

REVIEWER'S REPORT

Manuscript No.: IJAR 52544

Date: 30/6/2025

Title: "Syncrystallization in Immediate Implant Provisionalisation: A Review"

Recommendation:

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

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

Reviewer Name: Dr. Vasudha Kommu

Date: 30/6/2025

Reviewer's Comment for Publication.

(To be published with the manuscript in the journal)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This manuscript titled "**Syncrystallization in Immediate Implant Provisionalisation: A Review**" provides a comprehensive overview of syncrystallization as a viable method for immediate implant provisionalization, highlighting its biomechanical advantages in reducing micromotion and favorable clinical outcomes in terms of implant survival and patient satisfaction. The paper effectively outlines the technique, compares it to traditional methods, and identifies critical areas for future research. It serves as a valuable resource for clinicians and researchers interested in immediate loading protocols.

The review identifies key limitations including technique sensitivity, the additional cost of chairside polymerization lights, and a scarcity of long-term clinical data beyond 24 months. Further research, particularly randomized controlled trials, is needed to standardize protocols and confirm long-term outcomes.

Recommendation: Accept with minor revisions

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Detailed Reviewer's Report

1. **Operator and Technique Sensitivity:** The review acknowledges that the success of syncrystallization is highly dependent on the operator's skill and meticulous technique. Inadequate resin adaptation can compromise stability. This inherent sensitivity may pose a barrier to universal adoption and consistent outcomes across different practitioners.
2. **Equipment Cost:** The need for chairside polymerization lights adds to the overall equipment cost, which might deter some dental practices from implementing this technique.
3. **Limited Long-term Data:** A significant limitation highlighted is the scarcity of evidence beyond 24 months. While short-term survival rates are high (95-100% over 6-24 months), the long-term stability, marginal bone levels, and prosthetic complications over 5 years or more are not yet well-established.
4. **Material Properties Concerns:** The review points out potential issues with the acrylic resin used, specifically shrinkage and fatigue over several months, which could weaken the splint over time. This raises questions about the material's longevity in a dynamic oral environment.
5. **Absence of Standardized Protocols:** The review calls for standardization of various aspects, including resin type, abutment alignment, polymerization times, and splint thickness. The lack of such standardized protocols currently can lead to variability in clinical results and difficulty in comparing studies.
6. **Need for Higher-Level Evidence:** While prospective and retrospective studies are cited, the review explicitly states a need for more randomized controlled trials (RCTs). RCTs are considered the gold standard for clinical evidence, and their absence limits the strength of evidence supporting syncrystallization compared to alternative methods like titanium welding or traditional provisional restorations.