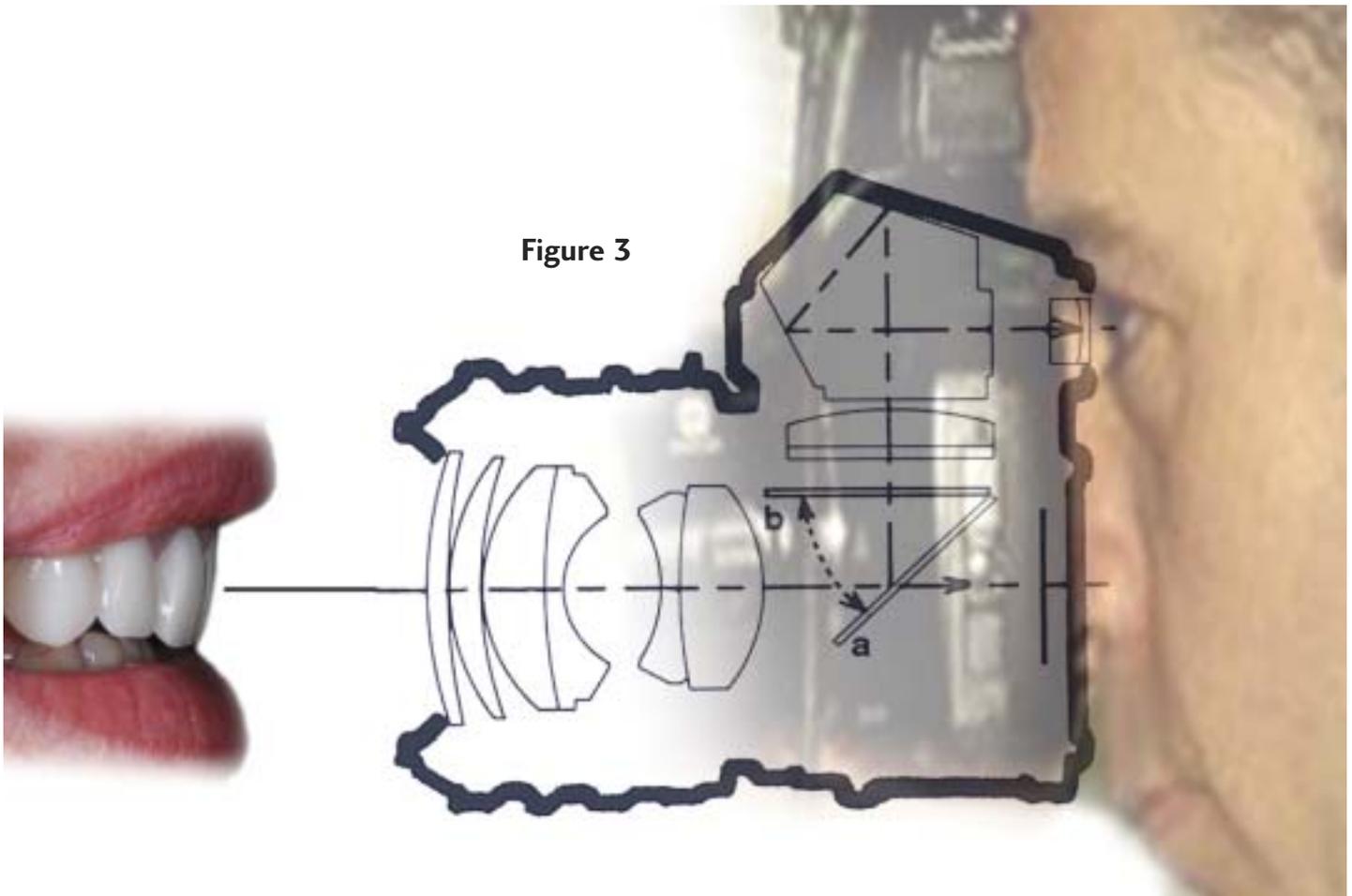


Digital Photography Secrets Revealed

By Mike Bellerino, CDT

Dental photography is not the random act of snapping a picture. It is a well thought out creative tool we can use to communicate an idea or information to our dentist clients or patients to provoke a positive response. The beauty of digital photography is that it allows us to show others what we see in our mind's eye.



Unfortunately, for many technicians the art of digital photography is shrouded in mystery written in an indecipherable language. This article will help you learn the language of digital photography so you can use this tool to communicate better with your clients and patients.

One of the most frequent questions I hear about digital photography is what is the best camera to get? The short answer is that there are many cameras from different manufacturers that will create professional looking digital photos in a clinical or laboratory setting. As you do your research to discover the best camera for you concentrate on three factors: the camera body, the lens and the flash.

The camera body should be a digital, single lens reflex that allows for interchangeable lenses and is capable of manual focus. The sensor should be a minimum of six megapixels (**Figures 1 and 2**).

This type of camera uses an automatic moving mirror system and a five-sided prism for viewing to direct the light reflected from the subject's image. This light passes through the attached lens and is reflected by a 45° angled mirror to the prism. There the light is reflected twice until it passes through the viewfinder lens (**Figure 3**).

The lens should be a macro lens with a focal length of 90mm to 105mm. The lens controls the exposure (brightness) of the image, the depth of field (sharpness) of the image and the magnification (size) of the image (**Figure 4**).

The flash is necessary for illumination and emphasis. A ring flash is considered a true clinical flash because it eliminates shadows. The disadvantage of a ring flash is that it causes the image to have a 'flattened' look (**Figure 5**). It can also create too much reflection on our subject.

... concentrate on three factors: the camera body, the lens and the flash.



Figures 1 and 2



Figure 4



A point flash can be used to create drama and give more of a 3D look to our image. It also emphasizes surface topography (**Figure 6**).

Depth of field equals your zone of critical importance.

My personal preference is to have two point flashes like the Canon MT-24EX or the Nikon R1 dual point flash systems that can be individually moved and/or controlled. These systems allow for more creative control but can be a bit cumbersome. For ease of use with excellent results, I would recommend the Sigma EM-140DG or the Canon MR-14EX macro flash systems.

Exposure

All three components: the camera body, the lens, and the flash allow us to control the exposure (brightness) of the image.

We can control the exposure with the camera body by adjusting either the ISO or the exposure compensation settings. Your camera's manual will show you where to find and how to adjust these settings.

We can control the exposure with our lens by opening or closing the aperture. The aperture openings are called F-stops and are designated in numbers ranging from F-1.2 to F-32 depending on the lens. A larger number (F stop) allows less light to enter the camera body through the lens. A smaller number (F stop) allows more light to pass through the lens.

We can control the exposure with our flash by manually increasing or decreasing its intensity or duration. Again consult with the flash's manual for adjusting these settings.

You can also choose the auto (TTL) mode and let the camera body and flash determine the correct exposure.

Depth of Field

Depth of field or 'the zone of critical sharpness' defines the part of our image that is in sharpest focus. In clinical photography we want to capture as much information and detail as possible. We control the depth of field in our image with the aperture of the lens. The smaller the F-stop equals the larger the aperture equals less depth of field equals less sharpness (**Figure 7**). The larger the F-stop equals the smaller the aperture equals more depth of field equals more sharpness (**Figure 8**).



Figure 5

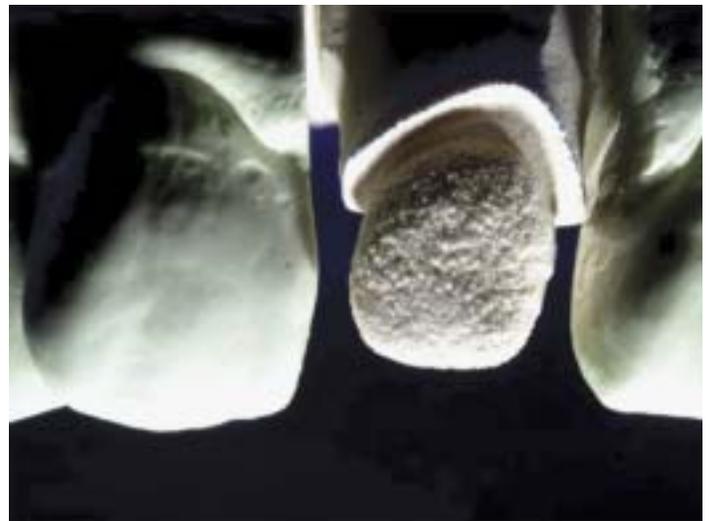


Figure 6

Composition and Magnification

You'll use different magnifications depending on the type of photo you are taking. A 1:1 magnification equals life sized. A 1:2 magnification is half of life sized and is used for full smiles and retracted views. A 1:10 magnification equals 1/10 life sized and is perfect for full facial photos.

When learning how to compose your photos, the American Academy of Cosmetic Dentistry (AACD) (www.aacd.com) is a great resource. They have published a guide of the 12 views they recommend. Below are some tips about how to compose full facial and full smile photos using information from the AACD and my own experience.

For a full face image you should:

- Use a non-distracting background. This applies to all clinical and laboratory photos.
- Shoot the horizontal view only. The photo should show everything between the chin and the scalp.
- Shoot from directly in front of patient.
- Alignment should be the long axis of face and interpupillary line.
- The nose should be in the center of the image.
- Work with the patient until you are able to capture a full natural smile.
- Use a 1:10 magnification setting.
- Do not use retraction (**Figure 9**).

For a full smile image you should:

- Shoot directly in front of patient on same level. You may shoot slightly above the patient so the flash reflection hits the cervical third of the teeth and gives a more pleasing smile curve.
- Alignment should be the long axis of face and interpupillar line.
- Center of image from a vertical perspective should be the philtrum of the lip and from the horizontal perspective should be the line bisecting the esthetic zone.

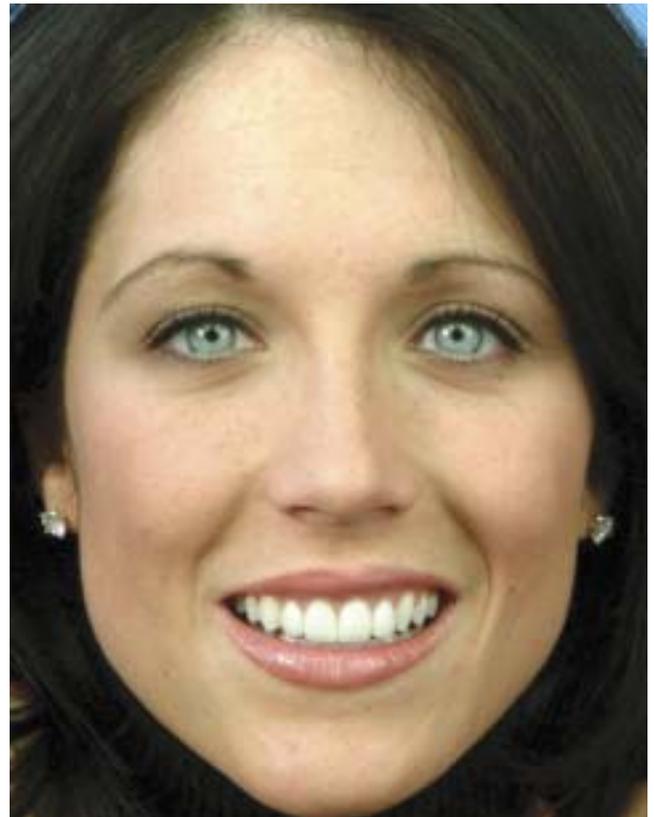


Figure 7



Figure 8

Figure 9



- Reproduce asymmetry, including any midline or incisal place discrepancy.
- Work with the patient until you are able to capture a full natural smile.
- Use a 1:2 magnification setting.
- Do not use retraction (**Figure 10**).

Digital dental photography is a creative tool that we can use to sell our skills to dentist clients and help our dentist clients sell treatment plans to patients. By taking the time to learn all that your camera and you are capable of creating together, you will see your ability to communicate with your clients grow exponentially. Soon you'll be using photography to complete cases and increase client satisfaction on an everyday basis. 

About the Author

Michael T. Bellerino, CDT, is a 1979 graduate of the Dental Technology Program at Louisiana State University School of Dentistry where he currently serves as assistant clinical professor in the department of prosthodontics. His extensive post graduate study has included the Pankey Institute and the Center for Advanced Dental Study (Dawson). He has been privileged to study under many of the top dental ceramists in the world. In 1995, he was awarded accreditation status in the American Academy of Cosmetic Dentistry; an honor he shares with only 16 other technicians in the world. He has served as chairman of the accreditation committee for technicians and is an examiner for the American Board of Cosmetic Dentistry. Bellerino continues to lecture in the areas of ceramics, cosmetic dentistry and dental photography. He has had articles published on dental photography, ceramic technique, implants and tissue management cases. He also serves on the advisory board of QDT. He is an active member and past president of the Louisiana Dental Laboratory Association. Bellerino services his clients and their patients in Metairie, La., with an emphasis on cosmetic and reconstructive dentistry. He can be contacted at mike@trinident.com or visit his Web site at www.trinident.com.



Figure 10

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1. The three factors one should concentrate on when researching a camera are: The camera body, the lens and the flash.
 - a. True
 - b. False
2. The camera body should allow for interchangeable lens.
 - a. True
 - b. False
3. The lens should be a macro lens with a focal length of
 - a. 80mm to 95mm
 - b. 90 mm to 105mm
 - c. 100mm to 115mm
 - d. 110mm to 125mm
4. The _____ is necessary for illumination.
 - a. lens
 - b. flash
 - c. exposure
 - d. focus
5. _____ allows us to control the exposure.
 - a. The lens
 - b. The flash
 - c. The Camera body
 - d. All of the above
6. The only way you can control the exposure by increasing or decreasing the flash.
 - a. True
 - b. False
7. The larger number (F stop) allows more light to enter the camera body through the lens.
 - a. True
 - b. False
8. Depth of field defines the part of the image that _____.
 - a. Will be out of focus
 - b. Is in sharpest focus
9. When shooting a full face image, the nose should be the center of the image.
 - a. True
 - b. False
10. When shooting a full smile, one should use a _____ magnification setting.
 - a. 1:1
 - b. 1:2
 - c. 1:5
 - d. 1:10

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