
# Effect of Resilient Attachment versus Relieved Telescopic Retainer on Partial Denture Abutment Supporting Structure

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***Presented by***

**Khaled Ibrahem Alsaid Mattar**

***B.D.S (2002)***
***Ain Shams University***

***Faculty of Dentistry***
***Ain-Shams University***
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## *Supervisors*


**Dr. HANY I. EID**

***Professor of Prosthodontics***

***Faculty of Dentistry - Ain Shams University***

**Dr. RAMI MAHER GHALI**

***Lecturer of Prosthodontics***

***Faculty of Dentistry - Ain Shams University***

***"ولئن شكرتم لأزيدنكم" صدق الله العظيم***

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# Introduction

# INTRODUCTION

Achieving long-term success in the restoration of partially edentulous arch with removable partial denture require the protection and preservation of the supporting tissue.

Distal extension removable partial denture is subjected to vertical, horizontal, oblique and rotational forces. These forces may become adverse during functional and parafunctional activities. (1)

Rotational component of vertical tissueaword and tissueaway forces result from lack of distal abutment. Horizontal forces are the result of the vertical forces applied to one side of the bilateral removable partial denture and lateral movement of the mandible during mastication. While oblique forces result from the combination of the vertical and lateral forces. In all types of forces, the abutment tooth becomes a fulcrum. (2)

Several retainers exhibiting stress-releasing effect have been introduced to retain removable distal extension partial dentures, and reduce torque on abutments. Although the clasp retained removable partial dentures are commonly used, however, telescopic dentures and attachment denture are now widely used as an acceptable modality for partially edentulous patients because both of them show good esthetic advantages than clasp retained removable partial denture. (3)

The several advantages listed in the literature for both telescopic crown and precision attachment made the appropriate selection of either of them difficult. Accordingly, this study was conducted to assess and compare the effect of telescopic crown and extracoronal attachment on the denture supporting structure in long span bilateral distal extension cases.

# Review of literature

Distal extension removable partial denture is defined by the academy of prosthodontics as a removable dental prosthesis that is supported and retained by natural teeth only at one end of the denture base segment and in which a portion of the functional load is carried by residual ridge. [4]

According to Kennedy's classification of removable partial denture Kennedy class I is removable partial denture restoring bilateral edentulous area located posterior to the remaining natural teeth and Kennedy class II is removable partial denture restoring unilateral edentulous area located posterior to the remaining natural teeth. [4]

## Problems with bilateral distal extension removable partial dentures:

### 1.Support:

The distal extension removable partial denture derives its support from two different types of tissues, the tooth representing a relatively non displaceable tissue and the residual ridge representing displaceable tissues. [5]

The problem of support mainly arises from:

a. Loss of posterior abutment which is the main problem in the distal extension removable partial denture cases. [6]

b. Resiliency of the residual ridge tissues due to the viscoelastic nature of mucosa, so the mucosa will be displaced under occlusal load in a tissue ward direction. [7]

## 2. Torque on the abutment teeth:

The resiliency of the mucosa supporting denture base is 20-25 times greater than that of the periodontal ligament of the abutment teeth this cause rotation of denture base around the two main posteriorly placed rests when occlusal load are applied which cause torsional stresses on the abutment teeth, and possible traumatization of the ridges. [5]

## 3. Residual ridge resorption:

Since the edentulous ridges must always bear some part of the masticatory load, ridge resorption is likely to occur which decrease the fit of denture base and increased the stresses and torquing on the abutment teeth. [8]

Stereophotogrammetry was used to study alveolar ridge changes with distal extension partial denture, it was found that a 10% loss of volume occurs after 12 months of denture insertion. [9]

## 4. Retention:

According to the glossary of prosthodontic term, denture retention has been defined as the resistance in the movement of a denture away from its tissue foundation especially in a vertical direction or a quality of a denture that holds it to the tissue foundation and/or abutment. [4]