# August 22, 2006: Blog on Nobel Replace with TiUnite being made from CP Titanium vs. Replace with HA in the stronger Ti Alloy.

## HA Coated Dental Implants

Dr. Nimchuk asks:
HA coatings on dental implants have been shown to accelerate surface bone apposition, thereby shortening the waiting period for dental implant restoration.
We also know the HA surface degrades and in some instances separates, so the trend has been to substitute coatings with roughened surface dental implants, which incidentally also show better and more rapid integration times. In addition, we know that titanium alloy dental implants are more fracture resistant than grade one, two or three and that in the case of narrow diameter implants, it makes sense to choose alloy implants.
Based on the above, a dilemma arises with the Replace Implant and the TiUnite surface which out of necessity require the dental implant to be manufactured in grade 1 titanium. If you wish to use alloy with Nobel implants you can do so only if you use a smoother surface or HA.
My question is: Now that we have 15 years of experience with HA coated implants, how do HA coatings perform over the long term? What is the resorptive factor of HA and the clinical implications of the osseointegrated interface? Can we still say this is a good and viable surface to use and should we therefore possibly choose an HA-coated dental implant in narrow diameters over TiUnite because of the strength of material issue (for those who choose to use a Nobel Biocare Replace product)?
August 22, 2006 in Nobel Biocare, Surface Treatments | Permalink

## Comments

Dennis. When my wife split the root of an endodontic treated second bicuspid, I had it replaced with an immediate insertion HA coated Tapered Screw-Vent Implant. I guess this says more about what I prefer in an implant surface than quoting any studies. The VA studies of the 1990s clearly showed significant advantages in achieving and maintaining osseointegration. The HA was being compared with smooth, acid etched surfaces in side-by-side implant placements of various implant designs. The higher success with HA Vs Acid etch could be attributed to the rougher surface of HA or to its bio-activity. Since the study did not include blasted surfaces, the answer to this question could not be determined from this study, but what we did learn was that HA was save and effective. By 1990, high crystalline HA was generally being applied to Calcitek, Core-Vent and Steri-Oss implants. It did not dissolve or peal off the titanium. Today blasted surfaces provide the roughness needed for soft bone and, especially when used in combination with the bone-expansion concept of inserting a tapered implant into an undersized socket, such as with Zimmer's Tapered Screw-Vent or Implant Direct's ScrewPlant implants. Given the desire to minimize inventories, it is an unnecessary burden to have to buy both HA and TiUnite surface Replace implants from Nobel, just to compensate for TiUnite's inability to stick to alloy. The 3.5mmD and 4.3mmD Nobel Replace and Implant Direct's Replant implants, because of the size of the Tri-lobe, have very thin walls -- about 1/4mm, where the minimum wall thickness should be 1/2mm. I learned this from fractures of the pure titanium 3.7mmD Screw-Vent implants in the late 1980's before switching to alloy and widening the top from 3.5mmD to 3.7mmD. While the RePlant was made to be surgically compatible with the Nobel Replace implant while being made out of alloy for added strength, it still shares its dimensions with the thin walls. I have developed the RePlus implant line using the body shape and diameters of the ScrewPlant but stepping in to the narrower platform diameters of the Nobel Replace implants. The 3.7mmD and 4.7mmD diameter RePlant implants providing 44-66% greater wall thickness with their 3.5mmD and 4.3mmD tri-lobe platforms. There is also a 5.7mmD RePlant stepping back to a 5.0mmD Nobel compatible Tri-lobe connection. The RePlus implants come on a titanium fixture mount that can be used as a transfer or shortened to be the final abutment. Along with the cover screw, which is also included, this all-in-one packaging represents over a 75% savings compared to the Nobel Replace implant, cover screw, transfer and snappy abutment. This choice should be a no-brainer for anyone using Nobel Replace implants.
Posted by: Jerry Niznick | Aug 22, 2006 2:42:29 PM