

# Camera Recommendation for Dental Photography

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### INTRODUCTION

The digital camera is a necessary tool in every dental practice. The type of digital camera system necessary will depend on the work being done and the output being produced. A **Digital Single Lens Reflex**, or **DSLR**, camera system is required for high quality close-up macro photography. All cameras require a very specific set-up for clinical dentistry photography. The proper exposure set-up and flash calibration will only be provided through photography courses or through purchases from Dental Photography suppliers. Contact **Bauer Seminars, Carestream Dental, Dine Corp, Downtown Camera, PhotoMed** and **Norman Cameras**. If you are purchasing equipment through a regular camera store, it still needs setup before use in a clinic.

#### DSLR's:

Basically all DSLR camera bodies will produce great results. You can obtain excellent clinical views from entrance level DSLR's because they still have enough function settings for superior dental images. Higher end models will also offer amazing results but can be expensive and heavy, which can be an issue for dental photography.

A Ring Flash or Ring and Point Flash combination mounted on the front of the lens is required for any intra-oral photography.

#### "POINT AND SHOOT" SMALL CAMERAS:

Most "point and shoot" cameras cannot provide clinically correct photographs. Only a select few models have the proper combination of flash placement, macro options and depth of field capabilities. The models recommended in this document have been thoroughly tested and are guaranteed to take great clinical photos when the proper settings are used. **Please note:** All point and shoot cameras ARE NOT ready 'out of the box' for dental photography (except when purchased from a Dental Supplier) It's necessary to employ a professional to get the settings applied correctly before using these cameras.

*When using a 'Point and Shoot' camera for dental photography please note:*

Very good images can be obtained, however the views cannot be 100% standardized. This is because the camera will obtain focus no matter what the distance from the camera to the subject is. Also, colour rendition is not going to be consistent due to the differing lighting conditions of the room.

#### MIRRORLESS DSLR SYSTEMS:

Although these cameras are very small and light, they are not yet ideal for taking clinical photographs. The prices for mirrorless systems are still very high. They are also problematic when it comes to incorporating flash photography. Currently, Olympus is the only manufacturer I've found that produces a reliable flash for mirrorless systems. Hopefully, this will change in the future as camera manufacturers release more mirrorless camera models and associated products.

## SMARTPHONE PHOTOGRAPHY:

Using a smartphone to document your patients **IS NOT RECOMMENDED**. Up to this point, there is no standardized and secure way to take well-lit, clinically correct photographs. There are many different factors for this: Many different smartphone manufactures and models with differing lenses and telephoto/focusing limitations. A wide array of necessary additional lighting equipment that may, or may not work for intra-oral photography. The extreme awkwardness of trying to take a photograph with one hand using a phone. In addition, there is the fact that sensitive patient information is now on a device that can be easily lost, stolen or hacked.

## DSLR LENSES:

The lens required is dependent on the views necessary:

- 90mm, 100mm or 105mm macro lens → extreme close-up, up to 2 teeth
- 85mm macro lens → up to a quadrant
- 60mm macro lens → no smaller than a full mouth

While all these lenses allow you to focus on very small areas, it also means that the working distance between the lens and the subject is very short. This means that using lenses with a shorter focal length, can result in the lens and the flash touching the cheek of the patient, if you try to get an extreme close up view.

Restorative Dentists, Cosmetic Dentists, Prosthodontists and Periodontists, need this type of camera system, because of the extreme close up views, colour accuracy and definition that must be documented for this type of dentistry. Orthodontists can use a 60mm macro lens, because they typically document only the full mouth.

## CANON CAMERA BODY RECOMMENDATIONS:



The **Canon EOS 850D (Rebel T8i)**, **Canon EOS T100** and **Canon EOS 250D (Rebel SL3)** are the first choice as a DSLR system. They are a substantially smaller, lighter and less expensive SLR camera compared to other models and offer easy exposure calibration and consistent results.

Please see the following Canon camera bodies that are also recommended. However, they can be hard to find as they are now discontinued. They are: **Canon Rebel series T6, T5, SL1, T5i and T6s**.

(Please note: The grip on some Rebel models (such as the T5i) are smaller and can be hard to hold if you have large hands however, any upgrades to a higher end model will add a significant amount of weight to the system so it's important to find out what works best for you.)

## CANON LENS RECOMMENDATIONS:

1. **Canon EF 100mm f/2.8 Macro USM Macro lens** (approx. \$600)



Please note: You do NOT need the Canon EF 100mm F2.8 “L IS” USM Macro lens with the **VR function** which costs over US\$1000. Vibration reduction is only required if you take photographs in low light and without flash. This model is also heavier than the earlier model USM Macro lens.

2. **Canon EF-S 60mm f/2.8 Macro USM Lens** - Less expensive and lighter than the 100mm macro lens, however this lens will only work well for close ups no closer than a full mouth view. Closest recommended view is only the full mouth due to the short working distance. The flash will touch the patient’s cheek if close ups of posterior teeth are required. This short working distance will result in slightly barrel shaped, distorted images on both facial and intra oral views.

## CANON FLASH SYSTEM RECOMMENDATIONS:



**Canon Ring Lite MR 14EX II or the previous model, Canon Ring Lite MR-14EX** – These Canon flash systems are totally integrated and are, in my opinion, the easiest system to calibrate and standardize for dental photography. Don’t try to save money by purchasing a cheap ring flash or ring light. They are very difficult to calibrate, and quite often it is impossible to get consistent exposures with a sufficient depth of field.

**Canon Macro Twin Lite MT-26EX-RT** – This adjustable two point flash system from Canon is a reliable and versatile flash. The flash points can be adjusted to control the direction and quality of light to produce dynamic images. However, this customization can also lead to inconsistency and clumsiness (especially if this piece of equipment is shared between many staff members). This flash is also heavier and more expensive than the MR-14EX



## THIRD PARTY FLASH SYSTEMS FOR CANON:

**Yongnuo YN-14EX-C**– These Ring Lite units look similar to the Canon Ring Lite but are about one quarter of the cost. However, the build quality is poor and the light output tends to be inconsistent resulting in over/under exposed images. These flaws can really show down your workflow. The money saved on this item needs to be weighed against the additional time and aggravation needed to get the right shot.

## NIKON CAMERA BODY RECOMMENDATIONS:

Currently the best choices are the **Nikon D3500** and the **D5600**. These are the recommended bodies because of the reasonable price. The following discontinued models are also great options if they can be found: **D3400**, **D5500**, **D5300**, and the **D3300**

(Please note: Nikon no longer manufactures its own Ring-light. Read on for lighting alternatives)



## NIKON LENS RECOMMENDATIONS:

1. **Nikon 85 mm macro lens** - very light but is not capable of achieving extreme close-ups.
2. **Nikon 105mm macro lens** – versatile lens made with excellent quality, but is heavy.

## THIRD PARTY LENS ALTERNATIVES:

The **Tamron 90mm** or **Sigma 105mm macro lens** are some alternatives that could be considered. They are available for both the *Canon* and *Nikon* systems and typically are less expensive than the *Canon* and *Nikon* lenses.

**Please note:** any **60mm macro lenses** should be used with CAUTION. The short working distance will result in a distorted “barrel shaped” image for both the facial and intra-oral views. Closest recommended view is no smaller than a full mouth, due to the short working distance.

**Please note:** the **18-55mm lens** (that often comes with a purchase of a camera body kit) should **NOT BE USED**. While this lens is ok for hobby photography, it is not appropriate for dental photography. Even when this lens is set to 55 mm the short working distance results in barrel shaped distortion for both the facial and the intra oral views.

## FLASH SYSTEMS FOR NIKON CAMERAS:



**Nikon** has discontinued their ring flash and replaced it with the **Nikon R1** macro flash. This unit has two adjustable flash points, which are attached to the front of the lens. This product can provide great results however; the downside of this system is that the positioning of the flashes requires attention to detail to get great photographs. The flash placement and direction is key when trying to remove unwanted shadows. This becomes cumbersome when used by a dental team in a fast-paced practice.

## THIRD PARTY FLASH SYSTEMS:



**Dine- Mini Ring and Point Flash** for Nikon or Canon [www.dinecorp.com](http://www.dinecorp.com)

The ring flash produces well lit intra-oral images and the point flash is able to control the location of the shadows for extra-oral views. The instructions are supplied by Dine Corporation and the technical support system is excellent.

The **Sigma EM-140 DG Macro Ring Flash** works well with recent camera models, but it is very difficult to calibrate the exposure settings when used with older model cameras. If you are experiencing inconsistent exposure results, contact the distributor as your flash may require re-programming. (You will need to provide them with the make and model of your camera.)



**Metz Mecablitz 15 MS-1 wireless macro flash** –

a decent alternative, however achieving a consistent colour correction proves to be difficult. It also requires an extensive exposure calibration, as the images appear very flat.

## MIRRORLESS DSLRS:

As mentioned earlier in this document, mirrorless cameras are still too expensive for us to fully endorse. However, when it comes to taking clinical photography with a mirrorless camera there really is only one dedicated system available at this time.

The **Olympus OM-D E-M10 Mark 3** with the **Olympus 60mm Macro Lens** (which factors out to be about the equivalent of a 120mm macro lens) and the **Olympus Macro Flash STF-8**

– Great results can be obtained with this system. The whole system is substantially lighter than its mirrored equivalent. When it comes to the Flash, attention must be paid to the position and direction of the flash points to avoid unwanted shadows. This mirrorless systems expensive final price (when compared to a mirrored system) means that most people will not find this purchase economically sound considering the affordability of other options.



## A WARNING REGARDING LOW QUALITY RING FLASHES AND LED RING LIGHTS:

Low cost ring flashes (such as the Bower macro ring flash) and LED ring lights (such as the *Amaran Halo LED light* or the Polaroid LED ring flash) cannot be used for dental photography when used with a DSLR camera system. The light output is not powerful enough to properly expose images (taken at f-32 or f-22) for maximum depth of field, thus ensuring sharp focus for all teeth in the intra-oral image.



## CURRENT 'POINT AND SHOOT' CAMERA RECOMMENDATION:



**Current recommendation for 2020 – CLINI-CAM**  
(Available from [www.downtowncamera.com](http://www.downtowncamera.com))

The CLINI-CAM is the best small camera on the market today. It is light and easy to use, making it perfect for a busy dental practice. This camera comes pre-programmed with two custom settings (Intra-Oral and Extra-Oral) for perfectly exposed images. It is shock-proof as well as water-proof, making these cameras very durable and easy to sanitize. The powerful macro lens allows you to capture intra-oral and mirror views as well as great extra-oral images and portraits.

## RECOMMENDED DISCONTINUED "POINT AND SHOOT" CAMERAS.

The following cameras are no longer available in stores but still can be found on websites like ebay, craigslist or kijiji. These cameras also do not come set-up for dental photography. It's necessary to employ a professional to get the settings applied correctly before using these cameras.

- **Olympus TG 5, TG-4 or TG-3**
- **Canon Powershot G16** (Must have a Canon ring flash with adapter ring to achieve shadow free images.)
- **Canon Powershot G12** (With the correct exposure and zoom setting this camera will provide distortion free and shadow-less images, without an additional flash system.)