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Singapore develops bioresorbable bone implant solution to prevent leg amputations

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Osteopore and National Additive Manufacturing Innovation Cluster have formed a partnership to upscale clinical adoption in Additive Manufacturing



Osteopore International, a Singapore based company that specialises in 3D printed bioresorbable implants, in collaboration with Maastricht University Medical Centre (UMC+) in the Netherlands, has successfully developed a bioresorbable 3D printed cage that prevents leg amputations in patients with severe lower leg fractures. The 3D printed cage helps a patient regenerate new bone cells and has been successfully designed and implanted in its first patient in the Netherlands.

Manufactured in Singapore, and developed with Osteopore's proprietary 3D printing and materials technology, the 3D printed cage is made of biodegradable material and is customised based upon a computed tomography (CT) scan of the patient's lower leg. This 3D printed cage stimulates the patient's new bone cells to grow within it, eventually breaks down into water and carbon dioxide and is replaced by the patient's own regrown bone tissue.

This first-of-its-kind solution is Osteopore's latest innovation and yet another successful application of its cutting-edge 3D printed technology, and also a testimony of Singapore's SME international expansion and success in the medical device sector. Since implantation, the patient is on track to experience complete bone regrowth as the 3D printed cage becomes gradually replaced by the patients' bone over a period of 4 months.

Co-founded by a team of clinicians and engineers, Osteopore is now a global leader in 3D printed bioresorbable implants in Singapore. Having received strong support from local research universities and government agencies, Osteopore is also a successful adopter of Additive Manufacturing (AM) technologies.

As Singapore has focused on AM translational research and industry adoption to support deep-tech companies in recent years, National Additive Manufacturing Innovation Cluster (NAMIC) and Osteopore have formed a partnership to assist with upscaling clinical adoption and market leadership. This enables an established healthcare model among Singapore's hospitals, in order to eventually increase the success rate of local clinical cases for medical device regenerative implant solutions. The partnership will also aim to facilitate and grow the clinical base in adoption for 3D printed bioresorbable

implants, to achieve better patient outcomes and lower healthcare costs.