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Implant Fixation Technique for Optimal Bone Repair

Stanford scientists have developed an innovative technique for fixating implants to bone.

Traditional methods of using screws to fix implants to bone in surgeries, like spine surgeries, often pose challenges due to risks to nearby structures, constraints imposed by the bone's condition, and screws loosening over time. These issues can lead to severe patient discomfort and a reduction of fixation strength.

The novel technique employs an adhesive composite to secure implants directly to the bone surface. The bone is prepared by removing its top layer or cortex, creating a receptive base for the composite. This composite then flows through small pores in the implant and encases it, thus achieving firm fixation. This approach holds the potential to replace screws as fixation in bone, eliminate the risk of screw loosening, enhance surgical outcomes and reduce operative time.

Stage of Development
Prototype

Applications

- Fixation of fracture repair plates and spinal fusion implants
- Alternative to screw fixation, especially in complex anatomies or revision surgeries

Advantages

- Strong fixation to bone
- Easy placement

- Reduced risk to critical adjacent bone structures
- Shortened operation time
- Elimination of screw loosening risks

Innovators

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