

Brief Communication:

Digital Impression Model (DIM) a new, quick, simple, reliable and cost effective procedure.

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Digital Impression Model (DIM)

Orthodontic treatment planning poses significant challenges for clinicians with respect to show their ability to provide the most predictable results for patients in a safe, effective and efficient manner. While clinicians regard the clinical exam as the gold standard for viewing real time dental occlusion, maxillo-mandibular relationships and soft tissue conditions, orthodontic records (models, x-ray etc) provide invaluable information.

Digital Impression Model (DIM) is a simple process through which we can get the digital cast directly over and done with the impression, no need for the gypsum to pouring and retrieval of dental cast. DIM can generate in chair side area, easy way to sort model and plan treatment immediately. The greatest benefit is that after attainment of the DIM clinicians can make some quick analysis and to comprehend the patients on time by proceeding in same appointment.

Fabrication of DIM:

DIM can be digitalized, developed from the dental impression of the patient by taking photograph of the patient impression through any camera, transfer the picture to the Adobe photoshop or any other open source software, go for the process of inversion by just clicking (Ctrl+I) will show the 2D digital model (**Figure 1**). The digital model can analyze by any open source software according to the diagnosis and treatment need of the patient.

Accuracy and validity of DIM

DIM technique is reliable, accurate, and reproducible. 2D DIM technique had been tested for following linear measurement by comparing with the gypsum dental cast and Hirox 2D dental cast digital image (**Table 1**).

Benefits of DIM

DIM offers many advantages such as: instant retrieval of models, elimination of model breakage, there storage problems, ease of communication with patients and colleagues.

Less time well-thought-out to learn how to use the system of DIM.

DIM has some advantages over manual methods, such as speeding up the measuring process and facilitating access to diagnostic records from other locations

DIM is valuable substitute to conventional study cast and can be used to determine routine diagnostic value, such as the tooth size, crowding, spacing and inter arch tooth size discrepancies, arch length discrepancy, arch dimension sagittal or transverse symmetry, Bolton analysis, Pont's analysis etc.

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Digital Impression Model (DIM)

Very budget effective and no need the large storage area comparable to the conventional dental casts.

We can keep the DIM as a record in patient's file as a print paper and also as a digital folder with various measurements for the feature needs of treatment.

DIM can be also use as a precious tool for the other field of dentistry for the record keeping and processing among dental clinicians.

For fabrication and measurement, DIM is very simple and understandable to the new beginners.

Limitation of DIM

Disadvantages of the digital models include lack of tactile (physical) input for the orthodontist.

Cannot observe the inter-occlusal position of the patients which can be seen in fabricated cast model.

Table 1: Various linear measurements of tooth size, arch dimension by DIM, Gypsum Cast and 2D Hirox digital images on the identical dental model.

	DIM (mm)	Gypsum dental cast (mm)	2D Hirox digital Model (mm)
Dental arch widths (Upper arch)			
Inter-molar	54.64	54.64	54.63
Inter-second premolar	50.19	50.19	50.18
Inter-first premolar	42.70	42.72	42.70
Inter-canine	33.69	33.68	33.69
Mesio-distal crown widths			
Upper arch (Right side)			
First molar	9.69	9.65	9.67
Second premolar	6.89	6.88	6.88
First premolar	7.05	7.04	7.04
Canine	7.06	7.06	7.06
Lateral incisor	6.66	6.66	6.65
Central incisor	8.40	8.40	8.40



Figure 1 Digital Impression Model (DIM)