

ISSN: 2458-8989



Natural and Engineering Sciences

NESciences, 2025, 10 (1): 56-68 doi: [10.28978/nesciences.1613417](https://doi.org/10.28978/nesciences.1613417)

Additives Versus Subtractive Fabricated Techniques and Materials Types and their Impact on the Fracture Resistance of Ceramic Crown

Abstract

Because of the evolvement of digitalized dentistry and the need of a restoration that is fixed, there has been an introduction of many materials related to 3D printing in today's market. The purpose of this study is to evaluate the resistance of fractures by comparing materials of ceramic which are of four kinds and they are zirconia-reinforced lithium disilicate, also Emax cad, and IPSS emax as well as 3Dprinting nanoceramic. Methods: 24 crowns were prepared (6sample for each type of the material) used in the study. And undergone artificial ageing before testing using the universal testing machine. Submission of results in SPSS for tests like Kruskal-Wallis as well as nonparametric test proved the difference in each material of ceramics and it differed at $p \leq 0.05$ whereas in the methods used there is no such difference. The material which showed a resistance for fractures with a high value was the samples of ZLS which was about 1473.1 and the material which showed a resistance for fractures with a low value was the Emax cad and it was about 1013.7. To conclude, Value of Fracture resistance can have an impact because of the kind of material whereas there is no significant impact because of the preparation method