

3D PRINTED BONE: AN INNOVATIVE SOLUTION FOR BONE REGENERATION

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ABSTRACT

More than 40 percent of people over the age of 65 have toothless jaws. One of the most advanced techniques for restoring lost teeth is dental implantation, but almost every second dental implantation procedure requires bone augmentation. There are several treatment options to solve bone deficiency with autologous bone grafts or various bone substitutes. However, all of them have several drawbacks which must be taken into consideration. One of the most promising treatment strategies is to create 3D structured and individually fabricated bone scaffolds. It is worth to mention that 3D printing technology stands out among bone tissue-engineered scaffold fabrication techniques. This technology can implement various imaging techniques, such as computed tomography, to create a patient-specific 3D tissue or scaffold model with controllable pore size, porosity, and internal architecture.

The lecture will present a new concept of using FFF 3D printed composite scaffolds for bone regeneration procedures, in vitro and in vivo investigation, and future directions.