



## **Academy of Prosthodontics Annual Scientific Session Naples, Florida | May 3 – 6, 2023**

### **Program Speaker – Thomas G. Wiedemann**

#### **Title**

Robotic Implant Surgery @ NYU Dentistry

#### **Abstract**

The use of cone beam computed tomography and 3D image planning software programs are becoming mainstay to contemporary dental practice and more so in implant dentistry. Utilization of these digital technologies has allowed the prosthetic and surgical teams to plan complex surgeries virtually and has enabled guided tools to assist with the surgical placement of endosteal dental implants. Besides Free-Hand implant surgery three types of guided implant surgeries have emerged from 3D imaging and planning technology: physical static guides, camera-based dynamic navigation, and more recently haptic robotic guidance.

Robot-assisted dental surgery combines the advantages of both the physical constraints of static guides and the flexibility of image-based dynamic navigation. The first FDA approved commercially available robotic system for dental implant surgery provides physical (haptic) as well as visual guidance to the surgeon during dental implant surgery.

Robotic technology also provides a valuable aid to the dental prosthetic and surgical teams during dental implant rehabilitation. Based on the widespread use and reliability of robotic technology in other areas of medicine, robotic technology will play a significant role in the accuracy of implant rehabilitation in the future as well as in predoctoral and postgraduate education.

#### **Learning Objectives**

1. overview the history of robotics in medicine and dentistry
2. understand the evolution of guided implant surgery from freehand to static guidance, dynamic navigation, and robot – assisted implant placement: advantages & disadvantages
3. analyze the workflow from treatment planning to implant placement in robot- assisted implant surgery
4. emphasize the educational aspects for general dentists, dental faculty and dental students and opportunities for practice differentiation

## Biography

Thomas G. Wiedemann, MD, PhD, DDS, is currently an Associate Professor and full-time faculty member at New York University, College of Dentistry, Department of Oral & Maxillofacial Surgery.

Dr. Wiedemann's career consists of more than 27 + years of surgical and educational experience in an academic setting and successfully operating private practices, providing the full spectrum of Oral & Maxillofacial Surgery and Implant Dentistry.

Dr. Wiedemann is the author of many peer reviewed publications, has lectured extensively nationally and internationally and conducted hands-on courses on oral surgery topics, implant and bone graft procedures.

His special research interests are: minimal invasive surgical techniques of the full scope of Oral & Maxillofacial Surgery and implant surgery, emergency care, ceramic implants, peri-implantitis and implant failures, surgical complications management in implant dentistry and oral surgery. He has acquired extensive expertise in implant surgery with multiple implant systems (titanium and zirconia) since 1995 and is well versed in innovative concepts of alveolar ridge and soft tissue augmentation (intra- and extraoral autogenous bone grafts), CBCT-, robotic-guided and piezo-surgery.