

## Is Today the Golden Age of Implant Dentistry?

Advances in technology and design have brought unprecedented growth

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**Is this the golden age of implant dentistry? Joel Klein, editor-in-chief of *Time* magazine, states that we never know when we are living in the golden age. This may be true. Today, I spend most of my clinical days performing procedures that improve the quality of patients' lives that did not exist the day I graduated from dental school in 1979.**

Soft tissue grafting for root coverage and implant augmentation, including the sub-epithelial connective tissue graft, which was developed by Langer and Langer, was not introduced until 1985. Today, soft tissue augmentation is performed routinely. Periodontally involved teeth, previously deemed hopeless, can now be saved and maintained, and their lost bone regenerated. Guided bone regeneration around teeth was not introduced into the literature until 1981 by Nyman, and has taken decades to perfect. Osseointegrated titanium implants were not introduced into North America until the landmark 1982 conference in Toronto. Research was begun decades earlier by P.I. Brånemark in Gothenburg, Sweden, but was not well known in North America. The research was published mostly in Swedish, when the Internet was but a thought and international cooperation was sparse. Today, dental implants are the standard of care, almost taken for granted—like the World Wide Web.

At the onset of dental implant placement, osseointegration was the goal. There was

great excitement when implants merely integrated. Today implants must not only integrate but be ideally positioned in adequate bone so that optimal esthetics and function are achieved. Things have moved very fast these past 30 years, and the pace of change will only quicken as more dentists preform research, clinically document their cases, and collaborate more with each other.

Dan Sullivan, prosthodontist and past president of the Academy of Osseointegration, once commented at a national meeting that misplaced implants were often accompanied by a letter by the surgical specialist lamenting, “Sorry, but that is where the bone was.” Today this refrain is heard less often. Perhaps the greatest accomplishment since the onset of osseointegration has been the ability to regenerate bone in areas of deficiency. Two absolute requirements for the surgical placement of dental implants exist:

- Implant stability at the time of placement
- Ideal restorative position

Currently, bone can be predictably regenerated at the time of extraction. Most times, adequate bone for implant placement can also be regenerated post-extraction. Although limits in volume do exist, this is changing. The introduction of newer technologies in guided bone regeneration has made possible implant site development in areas previously thought hopeless. A variety of barrier membranes, growth factors (PRP, PRF, PRGF, rh-PRGF, Emdogain, rh-BMP, etc), and newer technology have revolutionized dental implant

treatment. Unprecedented amounts of bone regeneration are now possible.

The use of newer technologies, including cone-beam computed tomography, has led to greater accuracy in diagnosis and treatment planning. The implant surgeon no longer must go on a surgical tour, developing the treatment plan during surgery. Patients are now able to see what is possible and what is not possible prior to surgical treatment. This allows for patient participation in treatment decisions and shared responsibility.

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Lastly, differences in the design of dental implants (tapered implants, aggressive thread pitch, roughened surfaces, treated surfaces, etc) have led to a greater speed in osseointegration. Some companies tout “immediate osseointegration” with immediate loading. All cases must be evaluated individually. Patient immediate gratification is not always possible, and should be couched with what is predictable.

