# Color and Fracture Load of Translucent Zirconia Laminate Veneers with Two Preparation Designs Cemented using two Cementation techniques

## Research

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**BY**


## Hend Ali Elkawash

B.D.S. (Garyouns university) (1995)

M.S.C.(Marmara university-Istanbul)(2005)

Lecturer in Faculty of dentistry, Benghazi University


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## Supervisors


# Dr. Gihan Farouk Mohamed

Professor of crown and bridge

Faculty of Dentistry, Ain shams university

# Dr. Marwa Mohamed Wahsh

Lecturer of crown and bridge

Faculty of Dentistry, Ain shams university

Crown and Bridge Department

Faculty of dentistry

Ain-shams University


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# ***Dedication***

***This work is dedicated to***

*MY Dear husband, my mother*

*My children*

*The light that leads my way*

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For decades, the first objective of anterior dental restorations has been to replace tooth structure lost by dental disease in an esthetic manner. Improvements of dental techniques and materials have led to development of all ceramic restorations which are well suited to change the shape and color of teeth Laminate veneers provide a conservative elegant esthetic solution.

Veneers have been introduced with different materials and techniques which resulted in improvements in color, translucency and fracture resistance of the teeth [(1)].The main drawback of the laminate veneer restoration was its susceptibility to fracture and color matching. It was revealed that fracture in porcelain veneers seems to be associated with incisal preparation designs and change in bonding conditions. [(2, 3)]

Crystal High Translucency restorations are the most translucent zirconia materials available, allowing 20-30% more light to pass though than other zirconia materials. Restorations can be used to create bridges that are up to five times stronger than other ceramic restorations currently available while providing life-long strength plus the esthetic qualities patients seek.

Lithium-disilicate glass ceramic is a type of glass ceramic commercially known as IPS e.max. The crystals that form within this material are contributing double the fracture strength and fracture toughness of the lithium disilicate glass materials. This material can be very translucent even with high crystalline content: this is due to the relatively low refractive index of lithium-disilicate crystals. This material is translucent enough that it can be used for full-contour

restorations or for the highest esthetics, can be veneered with special porcelain [4].Dental restorations using all ceramic materials in association with adhesive cements have become popular, primarily because of esthetic properties such as translucency, fluorescence and opalescence that better simulate the appearance of natural dentition, other desirable characteristics include chemical stability biocompatibility and high compressive strength.[5]

In1999, **Magne and Douglas [6]** introduced a new approach for adhesive bonding of ceramic veneer. With the new method the dentin bonding is applied and cured immediately after completion of tooth preparation, before the final impression is taken in situation that lead to significant dentin exposure and subsequently affect the bond ,for this situation technical challenge in bonding procedure are performed by recent study of Yu-Sung Cho in 2010 to evaluate the effect of immediate dentin sealing on the bond strength of resin cement to porcelain restoration showed improvement in the bond strength compared to conventional method.Consequently, this study was undertaken to evaluate the effect of two preparation designs on the color translucency and fracture load of two ceramic materials cemented by two methods.

The patients demand for treatment of esthetic anterior teeth is steadily growing. Several treatment attempts have been introduced to restore an esthetic appearance of dentation like discoloration, diastema, enamel defect, malpositioned teeth, and agenesis of lateral incisor. For many years the most predictable and durable aesthetic correction of anterior teeth has been achieved by preparation of full crown restoration. However this approach is most destructive with removal of large amount of sound tooth structure and possible adverse effects on adjacent pulp and periodontal tissue. But with the great progress in bonding capability to enamel and dentin made with introduction of adhesive systems along with development of high performance composite resin lead to more conservative restorative adhesive technique to deal with un esthetic tooth forms, These conservative restorations such as inlay, onlay, and laminate veneers presented available option to the full crown restoration for the people who needed to change their smile.

**History of laminate veneers** [(7)]

Creating the perfect smile for Hollywood film actors in 1930s was a significant part of Dr. Charles Pincus dental practice. Pincus was fully aware of the importance of the Hollywood smile as an integral part of image. Personality and puplic opinion. Challenged by the need to develop an esthetic temporary restoration for those actors who did not want teeth cut down for full crown Pincus developed thin facings made of air-fired porcelain, which were temporarily held in place with adhesive denture powder while actors were before the camera.