

Tissue engineering and three-dimensional printing in periodontal regeneration: a literature review

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Abstract

The three-dimensional printing of scaffolds is an interesting alternative to the traditional techniques of periodontal regeneration. This technique uses computer assisted design and manufacturing after CT scan. After 3D modelling, individualized scaffolds are printed by extrusion, selective laser sintering, stereolithography, or powder bed inkjet printing. These scaffolds can be made of one or several materials such as natural polymers, synthetic polymers, or bioceramics. They can be monophasic or multiphasic and tend to recreate the architectural structure of the periodontal tissue. In order to enhance the bioactivity and have a higher regeneration, the scaffolds can be embedded with stem cells and/or growth factors. This new technique could enhance a complete periodontal regeneration. This review summarizes the application of 3D printed scaffolds in periodontal regeneration. The process, the materials and designs, the key advantages and prospects of 3D bioprinting are highlighted, providing new ideas for tissue regeneration..

Biography:

Simon Raveau currently works in a dental practice in Saint Molf (44350) in France. Simon works in Aesthetic Dentistry, Periodontology and Dental Surgery. His current project is '3D printing in periodontology.

References

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