

19 February 2007

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[Finger Regrown Using Pig Bladder Extract!](#)

A hope for regenerating technologies

Regrowing fingers lost by soldiers in wars or by civilians in accidents would not only improve life quality for these patients, but could also be a first step on the way of regenerating entire limbs or damaged parts of skin (in the case of scars), hearts and spinal cords. Some animals can naturally regenerate limbs, like the salamanders (starfishes and octopuses are less relevant in studies aimed towards future human applied technologies). "Up to about age 2, people can consistently regrow fingertips. But that's rare in adults", said Dr. Stephen Badylak, a regeneration expert at the University of Pittsburgh. A salamander can regrow a missing limb in a few weeks; they do not form a scar at the wounded place but a mound of cells named a blastema that regenerate the limb. If the blastema is removed on the back or on any other place on the salamander's body, a limb will grow there. If a nerve is rerouted on another spot on the limb, there will emerge a blastema and a new extra-limb. A bioengineered mouse strain named MRL, obtained at Wistar Institute in Philadelphia, were proved to develop blastemas instead of scars, but it doesn't develop the missing part of the digits back. (An ordinary mouse just develops a scar.) The recent case of a Lee Spievack, 68, from Cincinnati, who sliced off a fingertip but grew it back, after he used an extract of pig bladder triggered the interest of the scientists. Lacking all or most of the fingers impedes a person to pick things up, brush his/her teeth or fasten a button. Even a regrown small stub could make a huge difference in their lives. Spievack lost his fingertip to a spinning plastic prop, leaving just a bit of the nail bed. He used an extract of pig bladder, at the recommendation of Alan Spiervack, his brother and a former Harvard surgeon who owns a company that promotes healing and tissue regeneration. It applied it every two days and in four weeks the digit had its original length and in four months, it looked like a normal one. "It's a little hard, as if calloused, and there's a slight scar on the end", said Spievack. The nail continues to grow at twice the speed of his other nails. "All my fingers in this cold weather have cracked except that one," he said. The pig bladder extract is employed for horse's regrow ligaments and it is marketed for human use. Dr. Alan Spievack had used it also on a neighbor who'd cut his fingertip off with a table saw. "The man's fingertip grew back over four to six weeks," said Alan Spievack. The powder will be tested this summer at Fort Sam Houston in San Antonio, on soldiers who have a far more disabling finger loss caused by burns. "Fingers are particularly vulnerable to burns because they are small and their skin is thin," said David Baer, a wound specialist at the base. Five to ten soldiers that miss digits will have the end of a finger stub re-opened surgically, with the powder applied three times a week. They hope to have enough of a finger regrown, maybe even less than an inch, so that to be able to pinch. "They have nothing to lose", said Badylak. "The powder is mostly collagen and a variety of substances, without any pig cells", said Badylak, who is a scientific adviser to ACell. "It forms microscopic scaffolding for incoming human cells to occupy, and it emits chemical signals to encourage those cells to regenerate tissue. Those signals don't specifically say "make a finger," but cells pick up that message from their surroundings," he said. "We're not smart enough to figure out how to regrow a finger. We are very uninformed about how all of this works," Badylak said.