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Comparative Evaluation of Flexural Strength of Three Different Recent Materials Used for Provisionalization- An In Vitro Study

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ABSTRACT:

The ideal requirements of the provisional restoration includes aesthetics, comfort, speech and function, maintenance of periodontal health, occlusal stability, and continued evaluation of the fixed prosthodontic treatment plan. The purpose of this study was to investigate the flexural strength of three different recent materials used for provisionalization, out of which two were directly fabricated, BIS-ACRYL (LUXATEMP) and UDMA (REVOTEK LC) and (PMMA) CAD/CAM fabricated interim material and to see the effect of thermal cycling on them.

MATERIAL AND METHOD: Standard specimens (25×2×2mm) were made for preparation of specimens. Each group ((LUXATEMP, REVOTEK LC, PMMA CAD/CAM) contained 20 specimens. They were divide in to 2 subgroups out of which flexural strength of first 10 specimen were measured without thermal cycling with universal testing machine with a cross-head speed of 1 mm/min. Second subgroup which consisted of another 10 specimens were subjected to 5000 thermal cycles (custom built, 5°C and 55°C, 60 second dwell time, and 5-second transferring time for 5000 cycles) and flexural strength were measured with universal testing machine with a cross-head speed of 1 mm/min.

RESULTS: PMMA CAD/CAM interim material showed the highest mean flexural strength of the 3 interim materials before and after thermal cycling, and Luxatemp, Revotek Lc showed the lowest flexural strength.

CONCLUSION: PMMA CAD/CAM interim material have stronger flexural strength than bis-acryl and light cure material, especially after thermal cycling.

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