



**EVALUATION OF SHEAR BOND STRENGTH
OF MOLLOPLAST B SOFT LINER TO
POLYMETHYLMETHACRYLATE
DENTURE BASE MATERIAL**

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ABSTRACT

Background and objectives: The most common problem associated with use of soft liner is the debonding from the PMMA denture base material. The aim of this study is to investigate the effect of (a) polymerization technique of polymethylmethacrylate (PMMA) denture base material, (b) curing technique of Molloplast B soft liner, and (c) surface treatment of PMMA denture base material, on the “shear bond strength” (SBS) of the Molloplast B soft liner and PMMA denture base material, in addition (d) to compare the dimensional stability of PMMA before and after the application of Molloplast B softliner.

Methods: A total of 80 PMMA samples were used in this study, 40 (SR Triplex hot) PMMA samples polymerized in water bath, 40 (Acron MC) PMMA samples polymerized in microwave, Surface treatment of PMMA surface was performed on 40 samples using neodymium: yttrium aluminum-garnet Nd :YAG laser, and the other 40 samples were treated using Aluminumoxide Al_2O_3 sandblasting (250 μm), Molloplast B softliner (Detax, Germany) were packed between each two PMMA strip as overlap joint and cured by water bath and microwave and evaluated for SBS, in addition the dimensional stability of PMMA samples were measured before and after the Molloplast B soft liner application using the (DOF scan app) software device.

Results: The results showed that the SBS of water bath cured Molloplast B soft liner to PMMA was significantly higher (26.69 ± 6.23 MPa) than SBS of the microwave cured Molloplast B soft liner to PMMA (15.22 ± 4.82 MPa), No significant difference was observed between the SBS of Molloplast B soft liner to PMMA samples regarding the PMMA surface treatment and polymerization techniques. According to the dimensional stability test the SR Triplex hot water bath polymerized PMMA samples showed significant dimensional instability after the application of Molloplast B soft liner, while in Acron MC microwave polymerized PMMA samples non-significant dimensional instabilities were observed after Molloplast B soft liner application.

Conclusion: Water bath cured Molloplast B soft liner showed higher SBS of Molloplast B soft liner to PMMA denture base material than the microwave cured Molloplast B soft-liners. Regarding the dimensional stability test the microwave polymerized PMMA samples showed better dimensional stability after the addition of softliner