Orthodontic Records

Dr K Khalaf
Associate Professor & Consultant Orthodontist

PhD, BDS, LDS (A), DAS (Orth.), FDS (Orth) RCS (Eng), FFDRCSI (Orth.), M Orth RCS (Eng), M Orth RCS (Edin), MFDSRCS (Eng), MFDSRCS (Edin), MFDSRCPS (Glasg), CASAP (T&L), FHEA, FFDT Edin

Overview

- Digital photographs
- Clinical measurements
- Study models

Digital photographs- advantages

- Immediate viewing of the images
- Major financial savings
- Storage and filing problems are history
- File sharing

Production of high-quality digital photographs

- A high-quality, robust camera body and versatile lenses are essential, to allow both intraoral and extraoral photographs to be taken, at a convenient distance from the patient, without changing lenses
- Canon 60D in combination with a Canon 100 mm macro lens and Canon Ring Flash for the best results

Camera-Canon 60D/80D

1. 10 m pixel CMOS sensor and the largest LCD monitor (3.0 inches) on any SLR camera
2. A new feature on the Canon 60D is that it has a LCD ' live view ' which means that the LCD screen, on the back of the camera, can be used for setting up the shot rather than the photographer having to look through the view finder
3. The photographer can review images, checking focus and depth of field immediately after the picture is taken

Camera-Canon 60D/80D

Digital zoom feature allows focusing to be confirmed before patient leaves

Disadvantage of Canon 60D/80D

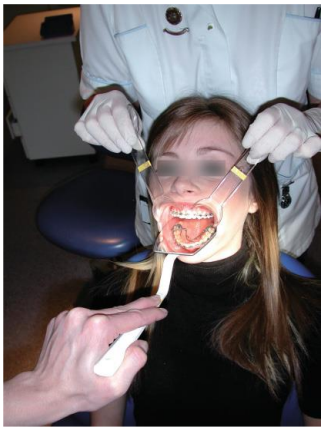
- Weight of the system, which necessitates some training and practice by the clinicians to ensure the best results are consistently achieved

Retractors

- The correct end of the larger retractor must be selected to achieve vertical or horizontal retraction of the soft tissues, as appropriate
- The small end of the smaller retractors are used to retract soft tissues when taking occlusal photographs

Retractors

Occlusal mirrors



Mirror with large ‘ panhandle ’ to allow complete control with no fingers on the photograph

Occlusal mirrors

It is essential that the photographer takes control of the mirror handles for occlusal photographs and of the retractor on the side being photographed when taking buccal intraoral views

Extraoral photographs

1. A full set of extraoral photographs should include front, three - quarter and profile views, each with lips in repose and on full smiling
2. These are recommended at the start and the end of active orthodontic treatment
3. At any other treatment milestone, such as the end of functional appliance therapy or immediately preceding and following orthognathic surgery

Extraoral photographs

When taking all the extraoral photographs, the photographer must focus on the lower eyelid on the eye closest to the photographer to ensure that the rest of the area of interest is in sharp focus

Intraoral photographs

1. Include left and right buccal shots, a front intraoral view as well as upper occlusal and lower occlusal views should be taken
2. At the start and the end of treatment as well as any treatment milestones
3. To use the saliva ejector on each and every case before capturing the photograph

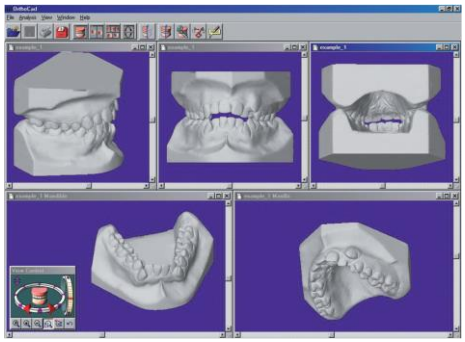
Clinical measurements

The following measurements should be recorded on a visit-by-visit basis to objectively monitor the progress of treatment

1. Overjet
2. Overbite
3. Centrelines
4. Canine and molar relationships

Study models

1. Allow us to measure the improvement of orthodontic cases
2. Traditionally study models are constructed in plaster
3. Recently, digital study models have been made available to the orthodontic profession by many different orthodontic companies (‘ Orthocad ’)



Digital study models

1. Digital study models can be used in place of traditional study models for case assessment, formal space analysis and Kesling set-ups
2. It has been demonstrated in a number of papers that the measurements taken from these electronic models are as accurate as those taken from traditional plaster study models
3. Should conventional models be required at any stage in the future then these can be easily reconstructed from the digital data using a three-dimensional printer

Digital study models- Advantages

1. Virtual casts can be kept in digital format & hence eliminating storage problems
2. Immediate data transmission
3. Measurements on digital casts is easy, accurate & automatic
4. Digital images can be made bigger and hence localizing anatomic points easily
5. Digital study casts can be used for patient motivation
6. Stores original malocclusion in 3D format

Requisites of study models

1. Should accurately reproduce the teeth and soft tissues without any distortion
2. Should be trimmed symmetrical on either side
3. Posterior surface should be trimmed ,such that when placed on their back, they should reproduce the occlusion
4. Should reproduce alveolar process as much as possible

Steps in construction of study models

1. Impression making
2. Disinfection of the impression
3. Casting the impression
4. Basing and trimming of the cast
5. Finishing and polishing of study models

Impression making

1. Should record hard and soft tissues completely
2. Should extend to limits of the sulcus
3. Maxillary impression should not extend to the soft palate
4. Patient should be asked to rinse the mouth before and after impression
5. Use high flange orthodontic trays and it should include last erupted molars and 3mm distal to it
6. Irreversible hydrocollids are widely used for impression making (alginate)

Study models are used for

- To calculate total space analysis
- To assess and record the dental anatomy
- To assess and record the intercuspation
- To assess and record arch form
- To assess and record curves of occlusion

Study models are used for

- To evaluate occlusion, with aid of articulator
- To measure progress during treatment
- To detect abnormalities (distorted arch form)
- To provide a record before, immediately after, and several years following treatment for the purpose of studying treatment procedures