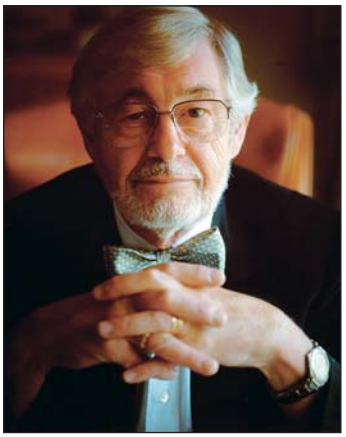
EDITORIAL

After 40 Years: The Mission is Possible

From extensive investigations involving both laboratory and clinical experimentation concerned with the repair and regeneration of bone and marrow tissue, the fundamentals and concept of osseointegration evolved from studies conducted in Sweden by P-I Brånemark and coworkers from 1952 through the 1960s. Through implanted tantalum, and subsequently commercially pure titanium chambers, direct in vivo observations became possible for visualizing the elements of bone and marrow in response to various pharmaceuticals, different types of trauma, and surgical insults. Attendant attempts to remove the titanium optical chambers upon experiment completion were unsuccessful, as the titanium frame had been completely incorporated in the bone. As a result of this and further clinical studies, the early definition of osseointegration, "the direct structural and functional connection between ordered, living bone and the surface of a load-carrying implant," which dates to the mid-1960s, was proposed.



Early patient applications were met with skepticism because of the previous era of relatively unsuccessful human experimentation with various implanted devices and materials without scientific basis. However, the publication of subsequent osseointegrated implant applications with successful results in edentulous patients led to widespread acceptance of the concept. Introduction of the scientific background and clinical application to North America in l982 provided the impetus for the establishment of training centers for professionals to acquire the knowledge and skills necessary for the provision of related patient treatment. The necessary hardware for clinical and laboratory procedures was made available in North America, and the stage was set for pursuit of the new mission, as recently described by Professor Brånemark: "Improvement of the quality of life for our patients through persistent precision providing predictable prognosis."

The historical efforts of other workers in the implant field are also due recognition. Such stalwarts as Professors Andre Schroeder in Switzerland and Willi Schulte in Germany, among others, have made significant contributions to the evolution of osseointegration and its role in the care of patients requiring oral and maxillofacial rehabilitation. In their own settings and with their coworkers and patient populations, they too realized the shortcomings of earlier systems and sought improved patient care through the bone-implant integration concept. Endosseous implant designs, materials, and surface treatments continue to evolve through technological innovations emanating from the worldwide experiences of skilled clinicians and technicians. However, hardware products and techniques are a means to the end, not the end itself.

What was originally conceived and designed for the improved comfort, function, and esthetics of compromised edentulous patients has now become accepted treatment for patients missing single or multiple teeth, as well as those with significant maxillofacial defects, whether congenital or resulting from trauma or disease. Hundreds of thousands of patients have been successfully rehabilitated because proven therapies based on osseointegration, as conceived for and applied to the oral predicament, are now available for the restoration of limbs and joints and the transport of devices for the improvement of hearing.

On September 22–24, 2005, a World Celebration of 40 Years of Osseointegration will be held in São Paulo, Brazil. This Bauru site was selected because the P-I Brånemark Foundation has established an institute there for the multidisciplinary treatment and rehabilitation of patients with minimal financial resources. By conducting an anniversary celebration in this location, the international professional community will be exposed to the limitless possibilities for humanitarian care now available for patients requiring any of a variety of body part replacements.

The "mission" was identified 4 decades ago: "The improvement in human quality of life through restoration of patient comfort, function, and esthetics provided by osseointegrated implant-supported prostheses." The accomplishment of this ongoing altruistic mission is indeed possible because there have been, are, and will continue to be healthcare professionals with inquiring minds and the patience and perseverance to pursue the goal of re-establishing healthy minds and bodies for their fellow human beings.

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