Innovation Over the Years

Osseointegration left its original home in the late 1970s. Prior to that time, it had been a very guarded, secret treatment that was offered to edentulous patients who had grown weary of conventional removable dentures.

Other approaches to the use of dental implants had been described years before the observation of an apparent direct bone union to an alloplastic device occurred in research laboratories. The goal in those research laboratories was not to identify a new dental implant. Instead, the laboratories were developed to assess bone response to a controlled injury.

The investigation required that microscopic lenses be placed in a titanium sleeve that was carefully placed in a controlled osteotomy in a living research animal. The investigators then used the lenses to observe real-time healing of the bone. Of course, as the bone healed at the optical lens, it was also healing at the interface of the bone and the lens encasing titanium. Upon completion of the research, attempts to remove the lens were thwarted by the junction between the bone and titanium. Fortunately, the investigators appreciated that this optical cylinder integration was the first example of osseointegration.

It must have been an interesting time in the mid-1950s when the animal research to achieve osseointegration blossomed. Remember, at the same time, other implants were being used, but there was no intention for those implants to achieve a direct bone-to-implant interface. Quite the opposite: the early use of dental implants was described as one where a pseudoperiodontal ligament was developed. The hope of that early generation of implant dentists was to create a biologic interface that would mimic the periodontal ligament, but there was a huge distinction between the ligament that retains natural teeth and the connective tissue that paralleled the surface of dental implants. The periodontal ligament is a complex interface between the bone and natural tooth root. Fiber orientation in the periodontal ligament follows many directions but is never oriented parallel to the natural root surface.

The researchers responsible for osseointegration realized that there was little in common between the pseudoperiodontal ligament and the osseointegration interface. By the time the rest of the world learned of osseointegration, the early investigators had effectively distanced osseointegration from implantology.

The researchers even created a distinct lexicon as it would relate to osseointegration. I am told that the osseointegration investigators used terms that would not bring dental implants to the mind of the readers. This group did not place and restore dental implants; instead, they placed "fixtures" that were used to retain a TIP, or tissue-integrated prosthesis. Over time, the created terminology became so ubiquitous that the terms developed a cult following.

The pioneers in implantology were described as well-meaning clinicians, but they were not to be confused with the credentialed scientists who brought osseointegration to the world. New dogma replaced old, and patients were the beneficiaries.

It is interesting to note that the clinicians who changed the dental profession's perception of dental implants meticulously tested the treatments that were subsequently endorsed. A review of the literature from the early osseointegration era in the 1960s and 1970s demonstrated a large number of different designs and techniques that were investigated thoroughly before these implants became accepted. The procedures that established the rigor associated with the achievement of osseointegration were not overnight sensations. Instead, the dogmatic nature of the investigative process led to a better appreciation of wound healing in conjunction with translational research that resulted in modern implant dentistry.

Ultimately, it is important for us to remember that innovation is not always a rapid process. This innovation developed in the laboratory long before it was tried in humans. Once human in vivo research started, it did so methodically, and the development continues today. The day research stops will be the day that dentistry is no longer needed. Excellent home care can effectively reduce dental disease but will not likely cure this disease because patient participation is required, and such behavior is not totally predictable.

Even innovation that changed the face of implant dentistry forever will eventually be recognized as the current standard. With time, that formerly innovative approach that transitioned into the standard will become yesterday's news. The ongoing recognition, however, of these heroes of osseointegration needs to never be forgotten.

Steven E. Eckert, DDS, MS
Editor-in-Chief

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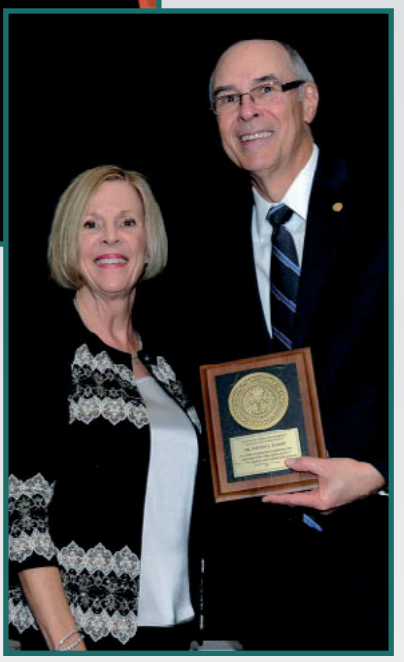
JOMI Editor-in-Chief Receives Three Notable Awards in 2017

Dr Steven Eckert accepts the Brånemark Osseointegration Award at the 2017 AO Meeting in Orlando from Dr Alan Pollack, 2016–2017 AO president *(left)*, and Dr Myron Nevins, 2016–2017 Osseointegration Foundation president *(right)*.



Dr Steven Eckert, pictured with Dr Susan Brackett, 2017 ACP president, accepting the ACP Dan Gordon Award for lifetime achievement.

In addition to the Brånemark Osseointegration Award, presented at the Academy of Osseointegration Meeting in Orlando last March, **Dr Steven Eckert**, JOMI editor-in-chief, was recently honored by two other prestigious dental organizations for his leadership in prosthodontics. He received the American Academy of Maxillofacial Prosthetics (AAMP) Ackerman Award in October and the American College of Prosthodontists (ACP) Dan Gordon Award in November.

The Nobel Biocare Brånemark Osseointegration Award is given annually by the Osseointegration Foundation to honor an individual whose impact on, and leadership in, implant dentistry is exemplary in any or all of the Foundation's mission categories: research, education, and charitable causes. Dr Eckert is the tenth recipient of this award, the first of which was presented to its namesake, Professor Per-Ingvar Brånemark, at the AO Meeting in 2008. Dr William Laney, JOMI's editor emeritus, was the second recipient of the award.

The AAMP Ackerman Award is bestowed upon a member of the Academy whom the Board of Directors considers to have made significant contributions to the advancement of maxillofacial prosthetics, a subspecialty of prosthodontics.

The ACP Awards of Distinction recognize and honor individuals for their achievement of outstanding and substantial contributions to the specialty of prosthodontics. The Dan Gordon Award is an annual award recognizing lifetime achievement. Dr Eckert has received two prior ACP Awards of Distinction, in 2007 and 2011.

Quintessence Publishing proudly congratulates Dr Eckert on these well-deserved awards for his achievements in implant dentistry and prosthodontics. He has served as JOMI's editor-in-chief for 12 years to date, and we look forward to many more with him at the helm.