

D E N T A L

News In Science

VISUALIZATION TOOLS AS ADJUNCTS TO PREDICTABLE RESTORATIVE TREATMENT

Hugh Flax, DDS*

The confines of the intraoral environment pose several challenges to restorative dentists, including access, ergonomics, visualization, and illumination. For years, the patient's mouth was often too dark and moist to permit optimal care. In this environment, dentists would also have to overcome the disruptive presence of the tongue and cheek. Additionally, the patient's jaw fatigue and the need to swallow or spit would further interrupt the flow of a procedure. The treatment of a severely decayed mandibular molar tooth, particularly for anxious patients or those with parafunction (eg, tongue thrust), for example, is often as complicated now as it was decades ago.

Various technologies and equipment have been developed in the industry's attempt to improve clinicians' view of the intraoral cavity and the ease by which they can provide restorative care for their patients. Ideally, these solutions have to address several needs that virtually every clinician faces in daily practice. Among these requisites are the following:

- **Illumination:** Visualization of the patient's mouth must be viewable without shadowing that makes a procedure less efficient.
- **Diagnostics:** The equipment should aid in diagnosis for the clinician and, if possible, allow the patient to view existing defects or areas of concern.
- **Flexibility:** A solution for this challenge should be applicable to anterior, posterior, maxillary, and mandibular sites.

- **Aspiration:** For optimal intraoral use, the system must keep the operative field free of saliva and debris.
- **Comfort:** Predictable retraction of the patient's tongue and cheek in a manner that provides a comfortable rest position is also desirable. From the clinician's perspective, it is also advantageous for a visualization system to enable hands-free operation.
- **Efficiency:** Any visualization equipment or technology has to improve the clinician's efficiency in performing restorative care.

Visualization systems (ie, Isolite, Isolite Systems, Santa Barbara, CA) that deliver proper lighting combined with an ergonomic approach have since been combined with methods designed to improve moisture control and tissue retraction (Figures 1 and 2). The Isolite uses white fiber-optic light to illuminate the intraoral cavity, and it can be filtered for use with light-sensitive adhesive bonding



Figure 1. Amber light and retraction/suction improve the use of photosensitive materials.

*Private practice, Atlanta, GA.

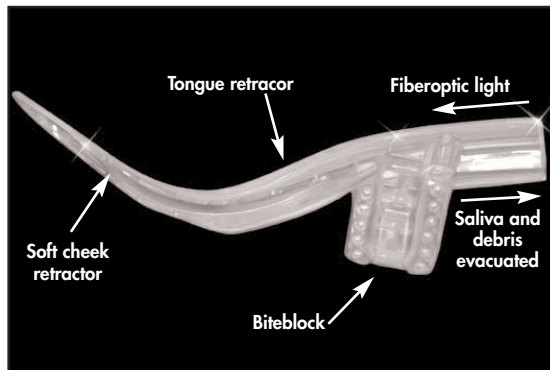


Figure 2. Contemporary technology allows clinicians to overcome many of the traditional limitations posed by the confines of the intraoral cavity.

materials. A comfortable, single-mold injection disposable mouthpiece (ie, Isoflex, Isolite Systems, Santa Barbara, CA) can also be easily connected to a remote light source and thereby satisfy many of the aforementioned requisites facing practitioners today.

When such technologies are used chairside, material properties and visibility can be optimized, and the assistant can often be freed up to perform other tasks besides suctioning. This factor, combined with the clinicians' improved efficiency, can thus positively impact the productivity and profitability of the practice.

Conclusion

In today's practice, technology allows clinicians to improve patient comfort, the efficiency of restorative dental procedures, and the predictability of such treatment. Practices focused on aesthetics and hard tissue laser dentistry in particular stand to benefit from these cutting-edge materials. Isolation has become a nonissue because of the convergence of light, suction, and retraction afforded by the Isolite (Isolite Systems, Santa Barbara, CA) technology.

Ergonomically, the author's entire team, including the patient, has found the aforementioned procedures to be more comfortable. An unexpected benefit is the decreased need for rubber dam isolation while cementing bonded restorations and performing endodontic procedures. With decreased moisture and improved illumination, these procedures are more pleasant for the patient and certainly less time consuming.