Sperm warfare


Men want new contraceptive methods," says Elaine Lissner, director of the non-profit Male Contraception Information Project in San Francisco. "A decade ago demand wasn't there and it was assumed women wouldn't trust men to take charge of birth control anyway. That has changed."

The size of half a rice grain, the "fertility control micro-valve" is injected by a doctor into the vas deferens, the duct that carries sperm from the testes, a process that needs only a local anaesthetic. The valve can then open and close to control sperm flow out of the body "Vasectomy entails surgery, pain and it might not be reversible. Our micro-valve provides an alternative," says [Derek Abbott]. Demand for the new valve has been unprecedented. "I've been inundated with inquiries from men from all over the world," he says. The device will now need five years of animal trials before it can be used in human beings.

You could always decide to take your fertility into your own hands and experiment with heat methods, says the MCC. This is the rather low-tech option of sitting in a very hot bath for 21 consecutive days, as espoused in the 1950s by the Swiss doctor Dr Martha Vogeli. Famous for her "hot sitz" baths, she insisted that the method provided six months' contraception because heating the testes inhibits sperm production.

Men are short-changed when it comes to birth control. Vasectomy is painful and not always reversible. Condoms blunt pleasure, break and slip off. Or there is that Russian-roulette standby, coitus interruptus.

But science finally may have found an answer for reversible, reliable and easy contraception for men with a new breed of futuristic, nonhormonal gizmos that promise a high-tech solution to sperm control.

Teams around the globe are developing new techniques that can block ducts in the testes, zap sperm before they come out of the body or even scramble sperm production.
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Switching sperm flow on and off

Professor Derek Abbott and his team from the University of Adelaide in South Australia have invented the first remote-controlled key fob that allows men to control a valve that can switch their sperm flow on and off as required.

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Intra Vas Device

Meanwhile, the Minnesota-based Shepherd Medical Company is expanding trials of its Intra Vas Device (IVD), tiny soft implants in several sizes that block the flow of sperm. The implants, billed as a painless, no-scalpel, easily reversible vasectomy, are likely to come on to the market in the next two to five years. Shepherd anticipates having European, Canadian and US approval by 2010.

Implantable ring

In California a team is developing an implantable ring that circles the vas deferens. Doctors can switch it on to zap sperm rather than block their passage, making them unable to fertilise an egg (they can also turn it off again).

Injection to block the sperm tubes

An injectable compound called RISUG that blocks the sperm tubes is likely to be one of the first new contraceptive methods to make it into GPs' surgeries. It is already being trialled in India and may be on the market there within two years - Lissner says that she can see men from the UK or US flying to India to be treated with it.

Sperm present in ejaculate after RISUG have broken cell membranes and cannot attach to an egg. The method starts working in about 10 days and can easily be reversed.

Ultrasound scrambles sperm.

Zapping the testes with ultrasound is another promising new male contraceptive. It is simple and convenient: a machine applies ultrasound waves to heat the testes painlessly for ten minutes, scrambling sperm-making for six months.

Fertility returns gradually, although it is not clear yet how many times men can safely use the method without permanently affecting their sperm count.
Investigators are fine-tuning equipment and techniques in small pilot studies and a bigger study is planned in rats.

...and can permanently close the sperm tube

A Californian company, Vitality Medical Products, is developing the HIFU machine (high-intensity focused ultrasound) to close the sperm tube permanently without surgery. The small transducer is clamped round the scrotal skin, closing the sperm tube after a minute's zapping.

Hurdle to development

The future of male contraception looks promising, but there is one huge hurdle. Most of the new inventions appear to work in the laboratory and in early trials, but they need millions of pounds more investment before they reach the marketplace.

Lissner says that if more money is not put in, these new products "will simply languish in the laboratories. Male contraception is the forgotten stepchild of research. Pharma companies, governments and foundations just haven't invested enough."

She says that risk-averse pharmaceutical companies are put off by the liability involved in testing contraceptives on healthy young men. Many methods are now stalling at the point where it becomes expensive - taking it to animal and human trials. Development should no longer be left to the profit-motivated will of these companies, she says. Instead the British and US governments and other charitable foundations must step in to fund the next tier of trials.

"There are plenty of new methods in the pipeline. Yes, research is important, but the 'pipeline' is actually full now. Highest priority is to get these methods that already exist in the laboratory to the market.

"This is vital if we want something truly new. Men now want to take responsibility and control of contraception. The idea that men aren't willing to participate is clearly out of date."

Demand for these new devices is so high that Male Contraceptives Coalition (MCC), the charity that runs www.malecontraceptives.org, has been inundated with queries about where men can get hold of them. But at present they can be accessed only through clinical trials.

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Finally, for the truly adventurous, there is always hope that the banker Wayne T. Walston will manufacture his US patent number 5063939, a battery-powered scrotum heater designed to be worn for two hours each day. Suddenly, a simple condom seems appealing.
Liz Hollis looks at new male contraception, from radio-controlled valves to ultrasound;

The long journey

Why no male pill?

The first human trials of a hormonal male pill began in the early Nineties. So why are we still waiting?

Side-effects

The major stumbling block is the risks involved in men taking hormones like testosterone and progestogen to stop sperm production. They may cause mood swings, enlarged breast tissue, hair loss and a possible increased risk of prostate cancer.

Efficacy

Trials have indicated that it can take months to stop sperm production, with regular injections or implants. More worriedly, hormones don't seem to work in up to 20 per cent of men.

Profitability

Drug companies have not piled money into the male pill because they don't see a mass market for it, says David Brown, who runs the charity Vasectomy Information (vasectomy-information.com).

Organon, now part of Schering-Plough, the American pharmaceutical company, has closed its hormonal male contraceptive programme, and says that future development in this area is unlikely. They say that men are unlikely to accept hormone injections and implants for widespread everyday use.

Outlook

Most research is now in university labs on a smaller scale. Non hormonal methods, like sperm-blocking devices, look likely to be on offer first.

Illustration

Caption: Fobbed off: a remote control developed in Australia allows men to control a valve that switches their sperm flow on and off. MONTAGE - ALAMY

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