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Evaluation and Comparison of Fracture Strength and Marginal Fit of Two Indian Brands of Zirconia – An Vitro Study

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ABSTRACT

AIM: The purpose of this in vitro study was to compare the marginal fit and fracture strength of established zirconia CAD/CAM blocks with the economical Indian commercial brands.

MATERIALS AND METHODS: A typodont acrylic resin left mandibular first molar was prepared for an all ceramic crown. Zirconia discs for two Indian brands were milled and sintered for different time at a constant temperature to compare marginal fit and fracture resistance.

STATISTICAL ANALYSIS USED:

The statistical analysis was performed using SPSS software (version 23).

RESULTS : Sintering duration did not affect the fracture resistance of the samples. Fracture toughness of Jyodent was 4673.03 and Upcera was 3602.02 which was better as compared to Vita with fracture resistance 2921.87 ± 349.67 N. The marginal fit was found within the acceptable range of 100µm.

CONCLUSION: The monolithic zirconia CAD-CAM Indian zirconia brand Jyodent crowns showed better fracture strength than Vita YZ T, as it withstood fracture loads greater than the maximum masticatory force.

The marginal fit was seen to be within the acceptable range for both Jyodent and Upcera brands.

KEYWORDS – Fracture resistance, marginal fit, all ceramic crown, zirconia, CAD/CAM

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