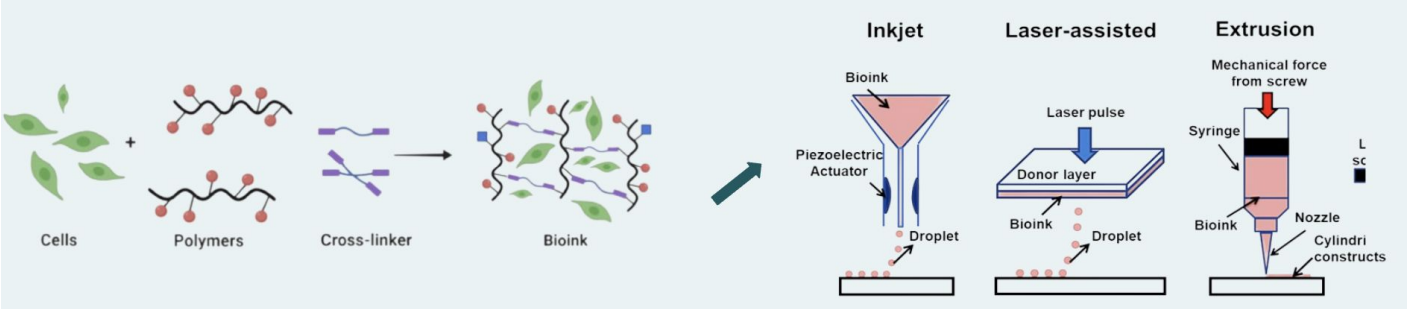
3D Printing Materials: BioPrinting Tissues

Due to a severe shortage of organs needed for transplants in the US and other countries, an up and coming method of 3D printing uses bioinks containing living cells and silicon materials to print out a functional tissue.



Resources:
wyss.harvard.edu

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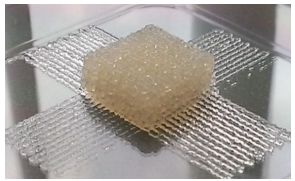

- Recently, Wyss Institute has been using tissue material to 3D print biological tissues with a new feature of in-built vascular channels. These vascular channels are a new developments that make these 3D printed organs function closer to their real counterparts since they allow for necessary nutrient circulation to all cells in the printed tissue.
- This new development allows the printed organs and tissues to converge more smoothly with their real counterparts and integrate into the overall cellular structure.
- The actual printing material is first a grid of vascular channels with living endothelial cells in silicon ink, then a supporting ink that has mesenchymal stem cells, then a liquid composed of fibroblasts and extracellular matrix for gap bridging in the tissue.