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## THE EDITOR'S CORNER

### Analog Meets Digital

Most practicing orthodontists, like me, tend to be rather conservative, sticking with time-proven techniques and procedures rather than jumping on board every new development that comes along. Of course, if all of us waited until new techniques had been accepted into general use before trying them out for ourselves, very little progress would be made in the profession.

JCO has always been a leader in clinical innovation. We were the first to publish an article proposing the use of intraosseous anchorage (Creekmore and Eklund's landmark, "The Possibility of Skeletal Anchorage", April 1983), almost 20 years before the first miniscrew appeared on the market. The eventual acceptance of this technique has opened possibilities for treatment outcomes that, in years past, could only have been accomplished through surgical intervention. Likewise, many of the myriad Class II correctors available today were introduced to the profession in the pages of JCO. While there is no doubt in my mind that a dedicated doctor who believes strongly in traditional techniques such as headgear and biteplates can still achieve excellent results in all but the most recalcitrant of patients, the widespread availability of non-compliance-dependent Class II correctors must be viewed as an advance for the clinical practice of orthodontics. The results speak for themselves.

Clinical innovation extends to diagnostic techniques as well. Giorgio Fiorelli, Enrico Pupilli, and Biagio Patanè described the advantages of digital photography and radiography in JCO as early as November 1998. I doubt that there are many old-fashioned cephalometric tracing boxes around any more; at this point, there is sufficient published research to validate the use of computerized cephalometric analysis in comparison to radiographic films and acetate tracing paper.

Of course, there are times when the latest innovation turns out to have significant flaws. Who can forget—at least among those of us old enough to remember—the debonding disasters of the first generation of all-ceramic brackets? That is clearly one situation in which caution

proved to be a sensible approach. Today, cone-beam computed tomography seems to have fallen off from its initially enthusiastic level of reception around the world, most notably in the European Union, due to reservations about the cost-benefit ratio of the radiation doses involved. The jury still seems to be out on this one, and it may yet be a few years before a decision is reached.

In the current issue of JCO, Dr. David Paquette addresses a problem that has been created by a relatively new, and otherwise useful, orthodontic diagnostic technology. As Dr. Paquette points out, proprietary software programs now allow clinicians to examine and modify virtual models on their computer screens without having to resort to time-consuming impressions and painstaking setups of plaster models on gnathologic articulators. Dr. Sheldon Baumrind, a pioneer in occlusal analysis, recalls in an e-mail that “the gnathostatic method of preparing study casts, which was originally introduced in the 1920s, disappeared by the '40s as clinicians came to rely upon the lateral cephalometric x-ray. Incidentally, one of the technical problems in keeping gnathostatic study casts was that if you

put them on a shelf, they would take up too much room. Another problem was that the upper cast would tend to slide down the lower cast along the sloped occlusal plane and fall off the shelf when the cabinet door was opened.”

Although manipulation of virtual models is certainly easier and cleaner than gnathostatic mountings, these digital models seem to have a fundamental flaw, as noted by Dr. Paquette: improper orientation of the occlusal plane. I explored the clinical problems associated with the occlusal plane in an earlier Editor's Corner (JCO, September 2006). In this month's article, Dr. Paquette explains and illustrates the diagnostic errors that can result as a consequence of improper orientation of the occlusal plane in virtual treatment projections. Software designers will likely resolve this issue in the not-too-distant future, but in the meantime, Dr. Paquette presents a simple and reliable solution based on the time-tested, old-fashioned technique of facial photography. Innovative orthodontists who are already well advanced in virtual treatment planning will surely find Dr. Paquette's blend of digital and analog methodology to be ingenious. RGK