

Follow-up
EAO 2006
in Zurich

That's the way! Innovative and different!

A Good Morning with Astra Tech attracted a majority
of delegates at the EAO congress

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- Good morning Zurich!
 - A new standard for implant treatment!
 - From theory to reality
 - Astra Tech BioManagement Complex™



Astra Tech is certainly on the move!

I am proud and happy to state that Astra Tech is really on the move. We are aiming for a market leading position and we will be one of the top three implant suppliers by 2009. A big challenge, but we are getting there. I would like to emphasize that we are not interested in shortcuts. We will continue to scientifically and clinically evaluate and document new products and concepts very thoroughly before they are released to the market. The safety and quality of life for your patients always come first at Astra Tech.

The Astra Tech BioManagement Complex™ is a key concept for us and it was thoroughly discussed at the EAO congress. It is not new as such, but it is a new way to explain and visualize our well-defined concept of a holistic approach to implant therapy and the development of a reliable and successful implant system. For us, this way of thinking comes naturally, but we have realized that we are unique in this approach. The concept has been very appreciated and well-received both among scientists and clinicians. One of the comments heard at the congress was "Finally, your recipe for long-lasting esthetic results is revealed!"

At EAO this year, the Astra Tech Gold Sponsor Course came out as the "attendee winner," followed by Straumann at a distant second and Nobel Biocare in third place.

For us at Astra Tech, it is a clear sign of our momentum and energy. This development is possible thanks to close cooperation with clinicians and scientists all over the world and it was manifested through the success of "A Good Morning with Astra Tech"—the theme for our Gold Sponsor Course at EAO 2006. However, this doesn't mean that we are content; on the contrary, it inspires us to work even harder and do even better. So what's in it for you? An implant system from a company you always can count on to provide extensive scientific documentation; a company that never launches new products before they are proven to be safe; and a company that knows how to listen and work with you in supporting your clinical processes.



Sincerely,

Björn Delin
Business Unit Director, Dental
Astra Tech AB, Sweden

Company	Number of attendees
Astra Tech	350–400
Straumann	200–250
Nobel Biocare	180–230
Dentsply	100–120

Source: Merrill Lynch estimates, presented in their report from October 12, 2006.

Good morning Zurich!

The Astra Tech Gold Sponsor Course at EAO in Zurich was a great success. Astra Tech was the outright attendee winner! The mix between serious scientific presentations and a lighthearted morning television show was very much appreciated. The immediate response among the attendees was expressed in comments such as "That's the way!" and "Innovative and different!"

The title of the Astra Tech Gold Sponsor Course was "A Good Morning with Astra Tech." The session was created as a morning television show with guests (world-renowned international speakers), a live band and news broadcasts. The goal was to create a different and inspiring atmosphere, without losing focus of the scientific part of the program.

According to the Merrill Lynch report from the EAO congress, published on October 12, Astra Tech has momentum:

"Overall the feedback we are getting on Astra Tech is very positive and we estimate that the company can continue to take market share both in volume and value over the next 2-3 years. Furthermore, we believe Astra Tech may benefit from the void that has been created by Nobel Biocare and become recognized as a company that continues to focus on solid research and development in conjunction with well supported clinical research."

The focus on solid research and development in conjunction with well supported clinical research was reflected in the scientific program at the Gold Sponsor Course, as well as at the lunch symposium.

The feedback we got from the attendees clearly indicates that this is a session format that they would like to see again. So look out for more Good Mornings with Astra Tech in the future!



Program, October 5, 2006

The importance of serious documentation and liability issues regarding implant treatment

Prof. Tomas Albrektsson, Sweden
Department of Biomaterials/Handicap Research,
Göteborg University, Göteborg

Implants – a choice for a lifetime?

Assoc. Prof. Klaus Gottfredsen, Denmark
Head of the Department of Prosthetic Dentistry,
Faculty of Health Sciences, University of Copenhagen,
Copenhagen

Advanced surgery, for whom?

Prof. Karl-Erik Kahnberg, Sweden
Department of Oral and Maxillofacial Surgery,
Institute of Odontology, Sahlgrenska Academy at
Göteborg University, Göteborg

The importance of maintenance and care for implant patients

Prof. Niklaus P Lang, Switzerland
School of Dental Medicine, Department of
Periodontology and Fixed Prosthodontics,
University of Berne, Berne

Facilitate™ – Computer Guided Implant Surgery

Dr. Dimosthenis Mantokoudis, Switzerland
School of Dentistry, University of Queensland,
Brisbane, Australia



350-400 people attended the Astra Tech Gold Sponsor Course.



Sverker Toreskog, DDS, did a great job hosting the morning show, including heading the speaker panel.



The Zurich television broadcast van outside the congress hall.

Professor Tomas Albrektsson

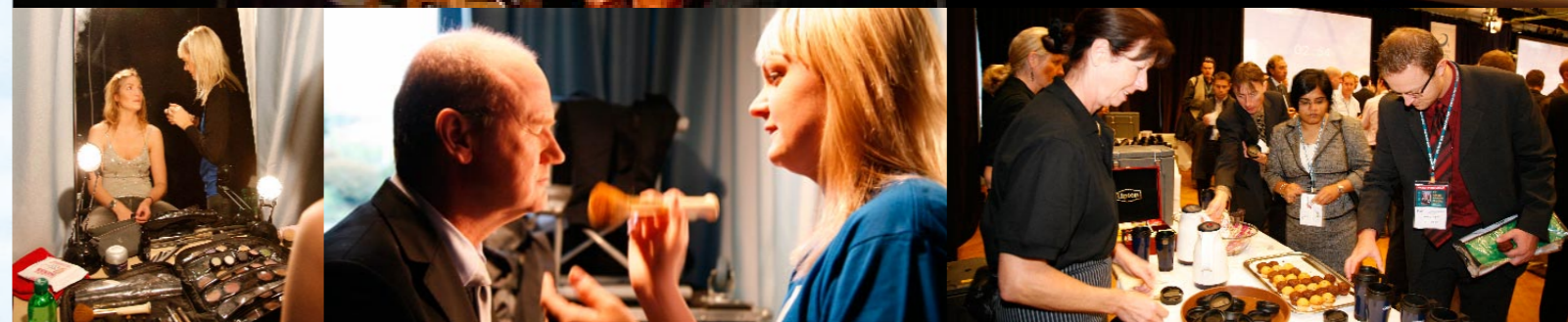


The guest artist, country singer Carola Becker, is also an Astra Tech implant patient.

Professor Niklaus P Lang

Professor Karl-Erik Kahnberg

Professor Klaus Gottfredsen



-A new standard for implant treatment!

Computer guided implant treatment is becoming more and more popular and the benefits are obvious. During his presentation at the Astra Tech Gold Sponsor Course at EAO, Dr. Dimosthenis Mantokoudis emphasized the benefits of computer guided implant treatment, both for treatment planning and performance, as well as being an important communication tool for the whole implant team. According to Dr. Mantokoudis it is just a matter of time before computer guided implant treatment is an integrated part of the planning process for all dental professionals who want to stay at the forefront of implant dentistry.

Dr. Mantokoudis has been involved in a pilot project on Facilitate™ (Computer Guided Implant Treatment) at the University of Queensland, Australia and shared his thoughts and clinical experience from the project with the EAO delegates.

– Implant therapy is prosthetic-driven and we need radiographic images to base our decisions on. Today, there are two types of images, two-dimensional (panoramic, periapical) and three-dimensional (CT scan)

– To work with computer guided implant planning and treatment, CT scans are necessary. To me this was not a big hurdle, since I prefer CT scans in most cases anyway. They are much more accurate and therefore make the planning easier and the surgical procedure more safe and predictable. Keep in mind that there are a number of parameters to be considered during the planning process, such as bone quality, bone quantity, anatomical structures, esthetic and functional demands. The amount and accuracy of the information is crucial for a successful result. The difference in accuracy between different methods has been investigated and documented in a study by Sonick, et al. Int J Oral Max Implants, 1994; (9) 455-460:

Accuracy	Average distortion	Maximum distortion
Panoramic	3.0 mm	7.5 mm
Periapical	1.9 mm	5.5 mm
CT scan	0.2 mm	0.5 mm

– Computer guided implant surgery may not be necessary for every case. However, if you have the software and the skills, why not use it for all cases? It is a good way of documenting the treatment, and it can also be used in patient communication.

When it comes to more complex cases, I think computer aided implant planning should be the method of choice. When you expect complications such as bad bone quality or limited bone volumes it is very helpful and valuable if you are able to compile and compare information. In these more challenging cases the communication between surgeons and prosthodontists is even more important.

With Facilitate you can start your planning from an optimized prosthetic solution. In relation to this you plan for implant positions and take into consideration bone supporting factors, i.e. topography, quantity, density, quality and different anatomical measurements. You get instant visual feedback and you can evaluate the case from different perspectives resulting in a very clear picture of what to be expected during surgery and how the final restoration may look like. You can do virtual surgery and try different angulations, positions, and shapes of the final crowns. It can be used in discussions with the dental technician regarding space needed for ceramic applications etc. The software includes all abutment and implant options, not only for Astra Tech but also for other implant systems. If there is a lack of bone, you can simulate a bone graft and get full information on the volume of bone needed. You can assess even bone quality and quantity around the future implant. And finally, after completing the implant planning you are able to visualize the complete case with the implants and the final crowns.

Dr. Mantokoudis showed a case where the implant team, and certainly the patient, would have benefited from computer guided implant treatment. It was a rather complicated case, involving anterior teeth replacement and bone grafting on a young female with high esthetic demands. No CT scan was performed. If the case had been planned in

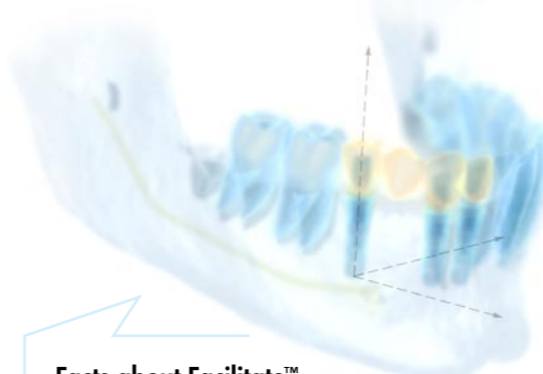


Dr. Dimosthenis Mantokoudis made his presentation on the benefits of using Computer Guided Implant Treatment. Dr. Mantokoudis has been involved in a pilot project on Facilitate™, the software program from Astra Tech.

Facilitate, the misalignment of one of the implants could have been avoided and the esthetic outcome would have been much better. With more accurate and detailed information on bone quality and bone quantity an alternative placement of the implant would have been possible.

The second case he showed involved a middle-aged female who wanted to replace her complete denture with a fixed implant bridge. She wanted her new teeth to look as similar as possible to her existing ones.

– We produced a set-up with radio-opaque teeth and sent the patient for a CT scan. We did not just copy the denture, since the teeth are placed in front of the alveolar ridge rather



Facts about Facilitate™

Facilitate™ is the result of a development and distribution agreement between Astra Tech and Materialise, the company behind the successful SimPlant software. The concept is based on a 3D-visualization of the patient anatomy and the Facilitate software helps to measure and locate vital structures such as the mandibular nerve, maxillary sinuses and the nasal floor. It also contains 3D images of teeth,

than of on top of it as it is the case with implant supported fixed restorations. This way we were able to get all information into the Facilitate software and could plan the whole case.

– In this case, we planned the final restoration, selected the appropriate abutments and placement of the implants before surgery. By using a Facilitate Surgical Guide we also knew that the virtual planning could turn into reality at a high level of accuracy compared to a conventional procedure.

– By converting the CT scans to computer format you also get rid of numerous huge plates and the inconvenience of comparing and filing them. In the case with the middle-aged woman the CT scan obtained 12 A4-films. Instead of dealing with them in the conventional way, they were turned into computer format and burnt on a CD. The planning could be performed in Facilitate and the filing was much more convenient.

– It will take you some time to familiarize yourself with Facilitate. Once capable of using the system you will not want to miss it. In general it means more accurate, reliable and predictable implant treatment, with less complications for the patient and less troubles for the clinician. I think this sets a new standard for implant treatment.

abutments and implants for efficient, accurate and reliable planning of implant positions, sizes and number of implants and abutments to be used. When the case is planned, a surgical guide can be ordered to make sure that the planning result is replicated in the real surgical situation. Facilitate is also an excellent way to communicate with your implant team during the treatment planning process.



From theory to reality

You can count on Astra Tech for solid clinical documentation with reliable results. In fact, Astra Tech implant system is exceptionally well-documented and is today one of the fastest growing systems in the world. For Astra Tech, clinical documentation is an integrated and essential part of the quality assurance process. As a company in the AstraZeneca Group, Astra Tech adheres to strict operating procedures and holds unique resources and expertise in the field.

Why is clinical research important?

Based on a foundation of pre-clinical data, the extensive Astra Tech clinical research program aims at securing regulatory compliance and ensuring that market communication is trustworthy. We strive towards delivering safe and reliable product with tangible clinical benefits for the patient and the dental professional team.

Who are involved?

Clinical research projects are multi-disciplinary in nature and usually involve several different roles such as the:

Investigator – A qualified clinician responsible for conducting the study according to the clinical study protocol.

Study Nurse/Research Coordinator – A person who is coordinating the study at the clinic.

Monitor – A trained Astra Tech representative responsible for quality assurance at the clinic.

Study Patient – A person who has freely given informed consent to participate in the study.

Sponsor – A company or institution that has the overall responsibility for the study.

Clinical studies at Astra Tech are conducted according to strict standard operating procedures to ensure compliance with the Declaration of Helsinki, International Conference on harmonization (ICH) guidelines, ISO 14155 and other regulatory requirements. The clinical study process consists of three main phases; the planning, conduct and closure phase.



Astra Tech BioManagement Complex™



The successful OsseoSpeed™ surface and MicroThread™ are two of the four key features of Astra Tech BioManagement Complex™.

The Astra Tech BioManagement Complex™ is a way to describe our holistic approach to implant design and implant treatment development that we have had since the very beginning. We are unique in this approach and we strongly believe that the delicate balance between biology, biomechanics and biochemistry is maintained by an interaction between several interdependent features.

Anders Holmén, DDS, Head of Product & Therapy Management, Astra Tech Dental.

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 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™. ▶▶▶



Connective Contour™ and Conical Seal Design™ are the other two key features of 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.

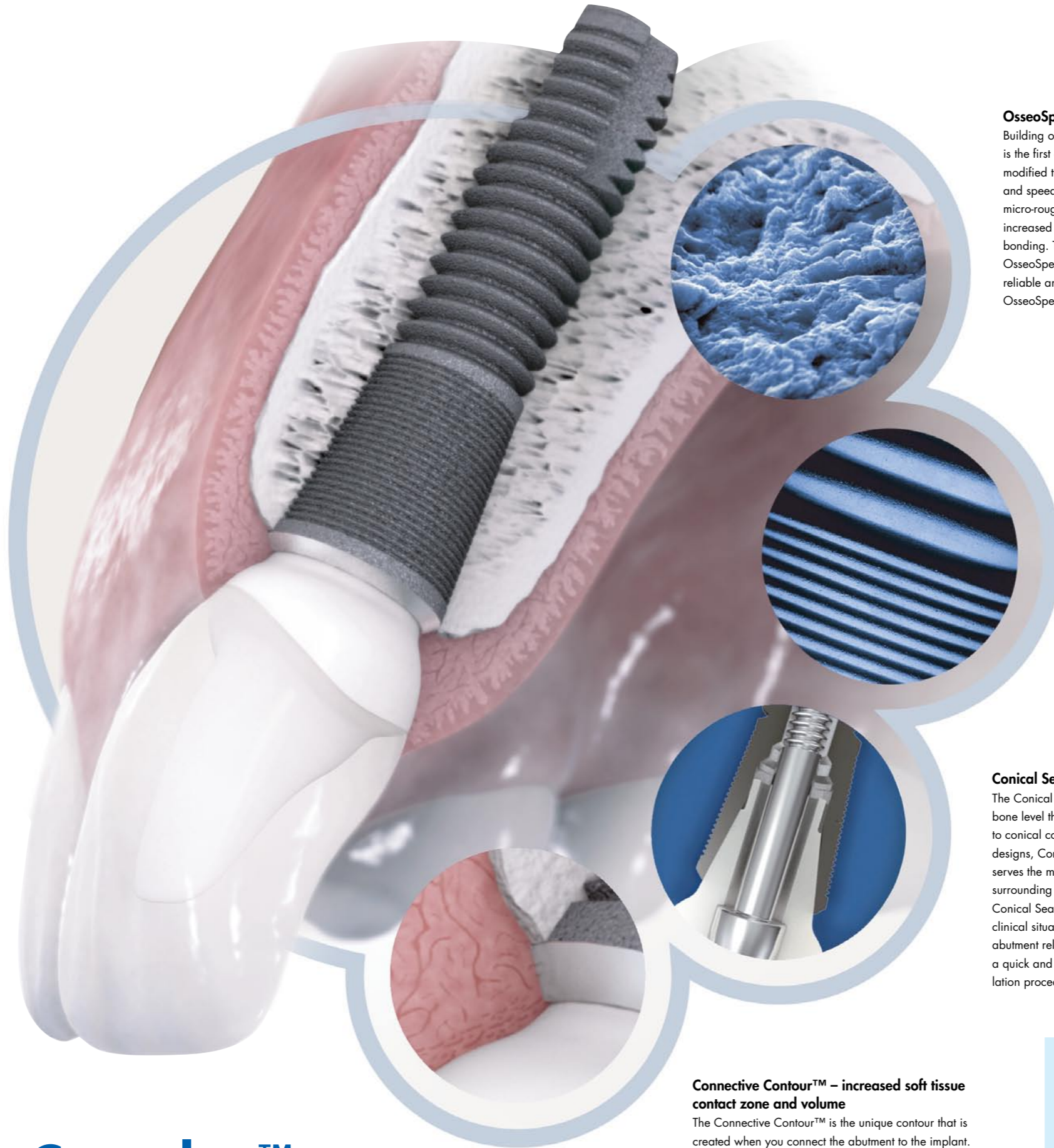
Initial bone healing and long term marginal bone stability are affected by the implant design and surface properties. Optimal biomechanical and biochemical stimuli from the implant surface are of utmost importance for the bone healing process. The long term marginal bone stability is primarily dependent 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 the implant, factors that we actually can control. If we fail in this it might 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.



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 that 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.

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.

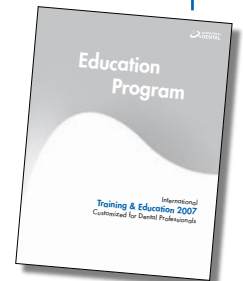
Astra Tech BioManagement Complex™

What's next?

- 2006 AAOMS**
Dental Implant Conference, December 1-2,
Chicago, IL, USA
- 2007 WCO 5th World Congress of Osseointegration**
February 15-17, Venice, Italy
- AO, Academy of Osseointegration**
March 8-10, San Antonio, TX, USA
- IDS Dental Show**
March 20-24, Cologne, Germany
- IADR**
March 21-24, New Orleans, LA, USA
- Osteology International**
May 10-12, Monte Carlo, Monaco
- ICP, International Congress of Prosthodontics**
September 5-8, Fukuoka, Japan
- EAO European Association of Osseointegration
Annual Meeting**
October 25-27, Barcelona, Spain
- 2008 Astra Tech World Congress**
June 5-7, Washington D.C., USA

True inspiration for dental professionals

The new training and education program for 2007 is now available. Ask your local sales representative for a copy or visit www.astratechdental.com for more information.



Curious about the news presented at EAO?



Check out the news from "A Good Morning with Astra Tech" at www.astratechdental.com, where you can also read about the Astra Tech World Congress in New York, the new product launch and much, much more. Welcome!

Welcome to the Astra Tech World Congress
in Washington D.C., June 5-7, 2008!

