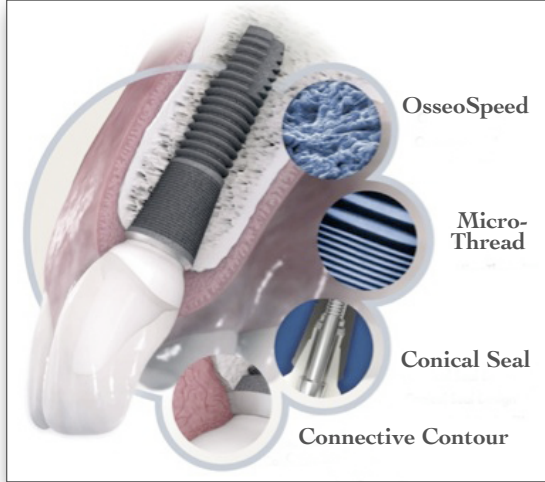


WHY ASTRA DENTAL IMPLANTS?

I have been asked by some dentists why I am such a strong believer in the Astra system, so this issue will focus on the advantages of Astra implants over their competitors. Although many implant systems have recently begun to provide appropriate abutment-implant interface and surface texture (as described within), Astra has provided these aspects in their implant design since the first clinical use of the system in 1985 in Sweden. Astra has been in the business nearly as long as Nobel Biocare (first used in 1978), and ranks third in sales after Nobel. Astra is the leading implant manufacturer with regard to the amount of research on their implant design. Design characteristics are described below.



OsseoSpeed surface coated with Fluoride to promote bone healing around the implant.

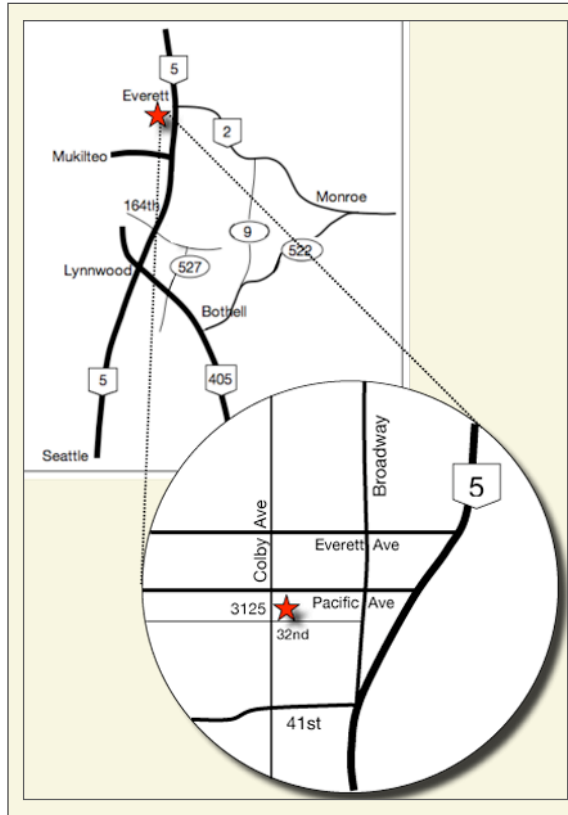
MicroThreads to distribute chewing forces through-out the implant and prevent possible load fracture.

Conical Seal Design to maintain bone around the implant by eliminating micro-movement of the abutment on the implant (Fig A and C).

Connective Contour to maintain gum stability around the implant by moving the abutment-implant interface away from the bone margin (platform switch of Fig A and C).

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NEWSLETTER

BY PAMELA NICOARA DDS MSD

Why Astra Dental Implants?



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Why the Astra Dental Implant System

GENERAL CONSIDERATIONS

Not all implant systems are alike. There are several important design characteristics that make an implant better suited to maintain bone and soft tissue around the implant platform to provide the most esthetic long-term outcome possible. Of the various factors involved, the two most important are the design of the system at the abutment-implant interface, and the surface texture.

Abutment-Implant Interface:

The implant in the bone must make connection to the outside of the mouth through the use of an abutment which usually screws onto the implant. The area where the abutment protrudes from the implant platform must be free of micro-gap or micro-movement, and must not be at the bone margin.

Micro-gap: Research has shown that lack of an intimate fit of the abutment to the implant, or movement of the abutment on the implant, provides an area where bacteria can reside, cause inflammation, and cause bone loss and tissue recession at a radius of about 1mm to 1.5mm. Conical abutments like an Astra implant (*Fig A*) have less micro-movement or gap than 90 degree butt joints of other systems (*Fig B*) and therefore have better bone maintenance

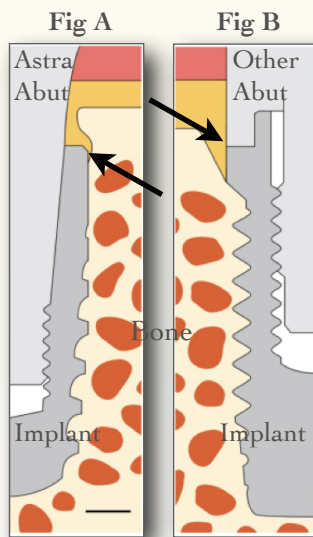
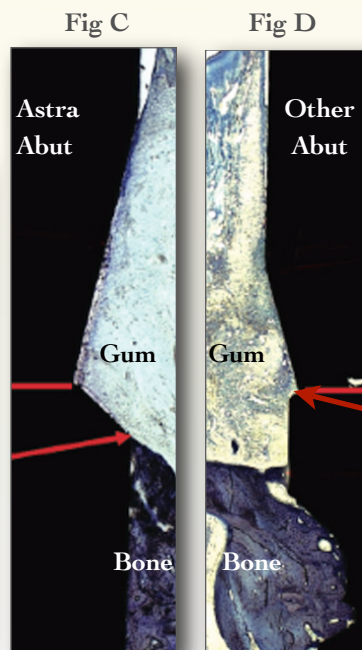


Fig A and B: schematics of two implant systems with different implant-abutment connections. Only one half of the implant is shown. Fig C and D: histologic slides of the abutment connection portion of implants in Fig A and B.

around the implant platform (*Black Arrows*).

Platform switch: Platform switching is a term used to indicate that the abutment is narrower than the implant platform. This essentially moves the 'micro-gap' and any movement away from the implant platform which is normally placed at the bone level. If the 'micro-gap' and any possible bacteria are away from the bone, they exert lesser influence on the bone and soft tissue because they are just too far away. Therefore, the bone stays at the level of the implant platform where it was at the time of placement.

In the Astra system (*Fig C histologic slide*), the 'micro-gap' (*Red Line*) is moved away from the implant platform (*Red Arrow*), and the abutment is essentially narrower than the implant platform by nearly 1mm, keeping the bone at the level of the implant platform (*Red Arrow*).



nearly 1mm, keeping the bone at the level of the implant platform (*Red Arrow*).

In other systems, like Nobel Biocare (*Fig D histologic slide*), the micro-gap and the implant platform were historically at the same level (*Red Line/Arrow*). The implant was placed with the implant platform at the level of the bone. However, as the bone healed, it was always lost by approximately 1.5mm from the micro-gap.

Surface Texture:

There are essentially two types of implant surfaces available: rough and smooth. Research has shown that a rough surface is better at maintaining bone and becoming osseointegrated than a smooth surface. Specifics about how rough the surface should be, and whether a particular added coating improves integration in the long term or not is still being researched. Certainly the faster integration takes place, the sooner the implants can be loaded, but the overall success rates of rough surface implants are in the 98% range.



Astra has always provided the roughened surface to the top of the implant platform (*Red Arrow Fig C*). This maintains bone which maintains esthetic soft tissue contours and interproximal papilla.

Historically, in other implant systems, a smooth collar was around the platform of the implant, and bone would not integrate there (*Red Arrow Fig D*).

RESTORATIVE ADVANTAGE

Astra is also easy to restore as there are only 2 platform sizes to choose from. In addition, abutment selection ranges from Atlantis computer generated custom abutments (Astra now owns Atlantis), to stock abutments with snap on impression copings.

REFERENCES

Berglundh et al. *JCP* 2005, Weng et al. *COIR* 2008