

Ultradent Focuses on Quality Curing Lights

Ultradent Products, Inc. evolved from the desire of Dan Fischer, DDS, to create more effective dental products. From its inception over 30 years ago, he was inspired to create products that would set future industry standards by improving best practices and introducing technology that improves the lives of patients. Dr. Fischer has now added curing lights to his growing list of endeavors.

Perhaps most interesting is the challenge Dr. Fischer faced in development of VALO, Ultradent's broadband curing light. With the trend away from the placement of amalgams, there's been more focus on the placement of composite restoratives in the posterior. Dr. Fischer identified the difficulty in performance that curing lights have in a posterior environment. According to Fischer, this difficulty creates a need for lights to be designed such that they can illuminate predictably and effectively into the preparation, even with difficult-to-reach locations such as a first or second molar.

Many lights are bulky and unable to direct light appropriately to the posterior restorations, while others, even when designed with a low profile head, don't generate enough energy to polymerize the composite effectively. This challenge identifies the need for lights to be designed so that they can illuminate an entire restoration predictably and effectively regardless of how "easily accessible" the restoration may be. Fischer says, "As we're working on larger restorations, it's advantageous to have a footprint large enough to illuminate the entire preparation at once, versus a little 4- to 8-mm

footprint that would require multiple cures. It's essential that light be designed so that it can illuminate the entire surface of a Class II preparation posteriorly, or even on the distal of an upper second molar. Otherwise, the power of the light can become meaningless in saving time if the clinician has to illuminate it in two or three locations for one restoration (or in the case of the distal of the second molar where it can't illuminate it at all). As a clinician, the primary concern is achieving a quality cure in the time we spend with the patient."

According to Fischer, an increasing segment of dentistry is driven for greater energy output with shorter cure times. Fischer added his perspective on energy requirements. "A clinician can't go wrong with the quartz halogen Demetron 501 type light with the large footprint (except where the dimensions of the light guide preclude the clinician from being able to direct the light into the preparation). If the clinician has a 501 with a 10-mm footprint, and is happy with a 20- to 40-second cure, that's great and the science exists to support the

practice. However, if the clinician is wishing to move forward, more progressively, down an LED or plasma arc path, I think there are some very important considerations to take into account. VALO offers a quality solution for either preference."

Fischer explains, "Many lights claim to have multiple LED wavelengths, but often the wavelength is not evenly distributed across the footprint. For optimal curing, it's important that a homogeneous light beam is present. It's important that clinicians determine, either by contacting the manufacturer or conducting their own tests with wavelength specific fluorescing discs, whether the wavelengths are evenly distributed over the entire footprint. In our own testing using an independent system called MARC™ (Managing Accurate Resin Curing), we've found that VALO produces the most uniform multi-wavelength beam available in LED curing light."

Ultradent's VALO curing light has proven to be robust and lightweight, and efficient for disseminating heat thermally. In addition, it is a high-energy, multi-wavelength, large footprint LED. That same light output—that same even, "plasma-like power" capable light—became available in a cordless version in July. The VALO Cordless has all the same features of the VALO, with the added freedom that comes with a cordless unit. This curing light does not require a bulky docking station, so it takes no extra



surface space in the dental operator. The batteries are environmentally responsible, inexpensive, safe, and rechargeable.

The VALO Cordless wand body is made out of aerospace aluminum, which makes it very durable, yet very lightweight. Fischer says, "We used aircraft aluminum for our standard VALO and it's very rugged. We opted for aerospace aluminum for the cordless unit because we added the weight of batteries into a light. Aerospace aluminum is very sturdy and robust."

"The VALO Cordless has a small battery charger that can sit in the dentist's back lab or back office," Fischer says. "And we have a unique lithium iron phosphate battery, which is conducive to more charge cycles than any other type of battery. However, if a dentist got in a crunch, they could even take non-rechargeable batteries, like alkaline camera batteries, and drop them into this light. If the batteries go dead on the light, a dentist or assistant simply has to undo the back like a flashlight, drop two more of these batteries in, and they're good for another 400 cures (depending on the type of battery used)."

Ultradent not only develops new and more efficient products, but the company is also devoted to oral health on a much larger

level. "Our vision at Ultradent is that we are passionately driven to improve oral health globally," Fischer says. "First and foremost is consideration for the patient, but another component involves our humanitarian efforts. We are driven to find cures for caries and gum disease. While a lofty goal, its attainability will always require special attention from dental professionals since our patients are living longer lives, and keeping their teeth longer."

Ultradent's drive is to bring quality, affordable dentistry to patients. They do this by offering reputable materials and products, and providing in-depth education to dentists. As a result, these dentists can then provide quality, affordable, non-laboratory dentistry to their patients.

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