

3D bioprinted cartilage developed

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A team of researchers from the Department of Textile Technology at the Indian Institute of Technology (IIT) Delhi has been successful in 3D bioprinting of cartilage using a bioink.

The bioink has high concentration of bone-marrow derived cartilage stem cells, silk proteins and a few factors. The chemical composition of the bioink supports cell growth and long-term survival of the cells.

The silk protein has different amino acids that closely resemble the amino acids present in human tissues. Just like cells are surrounded by proteins inside the body, the cells in the engineered cartilage are also surrounded by bioink that has a similar composition.

As a next step, the research team would implant this 3D bioprinted cartilage into the knee joints of animals to see if it remains stable in the knee joint and is able to integrate with the surrounding cartilage tissue. This study also opens up platforms to use 3D bioprinted cartilage on in vitro model system for assessing drug delivery and pharmaceutical studies.