

# From the Editor's Desk



The first implants were placed in 1975 but this innovative material, although demonstrating relatively good osseointegration, ultimately did not show sufficient mechanical strength. Following an increased rate of implant fractures after 5 to 10 years in use, this implant was removed from the market in the late 1980s.

As we all know, it did not stop there. Investigation into ceramics continued, and the successor to aluminum oxide was zirconium dioxide ( $ZrO_2$ ) – zirconia. The esthetic potential of zirconia with its white/opaque color combined with a strength that is comparable to traditional metals made it an attractive candidate for dental implants. Following early reports of good biocompatibility and an apparent low affinity to plaque, zirconia was initially used to make crowns and implant abutments.

The first generation of zirconia implants that followed resulted in a higher rate of implant failures when compared to titanium implants, and material fractures remain a concern, but research and development has continued. Over the last 15 or so years, there has been significant pre-clinical and clinical research into questions such as which is the best implant surface, which presents the greatest advantage: one- or two-piece implants, how should the abutment be designed, is it possible to use screw retention, which complications come with zirconia implants and are there any associated mid- and long-term studies?

This issue of Forum Implantologicum leads with a series of articles on zirconia that deal with all of the above questions. Four articles take a look at different aspects of zirconia and the experience that has been

gathered on its use to date. Content ranges from an overview of the clinical evidence that highlights the strengths and limitations of zirconia compared to titanium, through the mechanical issues related to zirconia, to preclinical data on the osseointegration of zirconia implants as well as soft tissue integration of zirconia. Zirconia is also treated in an article on implant-abutment interfaces, and we have rounded off the topic with an "Ask the Experts" article in which a number of clinicians give their professional opinion on one- or two-piece zirconia implants along with their preferences.

And, as always, you will also find our long-running series of articles that provide valuable tips on presentation using Keynote software and two articles on dental photography. After you have read the latter you may even consider using a smart-phone for clinical photography.

I wish you happy and informative reading.

Daniel Buser  
Editor-in-Chief

Since the 1980s, we have observed the development of implant dentistry in a not-always-linear but very positive series of steps. A key aspect of this was the implementation of titanium with its osseointegrative properties. The research that turned commercially pure titanium into the material of choice was based on the ground-breaking research of two groups: Prof. Per-Ingvar Branemark's group in Gothenburg and Prof. André Schroeder's group in Bern.

In parallel to the research into titanium, testing was also being carried out on ceramic implants – aluminum oxide ( $Al_2O_3$ ) was of greatest interest. A number of different implants were in use, the most prominent of these was the Tübinger Sofort Implantat (immediate implant) developed by Prof. Schulte at the University of Tübingen.