Consensus Conference Panel Report: Crown-Height Space Guidelines for Implant Dentistry—Part 1

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Dental implants serve as a foundation for support of fixed and/or removable prostheses. As such, preimplant prosthodontic considerations are a vital phase of treatment before implant surgery. For example, the surgical decision to augment or perform osteoplasty before implant surgery will affect the crown height of the prosthesis and, subsequently, the desired prosthetic result. Therefore, the overall prosthetic treatment plan should be determined before surgical intervention. Virtually all conventional forms of construction, from buildings to art form, require a clear vision of the end result before the project is started.

The International Congress of Oral Implantologists sponsored a consensus conference on the topic of crown height space on June 26 and 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 1 opinion was not developed for most issues. However, general guidelines emerged related to the topic. The following article is part 1 of a summary of several guidelines that should be of benefit to the profession at large. (Implant Dent 2005;14:312–321)

Key Words: implant treatment plans, biomechanics, consensus reports

Implant preprosthetic failure is in the range of 0% to 20%, and is highly related to bone volume and density.[1] The highest risk of implant failure after the prosthesis is fabricated is during the first 18 months. Implant loss, according to a limited literature review from 1981 to 2001, may be related to prosthesis type and arch location.[1] Fixed complete arch prostheses show an average failure rate of 10% in the maxilla and 3% in the mandible (range 0% to 22%). Implant overdentures show a 19% failure rate in the maxilla and 4% in the mandible (range 0% to 30%). Partially edentulous fixed partial dentures average an implant failure rate of 6% in either the maxilla or mandible (range 1.9% to 12.5%). Because more than 1 implant is used to support most restorations, the number of prostheses affected in the post-prosthetic category of implant failure may be 2 or 3 times the number of implant failures, but this is not well documented in the literature. Single restorations on implants show a mean average of 3% loss in either arch (range 0% to 11%).[1] Therefore, the highest complication rate for early implant failure after placement of implant restorations is for overdentures, followed by complete-arch fixed partial dentures, then fixed partial dentures. Single restorations on implants have the lowest implant failure incidence and appear to be the most predictable restoration.

As a general rule, prostheses supported by teeth have survival rates at 2−5 years in the range of 97% and rarely are tooth abutments lost during this time.[2] However, failure rates increase substantially over time with one quarter[3] to one third[4] of the prostheses failing after 15 years. Implant prosthetic complications develop earlier in the process than natural tooth-supported restorations. For example, the early fracture rate of porcelain approximates 6%, whereas tooth supported restorations have a fracture rate of approximately 2% over the same time.[1] Loss of retention on natural tooth restorations is rare within the first 4 years, whereas single tooth implants can have loose abutment screws. Screw loosening with single implants has occurred at a relatively high rate initially (range 2% to 45%). With new screw designs and torque tightening protocols, the loosening has been reduced to an average of 8% (range 0% to 12%) within the same time.[1] The primary causes of complications with natural tooth-supported restorations relate to caries, loss of retention, need for endodontic treatment, and porcelain fracture. How-

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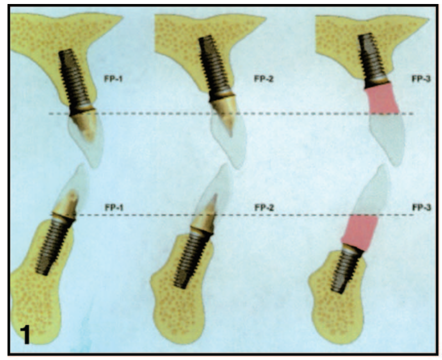
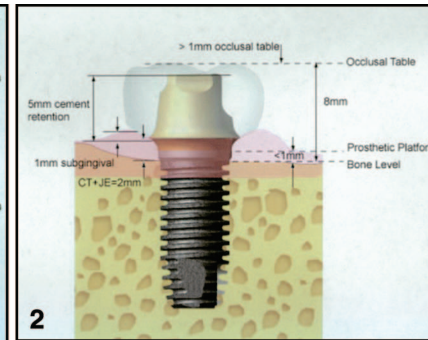
ever, because implants do not decay or require endodontic therapy, once the restoration is functioning for more than 2 years, the long-term survival rate of the prosthesis is higher, as compared to natural tooth restorations. After 10 years, reports of success rates higher than 90% are not unusual with dental implants.

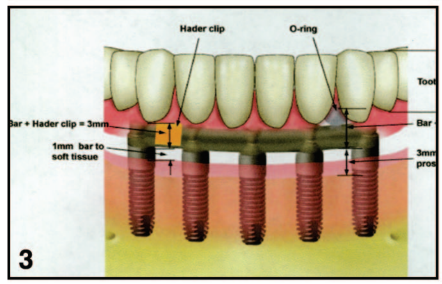
Crown Height Space

The primary purpose of this consensus meeting was to provide guidelines related to interarch space. Early in the discussions of the panel, it became apparent that the ideal dimensions of this space were difficult to ascertain for either fixed or removable restorations. However, the consequences of too much or too little crown height space (CHS) in 1 arch was considered more relevant of a problem, and guidelines for these conditions were generally agreed upon.

The interarch distance is defined as the vertical distance between the maxillary and mandibular dentate or edentate arches under specific conditions (*e.g.*, the mandible is at rest or in occlusion).[5] A dimension of only 1 arch does not have a defined term in prosthetics, therefore, Misch[6] proposed the term "crown height space." The CHS for implant dentistry is measured from the crest of the bone to the plane of occlusion in the posterior region and the incisal edge of the arch in question in the anterior region (Fig. 1). During restoration of an anterior region of the mouth, the presence of a vertical overbite means the CHS is larger in the maxilla than the space from the crest of the ridge to the opposing teeth incisal edge. In general, when the anterior teeth are in contact in centric occlusion, there is a vertical overbite. Therefore, the anterior mandibular CHS is usually measured from the crest of the ridge to the lingual contacts of the maxillary anterior teeth, which is also the incisal edge. However, the anterior maxillary CHS is measured from the maxillary crestal bone to the maxillary incisal edge, not the occlusal contact position. The biomechanical aspects of CHS continue to the incisal edge because eccentric movements of the mandible extend to this position.







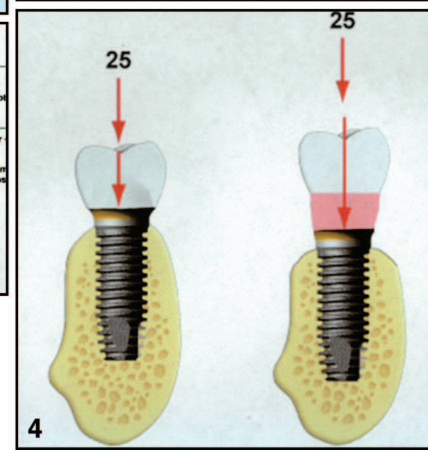


Fig. 1. Crown height increases as the available bone resorbs in height. The CHS is measured from the crest of the bone to the occlusal plane in the posterior and to the incisal edge of the arch in question in the anterior region.

Fig. 2. The ideal CHS for a fixed restoration ranges from 8 to 12 mm. This dimension accounts for the biologic width, abutment height for cement or screw retention, and occlusal material for strength, esthetics, and hygiene considerations.

Fig. 3. Removable implant overdentures often require ≥12 mm CHS for denture teeth, acrylic resin base, attachments, and bars for strength and oral hygiene considerations.

Fig. 4. When the direction of load is in the long axis of the implant, the crown height does not increase the force to the implant or bone.

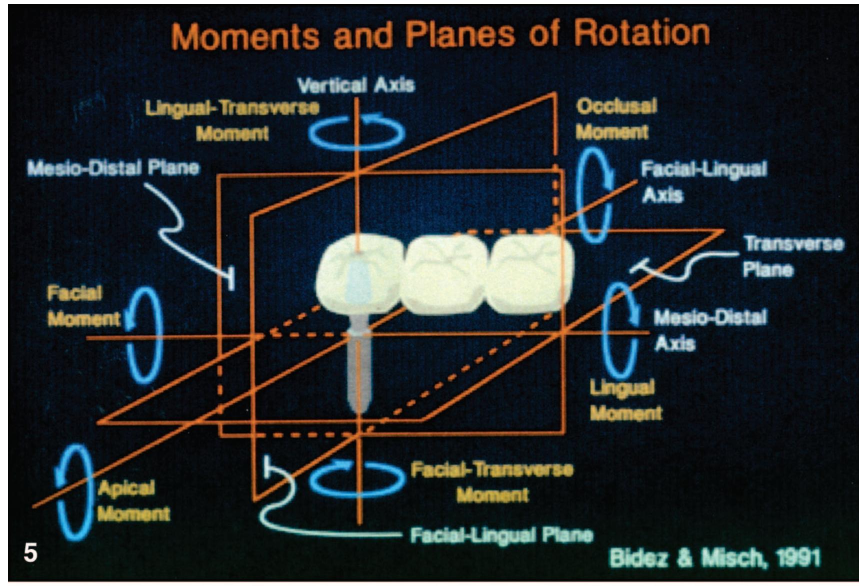
According to the consensus panel, the ideal CHS needed for a fixed implant prosthesis should range between 8 and 12 mm. This measurement accounts for the biologic width, abutment height for cement retention or prosthesis screw fixation, occlusal material strength, esthetics, and hygiene considerations around the abutment crowns (Fig. 2). Removable prostheses often require ≥12 mm CHS for denture teeth and acrylic resin base strength, attachments, bars, and oral hygiene considerations (Fig. 3).

Biomechanics of CHS

Mechanical complication rates for implant prostheses are often the highest of all complications reported in the literature.[7] Mechanical complications are often caused by excessive stress applied to the implant-prosthetic system. Implant failure may occur from overload, and result in prosthesis failure and bone loss around the failed implants. Implant body fracture may result from fatigue loading of the implant at a higher force but occurs at less incidence than most complications. The higher the force, the fewer the number of cycles before fracture, so that the incidence increases. Crestal bone loss may also be related to excessive forces and often occurs before implant body fracture. The risk of screw loosening is increased when forces are increased, and abutments and prosthetic screws have loosened at rates of 6% and 7%, respectively.[1] Porcelain and/or occlusal material fracture rates may increase as the force to the restoration is increased. The risk of fracture to the opposing prosthesis increases with an average of 12% in implant overdentures that oppose a denture.[1] With resin veneer fixed partial dentures, 22% of the veneers fractured. Clips or attachment fractures in overdentures may average 17%.[1] Fracture of the framework and/or substructure may also occur as a result of an increase in biomechanical forces.

Force magnifiers are situations or devices that increase the amount of force applied, and include a screw, pulley, inclined plane, and a lever.[7] The biomechanics of CHS are related to lever mechanics. The concepts of a lever have been appreciated since the time of Archimedes, 2000 years ago. The issues of cantilevers and implants were shown with the edentulous mandible, where the length of the posterior cantilever directly related to complications and/or failure of the prosthesis. Rather than a posterior cantilever, the CHS is a vertical cantilever, and, therefore, it is also a force magnifier. As a result, because CHS excess increases the amount of force, any of the mechanical related complications associated with implant prostheses may also increase.

When the direction of a force is in the long axis of the implant, the stresses to the bone are not magnified in relation to the CHS (Fig. 4). However, when the forces to the implant are on a cantilever or a lateral force is applied to the crown, the forces are magnified in direct relationship to the crown height. Bidez and Misch[8] evaluated the effect of a cantilever on an implant and its relation to crown height. When a cantilever is placed on an implant, there are 6 different potential rotation points (*i.e.*, moments) on the implant body. When the crown height is increased from 10 to 20 mm, 2 of 6 of these moments are increased 200% (Figs. 5 and 6). A cantilevered force may be in any direction: facial, lingual, mesial, or distal. Forces cantilevered to the facial and lingual are often called offset loads. The bone width decrease is primarily from the facial aspect of the edentulous ridge. As a result, implants are often placed more lingually than the center of the natural tooth root. This condition often results in a restoration cantilevered to the facial. When the available bone height is also decreased, the CHS is increased. Therefore, not only is the potential length of the implant reduced in CHS conditions, the implant is positioned so that an offset load is more likely to occur.



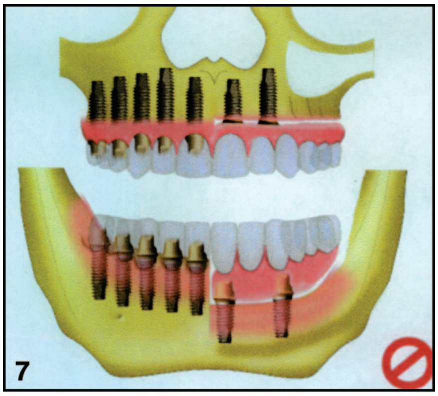
Occlusal Height (mm)	Cantilever Length (mm)	Imposed Moment (N-mm) at Implant Crown-to-Crest Interface (Point "A"): Lingual Moment	Facial Moment	Apical Moment	Occlusal Moment	Facial-Transverse Moment	Lingual-Transverse Moment
10	10	100	0	50	200	0	100
	20	100	0	50	400	0	200
	30	100	0	50	600	0	300
20	10	200	0	100	200	0	100
	20	200	0	100	400	0	200
	30	200	0	100	600	0	300

6

Fig. 5. When a cantilever is added to an implant, there are 6 different moments created.
Fig. 6. When a cantilever is extended from an implant and the crown height is increased from 10 to 20 mm, the lingual moment force and apical moment force are increased 200%.

An angled load to a crown will also magnify the force to the implant. A 12° force to the implant will increase the force by 20%. This increase in force is further magnified by the crown height. For example, a 12° angle with a 100-N force will result with a 315-N mm force on a crown height of 15 mm.[9] Maxillary anterior teeth are usually at an angle of ≥12° to the occlusal planes. Therefore, even implants placed in an ideal position are usually loaded at an angle. Maxillary anterior crowns are often longer than any other teeth in the arch, so the effects of crown height cause a higher risk of mechanical overload.

The angled force to the implant may also occur when the patient goes into protrusive or any lateral excursion because the incisal guide angle may be ≥20°. Therefore, anterior implant crowns will be loaded at a considerable angle during excursions, as compared to the long-axis position of the implant. As a result, an increase in the force to maxillary anterior implants should be compensated for, in the implant treatment plan. Most forces applied to the osteointegrated implant



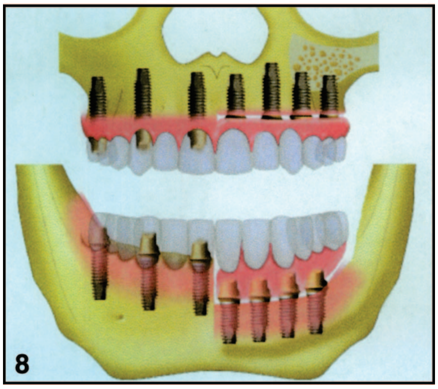


Fig. 7. The original treatment plan for the Brånemark protocol used fewer implants in less available bone (with higher CHS) and more implants in abundant available bone (with a smaller CHS).

Fig. 8. The effect of the crown height suggests more implants should be inserted when the CHS is high and fewer implants inserted when the CHS is more ideal.

body are concentrated in the crestal 7−9 mm of bone, regardless of implant design and bone density.[10] Therefore, implant body height is not an effective method to counter the effect of crown height. In other words, crown-root ratio is a prosthetic concept, which may guide the restoring dentist when evaluating a natural tooth abutment. However, the crown height-implant ratio is not a direct comparison. Crown height is a vertical cantilever, which magnifies any lateral or cantilever force in either a tooth or an implant-supported restoration. However, this condition is not improved by increasing implant length. The higher the CHS, the higher the number of implants usually required for the prosthesis, especially in the presence of other force factors.[7] This is a complete paradigm shift as compared to the concepts advocated originally with many implants in more available bone and small crown heights, and fewer implants with higher crown heights in atrophied bone (Figs. 7 and 8).

The CHS increases when crestal bone loss occurs around the implants. Therefore, an increased CHS may increase the forces to the crestal bone around the implants and increase the risk of crestal bone loss. In turn, this effect may further increase the CHS and moment forces to the entire support system, and increase screw loosening, crestal bone loss, implant fracture, and/or implant failure. Because an increase in the biomechanical forces is in direct relationship to the increase in CHS, the treatment plan of the implant restoration should consider stress-reducing options whenever the CHS is increased. Methods to decrease stress include:[6]

1. Shorten cantilever length.
2. Less offset loads to the buccal or lingual.
3. Increase the number of implants.
4. Increase the diameters of implants.
5. Increase the surface area design of implants.
6. Make removable restorations less retentive and use soft tissue support.
7. Remove the removable restoration during sleeping hours to reduce the noxious effects of nocturnal parafunction.
8. Splint implants together, whether they support a fixed or removable prosthesis.

A reduced CHS has biomechanical issues related to the strength of implant material and/or prosthetic components, flexibility of the material, and retention requirement of the restoration. The fatigue strength of a material is related to its diameter.[8] For example, when a bar is one half as thick in dimension, it is 8 times more flexible. In fixed restorations, the movement of the material may increase porcelain fracture, screw loosening, and/or uncemented restorations. Therefore, when reduced CHS exists, the material is much more likely to have complications. CHS-related issues are accentuated by an excessive CHS that places more forces on the implant/prosthetic system, and reduced CHS makes the prosthetic components weaker.

The retention and resistance forms of an abutment for a cemented prosthesis are dramatically affected by the height of the abutment.[2] The arc of displacement should be lower than the abutment height because the forces above the arc are in compression, while below the position of the arc, the forces are shear in nature. Materials such as cement, porcelain, and bone react strongest to compression and weakest to shear components of force.

Existing Occlusal Vertical Dimension

To determine the interarch space, the overall issue of occlusal vertical dimension (OVD) must be addressed. Therefore, the issues of CHS must be considered after the development of this dimension. The patient's existing OVD should be evaluated early in implant prosthetic treatment plan because any modification will significantly modify the overall treatment. Not only will a change in OVD require at least 1 full arch to be reconstructed, it affects the CHS, and, therefore, the potential number, size, position, and/or angulation requirements of the implants. The OVD is defined as the distance between 2 points (*i.e.*, 1 in the maxilla, and the other directly below in the mandible) when the occluding members are in contact.[5] This dimension requires clinical evaluation of the patient and cannot be evaluated solely on the diagnostic casts.

The determination of the OVD is not a precise process because a range of OVD is possible without clinical symptoms.[11] At one time, it was believed that the dimension of occlusion was very specific and remained stable throughout a patient's life. The OVD position is not necessarily stable when the teeth are present or after the teeth are lost. Long-term studies have shown that this is not a constant dimension and often is decreased over time without clinical consequence, in either the dentate, partially edentulous, or completely edentulous patient. In fact, a completely edentulous patient often wears the same denture for more than 10 years, during which time the OVD is reduced ≥10 mm, without symptoms or patient awareness.

The OVD may be altered permanently without the symptoms of pain and/or dysfunction. However, this is not to say altering the OVD has no consequence. A change in OVD affects the interarch distance between the arches. As such, it may affect the crown-to-root (implant) ratio and amount of biomechanical forces applied to the support system of a prosthesis. In addition, any change in the OVD will also modify the horizontal dimensional relationship of the maxilla to the mandible. As a result, the OVD difference will change the anterior guidance, and the range of function and esthetics.

The most important effect of OVD on tooth (implant) loading may be the impact on the biomechanics of anterior guidance.[12] The more closed the OVD, the steeper the anterior guidance and the higher the vertical overlap of the anterior teeth. These conditions will increase the forces to the anterior teeth and decrease the risk of posterior interferences during eccentric mandibular movements or function. Opening the OVD has the opposite effects. In general, for the dentate patient, it is more risky to close an OVD than to open this dimension because the mandibular anterior teeth may be positioned more facial, in a closer relationship to the maxillary teeth in centric occlusion. However, in completely edentulous patients restored with fixed implant prosthodontics, a change in OVD in either direction may have biomechanical consequences. Opening the OVD and decreasing the incisal guidance resulting in a bilateral balanced occlusion may increase forces to posterior implants in any mandibular excursion. Closing the OVD may increase the forces to anterior implants during any excursion. On occasion, a change in the OVD may also affect the sibilant sounds of an individual because it also changes the horizontal position of the mandible.

The OVD is almost never naturally too large, and, unless some man-made interference has been created, it is within clinical guidelines or decreased. Therefore, the restoring dentist most often should determine if the OVD needs to be increased. In other words, the existing OVD is a place to start the evaluation, not a position that necessarily must be maintained. This is not a casual decision because increasing the OVD will often require restoration of all segments of the mouth, with the exception of the maxillary anterior teeth, if acceptable.

According to Kois and Phillips,[11] there are primarily 3 times that a restoring dentist should consider a modification of the OVD: (1) esthetics, (2) function, and (3) structural needs of the dentition. Esthetics is related to OVD for incisal edge positions, facial measurements, and the occlusal plane. Function is related to the canine positions, the incisal guidance, and angle of load to teeth and/or implants. Structural requirements are related to dimensions of teeth for restoration, while maintaining a biologic width.

Methods to Evaluate OVD

All the techniques used in traditional prosthodontics are also used to evaluate and/or establish the OVD. These techniques most often include the objective method of measuring facial dimensions, and/or the subjective methods of esthetics, resting arch position, and speaking space. There is no consensus on the ideal method to obtain the OVD. Therefore, this dimension is part art form and part science. Yet, it is critical enough that a final treatment plan should not be rendered until a determination has been made relative to this dimension.

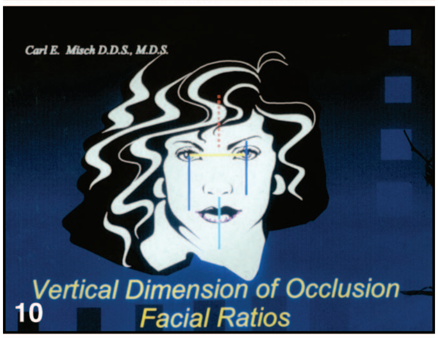
The maxillary anterior horizontal and vertical tooth position is evaluated before any other segment of the arches, including the OVD. If the maxillary anterior teeth are significantly malpositioned, the clinician should obtain further diagnostic studies, such as a cephalometric radiograph, to determine the relationship of the maxilla to the cranial base. The patient may have unfavorable skeletal relationships, including vertical maxillary excess or deficiency. If the positions of the natural maxillary anterior teeth are undesirable for any reason, orthodontics, orthognathic surgery, and/or restoration may be indicated. Once the position of the maxillary anterior teeth is acceptable, the next prosthetic guidelines require the determination of the OVD.

The subjective methods to determine OVD include the use of resting interocclusal distance and speech-based techniques using sibilant sounds. Niswonger[13] proposed the use of the interocclusal distance (freeway space), which assumes that the patient relaxes the mandible into the same constant physiologic rest position. The practitioner then subtracts 3 mm from the measurement to determine the OVD. There are 2 aspects that conflict with this method as a primary factor. First, the amount of freeway space is highly variable in the same patient, depending on several factors, including head posture, emotional state, presence or absence of teeth, parafunction, and time of recording (higher in the morning). Second, interocclusal distance at rest varies 3−10 mm from one patient to another. As a result, the distance to subtract from the freeway space is unknown for a specific patient. Therefore, the physiologic rest position should not be the primary method to evaluate OVD.

Silverman[14] stated that approximately 1 mm should exist between the teeth when the "S" sound is made. Pound[15] further developed this concept for the establishment of centric and vertical jaw relationship records for complete dentures. Although this concept is acceptable, it does not correlate to the original OVD of the patient. Patients with dentures often wear the same prosthesis for more than 14 years, and during this time, lose ≥10 mm of their original OVD. Yet, all these patients are able to say "Mississippi" with their existing prosthesis. If speech was related to the original OVD, these patients would not be able to pronounce the "S" sounds because their teeth would be more than 12 mm apart. Therefore, speaking space should not be used as a primary method to evaluate OVD.

Kois and Phillips[11] have noted that the subjective "esthetic" method to establish an OVD is the most difficult to teach inexperienced dental students so that it is least likely to be initially addressed when teaching the concepts of determining OVD. However, experienced clinicians often consider this method to be a primary factor related to OVD. Once the position of the maxillary incisor edge is determined, the OVD influences esthetics of the face in general.

Facial dimensions are directly related to the ideal facial esthetics of an



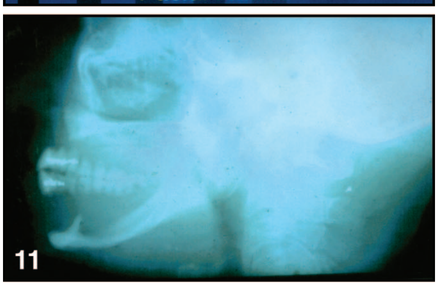


Fig. 9. A drawing by Leonardo De Vinci[16] suggests the face has common measurements that are similar to the distance from the bottom of the nose to the bottom of the chin.
Fig. 10. A review of the literature by Misch[19] found 11 measurements that were similar to the OVD dimension.
Fig. 11. A lateral cephalogram may be used to help evaluate the OVD in a dentate or edentulous patient.

individual and are able to be evaluated regardless of the degree of experience of the clinician. Because facial dimensions are an objective evaluation, which is related to esthetics, it is usually the method of choice to evaluate initially the existing OVD and/or establish a different OVD during prosthetic reconstruction. The OVD based upon facial measurements may be performed without the additional assistance of radiography or other tests. Facial measurements can be traced back to antiquity, in which sculptors and mathematicians followed the "Golden Proportion," later specified as a ratio of 1.618–1. Later on, Leonardo da Vinci[16] contributed several observations and drawings on facial proportions, which he called "Divine Proportions." He observed that the distance between the chin and bottom of the nose was a similar dimension as: (1) the hairline to the eyebrows, (2) the height of the ear, and (3) the eyebrows to the bottom of the nose (Fig. 9). Each of these dimensions equaled one third of the face. Many professionals, including plastic surgeons, oral surgeons, artists, orthodontists, and morticians, use facial measurements to determine OVD.[17,18] A review of the literature by Misch[19] found many different sources that reveal many correlations of features that correspond to the OVD, including:

1. The horizontal distance between the pupils.
2. The horizontal distance from the outer canthus of 1 eye to the inner canthus of the other eye.
3. Twice the horizontal length of 1 eye.
4. Twice the horizontal distance from the inner canthus of 1 eye to the inner canthus of the other eye.
5. The horizontal distance from the outer canthus of the eye to the ear.
6. The horizontal distance from 1 corner of the lip to the other, following the curvature of the mouth (cheilion to cheilion).
7. The vertical distance from the external corner of the eye (outer canthus) to the corner of the mouth.
8. The vertical height of the eyebrow to the ala of the nose.
9. The vertical length of the nose at the midline (from the nasal spine {subnasion} to the glabella point.
10. The vertical distance from the hairline to the eyebrow line.
11. The vertical height of the ear.
12. The distance between the tip of the thumb and tip of the index finger when the hand lies flat, fingers next to each other (Fig. 10).

All these measurements do not exactly correspond to each other but usually do not vary by more than a few millimeters, with the exception of the vertical height of the ear, when the face has dimensional balance. By averaging several of these measurements, the existing OVD may be compared to give a clinical impression of the accuracy with this objective approach. The subjective criteria of esthetics may then be considered after the facial dimensions are in balance with each other.

Radiographic methods to determine an objective OVD are also widely published in the literature. A cephalometric radiograph and tracing are suggested when gross jaw excess or deficiency is noted. These conditions may be caused from vertical maxillary excess, vertical maxillary deficiency, vertical mandibular excess (long chin), vertical mandibular deficiency (short chin), apertognathia, and/or class II division II (deep bite) situations. Orthodontic treatment planning of a dentate patient often includes a lateral cephalogram and may be used to evaluate OVD (glabella-subnasale, subnasale-menton). The same measurements may be performed on the edentulous patient (Fig. 11).

Esthetics are influenced by OVD because of its relationship to the maxillomandibular positions. The smaller the OVD, the more class III the mandibular jaw relationship becomes, and the higher the OVD, the more class II the mandible becomes. The maxillary anterior tooth position is first determined and is most important for the esthetic criteria of the reconstruction. Alteration of the OVD for esthetics rarely includes the maxillary tooth position. For example, the OVD position may be influenced by the need to make the mandible less harsh looking for a patient with a large chin button (mental protuberance). Once the OVD satisfies the esthetic requirement of the prosthetic reconstruction, it may still be slightly modified. For example, the OVD may be modified to improve the direction of force on the anterior implants. In addition, anterior mandibular implants on occasion are too facial to the incisal edge position, and increasing the OVD makes them much easier to restore. Therefore, because the OVD is not an exact measurement, the ability to alter this dimension, within limits, may often be beneficial.

Conclusion

Implant prostheses have a higher rate of mechanical complications than failure of an implant. A number of factors may increase the mechanical load to an implant restoration, including an increased CHS. The CHS acts as a vertical cantilever to any angled or offset load to the restoration. As a result, excessive CHS should have stress reducing protocols, including shorter cantilever length, less offset loads, increased implant number, increased implant diameter, increased surface area for implant designs, removable verses fixed restoration, which are removed during sleep, and splinting implants together. A reduced CHS also has mechanical consequences to the restoration, including reduced retention of the abutments and an increased risk related to the bending fracture resistance of the prosthesis.

The CHS is affected by the OVD. Determination of the OVD is not a precise process, and a clinical range is possible without clinical symptoms. The existing OVD of a patient is rarely naturally too large. A decrease in OVD is more common in the complete edentulous patient. A modification of the OVD may be made by the dentist for esthetics, function, and/or structural needs of the dentition. The OVD may be determined by objective or subjective methods.

These guidelines will appear as Part 2 in the next issue of Implant Dentistry.

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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Bericht der Podiumsdiskussion innerhalb der Konferenz zur Erzielung eines Konsens in Bezug auf die Richtlinien der Abstandshöhenbildung bei Überkronungen für die Implantierungszahnheilkunde: Teil 1

ZUSAMMENFASSUNG: Der internationale Kongress der Oralimplantologen (International Congress of Oral Implantologists–ICOI) initiierte im Zeitraum vom 26. bis 27. Juni 2004 in Las Vegas eine Konferenz zur Erzielung eines Konsens über die Abstandshöhenbildung bei Überkronungen. Das Gremium erhielt Gelegenheit, sich bereits im Vorfeld der Konferenz verschiedentlich sowie während und nach der Besprechung als Gruppe und unter den einzelnen Teilnehmern auszutauschen. Für die meisten Themenbereiche konnte keine übereinstimmende Ansicht erzielt werden. Allerdings gelang es, allgemeine Richtlinien in Bezug auf diesen Themenkomplex aufzustellen. Das nachfolgende Dokument stellt Teil 1 einer Zusammenfassung verschiedener dieser Richtlinien dar, die für die Gesamtheit der Zahnheilkundigen von Vorteil sein können.

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

ABSTRACTO: El Congreso International de Implantólogos Orales (ICOI por sus siglas en inglés) patrocinó una conferencia de consenso sobre el tema espacio de la altura de la corona entre el 26 y el 27 de junio 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 I de un resumen de varias de las pautas que deberían ser de utilidad para la profesión en general.

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Relatório do Painel da Conferência de Consenso: Diretrizes de Espaço de Altura da Coroa para Odontologia de Implante: Parte I

RESUMO: O Congresso Internacional de Implantologista Oral (ICOI) patrocinou uma conferência de consenso sobre o tópico de Espaço de Altura da Coroa em 26-27 de junho de 2004, em Las Vegas, Nevada. O painel comunicou em várias ocasiões antes, durante e após da reunião, tanto como grupo quanto entre indivíduos. Um consenso de uma opinião não foi desenvolvido para a maioria das questões. Contudo, diretrizes gerais emergiram, relacionadas ao tópico. O seguinte artigo é a Parte I de um resumo de várias das diretrizes que deveriam ser de benefício para a profissão em geral.

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 Guideline

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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ていたが、この問題に関する総合的ガイドラインの作成には至らなかった。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1である。

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