
The Toronto Osseointegration Conference Revisited

An interview with Dr. Asjborn Jokstad

Why did the first Toronto Osseointegration Conference occur in 1982?

Professor Emeritus George A. Zarb recognized early the potential of the implant technology built on the osseointegration phenomenon described by Dr. P.I. Brånemark in Göteborg, Sweden. In fact, Dr. Zarb's research team in at the Faculty of Dentistry in Toronto was the first centre outside of Sweden to replicate and verify the very successful clinical results obtained by the Brånemark research team. Being fully cognizant of the situation in North America, as reflected by Harvard Conference proceedings published in December 1980, Dr. Zarb recognized the need to rapidly bring about a paradigm shift for treating edentulousness using this new implant technology. One strategy to accomplish this goal was to identify and invite the most influential people in the prosthodontic and oral maxillofacial surgery communities across North America to come and listen to, and even cross-examine, the Brånemark research team members. Thus, almost single-handedly, Dr. Zarb organized the Toronto Conference on Osseointegration in Clinical Dentistry in Toronto in May 1982.



What was the significance of the 1982 Toronto Osseointegration Conference?

By 1982, there had already been multiple papers published in several languages reporting good outcomes using titanium for dental endosseous implants. But metal titanium wasn't even mentioned at the Harvard Conference in 1978 — what was considered the greatest implant meeting on the topic held in North America. From this perspective, the Toronto 1982 conference was significant. A new implant technology based on machined titanium was brought to the attention of the dental academic communities across the North America. Although the 1982 conference was relatively small, it catalyzed

research and clinical activities and new clinical post-graduate and graduate programs were established. Arguably, the use of implant interventions for edentulousness was thereby made available for the general public in North America much earlier than what is typical for new treatment modalities.

What will be the main themes of this conference?

We believe the 25th anniversary of the inaugural osseointegration conference is an appropriate time to take stock of what has been achieved since then, and to focus on what is emerging as new and innovative developments in the field of osseointegration. The main themes will reflect the many significant developments of the current and future application of implants to support intra- and extra-oral prostheses. This is not a function primarily of a specific implant surface, treatment procedure or loading protocol, but can best be understood by conceptualizing the individual elements involved in placing one or more endosseous implants to support an intraoral prosthesis. It is the refinement of each of these individual elements that has contributed to

the understanding of osseointegration itself, and improved the technology to solve our patients' problems even further. Several intertwined treatment planning phases can be identified in the practical application process, including a total treatment planning strategy, a surgery planning strategy and a restorative planning strategy. These focus on patient-centred considerations, for example, risk factors, healing predictability and probabilistic considerations of possible outcomes of the interventions. The treatment progresses through four categories of interventions — the diagnostic, the pre-surgical, the surgical, and the restorative interventions — although at times some of these converge. Each stage of the treatment process involves the use of various types of biomaterials for possible site optimizing and ultimately for the different components of the supra-contruction. All these topics will be covered in 24 sessions, each addressed by three speakers identified as the top world experts within their fields.

What unique experiences can participants expect to take home from this event?

About 70 of the world's top experts, scientists and clinicians will address three simple questions in their lectures: What did the profession believe in 1982? What do we believe now and why? Where do we believe that osseointegration research and the practical applicability of oral implants will go in the next five to 25 years? Thus, we are striving to ensure that this conference will not be just another meeting where the marketing forces will be the focus.

Moreover, many dental implant meetings usually limit

the speakers to researchers and/or practitioners and tend to forget other stakeholders. We find it natural, since our conference aims to highlight the eclectic dimensions of osseointegration and practical implant therapy, that speakers with other backgrounds should also be take part. We believe that experts on research trends in osseointegration and implant dentistry can be found both in professional associations and as editors of the most renowned scientific journals within these fields.

Implant dentistry has come a long way since 1982. What are some of more significant developments either in technology or treatment protocols?

At the Harvard Conference in 1978, the stance of the American Dental Association was "*The council still believes that dental endosseous implants formed from all types of material should be considered in the new-technique phase and in need of continuing scientific review to obtain additional longitudinal evaluations.*" At the 1982 conference, the focus was on one implant design, made from one metal, using one surgical procedure advocated by Dr. P-I Brånemark, and for one indication: the edentulous jaw. Today, 25 years later, the number of implant manufacturers has proliferated to about 140 and they currently produce about 400 different implant brands. Are they all equivalent? Are they clinically documented? What should we look for when we decide to place a particular implant in the jaw of our patient? Which laboratory data can be extrapolated to clinical realities? The profession must take a stand and choose manufacturers who only test their

products under clinical conditions and treatment protocols that have been adequately validated. If not, we will continue to experience a proliferation of products, devices and techniques. And it's not clear who benefits from this scenario.

What about the future? What do you see in your crystal ball?

Predicting the future of oral implants is challenging and risky because ongoing research rapidly changes directions. Perhaps our current metallic implants are only a first generation of tissue engineering devices destined to be replaced in the future by genomic and proteomic applications that will be able to offer improved biosynthetic solutions. Given the current enormous investments of resources on medical devices research globally, this scenario may not be completely unrealistic.

Among the many areas for research that I find exciting, I will mention three that stand out as extremely promising for the future. The first is on understanding and improving the implant-bone interface by applying new knowledge from nanotechnology research, by chemically modifying the titanium surface and/or by incorporating osseo-inductive substances in the surface. The second is the research on ceramic implants, which has been revived with the introduction of Zirconia, also known as zirconium-oxide. No adequate clinical data are available, however.

Finally, the third research avenue is a corollary of the enormous advances made in developing innovative recombinant-DNA techniques that enables scientists to manufacture extra-cellular matrix proteins such as bone morphogenetic proteins (BMP).

Although their exact role in the healing process cascade is currently not fully understood, it is probable that these substances will eventually have an important therapeutic usefulness.

As you know, the ITI has a consensus meeting every few years to establish and define clinically proven treatment protocols in the many areas of implant dentistry. Do you see the Toronto Conference as an opportunity to achieve consensus on the future of some aspects of implantology?

I've had the privilege to take part in some of the major consensus conferences that have focused on dental implants practice. Such events are important and valuable. However, it is important to recognize that recommendations for clinical procedures must not place artificial limitations to clinician practice. Rather, clinicians should be guided to what has been documented as practices with high rates of success and predictability, obtained under optimal circumstances and unlimited resource and time constraints. There is a vast difference between evidence of no effectiveness and no evidence of effectiveness, but unfortunately these two concepts are often confused. The proceedings from the Toronto Osseointegration Conference Revisited will be published in a book printed by Blackwell Publishing and each chapter will be a compilation of the three presentations in each session. One may make a case that the separate chapters can be regarded as consensus among those three speakers. Incidentally, all participants in this conference will receive the proceedings approximately six months following the conference.

Whose idea was the conference?

In the spring of 2006, the Faculty of Dentistry began planning a new faculty building and I participated in the building committee from the start. During the process, faculty members have been encouraged to work jointly towards raising funds to realize this goal. In one of the multiple building committee meetings, someone pointed out that a potentially important donor source could be University of Toronto alumni and, perhaps, even our patients. One question that remained unanswered: Why would anybody find particular reasons to support our project, instead of, for example, any of the many excellent general hospitals in the city? From this germinated the idea that if the impressive osseointegration and dental implant research track record of the Faculty of Dentistry in Toronto could be presented to the public and to the profession, perhaps we would generate support and goodwill for our building project.

The Assistant Dean for Continuing Dental Education, Dr. Barry Korzen, jumped at the idea of a conference immediately. It was just natural that I take charge of the scientific dimensions and Barry handle the finances. Raisyl Wagman and Dr. Barry Chapnick have extensive experience organizing past Toronto Winter Clinic and Ontario Dental Association meetings in the convention centre, so they are managing the exhibition and the meeting logistics. Finally, Dr. Anne Gussgard is coordinating everything else, a daunting task, but so far has worked well. We are also encouraged by the many faculty members and students that have dedicated themselves to take part in the conference as moderators

and guides, among other roles.

What are the expected registration numbers?

Initially, we planned a symposium with a rather limited number of participants. As we moved along with the planning, we experienced a phenomenal response from speakers, sponsors and colleagues. The response from two of the biggest professional associations in North America, the American Academy of Periodontology (AAP) and the American Association of Oral and Maxillofacial Surgeons (AAOMS) was extremely positive and encouraged us to refocus our ambitions for the conference. The two associations have contributed with speakers and input on the program content, and we are proud that they have agreed to be the scientific partners for our conference. Thus, the meeting has mushroomed into a much bigger conference than originally planned. We currently aim for 2,000 participants.

Is there a financial benefit to University of Toronto?

A significant component of the research activities at the Faculty of Dentistry has been on osseointegration and dental implant research. Since the 1970s, more than 400 original research papers related to osseointegration and dental implants have been published. We can proudly state that our faculty has played a major part in advancing the current paradigm shift in treatment of edentulous and partially edentulous patients using oral implants. The direct financial benefit from the Toronto Osseointegration Conference Revisited is considerable less than what we hope our industry partners, alumni and patients will contribute in terms of goodwill and support for our future new faculty building.