



## From Stem Cells, New Roots

As reported by Niki Kapsambelis of *Pittsburgh Magazine*, around the country, dental schools and practitioners are crafting new techniques that treat not only teeth but also a host of other problems from the patient's neck up. One example is using stem cells to repair the root of a tooth.



A true measure of how far the root canal has evolved is a procedure that is being perfected at West Virginia University and the University of Pittsburgh School of Dental Medicine, among other institutions. Using a method called revascularization, dentists are bringing new life to dead permanent teeth by stimulating the rich supply of stem cells that live in a tooth's root, particularly in the teeth of children.

At Pitt, endodontic residents have performed the procedure on 48 cases with an enviable 100-percent success rate, according to McGowan Institute for Regenerative Medicine affiliated faculty member [Herbert Ray, DMD](#), Assistant Professor of Endodontics and Director of Pitt's School of Dental Medicine's Graduate Endodontic Residency Program.

Based on that track record, the next step has been exploring techniques for stimulating root regrowth in adult teeth. One method involves removing the dead nerve, sterilizing the resulting hollow space, and introducing collagen and specially treated stem cells to regenerate the nerve. Today, the space is filled with a rubber-like material; in the future, it instead will contain regrown human nerve tissue.

Pitt's research focuses on stimulating or attracting stem cells from surrounding tissues while the tooth is still in the patient's mouth. The shift from cleaning and filling infected roots to regenerating a new blood supply to the pulp likely will be the norm at dental practices within the next 2 decades.

Dr. Ray says he does not believe root canals would disappear completely; he points out that healing the tooth is better than repairing it.

"All restorations have a limited life span," he explains. "Dental fillings are like tires on a car — they wear out."

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