

IIT-G scientists develop silk mats that could treat arthritis

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NEW DELHI: Scientists from IIT Guwahati have synthesised mats made of silk-proteins and bioactive glass fibres that they believe can assist the growth of bone cells and repair worn-out joints in arthritis patients.

The disease most commonly affects joints in the knees, hips, hands, feet and spine, and is marked by the breakdown of joint cartilage and underlying bones. Left untreated, it can cause severe pain, swelling, and eventually limited movement.

"Current clinical treatment methods are limited by lack of viable tissue substitutes to aid the repair process," Biman B Mandal of Indian Institute of Technology, Guwahati, said.

To develop a suitable tissue substitute, scientists, including those from the University College London in the UK, looked into the natural bone-cartilage interface and tried to mimic it synthetically in lab conditions.

Knee osteoarthritis is the most common bone and joint disease in India. However, Mandal pointed out that the available

clinical grafts were expensive.

"We used silk, a natural protein to fabricate electrospun mats to mimic the cartilage portion and bioactive glass to develop a composite material, similar to the natural tissue."

For the mat, scientists used a kind of silk easily available in Northeast India. "Muga (Assam) silk is endowed with properties that enhance the healing process," Mandal said.

The researchers adopted a

HOSTEL ROOMS FOR OFFICES?

KHARAGPUR (WEST BENGAL):

The Indian Institute of Technology - Kharagpur is coming out with a scheme allowing students to use their hostel rooms as entrepreneurship offices, a top official said here.

The project would enable the students to set up the offices at a low expense, IIT - Kharagpur director PP Chakrabarti said on Saturday at the institute's 63rd annual convocation.

"We are coming up with a scheme where students can convert their hostel rooms into entrepreneurship offices at a much lower expense instead of taking rooms in STEP (Science and Technology Entrepreneurs Park)," he said.

Chakrabarti also said that the institute plans to have at least 10% of faculty from foreign universities in five years' time to raise its global standing. **IAN S**

green fabrication approach for developing the silk composite mats — electrospinning.

"It is similar to knitting, except that it utilises electric high voltage force to draw ultra-fine fibres," Mandal said.

A layer by layer approach was followed, where the bone layer was first formed, on top of which the cartilage layer was developed. The resulting composite mat resembled the architecture of the bone-cartilage interface.