Why accept bone loss?

When it comes to implant treatment, peri-implant soft tissue architecture and texture, in combination with maintained marginal bone levels, are absolute prerequisites for long lasting esthetic success. Under the right conditions, nature itself does the major part of the job. The Astra Tech implant system is designed to provide nature with the right conditions; all of the system's parts work together for reliable clinical success. In fact, the system offers unrivalled, documented results when it comes to the maintenance of marginal bone integrity and soft tissue health.

Necessary symbiosis

The maintenance of the marginal bone is crucial both from a functional as well as an esthetic point of view. Yet, "some" bone loss is commonly accepted as an unavoidable consequence of implant treatment. Some implant suppliers even claim that it is positive and necessary in order to establish a biological width. At Astra Tech, we have never accepted this approach because there is no reason for you or your implant patients to accept bone loss. Preserving marginal bone levels and establishing the biological width at the abutment level are really all about ensuring the right stimulation of the bone and promoting healthy soft tissue. Like the proverbial question, "Which came first, the chicken or the egg?", healthy soft tissue and maintained marginal bone are interdependent. One cannot exist without the other, because while an important task of the soft tissue is to protect the bone, the bone must be maintained to help support the soft tissue, a necessary symbiosis.

A holistic approach

To design a successful implant system, one needs not only a great deal of knowledge about biology and mechanics, but also an understanding of what happens when the two interact. Early on in the development of the Astra Tech implant system, we realized the value of a holistic approach. That is why the Astra Tech implant system was uniquely based not only on a biological but also a biomechanical approach. With the introduction of the OsseoSpeed™ surface, we have taken this to the next level by incorporating biochemistry. Just as in nature, a successful existence cannot be determined by one single element alone. The terms biomechanics and biochemistry are no longer sufficient as there must be several interdependent features working together. This interaction is what we call the Astra Tech BioManagement Complex™.

Astra Tech BioManagement Complex™

A successful implant system cannot be determined by one single feature alone. Just as with nature, there must be several interdependent features working together. The following combination of key features is unique to Astra Tech:

- **OsseoSpeed™** – more bone more rapidly
- **MicroThread™** – biomechanical bone stimulation
- **Conical Seal Design™** – a strong and stable fit
- **Connective Contour™** – increased soft tissue contact zone and volume

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Astra Tech AB, P.O. Box 14, SE-431 21 Mölndal, Sweden. Tel: +46 31 776 30 00. Fax: +46 31 776 30 10. www.astratechdental.com

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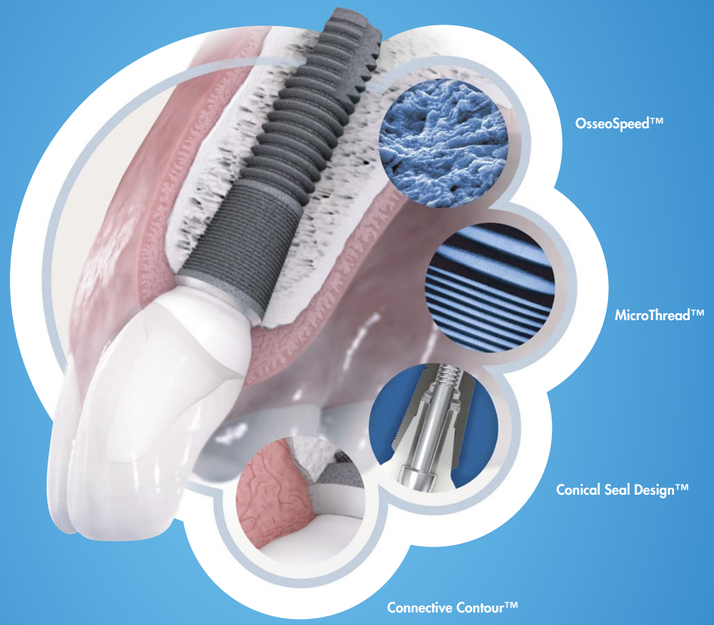
Astra Tech BioManagement Complex™

—function, beauty and biology in perfect harmony

ASTRA TECH DENTAL



ASTRA TECH BIOMANAGEMENT COMPLEX™

Astra Tech BioManagement Complex™

The establishment and maintenance of a soft tissue seal around the transmucosal part of an implant (i.e. the abutment) is vital for implant treatment success. The formation of the soft tissue barrier around the abutment is fundamentally a result of wound healing. Thus, during healing a barrier epithelium will form adjacent to the abutment and, apical to this epithelium, a zone of connective tissue will form and attach to the titanium surface on the abutment to protect the underlying bone tissue. The barrier epithelium and the connective tissue–implant interface will consequently establish a certain biological width of the peri-implant mucosa. It is important that this process takes place undisturbed, without micro-movements and micro-leakage in the abutment-implant connection, since this will disturb the healing process and compromise the long-term result.

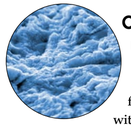
Initial bone healing and long-term marginal bone stability are affected by the implant design and surface properties. Optimal biomechanical and biochemical stimuli from the implant surface are of utmost importance for the bone healing process. The long-term marginal bone stability is primarily dependent on biomechanical stimulation from the implant, particularly around the implant neck. This means that a successful clinical result, in both a short- and long-term perspective, is related to the features of an implant. Failing to control these factors may cause problems such as black triangles between teeth and, in a worst case scenario, the implant might be lost. Infection or irritation of the soft tissue can also disturb the healing process and the long term result. These problems might be caused by factors not related to the implant as such, but to a lack of maintenance and care by the patient or by his or her general health status. Very often, the problems are caused by the same factors or circumstances that led to the initial tooth loss. Our way of safeguarding a reliable, predictable and esthetic result both in the short- and long-term, is with the Astra Tech BioManagement Complex™. This is a unique combination of the following features:

- **OsseoSpeed™**
- **MicroThread™**
- **Conical Seal Design™**
- **Connective Contour™**

The unique soft tissue seal on the abutment level, together with well-calculated biomechanical interactions with the bone around the implant neck, ensure optimal conditions for the bone. The load distribution and the lack of micro-movements and micro-leakage are the main reasons for maintained healthy peri-implant tissues and preserved marginal bone levels.

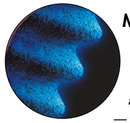
A unique combination

To put it simply, with the Astra Tech implant system, esthetics are integrated into the implant system design. We work together with nature in supporting the natural healing process instead of interfering with it. That is why you and your patients can rely on the Astra Tech implant system, not only today, but also tomorrow and beyond.



OsseoSpeed™ – more bone more rapidly

Building on the proven success of TiOblast™, OsseoSpeed™ is the first and only implant in the world with a chemically modified titanium surface with a unique nanoscale topography. It stimulates early bone healing and speeds up the bone healing process. The result of the micro-roughened titanium surface treated with fluoride is increased bone formation and stronger bone-to-implant bonding. Together with MicroThread™ on the implant neck, OsseoSpeed provides true growing power in action for more reliable and effective treatment. The clinical benefits of OsseoSpeed are proven and well-documented.



MicroThread™ – biomechanical bone stimulation

The neck of Astra Tech implants are designed with MicroThread™ — minute threads that offer optimal load distribution and lower stress values. This design is based on a thorough understanding of bone physiology, vital to optimal implant design. Since bone tissue is designed to carry loads, dental implants must be developed to mechanically stimulate the surrounding bone in order to preserve it, taking into consideration that the critical point of the implant-bone interface is located at the marginal cortical bone where peak stresses occur.

Conical Seal Design™ – a strong and stable fit

The Conical Seal Design™ is a conical connection below the marginal bone level that transfers the load deeper down in the bone. Compared to conical connections above the marginal bone level and flat-to-flat designs, Conical Seal Design reduces peak stresses and thereby preserves the marginal bone. It also seals off the interior of the implant from surrounding tissues, minimizing micro-movements and micro-leakage. Conical Seal Design simplifies maintenance and ensures reliability in all clinical situations. What's more, the tight and precisely fitting implant-abutment relation of the Conical Seal Design makes abutment connection a quick and simple procedure. The abutment is self-guiding and the installation procedure is non-traumatic, eliminating the risk of bone damage.

Connective Contour™ – increased soft tissue contact zone and volume

The Connective Contour™ is the unique contour that is created when you connect the abutment to the implant. This contour allows for an increased connective soft tissue contact zone both in height and volume, which integrates with the transmucosal part of the implant, sealing off and protecting the marginal bone.