

Why accept bone loss?

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 to accept bone loss.

Necessary symbiosis

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™.

The unique features of the Astra Tech BioManagement Complex™

OsseoSpeed™ – more bone more rapidly

Building on the proven success of TiOblast™, OsseoSpeed™ is the first 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.

For further information, please contact:

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Astra Tech, a subsidiary of the pharmaceutical company AstraZeneca, develops and produces dental implants and advanced medical devices. With these products, Astra Tech aims to improve treatment results, facilitate procedures, reduce health care costs and enhance the quality of life for patients.

Astra Tech's headquarters, located in Mölndal, Sweden, house facilities for research and development as well as production. The company has 15 subsidiaries in Europe, North America and Asia/Pacific and is represented by local partners in other selected markets.

Astra Tech had sales of \$360 million in 2006 and employs approximately 1,800 people.

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