



"We respect Dentistry, Dental Technology and Science which makes us stand out from our competition"
Kash Qureshi, Managing Director

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If You're Using Hybrid (Ti Base) Implant Abutments, Heed This Word of Caution? By Gregg Kinzer, D.D.S., M.S., Spear Faculty and Contributing Author, December 9, 2015

As has been discussed in previous posts, many options exist for implant abutments. One of the most recent abutment designs is the "two-piece" or hybrid implant abutment. There are many benefits that a custom hybrid/two-piece implant abutment can have over a custom zirconia abutment.

- 1) Achieves a high strength due to the metal-metal internal connection into the implant and the metal / titanium insert or base internally supporting the abutment.
- 2) Enables a small dental laboratory or the clinician themselves to fabricate custom implant abutments without having to outsource for the milling of the zirconia.

The abutment consists of a metal base that can purchased (ie. Ti base) or purchased and adjusted (titanium abutment) (Figure 1). Over the top of the metal base, an all-ceramic piece is fabricated and bonded to the abutment (Figure 2)



Figure 1



Figure 2



The all-ceramic segment is typically made out of e.max or zirconia. The all-ceramic segment is then bonded to the metal base using resin cement, which is typically done in the laboratory. The research shows that the two-piece abutments are stronger than one piece zirconia abutments and that as long as the guidelines for the chimney height of the metal is followed, the retention of the components with resin cement is not a factor.

So why the word of caution regarding hybrid implant abutments?

One contraindication for the use of a hybrid abutment would be a situation in which the Ti base is too short relative to the height of the abutment (Figure 3).

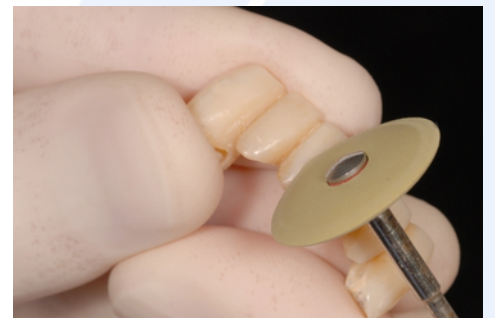


Figure 3

This would mainly be seen with implants that are placed too deep or on implants that have a lot of soft tissue thickness above the bone. With either clinical situation, the ceramic portion of the abutment portion that would provide the support for the restoration would be significantly weakened as it is unsupported by the metal base. This is especially evident if the ceramic portion is fabricated out of e.max. If a hybrid abutment were to be used in this situation, it would either need a taller chimney – increased height of -

Dental Fact:

Dogs have 42 teeth, cats have 30 teeth, pigs have 44 teeth, and an armadillo has 104 teeth. A snail's mouth is no larger than the head of a pin, but it can have over 25,000 teeth!



- the Ti base itself – or a taller collar, thereby placing the existing chimney height more coronal with respect to the margins of the ceramic portion.

Another contraindication would be in clinical situations in which a dentist finds a surrounding bony profile that is “funnel” shaped. This bone profile is common with bone-level internal connection designed implants, as opposed to the traditional flat-top external hex-style implants where the bone is remodeled down to the level of the first thread. With the “funnel-” shaped bony profile, the flare of the implant abutment/restoration can bind with the bone thus preventing the restoration from fully seating. This can lead to things such as screw loosening, peri-implant inflammation and pressure necrosis of the bone. In these situations it is necessary to reduce the flare of the abutment/restoration so that it is narrower upon its immediate emergence out of the fixture. Although this seems easy enough to do with the Ti base on the hybrid abutment, it must be remembered that the manufacturer has set forth guidelines that the hybrid abutments need to follow for strength and predictability (Figure 4).

If the flare of the Ti base is narrowed, the resultant thickness of the ceramic portion coronal will also be thinned, thereby resulting in a structurally compromised abutment due to the weakness of the ceramic in this area if e.max were to be used. To remedy this situation, either zirconia can be used as the ceramic portion of the abutment or a different abutment design can be used altogether.

In Figure 5, note the difference in implant depth relative to the crest of the bone for the two fixtures. A hybrid abutment can safely be used on tooth #29 since the head of the implant is coronal to the bone crest. The implant on #28 is positioned below the crest of bone. Utilizing a traditional Ti base/hybrid abutment is contraindicated in this situation as the flare of the Ti base would impinge on the surrounding bony profile. The provisional restoration that is in place on #28 (outlined due to lack of radiopacity of the material) shows the narrow emergence profile that was created. This type of emergence profile could not be reproduced with a hybrid abutment without significant structural compromise.

Although the design and use of the hybrid abutment has been a great stride in abutment selection, it must be remembered that it cannot be used in all clinical situations.

1. Comparison of fracture resistance of pressable metal ceramic custom implant abutments with CAD/CAM commercially fabricated zirconia implant abutments Kim S, et al. J Prosthet Dent 2009 Apr;101(4):226-30

2. Retentive strength of two-piece CAD/CAM zirconia implant abutments Gehrke P. Clin Implant Dent Relate Res 2013 Mar 25 (Epub)

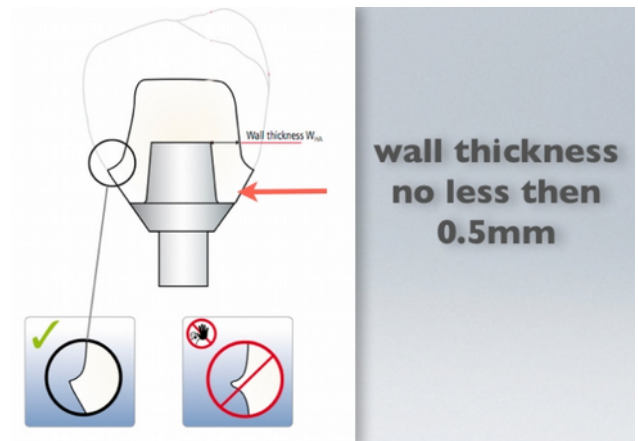


Figure 4

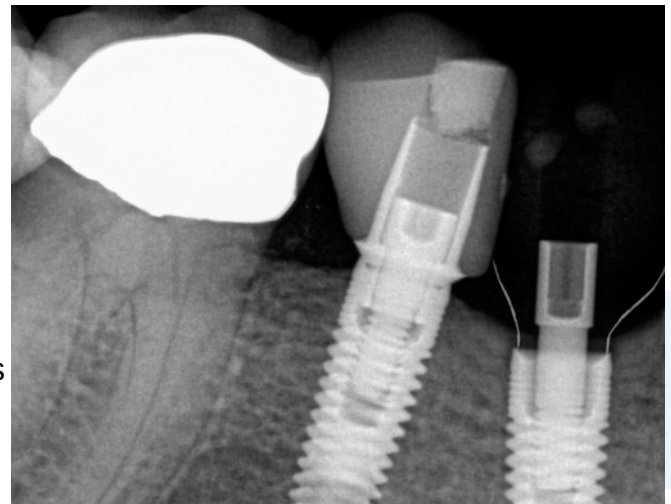
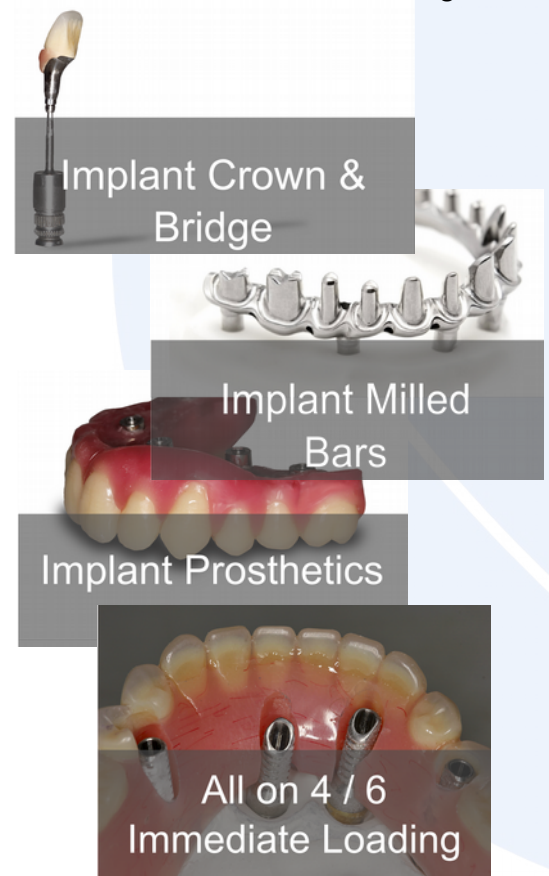


Figure 5

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www.speareducation.com, Accessed 25th August 2019.



Anterior open bite on dentures?

Why do we have anterior open bites on try-ins and finished dentures? In simple terms, it's the 'Free Way Space' that is causing the issue with the occlusion.

When the freeway space is decreased, it causes the posterior teeth to overcompensate and causes the patient to occlude posteriorly to compensate for the loss of FWS and creates the AOB.

What to do?

Remember it's never a wasted appointment, check the anterior aesthetics, the fit, retention, stability and support. If this is acceptable to you and your patient, then proceed.

Then use a 'Willis Gauge' to check the OVD in comparison between the old dentures and trial dentures, this will give you a good indication if you need to increase or decrease the ovd and check the 'Free Way Space'.

Free way space (FWS) is dictated by the overall vertical dimension (OVD) and resting vertical dimension (RVD) and provides the distance between the maxilla and mandible at physiologic rest position which is usually between 2 – 4 mm.

OVD, RVD and FWS should be checked in the bite registration stage in comparison to the patients old dentures and at the try- stage, this process can take a few minutes.

Solution for AOB:

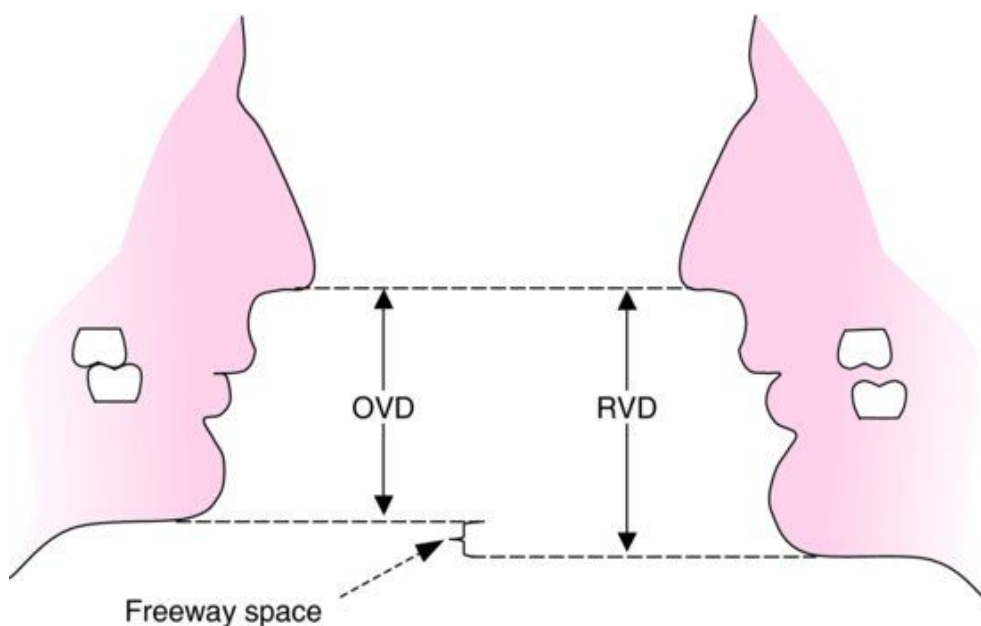
Simply remove the mandibular or maxillary posterior teeth on each side and record a new a jaw registration with wax or bite reg paste with the correct OVD and the posterior teeth will be reset to compensate.

FWS is correct but there is still an AOB present:

The mandibular anterior teeth have been set too low and will need to be placed higher. Simply take another bite registration posteriorly without removing teeth or place some wax to the mandibular anterior teeth to indicate the level of how high you would like the teeth to be placed.

Example of FWS:

e.g OVD= 45mm RVD=47mm, $OVD - RVD = 2\text{mm}$ of free way space.
 $RVD - OVD = FWS$





We offer the full range of 'All Ceramic' (metal free) restorations from 'IPS e.max' to 'Zirconia Based Restorations'. Zirconia based restorations have two options, layered to zirconia or monolithic full contoured zirconia.

Layered to zirconia implies that the framework is CAD/CAM milled as a coping and has ceramic layered over the top of the coping to achieve form, function and aesthetics whereas monolithic FCZ is milled from a solid zirconia and is sintered to produce the form, function and aesthetics as one solid block of material, with no ceramic layered.

What is Cercon®?

'Cercon®' is a zirconia based coping framework with ceramic layered over the CAD/CAM milled coping to achieve form, function and aesthetics. It is a proven system that provides 'High Strength' and 'Aesthetics' for fabricating metal free crown & bridge frameworks and customised implant abutments in anterior and posterior regions. Cercon® has over '5.7 million' restorations produced worldwide for over 10+ years. With numerous scientific studies, it has shown 'Cercon®' is just as safe as the gold standard of metal ceramic bridges with a 100% survival rate over 40 months.

Technical Features:

'Cercon®' is milled from pre-sintered zirconia blocks via our in-house 'Cercon®' CAD/CAM milling machine as a coping and provides a flexural strength of over 1,300 mpa. Ceramic is then layered over the coping, similar to a porcelain bonded crown, but metal free. It is recommended for primary telescopic crowns, crown substructures, multi-unit bridge substructure with a maximum anatomical length of 47mm (4-6 unit bridge) and inlay bridges.

Contact Kash on 0208 520 8528 for further information.

Before



After

