Three-dimensional printing of biomaterials for applications in regenerative medicine and anesthesiology

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Complex Anatomical Structures

Three-Dimensional (3D) Printing

From 2D to 3D
Proposed Clinical Paradigm

1. Tissue defect due to injury, disease, or congenital absence
2. Clinical imaging (e.g., computed tomography)
3. Computer-assisted design model
4. Fabrication of 3D scaffold construct

Main Requirements of 3D Printing Technology

1. Materials
2. 3D Printers
3. How should we approach material design for translatable 3D printing research?

Challenges of Development and Translation

1. Novelty, Individualization
2. Similarity, Consistency
3. Academic Research
4. Regulatory Agencies
Development of 3D Printing Materials

Identifying Suitable Material Compositions

Applications in Anesthesiology
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