

HEB



JOPD

Journal of Prosthodontics Dentistry
An Official Publication of Bureau for Health & Education Status Upliftment
(Constitutionally Entitled As Health-Education, Bureau)

Tensile strength evaluation of two resilient liners bonded to different types of denture base resins, as influenced by surface treatment – An in-vitro study

Prachi Priyadarshini, Ranganatha Rao K Jingade, Ponnanna A. A, Muralidhar G, Nitesh Rai

Department of Prosthodontics, Krishnadevaraya College of Dental Sciences, Bengaluru- 562157, Karnataka, India

Correspondence: Prachi Priyadarshini, Department of Prosthodontics, Krishnadevaraya College of Dental Sciences, Bengaluru- 562157, Karnataka, India

Running head: Resilient liner bond to different denture base resins

Email Id: serviceheb@gmail.com

ABSTRACT

Aims: The aim of this study is to compare the effect of surface treatment, by sandblasting of denture bases, in bonding of resilient liners to poly-methyl methacrylate denture bases.

Settings and Design: Two different resilient liners were used- acrylic based and silicone based. Three PMMA denture base resins with similar composition used, but processed differently – heat cure, injection molding and CAD-CAM denture base.


Methods and Material: Acrylic specimens of dimension 20×6×3 mm in dumbbell shape were made using heat cure, autopolymerising (injection molding) and CAD-CAM resins. A total of 72 specimens were obtained. The specimens were divided into 12 groups (n=6). 3 mm of material was removed from the centre of each specimen using acrylic trimming burs to provide space for the soft liner. 36 samples (3 from each group) were sandblasted using 120 μ Al₂O₃ before applying the liner. GC soft liner and Silagum comfort liner was applied in the space between the two parts of denture base resin specimen. The samples was held in a tensile jig and the tensile bond strength was measured in Universal Testing machine. The ultimate tensile strength for each sample was recorded and compared.

Statistical analysis used: The results were analysed by using SPSS version 18 (IBM Corporation, SPSS Inc., Chicago, IL, USA). Results on continuous measurements were presented as Mean ± SD. Normality of

the data was assessed using Shapiro-Wilk test. Mann-Whitney U test was used to check the difference between two groups. p value less than 0.05 was considered significant.

Results: The tensile bond strength of sandblasted samples bonded to either of the resilient liners was greater than the untreated samples. The difference was statistically significant. Silagum comfort liner showed better bond strength to denture bases as compared to GC soft liner. **Conclusions:** From a clinical perspective, all the combination of denture base and resilient liner is clinically acceptable except untreated Ivobase CAD resin bonded to GC soft liner. Surface treatment significantly improved the bond between PMMA denture base resin and resilient liner. Silagum comfort (silicone based) resilient liner showed better bonding to PMMA resin than GC soft liner (acrylic based).

Key-words: Resilient denture liners, Tensile bond strength, CAD-CAM Denture Base resins, Injection molding , Acrylic based soft liners, Silicone based soft liners, Surface treatment of denture base resins

Access this Article Online	Quick Response Code: 
Website: http://heb-nic.in/jopd	
Received on 18/08/2021	
Accepted on 29/08/2021 © HEB All rights reserved	