

# today



**Prof. Schou speaks**

*today international* had the opportunity to speak with the Danish president of the European Association for Osseointegration about the organisation's anniversary meeting and its contributions to the field of implant dentistry.

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**Dental products in focus**

The 20<sup>th</sup> Annual Scientific Congress of the European Association for Osseointegration will be an excellent opportunity to see state-of-the-art technologies in the field of dental implantology.

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**What's on in Copenhagen**

Unlike any other city in this part of Europe, Copenhagen embodies Scandinavian lifestyle best. Find tips how to spend your time off in the Danish capital in our travel section.

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## EAO celebrates anniversary event in Copenhagen

20<sup>th</sup> Annual Scientific Congress of the European Association for Osseointegration to present latest developments in implant dentistry

■ Celebrating the achievements of implant dentistry in the last 20 years, clinical specialists from Europe and around the globe are expected to gather this week at the Bella Center exhibition and congress venue in the Danish capital for the annual congress of the European Association for Osseointegration (EAO). To be held for the 20<sup>th</sup> time, the event will present the latest research and treatment con-

cepts in the field of implant-supported dental restorations.

Following a successful event in Athens last year, the congress is expected to attract up to 3,000 scientists and clinicians involved in implant dentistry over the course of four days. Besides an extensive scientific programme covering topics like imaging and factors of implant loss, the event will see a record number of companies exhibiting established clinical solutions and a number of new products, including dental implants and sophisticated surgical equipment.

Market leader Nobel Biocare, for example, has announced that its new OsseoCare Pro drill motor, which can be operated entirely through Apple's iPad tablet computer, will be on display. Italian

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(DTI/Photo Annemarie Fischer, Germany)

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# Copenhagen—A perfect location for EAO's annual conference

A welcome message by Lord Mayor Frank Jensen

As lord mayor, I am delighted that the city of Copenhagen is hosting the 20<sup>th</sup> Anniversary Meeting of the European Association for Osseointegration (EAO) and wish you warmly welcome to Copenhagen!

Besides an unforgettable convention, I hope that you will have the opportunity to enjoy our city. Copenhagen is surrounded by the sea and has a host of cultural offerings, as well as a vibrant atmosphere in which you can meet our

easy-going and open-minded citizens.

Copenhagen boasts a well-developed health care system. This, alongside innovative medical companies and a strong research tradi-

tion at our universities, has placed Copenhagen on the international map in this field, making the city the perfect location for EAO's annual conference.

It is my hope that the EAO meet-



ing in Copenhagen will boost awareness of, and contribute to development in the field of dental implantology and the concept of osseointegration. I also hope that you will take home many happy memories from our welcoming metropolis.

*Yours faithfully,*

*Frank Jensen  
Lord Mayor of Copenhagen*

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manufacturer mectron has announced the presentation of its multipiezo pro device, which can be used for ultrasonic implant cleaning, among other things, in Copenhagen. New implants will be exhibited by MIS Implants, MegaGen and BioHorizons.

Satellite symposia will be run alongside the main programme to offer participants the opportunity to learn more about products and clinical solutions from long-term users and clinical experts.

According to the EAO, its latest annual meeting will look back on various issues related to implant dentistry from the last 20 years. Acknowledging the progress being achieved in the field, a Saturday morning session titled "Future perspectives of implant dentistry" will look at the most important concepts and discuss future prospects of bioactive implant surfaces and the use of computer-guided implant planning, among other topics. For the first time, a session organised by members of the EAO's Junior Committee will discuss new revolutionary ideas that could shape implant dentistry in the years to come.

Having originated from a clinical meeting by implant specialists in the late 1980s, the EAO is today an established authority and one of the most important scientific and clinical forums for implant dentistry in Europe. It is comprised of renowned clinicians and researchers from around the world. With more than one third of visitors coming from regions outside the continent, its annual congress has recently gained more relevance internationally.

For more news from this year's EAO congress, please visit [www.dental-tribune.com/eao2012](http://www.dental-tribune.com/eao2012) or scan the QR code on page 1.



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**PORTO**  
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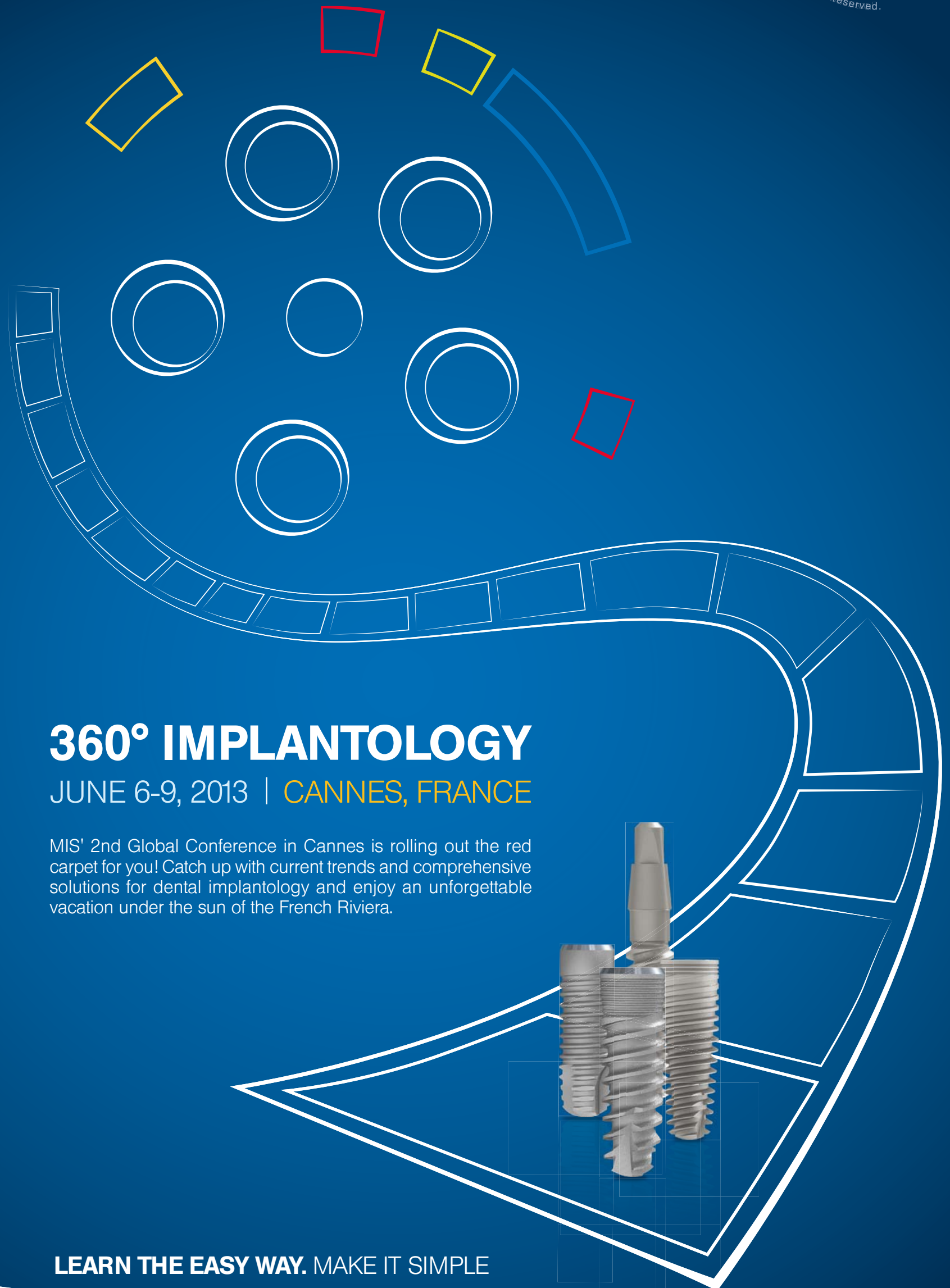
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# “Scientifically speaking, we are living in exciting times”

An interview with EAO president Prof. Søren Schou, Denmark

■ Prof. Søren Schou was elected President of the European Association for Osseointegration at the organisation's annual congress last year in Athens. He also serves as professor in and Chairman of the Department of Oral and Maxillofacial Surgery and Oral Pathology at Aarhus University's School of Dentistry in Denmark. *Today international* had the opportunity to speak with Prof. Schou about the anniversary meeting and its contributions to the field of implant dentistry.

**Today international: The 2012 congress will be a historical event, as members of the EAO will be gathering for the 20<sup>th</sup> time. How has the meeting evolved in your view?**

EAO congresses have developed substantially since the first annual meeting took place in Leuven, Belgium, in 1992. This one attracted 560 attendees from 26 countries. For this year's congress, we expect more than 2,000 participants.

The EAO has always provided a forum for innovative presentations on scientific and clinical aspects of implant dentistry. Over the last 20 years, it has become the leading meeting on implant dentistry in Europe, which is clearly reflected by the number of abstracts submitted to us this year. From 589 abstracts, 511 have been accepted. This high number will give participants of the EAO congress in Copenhagen an outstanding opportunity to bring themselves up to date on the most recent developments in the field.

The trade exhibition has also grown in size over the years and we are proud to say that the Bella Center in Copenhagen will be hosting the largest display of dental implants and other specialised products ever in the history of the EAO.

As it is the 20-year anniversary meeting, this gathering is special. It provides us with the opportunity to explore current advances and future developments in the context of what we have learnt in the last 20 years. We have also arranged an extended welcome reception for all attendees, as well as an anniversary dinner for EAO members.

**This year a quarter of the attendees will be coming from outside Europe. How do you explain the meeting's apparent worldwide appeal?**

While the EAO is a European association, it is open to professionals from all over the world. As economies such as those of South Korea and China continue to develop, many clinicians and researchers from further afield are choosing to attend the congress. They are attracted by the high quality of the scientific and clinical presentations offered.

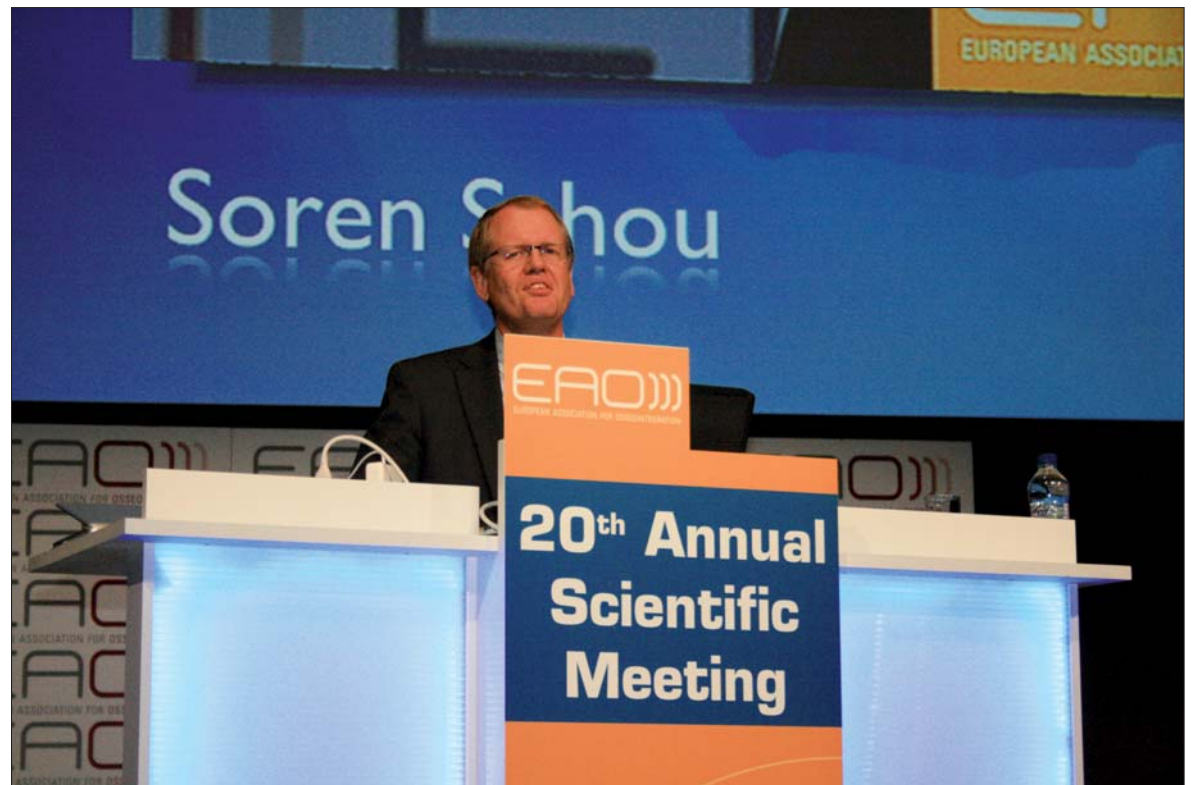
**The number of exhibitors has increased again this year. Is this a welcome development for the congress and oral implantology in general?**

The principal purpose of the EAO congress is to provide a forum for discussing and exchanging clinical and scientific developments

and experiences in implant dentistry. Implant therapy is based on high-tech products that are used to perform complex treatments. The

**According to a consensus statement by your organisation, one out of five implant patients are likely to develop peri-implanti-**

lines have been accepted for publication in *Clinical Oral Implants Research*, the official publication of the EAO.



(DTI/Photo Annemarie Fischer, Germany)

## “...the EAO appreciates its partnership with the industry.”

exhibition allows congress participants to compare different products, to meet suppliers face-to-face and to learn about new developments in the field.

Moreover, satellite industry symposia have been included as a supplement to the scientific programme this year to provide updates on new developments and techniques, which demonstrates that the EAO appreciates its partnership with the industry.

**Last year's congress in Athens focused on dental implant treatment planning. What areas of implant dentistry will be discussed this year?**

This year's congress will explore how the field has advanced over the last 20 years. On the other hand, we will also take a deep look into the future. There are many fascinating sessions on novel subjects, such as human factors, that provide insights into how to minimise the risk of complications. We have also included interactive elements, which will enable the delegates to play an active role in some of the sessions, especially those dealing with human factors.

Future advances in reconstructive therapy, such as whether it may be possible to grow a jaw or teeth in the future, will also be discussed. Scientifically speaking, we are living in exciting times, and it's thrilling to imagine where we may stand another 20 years from now.

**How big is the challenge that this disease poses to implant dentistry, and what progress has been made in overcoming it?**

As populations continue to age and patients keep their implants in their mouths for a longer period, we are likely to continue to see more cases. There are several risk factors that may contribute to a patient's risk of developing peri-implantitis, including smoking and the level of their personal oral hygiene. It has been reported that between 15 and 20 per cent of all implant patients will develop peri-implantitis within 10 years, so it remains important that we understand how to prevent and treat this disease as effectively as possible. Acknowledging this need, we have dedicated a whole session to the issues of implant loss and peri-implantitis.

**CBCT is becoming increasingly important in implant treatment planning, a trend also reflected by your organisation's latest revision of its guidelines on the use of diagnostic imaging in implant dentistry. Is this becoming a new standard, and if so what impact will it have on treatment outcomes?**

The recommendations are based on the findings of an expert panel of radiologists and clinicians who were invited by the EAO to a two-day EAO consensus workshop held at the Medical University of Warsaw in 2011. The panel reviewed and updated the 2002 EAO guidelines and extended them to include CBCT. These EAO guide-

lines are indeed becoming significantly more widespread and may replace some traditional X-ray imaging techniques. It has the potential to provide additional information, enabling clinicians to improve planning for implant treatment. However, all diagnostic imaging carries a small risk due to ionising radiation. A pre-congress course on applying CBCT imaging in clinical implant practice will take place on Wednesday in order to address the use of this technique.

**Over the last year, the board of directors has proposed changes to the EAO's constitution. What do these changes include, and are they likely to be adopted at the Copenhagen congress?**

The proposed changes reflect the EAO's growth and development over the last 20 years. They are intended to make the organisation more fit for purpose and to streamline its management processes. The proposed amendments also include a revised board election process, which is designed to add more transparency to the process. In addition, the changes define maximum terms of office for committee members and office bearers.

The board has worked hard to explain the proposed changes to the membership, with information provided via regular e-mails, webinars, and at an extraordinary general assembly in June. I believe that

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the proposed changes will be of great benefit to the EAO and hope that they will be adopted by the general assembly in Copenhagen.

**What other outcomes can we expect from this congress, and what are your personal expectations?**

As part of the congress, the results and conclusions from the EAO's third consensus conference

will be presented. The conference, which was held earlier this year, identified four key areas for discussion: implant survival and complications; peri-implant tissue destruction; computer-aided therapy and soft- and hard-tissue aspects;

and reconstructions on implants. Its main conclusions and clinical recommendations will be presented in Copenhagen and be made available to the public through *Clinical Oral Implants Research*.

I believe the congress will be a successful meeting, facilitating the exchange of ideas and information between participants.

Many people have worked extremely hard to compile an excel-

lent scientific programme and I am certain that their great efforts will result in a memorable anniversary meeting.

**Prof. Schou, thank you very much for this interview.**

**“Many people have worked extremely hard to compile an excellent scientific programme...”**

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**Travel information**

Bella Center is located just a 10 minute taxi drive from Copenhagen Airport. A regional train runs from the airport to Orestad Station, only 15 minutes drive.

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Fotos from Bella Center, Wonderful Copenhagen

## Imaging guidelines revised

■ The EAO has recently updated its guidelines on the use of diagnostic imaging in implant dentistry by extending them to cone-beam computed tomography (CBCT). Their aim is to optimise both conventional radiography and new procedures and to address the As Low As is Reasonably Achievable principle (ALARA) by focusing on patient welfare and safety with regard to minimising their exposure to ionising radiation.

They were drawn up to support radiologists, as well as dentists and their assistants, in primary care, the organisation said.

“The field of diagnostic imaging is often both very technical and complex. I believe these EAO guidelines provide a very easily accessible, practical and authoritative approach to the area and offer useful guidance to dentists to help them fulfil their obligations, to act always in the best interests of their patients, as well as to be aware of their ethical and legal responsibilities,” said Prof. David Harris, lecturer at the Trinity College Dublin Dental School and Hospital and chair of the EAO panel of 14 radiologists and clinicians from all over Europe that convened at the Medical University of Warsaw in May 2011.

According to the panel, all diagnostic imaging carries a risk however small; nevertheless, in implant dentistry, it is considered essential to patient evaluation for proposed surgical treatment, the investigation of certain complications and prosthodontic planning. The experts therefore highlighted that it is necessary to reduce any radiation dose according to the ALARA principle and to ensure that the examination of each patient is always justified and results in a net benefit to the patient. Available alternative techniques with the same objective but involving less or no exposure to ionising radiation must also be taken into account, they said.

The EAO approached the revision of its 2002 guidelines after SEDENTEXCT, a collaborative EU research project on the sound and scientifically based clinical use of CBCT in dental imaging, had recommended in 2009 that the association review its previous guidelines to take into account the increasing demand for CBCT in dental practice in recent years.

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# Conical internal connections will fuel growth in dental implant market

By Dr Kamran Zamanian & Ian van den Dolder, iData Research Inc.

■ The dental implant and bone graft substitute market is the most rapidly advancing segment of dental technology, and leading competitors in this market must consistently develop new products supported by research from scientific and academic organisations to remain competitive. Recent cases have demonstrated that when companies lose a segment of support from the scientific community, their market shares tend to suffer significantly.

The European dental implant and bone graft substitute market has been further challenged by recent economic instability and the eurozone crisis, which has created a consistent demand for lower-cost dental implant products. As a result, many lower-priced competitors have begun to seize larger market shares in almost every European market. In many segments, these competitors are either regional or sourced from overseas markets such as Brazil, Korea and Israel. Regenerative products and barrier membranes have been particularly affected by consumer austerity, as these products are discretionary in many cases. However, a growing number of consumers continue to demand high-quality products, guarantees of service and scientific improvements, which only premium manufacturers are equipped to offer. Conical internal connections is one such recent innovation, and currently constitute the fastest-growing connection type in the dental implant industry.

Many dental implant and bone graft substitute companies have looked to expand their product portfolio or create new markets while they create package deals to offset competition from rapidly emerging lower-priced competitors. Significantly, many European and US companies involved in this market have begun to invest in rapidly emerging periphery markets such as Turkey.

## Increasing prevalence of conical internal connections

Dental implants are connected to final abutments in one of three ways: internal connections, external connections or single-unit devices in which the implant and abutment are already attached. Furthermore, internal connections have two sub-segments: butt-joint internal connections and conical internal connections.

Research has shown that a lack of intimate fit of the implant in the abutment or movement of the implant can provide an area for bacterial growth. Conventional butt-joint connections provide a connection that can result in micro-movement between the implant and the abutment, creating a pump effect for bacteria into the connection



• View of Istanbul at sunset. Turkey is expected to become one of the major growth markets for dental implants in Europe. (DTI/Photo Tatiana Popova)

area. When bacteria are present in the micro-gap, they can cause inflammation, tissue recession and bone loss. Recent clinical studies have demonstrated that, on average, conical connections offer a smaller micro-gap than butt-joint connections, in addition to a greater mechanical level of stability. As a result, conical connection types have become hugely successful in the dental implant market, and the majority of leading dental implant manufacturers have introduced conical internal connection products. Conical connection types will continue to represent one of the fastest-growing segments of the dental implant market.

## Turkey one of the fastest growing dental implant and final abutment markets in the world

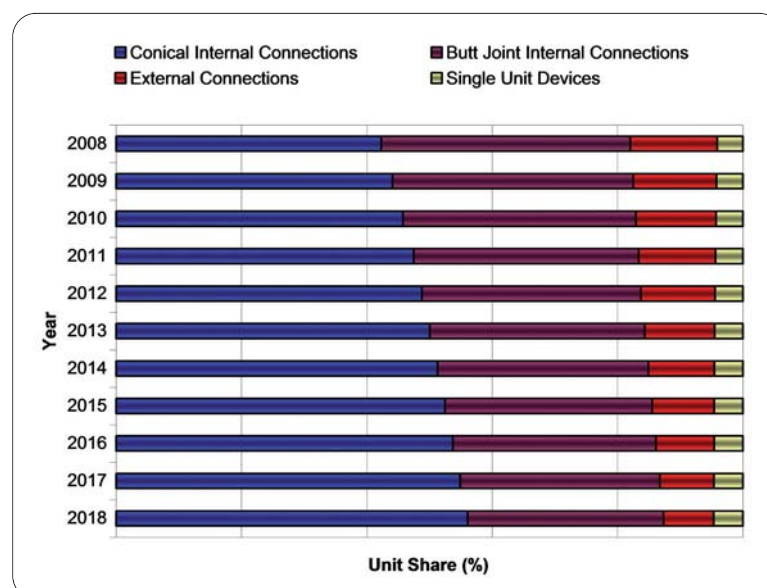
Turkey is one of the fastest-growing dental implant markets, congruent with strong economic growth that weathered the recession far better than the US and nearly any region in Europe. The technology of dental implants in this country has advanced rapidly, as most of the major players in the European market moved quickly to gain a strong market share in Turkey. Additionally, this market benefits from low labour costs, which adds to the incentive for implant companies to establish domestic subsidiaries or local distribution partners, fuelling options for consumers. Turkey is also a popular destination for dental tourism, especially among patients from more expensive European markets. From 2008 to 2018, the Turk-

ish dental implant, final abutment and computer-guided surgery market is expected to grow at a compound annual growth rate of 20.4%.

In May 2011, AGS Medikal Ürünleri, the first major Turkish company to produce dental implants, commenced operations in the

## EU medical tourism directive will strongly impact the European dental implant market

The EU directive on cross-border healthcare that comes into force in 2013 will have a strong impact on the European dental implant market. This directive will target the medical tourism market,



• Fig. 1: Unit share by connection type, Dental Implant Market, Europe, 2008 to 2018 (Source iData Research Inc.)

province of Trabzon, on the coast of the Black Sea. The company was established with an initial 5 million Turkish lira investment. Market experts predict that the company will soon be joined by other Turkish dental implant manufacturers that will offer lower-priced products to compete domestically and later internationally with larger implant companies.

which is significant, as dental treatment procedures account for nearly half of medical tourism in most major markets. The directive gives patients the right to be reimbursed for treatment they receive in other EU countries. This could lead to more Western Europeans traveling to Eastern Europe, including Poland and Bulgaria, which are rapidly developing the

quality of the medical services they offer.

The UK features one of the highest rates of outbound dental tourism, as patients are unaccustomed to large out-of-pocket costs for procedures, owing to the legacy of the National Health Service. Whereas rich patients from developing countries used to come to prestigious hospitals in the UK and elsewhere for treatment, outbound medical travel from the UK has been growing far faster than inbound over the past decade, as UK patients are increasingly traveling abroad for lower-cost care. Figures suggest more than 50,000 citizens of the UK go abroad for treatment annually. The number of outbound medical tourists from the UK rose by 170% from 2002 to 2009.

## Dental implant companies follow success of conical internal connection

Internal connection types as a whole are becoming increasingly dominant in the dental implant market. Conical internal connections and butt-joint internal connections represented 83.4% of implants with an internal connection in 2011. Conical internal connections is the fastest-growing segment of the market and expected to increase at a compound annual growth rate of 10.1% by 2018. NobelActive (Nobel Biocare) was one of the foremost early successes of conical connection types, and was rapidly adopted by consumers owing to clinical results demonstrating its greater stability and smaller micro-gap between implant and abutment. The majority of large companies now offer a conical connection, as this market is expected to overshadow butt-joint internal connections increasingly owing to the greater stability and perceived smaller-diameter micro-gap offered by conical internal connections. Many companies are combining these connection types with tapered shape and surface treatments as the current generation of premium products.

The information contained in this article was taken from two detailed and comprehensive reports published by iData Research ([www.idataresearch.net](http://www.idataresearch.net)), entitled "European Markets for Dental Implants, Final Abutments and Computer Guided Surgery" and "European Markets for Dental Bone Graft Substitutes, Dental Membranes and Tissue Engineering." iData Research is an international market research and consulting firm focused on providing market intelligence for the medical device, dental and pharmaceutical industries.

For more information and a free synopsis of the above report, please contact iData Research at [dental@idataresearch.net](mailto:dental@idataresearch.net).



# Titanium implants may carry risk of corrosion

■ Titanium medical implants used in dental prostheses and bone-anchored hearing aids may be less robust than commonly believed. Researchers from the UK have recently discovered evidence to suggest that in environments where there is no significant wear process, microscopic particles of titanium can be found in the surrounding tissue, which may have a negative impact on the devices.

For the study, Dr Owen Addison in the Biomaterials unit of the University of Birmingham's School of Dentistry and his team obtained tissue from patients undergoing scheduled revision surgery associated with bone-anchored hearing aids (BAHA) at University Hospitals Birmingham NHS Foundation Trust. Soft tissue surrounding com-

mercially pure titanium anchorage devices was examined using micro-focus synchrotron X-ray spectroscopy at the Diamond Light Source, Oxford, UK.

"The results showed, for the first time, a scattered and heterogeneous distribution of titanium in inflamed tissue taken from around failing skin-penetrating titanium implants," the authors reported. "Wear processes and implant debris were unlikely to be major contributors to the problem. In the absence of obvious macroscopic wear or loading processes, we propose that the titanium in the tissue results from micro-motion and localised corrosion in surface crevices."

Globally, more than 1,000 tonnes of titanium are implanted into patients in the form of biomedical devices every year. Metallic prostheses, fixation and anchoring devices are used extensively for dental, orthopaedic, and craniofacial rehabilitation and their effects on the body are widely perceived to be predictable following initial implantation.



The development of peri-implant inflammation may result in the premature loss of the implanted device or the requirement for revision/rescue surgery, which are scenarios that can "impact on patients' well-being and economically on the health service provider," the authors concluded in the study. "Our results emphasise the need to understand further both the physical and chemical mechanisms leading to the dispersal of titanium species in tissue around implants and their potential to exacerbate inflammation."

"Similar processes are likely to con-

(DTI/Photo Sergey Shcherbakoff/Russia)

tribute to the failure of other metal implants in soft tissues, where macroscopic wear is not considered to be a risk," they said.

Addison commented that while the findings pose no alarm to those with BAHA implants or similar devices, they demonstrate that improvements in materials like titanium can be sought. Research is currently being conducted to look at the biological consequences and to understand the mechanisms by which the debris is produced.

The study "Do 'passive' medical titanium surfaces deteriorate in service in the absence of wear?" was published online on 25 July in the *Journal of the Royal Society Interface* ahead of print.

## International implantology experts gathered in London

■ In September, the International Team for Implantology (ITI), a worldwide independent academic association in the field of implant dentistry, held its annual general meeting in London. Around 160 participants attended the event, during which its next president was elected and the organisation's honorary fellowship was awarded.

In addressing guests, the association's president, Prof. Daniel Buser, pointed out the ITI's growth in recent years owing to the success of the ITI Study Club concept in particular, which was introduced in 2010. He announced that the ITI had welcomed its 10,000<sup>th</sup> member in 2011 and now has more than 12,800 members worldwide.

In addition, David L. Cochran, professor at and Chairman of the Department of Periodontics at the University of Texas Health Science

Center at San Antonio's Dental School, was elected as Buser's successor, whose four-year term of office as president will end in April 2013. According to the organisa-



■ Prof. Dieter Weingart (left) who was presented with the ITI Honorary Fellowship by ITI President Prof. Daniel Buser (right). (DTI/Photo courtesy of International Team of Implantology, Switzerland)

tion, Cochran has been a member of the ITI since 1992. In his position as Chair of the ITI Research Committee and member of the board of directors, he has been actively involved in shaping its development.

Moreover, the association

awarded former ITI president Prof. Dieter Weingart an honorary fellowship for outstanding merit and his commitment to the organisation. During his presidency between 2005 and 2009, the German professor played an important role in developing and implementing the strategic goals of the organisation as defined in the "ITI Vision 2017", according to the association.

For the first time, the annual scientific seminar held alongside the general meeting was open to both ITI members and non-members. Under the theme "Dilemmas in implant dentistry", internationally renowned experts reported on challenges in implant dentistry and presented the latest evidence-based findings in the field during the seminar, which was extended to a full day.

The association announced that its next meeting will be held on 27 April 2013 in Bern, Switzerland.

## camlog foundation calls for research award entries

■ The CAMLOG Foundation is calling for submissions for its third CAMLOG Foundation Research Award. The award is presented biennially at the International CAMLOG Congress and is open to all talented scientists/researchers and dedicated professionals at universities, hospitals and practices under 40 years of age.

The CAMLOG Foundation engages in targeted support of gifted young scientists, promotion of basic and applied research, and continuing training and education to promote progress in implant dentistry and related fields to better serve the patient.

The submissions must have been published in an accredited scientific journal and can be submitted in either English or German. The articles must deal with one of the following topics in implant dentistry or a related disci-

pline: diagnostics and planning; hard- and soft-tissue management; sustainability of implant-supported prosthetics; physiological and pathophysiological aspects; and advances in digital procedures.

The contributions will be evaluated by the CAMLOG Foundation Board. The winner of the 2012/2013 CAMLOG Foundation Research Award will be given the opportunity to present his/her work to a wider audience during the 2014 International CAMLOG Congress. Furthermore, the authors of the three best contributions will receive cash prizes (€10,000, €6,000 and €4,000, respectively).

The entry conditions and the mandatory registration form can be downloaded from [www.camlog-foundation.org/awards](http://www.camlog-foundation.org/awards). The registration deadline is 30 November 2013.

## Market report forecasts extensive growth of Korean implants in Asia Pacific

■ Dental implants produced in the Republic of Korea have gained significant market shares in recent years. A report by the Millennium Research Group (MRG) in Canada has predicted that manufacturers from that country could dominate dental implant markets in the Asia Pacific region as early as 2016 owing to their price advantage.

Implants from Korea are also catching up in terms of clinical data, the report states, a fact that

will make them increasingly adoptable for implant specialists in the region.

The total regional market for dental implants is expected to exceed US\$800 million by 2016 with the key driving market being Australia, which was historically underdeveloped and is now expected to grow by 10 per cent annually, according to MRG.

Japan, the largest national mar-

ket in the region, will experience slower revenues despite an overall rise in implant procedures.

Alongside Germany and Israel, South Korea currently has one of the highest rates of dental implants per capita worldwide. This market saturation has recently forced many manufacturers to pursue sales markets overseas. While exports to Western countries have remained relatively slow, Korean manufactur-



■ DIO Implants booth at the EAO 2011 congress in Athens. (DTI/Photo Annemarie Fischer)

ers already rival established implant providers in Asian coun-

tries like Pakistan, Malaysia or Hong Kong.