

TECHNOLOGY & HEALTH

X-Ray Doses May Help Mend Spinal Cords

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NEW YORK — In an unprecedented finding, researchers reported that precisely timed doses of X-rays may be able to spur damaged spinal cords to partially repair themselves.

The X-ray method, tested so far only on rats, might someday be used to prevent permanent paralysis in humans with spinal injuries. The researchers theorize that X-ray treatment rids the spinal cord of scar tissue that prevents new blood vessels from growing at the damaged site. These blood vessels are needed for nerve cells to grow back and survive, they believe.

"This is an inexpensive, simple and effective way of stimulating the spinal cord to repair itself," said lead researcher Nurit Kalderon of Memorial Sloan-Kettering Cancer Center in New York. "In the long run, it might help eradicate the problem of paralysis after spinal-cord injury," she speculated, although she cautioned that at least two more years of detailed animal studies are needed before the technique can be tried on humans.

The startling finding, however, is likely to meet with skepticism in the scientific community until it is verified by other laboratories. In years past, other researchers have spurred great excitement after claiming to regrow spinal-cord tissue in animals. But none of these early experiments have ever been duplicated.

The X-ray research follows a surprising finding in late July by Swedish researchers, who reported success in regrowing nerves in rats with severed spinal cords. They did so by surgically implanting new nerves in the injured area. Dr. Kalderon said that her method, if it ever proves effective on humans, may have an advantage in avoiding potentially dangerous surgery.

Spinal cords are one of the few tissues that don't grow back after injury, and developing methods to stimulate nerve regrowth is a Holy Grail being pursued by numerous research teams. In the new experiments, reported today in the journal *Proceedings of the National Academy of Sciences*, Sloan-Kettering researchers first severed spinal cords of 17 rats, then treated 11 of them three weeks later with a single X-ray dose aimed directly at the wound. After several months, six of the 11 rats recovered the ability to stand on their own four feet, something none of the untreated rats could do.

In a second experiment, the researchers used X-rays on 17 rats with partly severed spinal cords and counted how many nerves eventually grew back. About a third of the rats grew back 20% or more of their nerves, the researchers said, which didn't occur with untreated control rats.