

Sterilization methods of fabricated and prefabricated resin veneered anterior stainless steel crowns

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Unightly or discolored primary incisor teeth will often be the reason why, for the first time parents seek dental treatment for their children. Anterior teeth can be decayed to a point where the infection will ultimately result in necrosis of the pulp, abscess formation and resorption of primary roots which precludes endodontic treatment. In advanced cases, the crowns of the four maxillary incisors may be destroyed completely leaving decayed brownish black root stumps in their alveolus. In such cases restoration with a full coverage with stainless steel crown provides the optimum protection for the remaining tooth structure.

In today's cosmetically conscious society, most parents demand more esthetic restorations often preferring extraction to the crown's unattractive metallic appearance of stainless steel crowns. Therefore, the pre veneered crowns are currently very common in the market with different sizes for anterior primary teeth. However, the dentist will face many problems with such crowns naming expensive price, sterilization which deteriorates the crowns' physical properties and abrasion due to tooth brushing. A solution to such problem could be the laboratory fabricated crowns' veneers made by the Nano composite, providing esthetics, cheap price as well as durability against wear provided by Nano composite.

A study was done on 30 pre veneered crowns (Kinder Crowns) and 30 fabricated veneered crowns, that were prepared in the lab, where 10 crowns from each group was sterilized by the steam autoclave at 121°C degrees, another set of 10 crowns from both groups was sterilized by soaking in 2% Gluteraldehyde solution for 10 hours, and finally 10 crowns were not sterilized as a control group. The crowns were later tested for the effect of both types of sterilization on the fracture resistance and tooth brushing abrasion resistance.

The result of the study showed that Kinder Crownst had a significant decrease in the fracture resistance of the group of crowns sterilized by Gluteraldehyde while those sterilized by steam autoclave had an insignificant decrease in their fracture resistance.

The fabricated veneered crowns showed a significant decrease in its fracture resistance after being sterilized by the 2% Gluteraldehyde solution. Later the specimens were viewed under the stereomicroscope to analyze the bond failure. There was no significant difference among the groups of the preveneered Kinder Crowns as regards the tooth brushing abrasion resistance. While in the fabricated crowns there was a significant decrease in the abrasion resistance in the group sterilized by Gluteraldehyde.

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