

New procedure for bone tissue replacement

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A Simon Fraser University technology MBA graduate has developed a new procedure for bone tissue engineering and plans to use his newfound business acumen to take the research to the next level.

Andre Wirthmann's research aims to benefit patients with bone defects who would normally require a conventional bone augmentation procedure. The process takes a small sample of the patient's tissue and grows it into a larger piece of bone, which is then implanted back into the patient.

As a result of the patient's own cells being used, there is no chance of the patient's body rejecting the tissue.

Wirthmann, who graduated from SFU's Beedie School of Business this month, developed the procedure after completing a PhD in physics at the University of Hamburg. "I wanted to turn my research into a business, but with a purely academic background, I was unsure how to go about it," says Wirthmann, who was invited to apply to the Management of Technology (MOT) MBA program at SFU.

The idea was the brainchild of Wirthmann's father, Axel Wirthmann, an oral surgeon in Wirthmann's native Germany, who specializes in [dental implants](#). Wirthmann has been working on the research along with his father for several years, splitting his time between Hamburg and Vancouver.

Wirthmann says bone is considered to become the second type of tissue

to be engineered, after skin, and before more complex organs like kidneys.

Current bone replacement techniques involve either implanting synthetic or bone tissue derived from animals, which can run the risk of [inflammatory reaction](#) to the patient and delayed healing time, or an autologous transplant, where bone is taken from another area of the patient's body.

"The new approach does not have any of these drawbacks," says Wirthmann. "It provides the best possible bone augmentation material and the opportunity to heal fractures which do not grow back together, which are difficult or impossible to heal with current technology."

The process has potential to be applied in many situations, such as bone fractures that do not heal correctly, injuries and accidents that result in bone defects and also in oral surgery.

At present the cost of growing the [bone tissue](#) is too high to apply the procedure in hospitals, but Wirthmann is currently looking into several different approaches to bring the cost down and allow the technology to be applied in clinical application.

He says the process will save a vast amount of resources needed over long healing times and in below-par healing results, which result in increased costs to the healthcare system.

Wirthmann recently set up his own company, IncuBone Laboratories Inc. and is in the process of searching for scientists and engineers, sourcing funding and setting up partnerships to commercialize the technology.

The Beedie School's MOT MBA is designed to prepare technology

industry professionals to handle the business problems faced by their companies, and entrepreneurs in the technology sector seeking to bring a business idea to fruition.

Provided by Simon Fraser University

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