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## **THE EDITOR'S CORNER**

### **A Digital Standard of Care**

I was recently asked to lecture a group of third-year dental students on the topic of “How to Take a Good Impression and Trim Study Models”. This was part of a series of lectures in a predoctoral DDS curriculum intended to introduce the students, whose primary goal is to become good general dentists, to the field of orthodontics. Such courses always focus on orofacial growth and development and related diagnostics, aimed at recognizing malocclusions “at all stages of development”, to quote an old Commission on Dental Accreditation curricular requirement. At this stage of their education, dental students are always impressed with, if not simply amazed at, the amount of detail work that goes into orthodontic study models. Someone in the class invariably asks why we spend so much effort (or money) making such precise and—to my eye, at least—beautiful study models. I always answer that the way we trim models allows us to better visualize the patient’s occlusion from all aspects; if the dental arches remain in maximum intercuspal position when we set a model down on a coplanar-trimmed model, it obviates the need for an articulator in most cases. I also point out that the appearance of a well-trimmed and polished set of study casts is bound to be impressive to parents and patients alike.

The rise of intraoral digital scanners and three-dimensional models has rendered my elaborate explanation of the fabrication of study casts somewhat trivial. In recognition of this development, I suggested to my captive audience that by the time they reach mid-career, physical impressions and study casts made of dental stone might well be obsolete. The Readers’ Corner in our current issue, orchestrated by long-time JCO Associate Editor Peter Sinclair, seems to bear that out. In this informal survey, fully 62% of the respondents said they had already purchased intraoral scanners, and half of the rest intended to buy one in the near future. I was amazed at that finding, even after taking into account that JCO readers are generally a technology-inclined group and that the survey was conducted online. The intraoral scanner, little more than a

high-tech fancy even a decade ago, has moved from the laboratory to the orthodontic clinic within just the last seven to 10 years. I've written about intraoral scanners before (JCO, June 2013), pointing out some of the drawbacks of these variations on a common theme. Most of the bugs have since been worked out, accounting for the dramatic rise in popularity of intraoral scanners. The biggest negative factor remains their considerable cost, as was clearly reflected in our survey. Still, our respondents firmly believed that, as with most technological innovations, the cost will come down with widespread acceptance of the devices.

Reasons given by our readers for converting to intraoral scanners included their utility in making aligner prescriptions, their "patient friendliness", and the cleanliness of the process. Digital storage of study models is another selling point: no longer does the office need to allocate substantial wall or shelf space to hundreds of plaster casts. Scanners can also be employed to make 3D before-and-after comparisons that may improve your treatment efficiency, as shown in this month's Cutting Edge article. Dr. Ayman El Nigoumi presents a method of superimposing digital scans taken before and after indirect bonding of lingual attachments, allowing an

evaluation of both the transfer trays and the clinical procedure. And while it was not mentioned in the Readers' Corner, I am willing to bet that quite a few orthodontists have purchased intraoral scanners simply for the excitement of employing a new technology. Once you've actually used one, it is impossible to deny that it's an impressive piece of equipment, much more patient friendly than a heaping tray of cold alginate just waiting to trigger the gag reflex.

As I mentioned, one of the reasons we put so much effort into the final trim and polish of our study casts is their visual impact on patients and parents. But as digital models become mainstream—as indicated by Dr. Sinclair's survey—stone study models may well come to be seen by patients as a sign that the practice is behind the times, failing to keep up with the latest technological developments. This notion is reinforced by research papers telling us that intraoral scanners and digital models are even *more* accurate than their less-advanced predecessors.

I leave you to peruse Dr. Sinclair's other interesting conclusions, all of which validate my prognostication to the third-year dental students. In a few short years, alginate impressions and stone study casts will be things of the past.

RGK