

3D PRINTING : A NEW RESEARCH TOOL

A suite of digital 3-dimensional (3D) models of cleft lip and palate anatomy with additive manufacturing techniques for patient education and surgical simulation .

HAPTIC MODELS



3D PRINTS mimic the rigidity and stiffness of the relevant anatomy .

INCOMPLETE SOFT CLEFT DEFORMITY

INCOMPLETE HARD CLEFT DEFORMITY

COMPLETE HARD AND SOFT PALATE DEFORMITY

3D PRINTING FOR IMPLANT SURGERY



BILATERAL CLEFT LIP /PALATE MODEL

CPC -05

Chou, P.-Y., Hallac, R. R., Shih, E., Trieu, J., Penumatcha, A., Das, P., ... Kane, A. A. (2017). 3D-Printed Models of Cleft Lip and Palate for Surgical Training and Patient Education. *The Cleft Palate-Craniofacial Journal*, 55(3), 323–327.

3D PRINTING IN PRE SURGICAL NASOALVEOLAR MOLDING

A typical NAM procedure uses a plastic plate to reform an infant's lips, gums, or nose before undergoing surgery. While this allows for fewer, more effective surgeries, the technique requires constant new plates to be developed as the child grows.

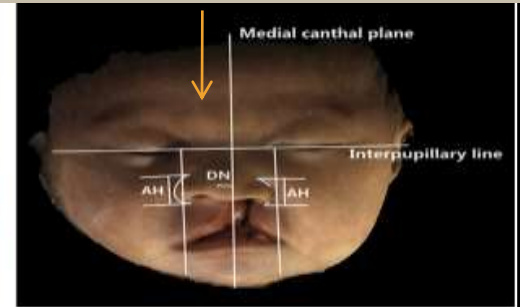
3D COORDINATE SYSTEM

MOULDING PLATE

3D PRINTED PLATES



MOULDING PLATES



REDUCED CLEFT GAP

CORRECTED FLATTENED NASAL WING

PROXIMATED LIP SEGMENT

Zheng, J., He, H., Kuang, W., & Yuan, W. (2019). *Presurgical nasoalveolar molding with 3D printing for a patient with unilateral cleft lip, alveolus, and palate. American Journal of Orthodontics and Dentofacial Orthopedics, 156(3), 412-419.*

3D PRINTING IN IMPRESSION MAKING AND OBTURATORS FABRICATION

FRONTAL VIEW



INTRA ORAL VIEW

Impression taking of the defect from printed model and impression of the defect

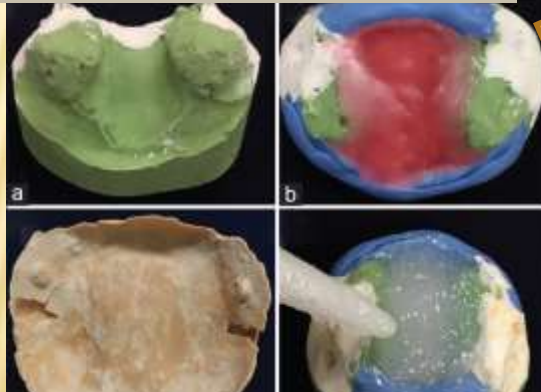


WAX DESIGN FOR PROSTHESIS AND
SILICONE LOADING (WORKING CAST)



FINAL INSERTION
IN MOUTH

(LOWER HALF
OF TWO-PART
MOLD &
SILICONE
LOADING ON
UPPER HALF



INCORPORATION OF
STRAP FOR SAFETY
PRECAUTION



Jamayet NB et al. A novel method of obtaining impression from three-dimensionally printed skull and incorporating medical grade silicone elastomer in fabricating silicone palatal feeding obturators for cleft lip and palate cases. J Int Oral Health 2018;10:40-3