

PEER-REVIEWED CE: OBSTRUCTIVE SLEEP APNEA

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## BUILDING YOUR DIGITAL PRACTICE

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TOOLS INTO GENERAL PRACTICE

*Plus*

### Immediate Implant Placement with CBCT

Datta Malyavantham, BDS, DDS, FICOI

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### A New Technique for Complete Denture Construction

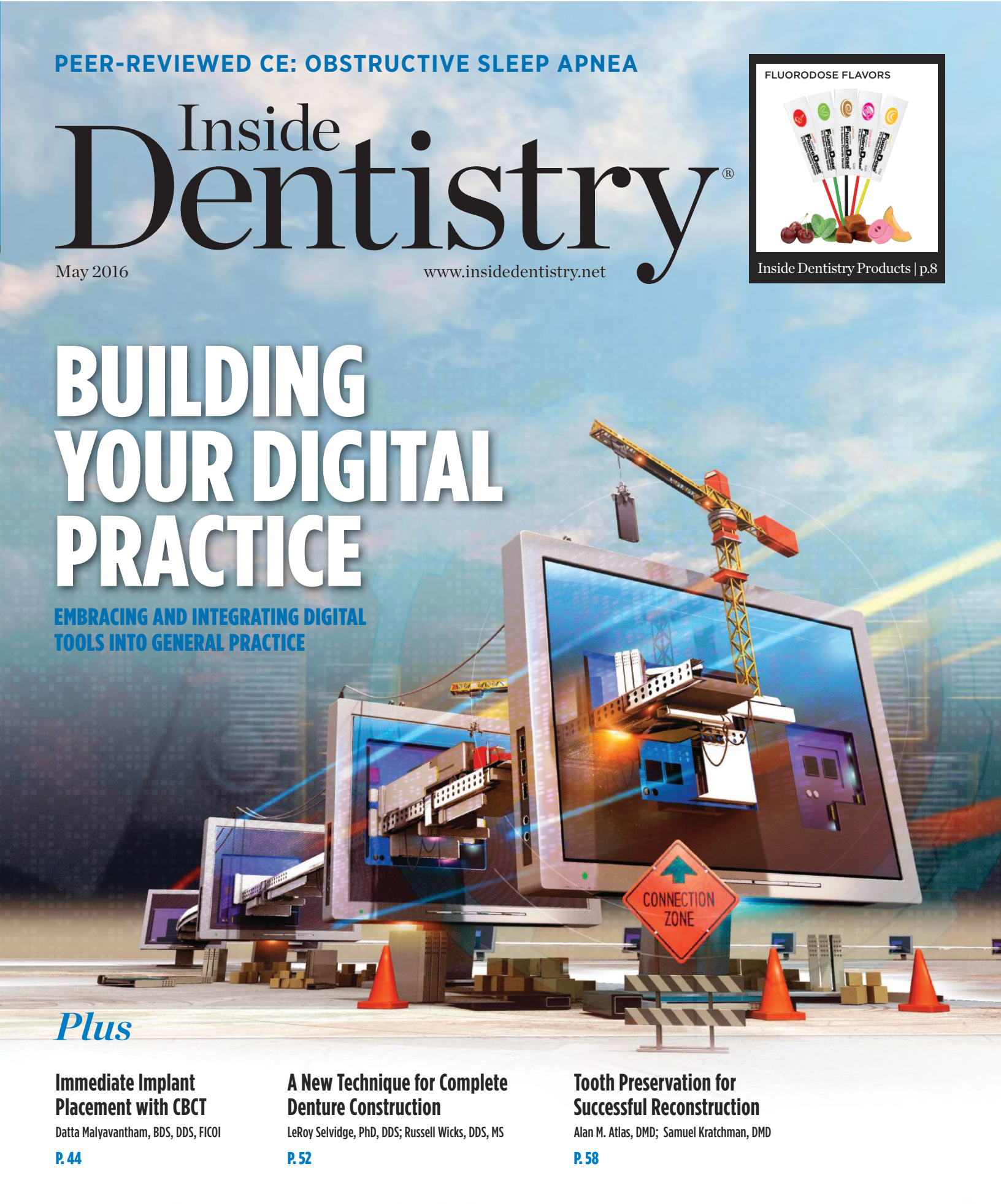
LeRoy Selvidge, PhD, DDS; Russell Wicks, DDS, MS

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### Tooth Preservation for Successful Reconstruction

Alan M. Atlas, DMD; Samuel Kratchman, DMD

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## Spotlight

# Cutting-Edge Developments in Implants

Neal Patel, DDS | Sophia Fratianne

**F**or the clinician who strives for exquisite esthetic and long-term results, dentistry is more than simply mending teeth. It goes without saying that patients' oral health is a priority, but why just practice when you can create beautiful, lasting transformations for your patient? To make this goal a reality, it goes without saying that being skilled at their craft is a necessity for dental professionals. In addition, like any art form, the quality and design of the materials used will also have a huge impact on the finished result for the patient.

When we think of artistry in dentistry, perhaps implantology is not the first area that comes to mind, but implant systems have evolved to be impeccably designed, presenting a vast range of benefits to the clinician and patient alike. Today, implants also have the additional feature of being customizable to the specific needs of each individual patient.

Straying from the "one size fits all" approach, clinicians are now able to customize the implant system to any degree of bone density and bone anatomy. With the advent of technologies such as CAD/CAM, CBCT, and implants with a range of core and thread diameters, a unique drilling protocol can be perfectly designed around the individual patient's needs. Depending on the case, the dental professional may choose to drill first and then decide the most suitable diameter of the fixture based on the

patient's bone density. Another benefit of some recently developed implant systems is the knife thread design that cuts smoothly through bone and simultaneously condenses it. Rather than using a cutting edge, the self-threading design of the implant slices through while widening the bone gradually.

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As a result of this feature, maximum bone preservation can be achieved, which is vital not only for esthetics but for the implant's long-term prognosis.

By designing an implant fixture that will not depend on the cortical bone for stability, less stress is put on the bone and this decreased stress helps to prevent bone resorption. As previously mentioned, preserving

the cortical bone is also important for esthetic purposes. More bone coincides with more soft-tissue volume, which is responsible for a beautiful gingival emergence and esthetics.<sup>1</sup>

Implant manufacturers have also developed nano-bone matrix surface treatments, which can be used to achieve a faster and stronger integration. The peeling associated with the conventional hydroxyapatite coating technique of the past can now be avoided through the use of this new treatment. A sand blast and acid-etching implant surface treatment modified with calcium creates a calcium titanium oxide nanostructure on the surface and activates osteoblasts in the live bone. Calcium ions lead to increased osseointegration. In a study of implants with deep threads, this surface treatment was proven to shorten the healing time of the bone by improving osseointegration.<sup>2</sup> In addition to enhancing the promotion of bone formation, this recently developed surface treatment increases initial stability, resulting in a high rate of surgical success.

With an implant system that not only speaks for itself in terms of its clinical benefits, but also adapts to the needs of each individual patient, dentistry and the dental arts are able to take a step away from the monotony of a production line. Instead, dedicated attention to detail and perfectly matched products allow the dental professional to create tailor-made beauty for each individual patient. Why just carry out a procedure when you can create something beautiful?



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2. Lee SY, Yang DJ, Yeo S, An HW, et al. Effect of XPEED<sup>®</sup> on Ti Implants with deep threads. *Key Engineering Materials*. 2011;493-494:442-446. doi:10.4028/www.scientific.net/KEM.493-494.442.