Cementless, Customized Orthopaedic Implants to Mimic the Anisotropic Bone Properties

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Technology description

TECHFIT: Cementless Customized Orthopaedic Implant TECHFIT has set out to create an orthopaedic implant for total knee replacement that has significantly lower failure and revision rates when compared to the current clinical gold standard.
The clinical advantages of the TECHFIT would be a tibial baseplate incorporating microstructures tailored to mimic the bone tissue anisotropic properties with the addition of cementless press fit technology. High-resolution medical images of the bone are converted into accurate 3D models capturing the patient specific microstructures and anisotropic properties. Using this model an implant will be produced with better biocompatibility and reduction of stress shielding, which will extend the implant’ s lifespan. Furthermore, the cementless technology will reduce time spent in surgery, which will help bring down cost of the procedure.

Application area

Orthopaedic implant for total knee replacements

Institution

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