Dimensional changes of three addition silicones after autoclaving

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INTRODUCTION

A successful rehabilitation depends on many factors such as dimensional stability, detail reproduction of impressions and models (Hamalain et al., 2011). Impression is one of the crucial steps when it comes to oral rehabilitation. Impression quality determines the optimal adjustment of the restoration (Rupp et al., 2005; Balkenhol et al., 2010).

The aim of the impression material is to obtain a replica of the hard and soft tissues of the oral cavity in three dimensions and has to be dimensionally stable (Craig e Powers, 2002; Hamalian et al., 2011).

Nowadays, elastomers are considered the standard of care for the material for definitive impressions in fixed prosthodontics (Lee, 1999). Within the family of elastomers, we can find polyether, condensation silicones, addition silicones and polyesters (Rentzia, 2007). The addition silicones and polyesters tend to be used most frequently due to their physical and mechanical properties (Lee, 1999; Hamalain et al., 2011).

Disinfection procedures weren’t used until the twentieth century. Impressions are contaminated by plaque, blood or saliva creating a vehicle of cross-infection for a variety of pathogens, such as HIV, Hepatitis B, herpes, tuberculosis. Therefore it is necessary to control cross-infection in clinical practice (Drennon e Johnson, 1990; Martin et al., 2007; Thomas et al., 2008; Rentzia et al., 2011).

The ADA Specification nº19 (1977) states that the maximum negative change in dimension is 0.5% and the ISO 4823:2000 has a maximum of 1.5%.

OBJECTIVES

Study the dimensional stability of three addition silicones after steam autoclave sterilization.

HYPOTHESES

When subjected to autoclaving, the addition silicones suffer dimensional changes.

When subjected to autoclaving, the addition silicones don’t suffer dimensional changes.

RESULTS

The null hypothesis is rejected.

The impression materials show dimensional changes after autoclaving.

The dimensional changes are below the maximum allowed by ADA Specification nº19 (1977) and ISO 4823:2000, therefore, steam autoclave sterilization should be considered a valuable disinfection procedure.

CONCLUSIONS

The dimensional changes of three addition silicones after steam autoclave sterilization should be considered a valuable disinfection procedure.

REFERENCES


