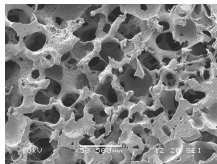


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By: Stefan Anitei, Science Editor



Polymeric scaffold for bone tissue
mitr.p.lodz.pl

Jaw Grown Inside Patient's Belly!

Grown from fatty tissue stem cells

Science fiction medicine becomes increasingly real. There's still more to wait until seeing penises growing from ears and hearts from legs, but a Finnish team has replaced a 65-year-old patient's upper jaw with a bone obtained from stem cells coming from his own fatty tissue and grown between his bowels. "There have been a couple of similar-sounding procedures before, but these didn't use the patient's own stem cells that were first cultured and expanded in the laboratory and differentiated into bone tissue," said Riitta Suuronen of the Regea Institute of Regenerative Medicine, part of the University of Tampere. "The patient is recovering more quickly than he would have if he had received a bone graft from his leg. From the outside nobody would be able to tell he has been through such a procedure. The team used no materials from animals - preventing the risk of transmitting viruses than can be hidden in an animal's DNA, and followed European Union guidelines," she said. Stem cells are non-differentiated cells encountered throughout the blood and some tissues. The fatty tissue has proven to be a good source of stem cells, which can be tailored to make transplants non-rejectable by the body (as there's the same DNA). The team isolated stem cells from the patient's fatty tissue and maintained them, for two weeks, in a nutritious solution comprising the patient's own blood serum. The stem cells started growing and differentiating, and the researchers isolated mesenchymal stem cells, which generate bone, muscle or blood vessels. These cells were placed into a scaffold built of a calcium phosphate biomaterial and inserted into the patient's abdomen in order to develop for 9 months. "The cells turned into a variety of tissues and even produced blood vessels," the researchers said. The block was inserted into the patient's head and attached to the skull via screws and microsurgery, connecting its blood vessels to those of the neck. The patient had lost his upper jaw due to a tumor and this had condemned him to use a removable prosthesis for eating and speaking.