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Penny-sized nanochip pad can regrow organs and heal injuries

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The US researchers have created a Dubbed tissue nanotransfection (TNT) technology which is capable of regrowing damaged organs and healing serious wounds with the single touch of a penny-sized pad.

The technique works by placing a small pad of nanochips over a damaged area. A small electric current then fires DNA into the skin cells, converting them into the specific building block cells of any other part of the body, such as arteries, or even organs like the heart.

Nanochips can reprogramme skin cells which can generate any type of cell necessary for medical treatment. The procedure is non-invasive in nature and takes less than a second. In laboratory trials it was found to restore the function of badly damaged blood vessels within days.

The US researchers who created the technology say, “It could even be used as a weapon against neurological diseases like Alzheimer’s and Parkinson’s. It will be possible to reprogramme skin cells to harvest brain cells in a peripheral part of the body, such as the arm, which can then be injected into the brain.”

The team at Ohio State University have successfully trialled TNT on pigs and mice, with a reported success rate of 98 per cent.

In one experiment, blood flow in the severely injured leg of a mouse was restored in less than a week after the pad reprogrammed skin cells to create vascular cells.Researchers plan to start clinical trials on humans next year.

Dr. Chandan Sen, who led the study said, “With this technology, we can convert skin cells into elements of any organ with just one touch. This process only takes less than a second and is non-invasive, and then you're off. The chip does not stay with you, and the reprogramming of the cell starts.”

“By using our novel nanochip technology, injured or compromised organs can be replaced. We have shown that skin is a fertile land where we can grow the elements of any organ that is declining. By using our novel nanochip technology, injured or

compromised organs can be replaced. We have shown that skin is a fertile land where we can grow the elements of any organ that is declining”, he added