such as cement hardness, surface condition of the abut-

ment, and occlusal material (porcelain *vs.* metal) are also to be considered in limited CHS situations. The occlusal material is important to consider in reduced CHS for primarily 2 reasons. When metal is used as the occluding surface, it is possible to provide higher retention for the prosthesis as a result of an increase in abutment height. The abutment height may be higher because the occlusal space required above the abutment is only 1 mm, whereas porcelain requires 2 mm of occlusal space and acrylic resin ≥ 3 mm. Another factor is the strength of the material. Metal occlusal surfaces provide the highest resistance to fracture and should be considered when there is limited CHS. When a screw is used to retain the crown, the strength of occlusal porcelain is reduced by 40%.

Acrylic resin requires the most dimension for strength and is much more likely to fracture when the CHS is limited. This reason is why acrylic resin overdentures require more CHS than a porcelain-metal fixed prosthesis. The surgeon may magnify the prosthetic problem of limited CHS by placing the implant at an angle to the ideal position. Angled abutments lose surface area of retention from the abutment screw hole and further compromise the limited space conditions. In addition, a 30° taper on an abutment to correct parallelism loses more than 30% of the abutment surface area and dramatically decreases the retention for the abutment.

Overdentures have an increase in complications in situations of reduced CHS. Removable prostheses have space limitations related to the presence or absence of a connecting bar, the type and position of attachment(s), and the restorative material (metal *vs.* resin). According to C.E. English, the minimum CHS for individual attach-

Table 1. Available Space Recommendations

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- Less than 3 mm abutment height use screw retention
 - More than 3 mm but less than 4 mm abutment height use screw retention or vary cement type to make non-retrievable
 - More than 4 mm abutment height can use retrievable cement
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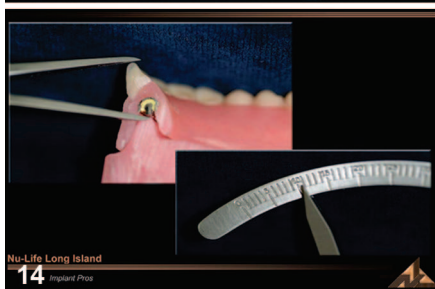
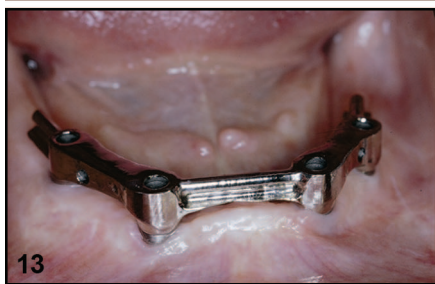


Fig. 12. An implant overdenture with reduced CHS may use independent implants, which reduce the space requirements for a connecting bar. Reprinted with permission from C. English.

Fig. 13. A connecting bar with an implant overdenture requires a CHS of at least 10.5 mm but is easier when ≥ 14 mm exist. Reprinted with permission from C. English.

Fig. 14. The space above a connecting bar must accommodate a denture tooth, acrylic resin base, and attachment. Reprinted with permission from M. Marinbach.

ments approximates 4.5-mm CHS for Locator[®]-like attachments (Zimmer Dental, Carlsbad, CA), and between 12 and 15 mm for a bar and “O” rings (Figs. 12 and 13).²⁷ Hader bars and clips require at least 7-mm CHS. M. Marinbach reports that the ideal CHS for removable prostheses is >14 mm, and the minimum height is 10.5 mm (Fig. 14 and Table 2). The lowest possible profile of an attachment used for overdentures in reduced CHS permits the component to fit within the contours of the restoration, provide more bulk of acrylic resin to decrease fracture, and allows for the denture tooth to be positioned without hollow grinding, which may decrease strength and/or retention to the resin base.

Table 2. Space Requirements for Bar-Overdenture

	Normal Height	Compromised Height
Thickness of soft tissue (mm)	2.0	2.0
Hygiene space under bar (mm)	1.5	0.0
Thickness of bar (mm)	4.0	3.0
Clip and housing (mm)	1.5	1.5
Acrylic denture base (mm)	2.0	1.5
Tooth (mm)	3.0	2.5
Total height requirement (mm)	14.0	10.5

Table 3. Screw-in Versus Cementable Crowns on Implants

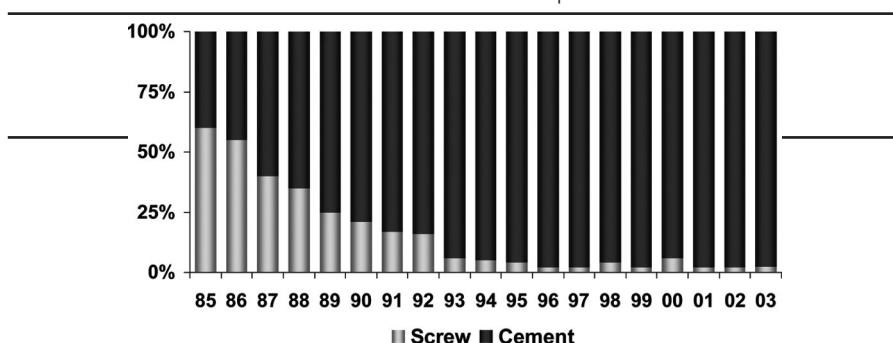


Table 4. Screw-in Versus Cementable Bar Overdentures

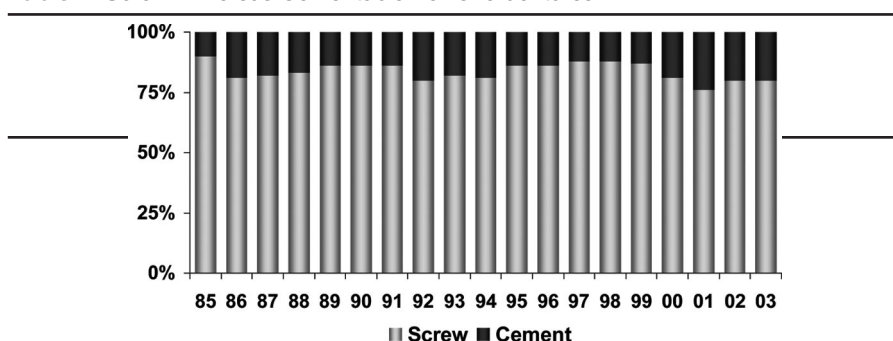


Table 5. Advantages of Cemented Bars

- Low or no cost for abutments
- Lower laboratory fees
- Little need for model verification jigs
- Ability to easily adjust fit chair-side
- Totally passive frameworks are possible
- Passive fit is easy to verify

Overdenture bars may be screw or cement retained. The most common method of retention for a fixed prosthesis is cement retention (Table 3). The most common method of bar retention by almost the same percentage for overdentures is screw retention (Table 4). Yet, the advantages of cement retention for a fixed prosthesis apply to an overdenture bar (Table 5). Therefore, in minimum CHS situa-

tions, the screw retained bar has a clear advantage, but in ideal to excessive CHS situations, the cemented bar should often be considered (Table 6).

SUMMARY

Biomechanical related issues are 1 of the most common causes of implant failure and/or prosthetic complications. Therefore, force magnifiers are important considerations. A lever is a very effective agent to increase force. Crown height is a vertical lever and, therefore, is an important element to consider in implant dentistry.

At the World Meeting of International Congress of Oral Implantologists, a consensus of the issues related to CHS was not able to be developed.

Table 6. Cement-Retained Versus Screw-Retained

	Cement-Retained Bars	Screw-Retained	
		Bars With Abutments	Bars Direct to Implant
Problems with trajectory of implants	Big	Small	Moderate
Parallelism of implants	Big	Small	Moderate
Limited space	Same	Same	Same
Passive fit	Easy	Difficult	Difficult
Cost of parts	Low	Highest	High
Laboratory charges for bar	Low	High	High
Chair time	Least	Moderate	Most
Technique sensitivity	Least	Moderate	Most

However, guidelines related to CHS emerged. These guidelines included:

Biomechanical Concerns

1. The CHS is measured from the occlusal plane to the crest of the bone.
2. Mechanical complications are the highest cause of complications after the prosthesis is placed.
3. Mechanical complications are often caused by excessive stresses.
4. Excessive stress can cause implant failure, crestal bone loss, implant fracture, screw loosening, occlusal material fracture, prosthesis fracture, and/or attachment wear and fracture.
5. The crown height is a vertical cantilever.
6. The biomechanics are more unfavorable as the CHS increases.
7. An increase in CHS increases the forces on cantilevered and/or angled loads.
8. Crestal bone loss around the implant increases the CHS and, therefore, increases the moment forces to the implant and prosthesis components.
9. CHS does not have a specific ideal dimension. With fixed restorations, the acceptable range for CHS is between 8 and 12 mm.
10. Removable implant restorations often require a CHS of ≥ 12 mm, especially when a bar connects the individual implants.
11. Stresses applied to implants are concentrated in the crestal region, so increasing implant length is less effective to reduce the effects of crown height compared to a natural tooth root.
12. Methods to decrease stress should be considered when the CHS is increased (*i.e.*, increase implant number, size, and surface area of design, splint implants together, shorten cantilevers, consider removable restorations, add soft tissue support in overdentures).

13. An increase in prosthetic complications occur with either limited or excessive CHS.

General Statements

1. The OVD is not a specific dimension.
2. The existing OVD may be used as a starting position to evaluate, not necessarily the end point.
3. When the OVD is modified, both vertical and horizontal components of tooth position, esthetics, and function are modified.
4. The OVD should be determined early in a treatment plan because any modification may require different guidelines for implant number, position, and/or angulation.
5. Methods to modify OVD include orthodontics, surgery, and/or prosthetics, in that order.

Excessive CHS

1. Excessive CHS in fixed prostheses increases mechanical complications.
2. Gingival replacement procedures should be evaluated before implant placement when excessive CHS exists for fixed restorations.
3. Metal and porcelain shrinkage is more of a problem in traditional fixed prosthetic cases with excessive CHS.
4. Hybrid fixed prostheses of denture teeth, metal substructure, and acrylic resin are often suggested in excessive CHS.
5. Overdentures are often indicated in completely edentulous patients with excessive CHS.
6. When rigidly attached overdentures are used in excessive CHS, the implant support should be as great as that used with a fixed prosthesis.
7. When mobile overdentures are used in the presence of an excessive CHS, there should be good soft tissue support.

8. Overdentures may have 2 different components of the CHS: the crest distance from the crest of the bone to the height of the attachment and the distance from the attachment to the occlusal plane.

Reduced CHS

1. Structural integrity problems of a restoration increase with a reduced CHS.
2. Surgical procedures during implant placement may increase a CHS.
3. Complications of an insufficient CHS may be increased by the surgical position of the implant (*i.e.*, poor angulation, leaving the implant above the bone several millimeters).
4. Different implant systems have a different minimum CHS related to the height of the prosthetic components.

Disclosure

The authors claim to have no financial interest in any company or any of the products mentioned in this article.

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Abstract Translations

GERMAN

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Diskussionsbericht der meinungsbildenden Konferenz: der Überkronungshöhenspalt und die Richtlinien für die Implantationszahnheilkunde: Teil II

ZUSAMMENFASSUNG: Die Internationale Kommission der Oralimplantologen (ICOI) veranstaltete vom 26. bis 27. Juni 2004, in Las Vegas, Nevada, eine meinungsbildende Konferenz zum Thema des Überkronungshöhenspalts. Der Ausschuss äußerte sich zu verschiedenen Gelegenheiten vor, während und nach dem Meeting und hier sowohl in der Kompletgruppe wie auch als Einzelpersonen. Zu den meisten Themen konnte kein einheitlicher Konsens erzielt

werden. Zumindest aber konnten allgemeine Richtlinien in Bezug auf das Hauptthema aufgestellt werden. Der nachfolgende Bericht stellt Teil II einer Zusammenfassung verschiedener dieser Richtlinien dar, die für die Gesamtheit des Berufsstandes von Vorteil sein könnten (Teil I wurde in der *Implant Dent* 2005;14:312-321, veröffentlicht).

SPANISH

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Informe del panel de una conferencia de consenso: Pautas para el espacio de la altura de la corona para la odontología de implantes: parte II

ABSTRACTO: El Congreso Internacional de Implantólogos Orales (ICOI por sus siglas en inglés) patrocinó una confer-

encia de consenso sobre el tema espacio de la altura de la corona entre el 26 y 27 de julio del 2004 en Las Vegas, Nevada. El panel se comunicó en varias ocasiones antes, durante y después de la reunión, como grupo y como individuos. El consenso de una sola opinión no se logró en la mayoría de las cuestiones. Sin embargo, surgieron pautas generales relacionadas con el tema. El siguiente trabajo es la Parte II de un resumen de varias de las pautas que deberían ser de utilidad para la profesión en general. (La PARTE I apareció en *Implant Dent* 2005;14:312-321)

PORTUGUESE

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Relato de Painel de Conferência de Consenso: Espaço da Altura da Coroa (CHS) Diretrizes para Odontologia de Implante: Parte II

RESUMO: O Congresso Internacional de Implantologista Orais (ICOI) patrocinou uma conferência de consenso sobre o tópico de Espaço da Altura da Coroa em 26-27 de junho de 2004 Las Vegas, Nevada. O painel comunicou-se em diversas ocasiões antes, durante e após a reunião, tanto como grupo quanto entre indivíduos. Um consenso de uma opinião não foi desenvolvido para a maior parte das questões. Contudo, diretrizes gerais emergiram em relação ao tópico. O *paper* seguinte é a Parte II de um resumo de várias das diretrizes que deveriam ser de benefício para a profissão em geral. (PARTE I apareceu em *Implant Dent* 2005;14:312-321)

JAPANESE

コンセンサス・コンファレンス・パネル・レポート：インプラント歯科におけるCrown-Height Space (CHS) Guideline：パートII

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要約：The International Congress of Oral Implantologists (ICOI)が提供するCrown Height Space の問題についてのコンセンサス・コンファレンスが、ネバダ州ラスベガスで2004年の6月26日から27日の間に開かれた。パネル内部ではグループ内または個人間におけるコミュニケーションの機会がミーティング前、ミーティング中、ミーティング後に持たれた。ほとんどの問題についてコンセンサスの到達に至らなかったものの、関連トピックの総合的ガイドラインが浮上した。この報告は、関連医療従事者に有益ないくつかのガイドラインの要約のパートIIである。(パートIはImplant Dent 2005;14:312-321に既出)

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