

With all of the technological advancements available to the dentist today, one of the issues most fundamental to our performance is often overlooked. Our ability to visualize the oral cavity, particularly the posterior regions, can be challenging, thus compromising the level of care we deliver. The limitations range from initial diagnosis to placement of the final restoration, and all of the procedures in between.

Relying exclusively on the conventional overhead light places limitations and undue stress on the operator. Since the conventional overhead light only provides illumination from one direction, there are naturally shadows throughout the mouth. The mouth mirror can be utilized to reduce shadows, but this requires constant repositioning of the mirror and the overhead light to get it "just right" for that particular spot. Often the position of the overhead light interferes with the operator's position, thus requiring frequent adjustment of either the light or the operator. Mirror fogging further compromises the visual field. Additional stress is created when our eyes strain to focus on detail in the mouth. For most of us, our eyesight only gets weaker as time goes on. With all of these limitations, and without even realizing it, our ability to visualize detail diminishes over time.

Coal miners had the illumination issue figured out long before the dental profession. The efficiency of placing a light source on the head is not new technology. The first fiberoptic headlight was introduced to the health professions by Designs for Visions in 1973, and the lights were primarily halogen for many years. In the early 1980's xenon systems dominated the market. In the past five years, metal halide was the most popular type of light, finally giving way to the L.E.D. type of light. The problem with the L.E.D. type early on was their lack of intensity, albeit they were very portable. This has been traditionally the trade off; portability versus intensity.



There are several respected manufacturers of these newer L.E.D. type of lights including Designs for Visions, Inc, High Q Marketing, Q optics, Peri-optix, Sheervision, Orascoptic, and Surgi-Tel.

Over this evolution of headlights, many health caregivers caught on to this concept, and along with more intense magnification in the form of loupes, a seemingly natural merger was created. However revolutionary the concept, this union has not been without problems. Fortunately, increased demand has produced more efficient, user-friendly magnification/light combinations.

Until recently, many lights were tethered to a large, heavy power source, which can be quite cumbersome and take up valuable counter space. This may limit its use, leaving some operators without illuminations capabilities in multiple treatment rooms. Some systems are now portable, with a simple, lightweight battery pack that can be carried in a pocket. The original battery powered operating systems employed the use of nickel metal hydride batteries, which unfortunately were much heavier than the now popular lithium ion battery tech-



nology. An added benefit is that the lithium ion batteries also hold a charge much longer because of the fact that lithium ions have the highest known densities of all naturally occurring ions. They also possess a much lower self-discharge rate, which allows them to maintain their charge longer than their predecessors. Some companies actually provide two separate portable