

INPLASY

Three-dimensional printed bioresorbable scaffold for maxillofacial bone reconstruction: a scoping review

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 June 2024 and was last updated on 24 June 2024.

INTRODUCTION

Review question / Objective Does the utilization of 3D-printed bioresorbable scaffolds effectively promote bone regeneration in maxillofacial bone defects?

Condition being studied Reconstructive surgeries of maxillofacial defects due to trauma or resulting from ablative procedures are crucial in restoring anatomic structures, appearance, and tissue functions. Similarly, in many cases, alveolar ridge deficiency resulting from bone resorption after tooth extraction requires primary augmentation before dental implant placement.

METHODS

Participant or population Patients with maxillofacial bone defects.

Intervention Maxillofacial bone defects reconstruction using virtual planning and custom-made 3D-printed bioresorbable scaffolds.

Comparator Bone defects reconstruction using different types of bone grafts.

Study designs to be included Clinical studies [including randomized clinical trials (RCTs), controlled clinical studies, cohort studies (prospective or retrospective), case series, case reports) reporting data about using 3D-printed bioresorbable scaffolds for reconstruction of maxillofacial bone defects.

Eligibility criteria Only articles in the English language were included.

Information sources Electronic searches of PubMed, EMBASE, Web of Science, Scopus, and Cochrane Library databases were conducted for

publications up to June 2024. Grey literature (Google Scholar database) was also searched.

Main outcome(s) Bone regeneration, dental implant success/survival and patients satisfaction.

Quality assessment / Risk of bias analysis Not applied.

Strategy of data synthesis A logical and descriptive summary of the results was made based on the review objective and question. A table was developed describing the characteristics of the included studies and the key information relevant to the review question.

Subgroup analysis Not applied.

Sensitivity analysis Not applied.

Country(ies) involved Brazil.

Keywords Three-dimensional printing; bone graft; bone regeneration; biocompatible materials.

Contributions of each author

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