INDIRECT RESTORATIVE TECHNOLOGIES

Handpieces
With the rapid-fire changes in the restorative workflow, the need for proper tooth preparation remains a core step in the process. Basic techniques have changed little, but innovations in instrumentation, while not as buzzworthy as some digital components, have made tooth preparation more accurate, comfortable, and efficient. Here are a couple of Dental Product Shopper “Best Products,” as evaluated by our team of evaluators.

The Midwest Stylus ATC high-speed handpiece from Dentsply Midwest combines the benefits of air-driven and electric systems with 2 proprietary technologies. Speed-Sensing Intelligence virtually eliminates stalling and the need to feather; it delivers smooth, constant power and control for efficient and fast cutting. Additionally, Superior Turbine Suspension enables operation up to 330,000 rpm under load without noticeable deflection or chatter; it also maximizes transfer of power to the bur for further cutting efficiency.

NSK Dental offers the Ti-Max Z95L, a high-speed contra angle attachment for any e-type electric motor. With an exceptionally small head and neck size to maximize visibility of the operating site, the T-Max Z95L has a well-balanced, lightweight titanium body. Other features include quiet and vibration-free operation as well as an internal microfilter that traps waterline debris and promotes consistent water flow.

ADD, DON’T SUBTRACT

3D printing (aka, additive manufacturing printing) will be the next big thing, according to, well, everybody.

“Of all the industries exploring and using 3D printing, dentistry will be the most radically changed by 3D printing in the next decade when we look at where it’s at today versus what it will look like," says Scott Dunham, senior business analyst at SmarTech Markets Publishing, which provides analysis, forecasting, and commentary in the 3D printing sector. "Part of that is because the methods used today for fabrication of dental restorations are surprisingly primitive."

There might be some pushback on that last comment, given the proliferation of CAD/CAM techniques that utilize milling.

In dentistry, 3D printing is currently being used to create stone models, biocompatible appliances, delivery trays, clear aligners and retainers, and surgical guides.

PREAT Corporation’s Precision Implant Suprastructures (PRISM) are a great example of state-of-the-art 3D printing in dentistry. PREAT uses additive manufacturing to fabricate high-end implant bars with customized emergence profiles on each implant connection, precisely following the patient’s gingival profile. The accuracy of the printing process eliminates the shape limitations of milling for optimal esthetics and long-term function.

The advantage of 3D printing over milling is that the process is better able to custom manufacture an object with intricate details—think about a molar’s irregular grooves and complex anatomy. It’s also faster than milling.

The actual printing protocol, while evolving, is in place. The next boom will most likely hit with the development of appropriate materials that can be used for permanent functional and esthetic restorations.

Needless to say, there is a flurry of research being conducted in the industry and academia to find a formulation that is biocompatible, strong, durable, and esthetic. So, stay tuned.