





INTRODUCTION

- Zirconia ceramics are the most preferred for indirect restoration
- High aesthetic satisfaction, strength and durability
- Long term effects have detrimental impact on opposing teeth surfaces
- Novel 3D printable resin TC80DP, a possible alternate to Zirconia

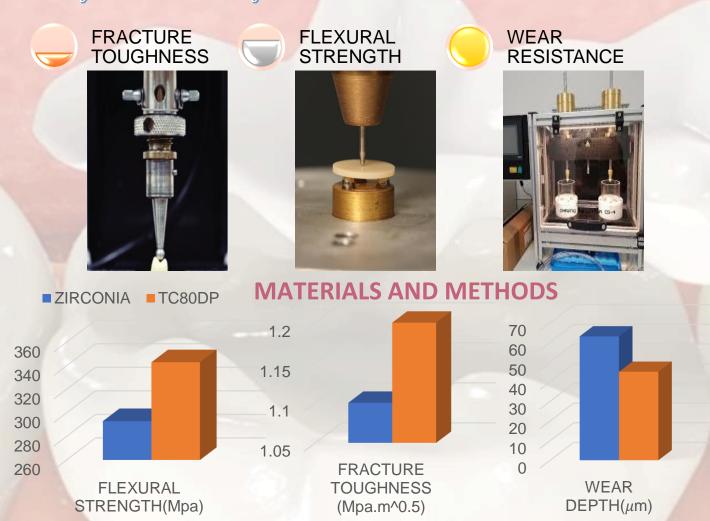


AIM AND OBJECTIVE

To compare and evaluate the flexural strength, Fracture resistance, wear resistance of 3d printable resin TC80DP and ceramic inlays.



FLEX, FRACTURE, WEAR: AN INLAY FACE OFF!



DISCUSSION

- Universal testing machine, 3 point ball test and chewing stimulation tests were carried out on 10 samples each of Zirconia inlays and TC80DP inlays
- Statistically significant results for flexural strength and wear resistance
- Both materials show similar fracture toughness, suggesting equivalent resistance to crack propagation
- The material's strength, wear resistance, and tooth-friendly characteristics make novel TC-80DP versatile for various restorations.

CONCLUSION

The research results imply that, in lieu of zirconia, TC80DP material has a low measure of wear depth along with high flexural strength and toughness.

Further research on TC80DP could be done to evaluate and assess its accuracy and potential as a future ceramic substitute.

REFERENCES: Kim N, Kim H, Kim IH, Lee J, Lee KE, Lee HS, et al. Novel 3D Printed Resin Crowns for Primary Molars: In Vitro Study of Fracture Resistance, Biaxial Flexural Strength, and Dynamic Mechanical Analysis. Children (Basel) [Internet]. 2022 Sep 22;9(10). Available from: http://dx.doi.org/10.3390/children9101445; Tang Z, Zhao X, Wang H, Liu B. Clinical evaluation of monolithic zirconia crowns for posterior teeth restorations. Medicine (Baltimore) [Internet]. 2019 Oct;98(40):e17385. Available from: http://dx.doi.org/10.1097/MD.000000000000017385, Janyavula S, Lawson N, Cakir D, Beck P, Ramp LC, Burgess JO. The wear of polished and glazed zirconia against enamel. J Prosthet Dent [Internet]. 2013 Jan;109(1):22–9. Available from: http://dx.doi.org/10.1016/S0022-3913(13)60005-0