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## Fracture resistance and survival rate of endodontically treated teeth restored with the zirconium oxide post: A systematic review

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### Abstract:

**Statement of problem.** Zirconium oxide post present an optimal esthetic option to restore fractured endodontically treated teeth. Nevertheless, the fracture resistance and survival rates of teeth restored by using the zirconium oxide post still remains unclear.

**Purpose.** The purpose of this systematic review was to address the research question: “Is the fracture resistance and survival rate of endodontically treated teeth improved when restored with a zirconium oxide post and composite resin core compared with other post systems?”

**Materials and method.** An electronic search was conducted in the Medine/PubMed, Science Direct, and Google Scholar electronic databases to identify relevant studies based on the research question. Only English language articles based on the eligibility criteria were included for final analysis with the last search implemented in February 2023. The risk of bias assessment of included studies was conducted by using the Quality assessment of in-vitro studies (QUIN) tool.

**Results.** Fourteen studies were included in the quantitative analysis. Zirconia posts significantly prevented tooth fracture as compared with no post. Zirconia posts ranked highest followed by Quatz post and glass fibre post in the outcome of tooth fracture. None of the included articles were considered to have applicability concerns, out of the fourteen in-vitro studies 1 study showed low risk of bias, 13 studies showed medium risk of bias. No study showed high risk of bias.


**Conclusions.** The use of a zirconia post when indicated will result in reduced risk of tooth fracture. Endodontically treated teeth restored with the zirconium oxide post demonstrated superior fracture

resistance. However, more clinical trials with long follow-up periods are required to enhance the quality of the evidence.

**Clinical implications:**

This systematic review showed that, when indicated in whichever region in the oral cavity zirconia post should be used as decreased incidence of fractures associated with zirconia post and core systems contributes to improved clinical success rates, patient satisfaction with restorations that exhibit durability and stability.

**Key-words:** Zirconia post, Fracture resistance, Post & Core, Survival rate, Aesthetics

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