



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

Fracture strength of High Translucency Monolithic Zirconia Crowns subjected to different Surface treatments – An-In-Vitro Study

¹Dr. Shobana Thangaraju, ²Dr. Suma Karthigeyan, ³Dr. Seyed Asharaff Ali*, ⁴Dr. Karthigeyan Ramadoss & ⁵Dr. Kalarani Gnanasambandam

¹**M.D.S., Senior Lecturer**, Department of Prosthodontics Priyadarshini Dental College And Hospital, Pandur, Tamil Nadu, India

²**M.D.S., Principal & Professor**, Department of Prosthodontics and Crown and Bridge, Rajah Muthiah Dental College and Hospital, Annamalai University, Chidambaram, Tamil Nadu, India.

³**M.D.S., Professor**, Department of Prosthodontics and Crown and Bridge, Rajah Muthiah Dental College and Hospital, Annamalai University, Chidambaram, Tamil Nadu, India

⁴**M.D.S., Professor** Department of Oral and Maxillofacial Surgery, Sri Venkateshwaraa Dental College and Hospital, Puducherry, India

⁵**M.D.S., Associate Professor**, Department of Prosthodontics and Crown and Bridge, Rajah Muthiah Dental College and Hospital, Annamalai University, Chidambaram, Tamil Nadu, India.

Email Id: serviceheb@gmail.com

ABSTRACT

BACKGROUND:

Monolithic zirconia restorations are a promising option in high-stress bearing areas. The surface of zirconia crowns are finished either by polishing or glazing. But there exists a controversy to which surface restoration technique helps to regain the strength of the restoration.

PURPOSE:

The purpose of the study is to evaluate the effect of four different glaze materials on the fracture strength of monolithic zirconia crowns.

MATERIALS AND METHODS:

All ceramic tooth preparation was done in typhodont model(46). Extra oral scanning was done. The digital image of the prepared tooth was collected, designing and milling was done by CAD/CAM system. These crowns were glazed with four different glaze materials which are Group 1-Ivocolor-710°C, Group 2-VITA AKZENT plus-890°C, Group 3-Switz Ceram-900°C, Group 4-Uni Glaz-880°C. All the four groups were glazed with a holding time of 1 min. Group 5-Hand polished Control group. The fracture strength was measured using Universal Testing Machine. The fractured specimens were evaluated by Scanning Electron Microscopy(SEM).

RESULTS:

The mean fracture strength of VITA AKZENT plus(1587N) and Switz Ceram(1615.75N) were higher than the mean fracture strength of Ivocolor glaze(1096N) and Uni Glaz(1079N) and are comparable to the mean fracture strength of the hand polished control group(1663.50N).

CONCLUSION:

The different glaze materials affects the fracture strength of Monolithic zirconia crowns. VITA Glaze and Switz Ceram glaze showed higher fracture resistance when compared to the Ivocolor glaze and Uni Glaze material and showed comparable results with the hand polishing control groups. The hand polishing control group showed the highest fracture resistance when compared to the other glaze materials

KEYWORDS: Monolithic Zirconia, fracture strength, glazing, polishing

Access this Article Online	Quick Response Code: 
Website: http://heb-nic.in/jopd	
Received on 27/03/2025	
Accepted on 04/04/2025 © HEB All rights reserved	