

Fiber Post Showed Similar Survival Compared to Metal Post Based Restoration

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Clinical Problem & Question

Among endodontically treated adults to what extent does root canal treatment followed by metal-post and core affect the risk of root fracture and tooth survival rate compared to fiber post and core-based restoration with ≥ 5 years follow up

Materials and methods

A total of 28 articles were found on Pubmed using the specific MESH terms and key words.

Literature cited

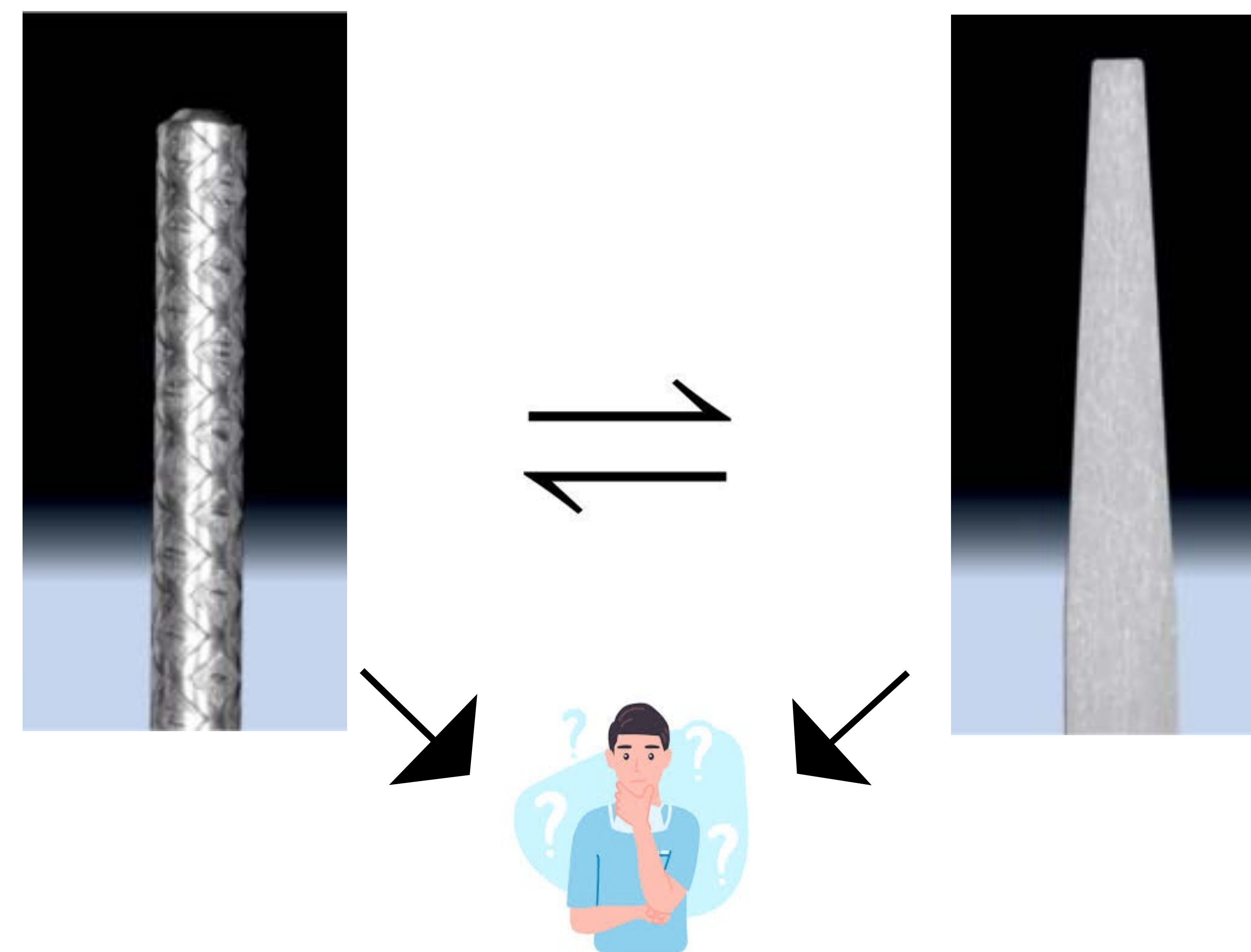
Figueiredo FE, Martins-Filho PR, Faria-E-Silva AL. Do metal post-retained restorations result in more root fractures than fiber post-retained restorations? A systematic review and meta-analysis. *J Endod.* 2015 Mar;41(3):309-16

Applicability

- For adult patients that need post and core treatment these results are important due to the cost difference between fiber and metal posts and thus can benefit our patients decision making.
- Anterior teeth that require post and core treatment will benefit more esthetically from a fiber post rather than a metal post.
- Due to the absence of clinical meaningful difference in failure rates the choice between fiber and metal posts can be discussed with the patient based off these factors.

Clinical Bottom Line

Both metal and fiber based post and core restorations can be used to restore endodontically treated teeth. However, the current evidence does not support one treatment over the other one regarding the incidence of root fractures. Considering tooth survival, metal post seems to have longer survival rate compared to fiber posts, although no direct comparison was done between both groups. Fiber posts provide good aesthetic outcomes, particularly in the anterior tooth region. The treatment plan will be dictated by the post and core's cost and esthetics. However, this SR includes retrospective cohort studies, which have less control over the subject selection, measurements, and the high risk of confounding factors.



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Results

Evidence quality

- In this SR the two interventions of interest were not directly compared, so it is hard to make an accurate interpretation of the results.
- The survival rate for metal-based posts is 6.1% higher compared to fiber reinforced posts. Assuming clinically meaningful difference threshold as 10%, the difference is not clinically meaningful. The clinical decisiveness and statistical significance of the results is not possible to assess. The studies with robust methodology that directly comparing two interventions are needed.

Strengths

Two independent reviewers, no restrictions on publication date or languages, PRISMA diagram, no publication bias was reported based on the funnel plot and Begg and Mazumbar rank correlation analysis, validated Cochrane Risk of Bias Tool and Newcastle-Ottawa Scale for quality of studies assessment.

Limitations

Only 2 databases, retrospective cohort studies (prone to selection and measurement bias, and risk of confounding). Risk factors not explored in depth, GRADE approach was not performed, less than 5 years follow up, included RCTs have small sample size. Studies did not include descriptions regarding the amount of coronal remaining and/or tooth location. No direct comparison of metal and fiber post making it difficult to answer clinical question. There was considerable heterogeneity among different included studies in terms of study design and population characteristics. This SR includes two types of studies: 7 RCTs and 7 cohort studies which have fundamental differences regarding study design, comparison and blinding. Cohort studies had bias as they did not address confounding factors and prone to selection bias. Also, most of the RCTs showed a high risk of bias due to performance, detection, and attrition biases. In total, all the 7 RCTs included in this study showed low quality of evidence.

