



# CANON DENTAL PHOTOGRAPHY GUIDE

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# CHOOSING A CAMERA, LENS AND FLASH



Dental photography is an essential part of modern dentistry – as well as an element of many advanced educational qualifications, where it's a great way to illustrate a dentist's skills and expertise. Pictures are also a vital part of communicating different treatment options with the patient as well as planning the treatment.

Canon offers a range of EOS cameras, lenses and specialist flashes that enable dentists and clinical staff to make consistent, accurate high quality dental pictures.

Dental photography kit comprises:

## CAMERA BODY

Canon offers a selection of EOS DSLR cameras to fit most budgets for dental photography.

Recommended choices are the EOS 80D with EF-S 60mm macro lens, or for full frame quality, the EOS 5D Mark IV, or EOS 6D Mark II, with EF 100mm L macro lens. The 100mm used with the APS-C sensor body is not recommended owing to increased subject to camera distance.

## MACRO LENS

Canon's extensive range of interchangeable lenses includes a choice of macro lenses that are ideal for dental photography. A macro lens has the ability to produce 1:1 life-size images and have a closest focusing distance of 0.2-0.3m.

## MACRO FLASH

Canon produce two specialist flashes a Macro Ring Lite and a Macro Twin Lite. The Ring Lite comprises two flash tubes that are wrapped around the front of the lens just out of the picture for even illumination. A Twin Lite has two small flash units which positioned anywhere around the lens to give greater control of the lighting.

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# CONFIGURING THE CAMERA

Before you start taking photographs, features on your new camera will need customisation via the camera menu system to optimise it for dental photography.

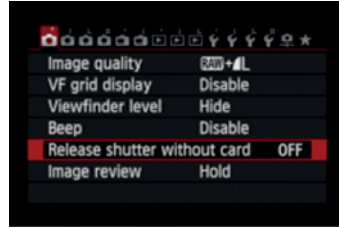
## 1 Optical viewfinder dioptre correction



It is also important to configure the optical viewfinder before using the camera. Since each photographer has different eyesight, cameras include a dioptre correction that needs to be adjusted to suit each individual user.

- Set the lens to the minimum – closest focus – distance and aim the camera at a light coloured background
- Adjust the dioptre dial next to the viewfinder until the focus points – a series of squares across the image – are as sharp and clear as possible
- If the range of correction is insufficient, Canon has several dioptre correction lenses that will change the range of adjustment

## 2 Remove card sizes (8GB, 16GB)



Almost all EOS cameras can use standard Secure Digital (SD) memory cards. 8GB or 16GB cards are an ideal option. SDHC, SDXC or cards marked with UHS-1 are compatible with EOS cameras.

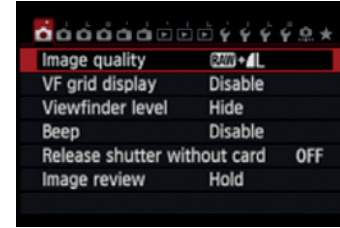
Cameras must be set to only take photos when a memory card is in the card slot. Press the MENU button and navigate to the menu option 'Release shutter without card' and set it to OFF.

## 3 Manual exposure



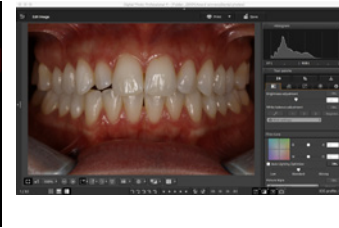
Manual exposure mode is set on the camera by turning the mode dial to the M position. Then the shutter speed, aperture and ISO can be set. For consistent dental photography, the shutter speed is set to 1/125s and ISO 100 for all patients. The aperture value will need to be changed depending on the kind of photo being taken. Use apertures in the range of f/9 to f/32 for good depth of field.

## 4 Image files Raw + JPEG



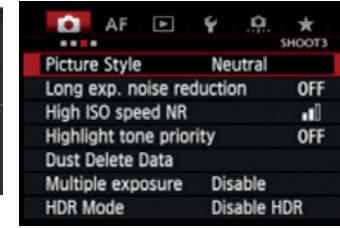
The camera can be configured to store both RAW and JPEG images on the memory card each time a picture is taken. JPEG images are easily used on all computer platforms and are compressed to reduce the storage space required. Use the largest size jpeg setting for best quality.

RAW images store the image as unprocessed data and have a high level of integrity if pictures are needed for evidential purposes or AACD / BACD accreditation cases. Use the largest size jpeg setting for best quality.



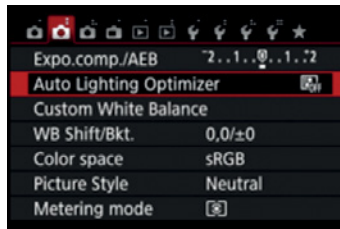
You will need an editing software package to review the RAW image. Patient confidentiality is assured since Canon cameras don't retain any images in their internal buffer memory.

## 5 Set picture style



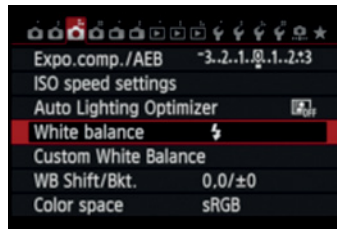
Picture styles determine how colours appear in the images captured by the camera. Neutral style is recommended for intra oral and close up photos. Portrait style should be selected when taking extra oral pictures. Easy to program when using custom shooting modes

## 6 Deactivate Auto Lighting Optimizer



Auto Lighting Optimizer enhances images to brighten parts of the scene that the camera determines to be underexposed. For consistent results this automatic function should be deactivated.

## 7 Set the white balance to flash white balance



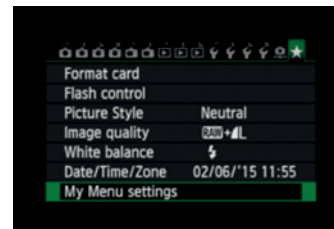
Since dental photos only use flash, set flash white balance to achieve consistent colour.

## 8 Evaluative Metering mode



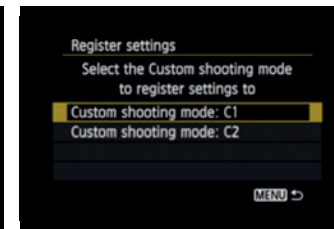
The metering mode should be set to Evaluative. This ensures balanced metering and predominantly white scenes with teeth are not underexposed by the camera.

## 9 Use MyMenu to quickly access and review settings



Canon's latest cameras have a green menu section known as My Menu, which can be configured for quick access or review of commonly used features and functions. Cameras can be set so that the My Menu screen is shown whenever the MENU button is pressed.

## 10 Custom shooting modes



Advanced EOS cameras include one or more custom shooting modes. These offer a way to recall a preset camera configuration just by turning the camera mode dial. This ensures that consistent camera settings are always used.

You can pre program one mode for extra oral views and another for intra oral and close up views.

If the Custom shooting modes are used, the Auto update setting must be disabled.

## 11 Manual focus



Most of the time use AF, however for close up images, it's best to use manual for better control over framing and distance. Set the AF Mode on the camera to 'One shot' and set the AF point to a single centre spot AF point.



## 12 Manual flash power:



Set the flash to manual mode by pressing the MODE button on the flash until M is displayed. Normally flash power between 1/2 and 1/4 is being used.

Flash power and flash mode can be set either on the flash itself or through the camera LCD menus if preferred. If using the Canon MT-26EX RT it is recommended to use the supplied diffusers to reduce reflections and bright patches occurring on teeth.

## 13 Camera care and cleaning:



EOS cameras, lenses and flashes should not be sterilised. The camera can be kept clean with damp sterile wipes if necessary. Sterile gloves are not required when handling the camera.

## 14 Fine tune the camera setup:



Once the ISO, aperture, speed and flash are set, frame teeth for a test photo. Check the test image and adjust flash power to get correct exposure. For subsequent images simply alter the aperture - f/9-11 for portraits, and f/25-f/32 for intraoral images.

# PRACTICAL GUIDE TO DENTAL PHOTOGRAPHY

For all the extra and intra-oral dental photographs below, the camera should be set to:

- Manual exposure mode
- Shutter speed of 1/125s
- ISO 100

- 
- Extra oral views
  - Intra oral views
  - Close ups



# EXTRA ORAL VIEWS

- **Camera settings:**  
1/125, f9-11, ISO 100
- **Flash Power:**  
1/2 - 1/4
- **Picture style:**  
Portrait

## Different views commonly used:

Smile

Lips at rest

Side profile



Retracted view

Side profile smile

45 degree smile



## Improved portraits with additional flash - ADVANCED

When using dark/color backgrounds in portrait photography, the problem is to stand the patient out from the background. Solution is to use an additional remote flash as a "hair" light.

In this example an additional external Speedlite 600EX II-RT Flash was placed next to the patient aimed at the ceiling. The white ceiling is working like a big softbox lighting the hair and standing the patient out from the background

The close up / ring flash is used to trigger the external flash and adjust the power.



# INTRA ORAL VIEWS

- **Camera settings:**  
1/125, f25-32, ISO 100
- **Flash Power:**  
1/2 - 1/4
- **Picture style:**  
Neutral

Different views commonly used:

Smile right

Smile front

Smile left



Side view

Upward angle



Retracted right teeth together



Retracted anterior teeth together



Retracted left teeth together



Retracted teeth teeth apart right



Retracted teeth teeth apart center



Retracted teeth teeth apart left



Full arch upper & lower occlusal view

Occlusal views might need 1-2 bigger f-stop setting (f/25-29)



**Focus tip:** Half press shutter while focussing on the canines. once focus is locked reframe right or left to show all teeth, then press the shutter all the way down to take the picture.





# CLOSE-UPS

Different views commonly used:

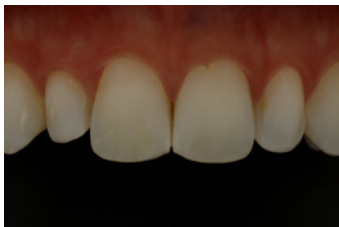
Close up right

Close up center

Close up left



**Advanced tip:** A polarizing filter can be used to remove reflections and bring out the teeth details. Useful view when communicating with dental technicians when sending stump shade pictures of prepped teeth.



- **Camera settings:**  
1/125, f25-32, ISO 100
- **Flash Power:**  
1/2 - 1/4
- **Picture style:**  
Neutral
- **Use a contraster behind the teeth**

# PROBLEM SOLVING TIPS



## IMAGE TOO BRIGHT OR TOO DARK

If the captured image appears too bright;

- Flash power level is set too high
- Aperture value is not set correctly for the photo being taken
- The camera is too close to the teeth



If the captured image appears too dark;

- Flash power level is set too low
- Aperture value is not set correctly for the photo being taken
- The camera is too far from the teeth



## CHECK FLASH POWER LEVEL

The flash power setting is not normally changed once set on the flash. Check that the flash is set to Manual mode - M is displayed in the top right corner of the flash unit LCD, and that the power level is set between 1/2 and 1/4 depending of the camera setup.



## ADJUST APERTURE

The aperture value controls the amount of light recorded in the picture. Smaller numbers like f/4 allow more light in, bigger numbers like f/32 let less light in. For most intra oral and close up pictures the aperture should be set between f/25 and f//32. For extra oral and portrait views the aperture value should be between f/9 and f/11.



## EXTRA-ORAL VIEWS

It is possible that the different posture of individual patients will require small adjustment of the focus; the lens can be set to autofocus mode for these pictures. Sliding the switch on the side of the lens barrel to the AF position activates autofocus.



## CLOSE UP AND INTRA- ORAL VIEWS

If the close-up and intra-oral views are incorrectly focussed make sure that the camera viewfinder dioptre correction is set to the optimum for the photographer.

There is a tendency for photographers to focus on the closest part of the teeth, which causes the teeth further away to be out of the zone of sharpness. Check after each shot, by zooming in and panning the image on the camera's LCD, that the focus is sharp on the specified teeth, often the lateral incisors or canines, as there is a zone of sharpness in front of the point of focus and a bigger zone behind the point of focus.

Occlusal and buccal mirrors may mist up in some cases. Warming the mirrors before inserting them in to the patient's mouth or have the assistant blow air to the mirror while taking the pictures helps alleviate this.





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