

**Ministry Of Higher Education
& Scientific Research
Baghdad University
College of Dentistry**



Distal Movement of Maxillary First Molar Using Different Types of Ready Made Appliances

(An *in vitro* comparative study)

**A thesis submitted to the Council of
The College of Dentistry of the University of Baghdad
In a Partial Fulfillment of the Requirments for
The Degree of Master of Science
In Orthodontic**

By

Laith Omar Al-Mawla

B.D.S

Supervised by

Assist. Prof. Dr. Hind Taher Jarjees

B.D.S ,M.Sc

Baghdad-Iraq

2014 A.D.

1435 A.H.

ABSTRACT

Maxillary molar distalization is an important method for correcting class II molar relationship.

The important thing in the use the distalizing appliances is to reduce the patient cooperation with minimizing the effects of distalizing appliances on the anchoring teeth.

Aims: The aim of this study is to compare three different intra-maxillary molar distalization devices with different designs , force direction. Other aims are to compare the effect of these devices on first permanent molars in mesiodistal , buccopalatal, rotational aspects. It aims also to compare the effect of these devices on the first premolar (which is a part of anchoring system).

Materials and Methods: The samples consisted of three groups; Frog appliance, K-Loop spring and Multidistalizing arch on typodont simulation system (Ormaco). Upper typodont arch of class II division I was used.

Pre and postoperative digital images were taken and analysed using AutoCAD software for each group, Six parameters was measured and compared ; first molar (vertical change ,tipping change ,rotation, distalization rate) and first premolar (vertical change ,tipping change).A significant value of 0.05 was determined.

Results: The results of present study showed that the multidistalizing arch gave rise a significant distal tipping, extrusion, distopalatal rotation of first molar and gave rise the highest mean value of first molar distalization rate. Also, gave rise a significant distal tipping and extrusion of first premolar.

Frog appliance showed the lowest mean value of molar distalization rate ,distal tipping and rotation , in comparison with Multidistalizing arch (MDA) and K-Loop spring . Also, these parameters ranged between the highest and lowest mean value in extrusion of first molar , first premolar vertical change , Also showed lowest mean of distal tipping of first premolar than Multidistalizing arch (MDA) .

K-Loop spring ranged between the highest and lowest mean value distalization rate , distal tipping of first molar. Also, showed the lowest mean value in extrusion of first molar and extrusion of first premolar and rotation of first molar .However, The K-Loop spring show mesial tipping of first premolar in comparisom with (MDA) and Frog appliance that show distal tipping of first premolar.

Conclusions: It is concluded that the three methods are effective in molar distalization . The best method of first molar distalization ranged between the K-Loop spring and Frog appliance. Consequently the two methods showed good amount of molar distalization with minimal effects on first molar and first premolar.