“Machines will never replace the human hand…”

An interview with Dr Stavros Pelekanos, assistant professor at the School of Dentistry of the University of Athens, Greece, and faculty member of the Global Institute for Dental Education, Los Angeles, USA

What is the role of aesthetics in dental implantology today?

Dr Stavros Pelekanos: Implantology in the 1980s and 1990s was bone-driven. The Albrektsson criteria for a successful implantation back in 1986 did not even refer to aesthetics and were followed for many years to come. Nowadays, prosthodontists start the treatment and perform backwards planning, always keeping in mind the correct positioning of the tooth or teeth to be replaced.

Patients' expectations regarding aesthetic results are growing with the emergence of new technologies and materials. However, have these innovations truly arrived in every dental office?

Well, in continuation of my response to your first question, there are two major problems that the dental community has been facing in recent years, incorrect implant positioning and peri-implantitis both being difficult to resolve. As patients become more aware of these complications, they expect and demand more aesthetic and predictable results. New technologies such as high-resolution CBCT, CAD/CAM abutment manufacture, abutments produced using new zirconia technologies, and digital planning are already widely in use in everyday dentistry, minimising risks, as well as enhancing aesthetics and treatment workflow.

Have digital solutions changed the way dental restorations and full-mouth rehabilitations in particular have been performed over the past several years?

Digital planning, intraoral digital impressions and CAD/CAM technologies have really changed implantology today. First of all, preoperative planning is a helpful tool for ensuring correct implant placement, for both novice and experienced surgeons. Furthermore, more conservative (sometimes flapless) surgical approaches result in much less postoperative swelling, facilitating greater patient acceptance. The digital workflow in prosthodontics facilitates milled abutment constructions or even same-day teeth when immediate loading or provisionalisation is chosen in the treatment planning. CAD/CAM laboratory procedures reduce human error, providing more robust and accurate frameworks and final reconstructions.

In your experience, what is the best way to achieve a natural-looking implant crown?

Irrespective of the digital revolution, the hand skills of a talented dental technician are indispensable, especially in the case of a single implant crown next to natural teeth. Machines will never replace the human hand, as individual perception of every case, the knowledge of biology and anatomy are of the greatest importance. The factors that determine the success and natural appearance of an implant crown are accurate implant positioning, meticulous bone- and soft-tissue handling, and a skilled dental technician.

The number of implants placed worldwide is expected to double over the next five to six years.
Consequently, education efforts have to double too in order to ensure that dentists are adequately trained in implant placement. Do you agree with this statement?
Of course; however, and I say this although I am a faculty member of the School of Dentistry of the University of Athens, which provides education at the highest level, students are still unfortunately not adequately trained in implants. Postgraduate studies in a university environment or very well-organised implant master programs are necessary for a dentist to be able to place or restore implants.

We have seen quite a few different concepts emerging over the last several years in aesthetic dentistry, such as bio-emulation and smile design. Which concepts will have the most impact in the future and change the way aesthetic dentistry is performed?
Well, as a prosthodontist, I have to say there is nothing new in these concepts. Basic aesthetic rules are to be applied in every prosthodontic case, such as tooth positioning, proportion, occlusion, colour and design. However, digital technology is a very helpful tool, especially for the novice dentist, for implementing these rules and simplifying the treatment workflow. The same applies to bio-emulation. Biological concepts, improved materials and techniques are always there to simplify clinical dentistry and reduce potential errors and complications.

What is the position of aesthetic dentistry in the development of dental specialties in your opinion?
Aesthetic dentistry is not a recognised specialty generally, falling mainly under prosthodontics. I do not think aesthetic dentistry should be a stand-alone specialty. Being trained in a periodontic-prosthodontic environment (University of Freiburg, Germany, under Prof. J.R. Strub), I believe that a modern restorative dentist should be adequately trained in more than one main area. Periodontics, prosthodontics and restorative dentistry all constitute what is considered aesthetic dentistry._

about
Dr Stavros Pelekanos received his DDS in 1991 and his doctoral degree in 1993. He runs a private practice in Athens specialising in prosthodontics, implantology and aesthetic dentistry. He is an assistant professor at the School of Dentistry of the University of Athens, Greece, and a faculty member of the Global Institute for Dental Education, Los Angeles, CA, USA. Dr Pelekanos lectures internationally and gives hands-on courses on implants, aesthetics and restorative procedures. To date, he has published over 20 articles in peer-reviewed journals and two chapters in books.