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REVIEWER'S REPORT

Manuscript No.: IJAR-52976 Date: 25-07-2025

Title: COMPARATIVE EVALUATION OF FRACTURE RESISTANCE OF MANDIBULAR BICUSPIDS INSTRUMENTED WITH HAND FILES, TRUNATOMY, ROTARY FILE AND RECIPROCATING FILE SYSTEM: AN IN VITRO STUDY

Recommendation:
Accept as it is ……YES……
Accept after minor revision……
Accept after major revision ……
Do not accept (*Reasons below*) ……

Rating	Excel.	Good	Fair	Poor
Originality			YES	
Techn. Quality		YES		
Clarity			YES	
Significance		YES		

Reviewer Name:Dr Payal Adwani(PT) **Date:25-07-2025**

Reviewer's Comment for Publication.
This in vitro study offers a comparative evaluation of fracture resistance in mandibular premolars prepared with various root canal file systems, including traditional hand files and advanced NiTi rotary/reciprocating systems.
The manuscript is relevant to endodontic practice, as it evaluates the effect of canal preparation technique on structural integrity.
The article follows a well-defined methodology and yields clinically meaningful insights, especially in favor of minimally tapered instrumentation.
However, revisions are needed to improve clarity, statistical reporting, and scientific rigor.

Detailed Reviewer's Report

Appraisals / Strengths

- Clinical Relevance:

The topic addresses a key concern in endodontics—how different file systems influence root fracture resistance, a common cause of post-treatment failure.

- Clear Objective and Hypothesis:

The aim is well stated, and the experimental setup directly supports the hypothesis.

- Diverse File System Comparison:

The inclusion of five different file systems (Hand files, TruNatomy, Protaper Universal, EndoStar E3, WaveOne Gold) gives a broad comparative understanding.

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- Standardized Protocol:

Samples were decoronated to 14 mm and embedded in acrylic with simulation of periodontal ligament, ensuring uniformity in testing conditions.

- Use of Universal Testing Machine:

Objective fracture resistance testing provides reliable quantitative results.

- Statistical Tools Used Appropriately:

One-way ANOVA and Tukey's post hoc test were employed for intergroup comparison.

- Practical Implications:

Findings favoring minimally tapered files (e.g., TruNatomy and Hand files) can guide clinical decision-making to preserve tooth structure.

Critiques / Limitations

- Lack of Detailed Statistical Reporting:

Though statistical tests are mentioned, specific p-values, confidence intervals, or error bars are not reported. This weakens the analytical transparency.

- Sample Size Justification Missing:

No mention of power analysis or rationale behind using 10 samples per group, which may impact the study's validity.

- Grammar and Language Issues:

Several instances of grammatical errors, incomplete sentences, and informal phrasing (e.g., "thus takes together all these findings...") detract from the professionalism of the article.

- Figures and Tables Not Well Integrated:

Figure captions are mentioned but visuals are not embedded meaningfully in the narrative. A consolidated table of results would enhance clarity.

- Inadequate Discussion Depth:

The discussion primarily repeats results with limited critical comparison with existing literature. Deeper engagement with references would strengthen the manuscript.

- Limited External Validity:

As an in vitro study, real-world variables (e.g., occlusal forces, patient variability) are not accounted for. This should be acknowledged more explicitly.

- Terminology Inconsistencies:

Repeated switching between file brand names and general categories (e.g., WaveOne Gold vs. Reciprocating file) can confuse readers unfamiliar with systems.

- Ethical Clearance and Source of Teeth:

The source of extracted teeth and ethical clearance status is not stated clearly—a standard requirement for studies involving human tissue.

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- Lack of Imaging or Dentin Crack Evaluation:

While fracture resistance is tested, no radiographic or microscopic analysis is done to correlate crack propagation with instrument design.