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If you think that demand for esthetic dentistry has peaked, then think again. Regardless of how you may feel about programs such as *Extreme Makeover* or *The Swan*, they are creating a higher demand for esthetic services. Although this newfound marketing costs you nothing, it does come with a certain amount of baggage. Patients who come to the office may be expecting miracles or perhaps even a life change. Our mission is to provide the very best in esthetic care without promising anything other than to do our best.

This entire scenario also requires a new look at our clinical procedures to record accurately your patient's esthetic experience in your office. The best way to do this is through a 3-fold photograph history:

- Record what your patient looks like when he/she first arrives
- Record any changes you make
- Record how you make these changes

Included should also be any decay, hidden microcracks, tooth defects, or other pathology. Especially important to record is any potential injury or previous irritant to the pulp, such as an old amalgam without a base, which may have had left a stained area or deep microcrack (Figure 1).

Switching to Digital Photography

An older, professional, traditional film camera may have worked in the past to record such a history, but 2 facts outdate this method. First, unless you can preappoint and wait for before pictures to be processed, you can never be certain you have recorded what you need for legal

Digital Dental Photography Now?

protection. Second, but equally important, are the step-by-step technique records you should take to show what and how you made the esthetic changes. The amount of tooth reduction and especially what you find after removing old restorations—microcracks or deep caries, both potential problems for your patient's future—need to be recorded. Patients who have pain after restorative treatment and who have had no previous pain may tend to blame their dentists their discomfort. However, if you properly record your patient's previous tooth condition, you are in a much better position to remind your patient that the problem was there before you ever treated the tooth.

There were times when I thought the cameras I was using (35-mm Nikon and Minolta) were recording every view and step-by-step technique, but then discovered later that the slides either did not come out or, even worse, were lost forever. Today's litigious society has dramatically altered the playing field. Now more than ever you need to have a digital camera that can accurately and easily record all the above and do it in present time—while the patient is in your chair—so that you can ensure you have obtained the exact image you need. No more guessing if the incisal edge was in a shadow or if the photograph was over exposed or blurred, masking the problem you needed to record; with digital photography you can evaluate it immediately and take another shot if required.

Why Purchase a Digital Camera?

If you happen to be a member of the American Academy of



Figure 1—Severe microcracks like this are discovered and recorded because patients may soon forget your findings, especially if pain occurs later. This image was taken with the Konica-Minolta with a 100-mm lens.

Cosmetic Dentistry (AACD), there is another reason for purchasing a digital single-lens reflex (SLR) camera. A recommendation recently released by the AACD accreditation committee calls for at least a 5-megapixel (MP) SLR. In an excellent article written by their Chairman, Bradley J. Olsen, DDS, it is stated that digital image quality is based on 5 factors: correct color, exposure, depth of field, good tonal range, and image sharpness.¹

Although there have been a number of point-and-shoot digital dental photographic outfits available, new cost effective professional cameras are becoming available to help you improve your techniques and do it with ease. Basic differences between point-and-shoot cameras and the popular midprice semipro SLRs are:

- The sample image is of the same quality as the actual, downloaded/printed image. This is important because the angle of the camera is critical to obtain the best esthetic view.
- The typical ring flash with the SLRs is a plus.

In my practice, we take photographs of almost every patient. Only about 5% of these photographs are taken for lectures, articles, or books. The other 95% are for legal purposes. Dental assistants take about 80% of the pictures in my office, and the feature they most appreciate is the enlarged LCD (liquid crystal display) viewfinder with its sharp images. They can verify the picture is accurate immediately. Although we have generally had both 100-mm and 50-mm lenses in our practice, the assistants find the 50-mm lenses easier take dental photographs. It is



Figure 2—Comparison of 1.8-in and 2.5-in LCD viewfinders show the advantage of the larger screen for instant viewing on the Konica Minolta as seen on the far right.

an important timesaving feature to pick up a camera, turn it on, and have a minimum of adjustments to make to get the photographs you need. Two new SLR cameras by Canon and Konica Minolta really leave little reason for you to postpone purchasing one. During the past several years I have noted that the Canon 10D was most frequently named as the professional camera of choice. Perhaps consistency, reliability, and ease of use have been the major reasons for that preference. Canon's newer model, the 20D, has enjoyed some of the top reviews by various evaluations on the Internet. In fact *Popular Photography* magazine rated it first in overall ranking in their April 2005 issue. Nevertheless, the new Konica Minolta Maxum 7D has several attractive features that will no doubt appeal to dentists who have not yet made the plunge for a higher-end professional camera.

A major advantage of the Maxum 7D is the larger LCD screen (2.5 in compared to 1.8 in) (Figure 2). You no longer have to wait until you load the memory card into the computer to see if you have just the right view and detail that you want in the picture. Clarity and depth of field all seem adequately sharp on this larger screen. The Maxum 7D is also the first SLR with CCD (charged coupled device)-shift antishake technology, which is built into the camera, not the lens; other systems require the purchase of a special antishake lens. This feature is especially appealing to those that are concerned about holding the camera steady even if the patient moves. This feature is also a real help when taking step-by-step action photographs. Another appealing feature is a sharpening tool that instantly improves the depth of field. Although dropping a digital image into PhotoShop and using this software's sharpening tool is certainly an option, having the immediate availability of this technology is a timesaving step in the right direction.

MPs are not to be an issue here.



Figures 3 through 6—Acceptable results can be seen in each photographs taken with 4 different cameras, Nikon D100, Fuji FinePix S2 Pro, Canon 20D, and Konica Minolta 7D.

Of the 7 digital SLR cameras recently tested by *Popular Photography* 6 of them had MP ratings of 5 to 12.3, which is adequate for making 10-in × 13-in prints. Anything above that may not be of real importance in the dental environment. While many technical reviews can be found online, I have found that consumer reviews can offer the most useful practical critiques of the different cameras on the market. In my opinion, one of the best comparisons is available at CNet.com. In this review, the Canon 10D and 20D were compared to the Nikon D100 and D70, with the Canon models faring slightly better than the Nikon models. (It is important to note that Konica Minolta was not included in this review.)

Because ease of use is so important in dental offices, you might want to note that *Popular Photography* rated the Konica Minolta 70 first place in that category when compared to 6 other cameras. This new camera also scored among the top 3 in other categories such as control and system flexibility. Comparison photographs of 4 competing cameras (Figures 3 through 6) show all proved acceptable results.

Conclusion

What I find interesting about all these cameras is that those dentists that own them all like what they own. So the market for new camera purchases is 3-fold; The dentist who may have purchased a point-and-shoot dental camera but now wants a more professional SLR camera; the dentist who has resisted the use of photography up to now; and the dentist who consistently has to have the latest and greatest. ■

Reference

1. Olsen BJ. The protocol for digital. *Academy Connection*. Jul/Aug 2004;9:10-11.

