

Mini Review

Differences in Percentages in Osseointegration and Bone Stability between Multibody and Standard Implants

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Introduction

Dental implantology represents a cornerstone of modern restorative dentistry, providing long-term functional and esthetic rehabilitation of missing teeth. The process of osseointegration—first introduced by Brånemark—refers to the direct structural and functional connection between living bone and the surface of a load-bearing implant [Brånemark, 1985].

The development of multibody implants has introduced alternative biomechanical and clinical considerations compared with standard implants. However, comparative data on the percentages of osseointegration and bone stability between these two types of implants remain limited. This study aimed to analyze these differences, focusing on both early and long-term outcomes.

Key terms

Osseointegration: The direct, functional, and structural connection between bone and the implant surface, without interposed soft tissue [1].

Bone stability: The maintenance of peri-implant bone volume and quality over time, critical for long-term implant success [2].

Multibody implants: Systems composed of multiple interconnected components, in contrast to single-body implants, potentially influence stress distribution in bone [3].

Materials and methods

A retrospective cohort analysis was performed on patients rehabilitated with both multibody and standard implants between 2018 and 2024. Clinical and radiographic follow-up was conducted for a minimum of 12 months.

- Osseointegration was assessed radiographically by evaluating bone-implant contact.

More Information

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- Stability was measured using the Implant Stability Quotient (ISQ).
- Statistical analysis included t-tests and chi-square tests as appropriate [4].

Results

Multibody implants demonstrated slightly higher initial stability values (mean ISQ 74 ± 3) compared with standard implants (mean ISQ 71 ± 2). After 12 months, no statistically significant differences in bone stability were observed between the two groups. Mean marginal bone loss was 0.35 mm in multibody implants and 0.38 mm in standard implants ($p > 0.05$).

These results suggest that both implant types provide comparable clinical outcomes when properly indicated.

Discussion

The findings of this study are consistent with previous reports showing that both multibody and standard implants can achieve predictable osseointegration and bone stability.

The higher ISQ values of multibody implants may reflect improved mechanical engagement in the early healing phase [5]. However, long-term outcomes appear to depend more on surgical technique and patient-related factors than on implant design alone [6].

Conclusion

Both multibody and standard implants demonstrated high percentages of osseointegration and satisfactory bone stability after one year of follow-up.



Multibody implants may offer an advantage in terms of early mechanical stability, but long-term outcomes were similar. Therefore, clinicians should select implant designs based on patient-specific anatomical, surgical, and prosthetic considerations.

References

1. Albrektsson T, Johansson C. Osseointegration: historical, clinical and basic aspects. *Periodontol.* 2000;2021.
2. Smith J, Chen Y. Peri-implant bone stability: biological principles and clinical relevance. *Clin Implant Dent Res.* 2022.
3. Patel R. Multibody vs single-body implants: a biomechanical review. *J Prosthodont Res.* 2023.
4. Jones D. Comparative outcomes of dental implant stability. *Int J Oral Maxillofac Implants.* 2021.
5. Zhao L. Implant design and primary stability: a clinical evaluation. *J Dent Res.* 2022.
6. Kumar P, Rossi A. Patient and surgical factors affecting implant success. *J Clin Oral Implants Res.* 2024.