

Partial Printed Denture with **Custom Composite Teeth - Cut** Back Technique.

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INTRODUCTION

In the last ten years, Computer Aided Design and Manufacturing (CAD/CAM) has seen advancement meaning decreasing any inaccuracies which can be caused by conventional methods [1]. The evolution and development of chair-side systems have led to the integration of CAD/CAM in fixed prosthodontics [2].

However, removable partial dentures is still fabricated via traditional methods, despite common errors occurring. They are several systems available to print partial dentures however currently within the United Kingdom majority are milled and not printed.





The following is a clinical case first within the United Kingdom where the denture is wholly printed with each individual teeth customized for the patient using "cut back technique".

CLINICAL CASE - BACKGROUND

A 57 year old female presented with a poorly fitting upper denture. Pt complained of denture continuously breaking due to her bite (Class II Div I), being loose and difficult to eat with along her primary concern being poor aesthetic.

PRE-OPERATIVE PHOTOGRAPHS





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Using cut-back technique we shaped the denture palate and achieved an initial shape of the denture teeth, this method not only creates space but allowed us to add certain characteristics on each teeth and build via composite resin. In this stage the denture resin is one block shade, which we termed as dentine layer.

Composite enamel resin in shade A3.5 was applied on denture teeth, with each tooth having a certain characteristic (size, build and bulbosity). Staining and glazing was then added, following the staining pattern of patients natural dentition.

POST-OPERATIVE PHOTOGRAPHS























The composite cut-back technique was created to ensure natural aesthetics in removable prosthesis can be achieved whilst remaining uncompromised in function. Cutting-back ensures that no post-op modifications are required. Rather than relying on standard moulds of teeth which require modifying at chairside, this method allows all aesthetic considerations to be built in.







METHOD



The photos were uploaded onto 3Shape denture design studio. Due to the shape of the palate and anatomy and rotation of the UL2 we wanted to mimic this.

Once designed the whole denture was printed via Formlabs form3BL. The material of the denture is a recently released biocompatible photopolymer resin known as denture base/teeth resin.

The results on this case showed that the technique is favorable. Patient satisfaction was extremely high.

The final denture incorporated the patients bite, meaning no occlusal changes were necessary. Functionality was achieved, while aesthetics not compromised.

References:

1. Bohner LOL, Neto PT, Ahmed AS, Mori M, Laganá DC, Sesma NCEREC. Chairside system to register and design the occlusion in restorative dentistry: a systematic literature review. J Esthet Restor Dent. 2016;28:208-20. 2. Ahlholm P, Sipilä K, Vallittu P, Jakonen M, Kotiranta U. Digital versus conventional impressions in fixed prosthodontics: a review. J Prosthodont 2016; doi: https://doi.org/10.1111/jopr.12527. [Epub ahead of print].