Would you use a dissolvable medical implant?

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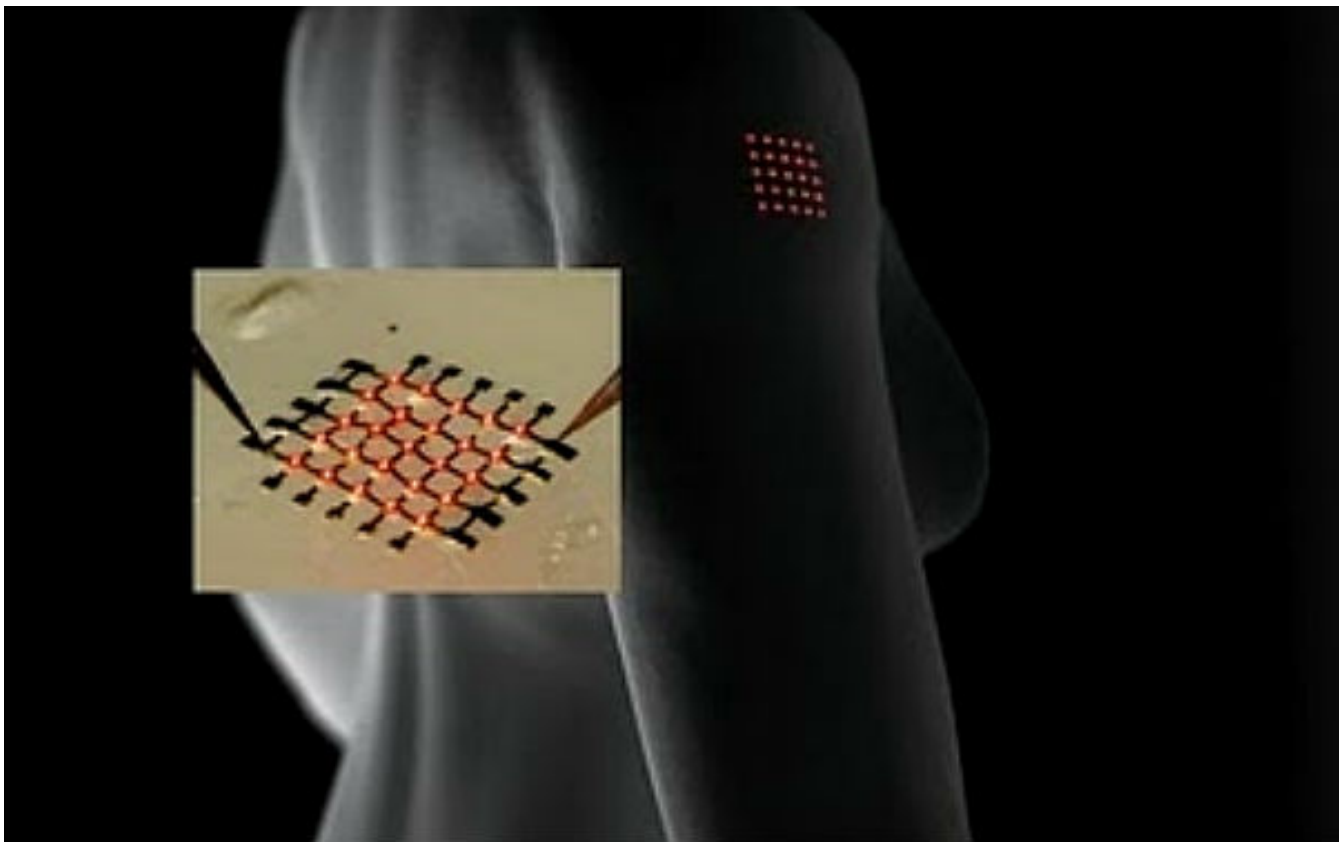
Part of the problem with implanted medical devices -- for example a birth control, drug delivery device like Implanon and Nexplanon -- is that eventually, they must be removed. This is proving particularly difficult with the Implanon and Nexplanon, as occasionally fibrous sheath develops around the device, requiring a more complicated removal procedure.

What if, the medical community asks, the device simply dissolved after the intended use time expired?

A dissolvable device would eliminate any need for a removal procedure, potentially lessening patient stress and diminishing the chances of human error during the removal.

With that in mind, researchers at the University of Illinois at Urbana-Champaign, Tufts University have created a biodegradable electronic, making dissolvable medical devices a possibility in the future.



The devices [1] are constructed from a silicon and magnesium circuit, cocooned in a special type of water-soluble, reconstituted silk, which can be programmed to dissolve over a designated period of time. The circuits are made using just the nanomembranes of silicon, so they are more dissolvable than regular silicon.

To test the device, the researchers implanted a heat-radiating electronic device—used to prevent infection at a surgical site--into mice.

The implant—normally used for two weeks after surgery—were checked after three weeks and found to have minimized infection *and* almost completely dissolved, though some of the silk remained.

Though the devices are years from the human operating table, they hold interesting implications for both the medical and consumer electronics fields. The researchers feel incorporating the technology into consumer electronics could lessen the environmental footprint created by the disposal of electronics waste.

Image courtesy of Mashable.com *[2]*

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