ISSN: 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

ISSN NO. 2320-5407

REVIEWER'S REPORT

Manuscript No.: **IJAR-53742** Date: 11-09-2025

Title: COMPARATIVE EVALUATION OF THREE DIFFERENT IMPLANT ABUTMENT CONNECTION ON STRESS DISTRIBUTION AROUND THREE DIFFERENT IMPLANT SYSTEM UNDER FUNCTIONAL LOAD: A 3-D FINITE ELEMENT ANALYSIS

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

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

Reviewer Name: Dr.Aamina

Reviewer's Comment for Publication

This manuscript presents a **methodically executed finite element analysis (FEA)** comparing three widely used implant–abutment connection geometries (Tri-channel, Internal Conical-Hex, and Internal Octa-Morse) under functional loading. The study is **technically rigorous** and clinically relevant, providing valuable insight into stress distribution patterns that may guide implant selection and design.

The paper demonstrates **solid FEA modeling** (use of ANSYS R18.1, HyperMesh, realistic material properties, and physiological loading conditions) and offers detailed reporting of von Mises stress results, which are appropriate indicators for evaluating potential implant fatigue or failure. The results, showing slightly higher stress in the Tri-channel system but no statistically significant differences, are important for implantology research and clinical decision-making.

Specific Line-Referenced Comments

Lines	Comment	Suggested Action
6–27 (Introduction)	Provides a comprehensive background on internal vs. external	Consider citing 1–2 more recent studies (2022–2024) to strengthen the contemporary context.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

Lines	Comment	Suggested Action
	connections.	
45–68	Excellent explanation of FEM/FEA principles.	Minor grammar edits: e.g., "R. Courant was a first researcher" → "R. Courant was the first researcher."
77–90 (Materials & Methods)	Clear description of model creation.	Specify sample size or provide rationale for selecting these three specific commercial systems.
99–109	Good details on interface assumptions and meshing strategy.	Clarify whether mesh convergence testing was performed to ensure numerical stability.
112–115	Material properties well tabulated.	Provide sources or references for modulus and Poisson's ratio values for transparency.
133–140	Loading conditions are realistic and well referenced.	Correct typo "axillary" → "axial" (line 139).
145–157	Appropriate use of von Mises stress analysis.	Briefly discuss the clinical relevance of the reported stress magnitudes in relation to known failure thresholds of implant materials.
165–181 (Results)	Results are clearly presented and supported by figures/tables.	Ensure figures (10–11) are properly labeled and captions follow journal format.
General	Figures appear inline but lack proper numbering/legends.	Add descriptive figure captions and ensure consistent cross-referencing in the text.

Overall Evaluation

Strengths

- **Originality & Relevance:** First-hand comparative FEA of three implant–abutment designs under physiologic and oblique loading.
- **Technical Execution:** Careful meshing, realistic boundary conditions, and clear stress analysis.
- **Clinical Significance:** Supports evidence-based selection of implant connection types for optimal load distribution.