An introduction to Dental Photography

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Photography

Aperture (f number)

Shutter (seconds)

Lens Focal length (mm)

Sensor (Megapixels)

Light

Keep the flash on the same side as the patient's nose to avoid distracting shadows.

Aperture

\[ f \text{ number} = \frac{\text{lens focal length}}{\text{effective diameter}} \]

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Aperture – depth of field

\[ f 2.8 \]

\[ f 32 \]
Extra-oral Photography

Extra Oral Photographs

- Use a plain background
- Ensure natural head position is maintained
- Remove hats, scarves, coats etc.
- Remove jewellery
- Remove glasses
- Tie back hair
- Teeth should be in occlusion

Reasons for Clinical Photographs

- Medical Record
- Teaching
- Exam submission
- Medico-legal
- Publication
- Research

Remember the patient probably won’t know

Obtain written consent for photography

Accessories
Lip Retractors - £14.95 pair

Chromium Plated Intra-oral Mirrors - £40.15 ea.

Sterilize at up to 140 °C.

www.dborthodontics.co.uk

Accessories

www.k9sceneofcrime.co.uk

DAL Rigid Photo Scales - £4.95 pack of 10
ABFO L shaped scale - £4.35

Photography

Intra-oral

Rulers

Holding the camera

Use a viewfinder grid if it is available
Wet the retractors so they move more easily around the patient’s lips.

Correct retraction
Incorrect retraction

Incorrect reaction
Correct reaction

Take photographs at the same distance using manual focus – to obtain a fixed scale.

- Anterior in occlusion
  Upper and lower occlusals
- 0.4m with 105mm lens and Nikon D700

Aim for a working distance of around 0.4m (will vary dependent on lens and camera).

Remove saliva with an airgun or cotton wool rolls.
Anterior view in occlusion

Good retraction for right buccal view

Left buccal view

Good retraction for buccal view
Retractor too close to the cheek

Warm the mirror to prevent it steaming up

Upper occlusal view
Intra-oral Photography

Upper occlusal view

Mirror twisted

Camera 45°

Lower occlusal view

Edge of mirror showing
Window light technique
- Use a north facing window or opaque glass
- Camera white balance set to ‘cloudy’
- Shutter speed fast enough to hand hold – min 1/60 sec.
- Camera settings on manual
- Flash off
- Focus manually at a fixed distance

Lightbox technique
- Light box and ringflash
- Work out distance for photography
- Select aperture for flash – min f11
- Turn off flash
- Adjust shutter speed, so that background is white
- Fast enough to hand hold – min 1/60 sec.
- Turn on flash – take photograph
- Record settings (distance, aperture, shutter speed, ISO and white balance) use them again next time
Equipment

- Copy stand or tripod and extension arm
- Cable release or self timer
- Macro lens
- Dental wax
- A4 Plastic sleeves

Equipment

Photographic

Keep the scale in plane of focus

Which Camera?

- Compact £150
- High end Compact £500
- Second Hand Digital SLR £800
- Digital SLR £1,500

Choice of Compact Camera

- Flash close to the lens (not pop-up)
- 8 Mp +
- Close focus when ‘zoomed in’
- Easy access to controls
- Large screen
- Waterproof?
Compact Cameras Settings

- **Macro** setting on camera
- ‘**Aperture Priority**’ largest f no.
- **ISO** set at lowest number (not auto)
- **Optical zoom** between middle and Telephoto
- **Flash on**

Patients’ Perception of Medical Photography

Lau CK, Schumacher HH and Irwin MS
Journal of Plastic, Reconstructive & Aesthetic Surgery
2009 Dec 1.

**Results**

There was a low level of acceptability to the use of personal cameras (16%) and phones (12%) compared to hospital equipment (75% p<0.001)

Reasons to Upgrade to a Digital SLR

- Consistent scale
- Optical viewfinder
- Manual controls
- Close up views
- Retaining value

Comparison of 10 digital SLR cameras for orthodontic photography

D. Bister, F. Mordarai, R.M. Aveling
Journal of Orthodontics
Vol. 33 2006, 223-230

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<thead>
<tr>
<th>Canon G12</th>
<th>£400</th>
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<tr>
<td>Canon MR-14 Ringflash</td>
<td>£450</td>
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<td>LA-DC58K Lens Adapter</td>
<td>£35</td>
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<tr>
<td>58C Macro Ring Lite Adapter</td>
<td>£15</td>
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<td><strong>Total system</strong></td>
<td><strong>£900</strong></td>
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Nikon 105mm f/2.8 G AF-S VR IF ED Micro Nikkor Lens

- 105mm macro lens

AF-S = Auto Focus - Silent Wave Motor (1998)
G = Gelded – Unable to set aperture on MF cameras (2000)
VR = Vibration Reduction (2000)
IF = Internal focus (1976)
ED = Extra-low Dispersion Glass (1975)

Ring Flash

- Sunpak 16R £340
- Canon MR 14 £450
- Sigma EM 140 £230

or

Wing Flash

- Nikon R1C1 Speedlight £600
- Canon MT-24 EX Macro Twin Lite £770

Canon 550D
Canon EF 100mm f/2.8 USM macro lens £430
Canon MR-14 Ringflash £450
Total system £1,440

18 MP 3" Screen

Nikon D300s Camera £999
Nikon 105mm f/2.8 VR macro lens £615
Sunpak 16R Ringflash £340
Total system £1,954

12.1 MP 3" Screen

Nikon D3100 Camera £390
Sigma 105mm f/2.8 macro lens £395
Marumi DRF14 C Ring Flash £122
Total system £907

10.2 MP 3" Screen

Folder Naming

- Surname
- Forename
- Registration number
- Level of Consent (A, B or C)
- Date

ENGLAND Paul T123456 (B) 04-02-11
File Naming

- Registration number
- Level of Consent (A, B or C)
- Unique number
- Date

T123456 (B) 07 04-02-11

Further Information

Mastering digital dental photography
Wolfgang Bengel,
Quintessence Publishing Co, 2006

Camera Equipment

www.dpreview.com/

Accessories

www.dborthodontics.co.uk/

paul.england@bhamcommunity.nhs.uk