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Radio-controlled sperm 'tap' turns off vasectomies

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A radio-controlled contraceptive implant that could control the flow of sperm from a man's testicles is being developed by scientists in Australia.

The device is placed inside the vas deferens - the duct which carries sperm from each testicle to the penis. When closed, it blocks the flow of sperm cells, allowing them to pass again when it is opened via a remote control. The valve could be a switchable alternative to vasectomy, the researchers say.

Although women can choose from several long-term contraceptive methods, for men vasectomy is really the only option. With this procedure, the vasa deferentia are cut or blocked, a process that requires surgery and can require a week of recovery. The procedure cannot be reliably reversed, leaving some men to later regret their decision.

Now, a team from the University of Adelaide, Australia, may have come up with a more easily reversed alternative. They have designed a small radio-controlled valve that would "push-fit" snugly inside the vas deferens and block the passage of sperm.

The silicone-polymer valve can be flipped between open and closed positions with a pulse of radio waves. A set of conducting "fingers" on the valve act as antennae and convert the signal's energy into sound waves that travel through the polymer and create stresses inside the device.

Remote control

"Since it is flexible, the polymer either contracts or expands as a result, and this movement allows the valve to be opened or closed as needed," explains team leader [Said Al-Sarawi](#).

"It will be like turning a TV on and off with a remote control," added team founder Derek Abbott, "except that the remote will probably be locked away in your local doctor's office to safeguard against accidental pregnancy or potential misuse of the device."

To secure the device against accidental activation, the device works in a similar way to a car's remote key-fob. Each valve responds only to a radio-frequency signal with a unique code.

Another advantage of the microvalve is that would not require open surgery, unlike a vasectomy. The 800 micron-long device could simply be inserted using a hypodermic needle. "The procedure could be performed in a special clinic rather than in a hospital," says Abbott.

The researchers have finished the design of all parts of the valve, and are convinced it will work effectively. The next step is to test it in the lab with a tube of pressurized water. After that, trials could begin in live sheep and pigs, they say.

'Grace period'

One potential problem, however, is that after a while the valve may clog with protein and remain shut, rendering the man permanently infertile.

"We would only propose the device to men who were thinking of having a full vasectomy anyway," said Abbott. "But, unlike in an actual vasectomy, he would have a 'grace period' where the procedure can easily be reversed." How such a device affects gender politics would also make a fascinating social study, he added.

Men who regret a vasectomy can often only have children using donor sperm, says Natalie Gamble, associate with UK law firm [Lester Aldridge](#).

"Although the law protects families conceiving with the help of a sperm donor, this type of conception has significant legal and emotional implications," she adds. "I am sure men will welcome the chance to control their fertility more flexibly, and to preserve the chance to have their own genetic child."

Joe Hofmeister is president of US firm Shepherd Medical Company, which is also working on male contraceptive devices. "Consumer market research performed by an independent third party for Shepherd confirms a strong patient desire for a permanent-yet-reversible male contraceptive such as the microvalve or other such system."

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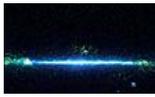
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