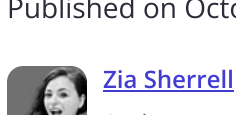


When Will the Pill

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The contraceptive landscape has steadily progressed to become more accessible and effective for those looking to prevent pregnancies. Options for women range from the pill to the patch to the ring to long-acting methods like implants and intrauterine devices (IUDs). But there has been little innovation for men, and there is still a glaring omission — a male contraceptive pill.

The current male contraceptives have remained largely unchanged for decades. There's the condom, a barrier that stops sperm from reaching and fertilizing an egg, and the vasectomy, a minor but usually permanent surgical procedure that stops sperm from entering semen ejaculated from the penis.

Condoms, however, have a high failure rate, and vasectomy reversals are unreliable, expensive, and [not always covered by insurance](#). But new choices are on the horizon as researchers make significant strides in developing a safe and reversible pill for men.

What is the pill?

Female hormonal contraceptives work by preventing ovulation or the release of an egg from the ovaries. If there is no egg, then fertilization and pregnancy cannot occur.

The combined pill is the most popular. It uses synthetic versions of the hormones estrogen and progesterone — ethinyl estradiol and progestin — to stop the monthly release of an egg. It also thickens cervical mucus, blocking sperm and preventing it from entering the uterus. Some people find it also helps treat acne and alleviate period symptoms.

The second type of birth control pill is the progestin-only pill or 'mini-pill.' It contains a progestin hormone only and doesn't contain any ethinyl estradiol.

Why do we need a male pill?

[Estimates from 2011 data](#) suggest that around 45% of pregnancies in the United States are unintended, and 42% of these pregnancies result in abortions.

Traditionally, most of the burden of contraception falls on the person who risks becoming pregnant. But **female contraceptives have several drawbacks**. The pill must be taken daily and can cause side effects like weight gain, depression, and nausea. Most concerning, it's also linked to an increased risk of serious health conditions, such as blood clots and breast cancer. And while IUDs are long-acting and effective, they also come with the risk of heavier, longer, or more painful periods and [serious complications](#), like pelvic inflammatory disease (PID), if insertion introduces bacteria into the uterus.

Options for men are expanding beyond condoms and vasectomies, but there is still a long way to go.

New male contraceptive options

Currently, **Vasagel is the male contraceptive option furthest along in clinical trials** and closest to being the first new U.S. option marketed for men.

Vasagel is based on [BISUG](#), which stands for reversible inhibition of sperm under guidance. It's like a vasectomy, but without the permanent snip. Instead, it uses a polymer gel injected into the tubes that carry sperm from the testes to the penis, the vas deferens.

The positively charged gel coats the inner walls of the vas deferens. Sperm have a negative charge, so when they swim through the vas deferens, the gel damages them, rendering them unable to fertilize an egg.

Vasagel is non-hormonal, minimally invasive, and appears effective for around 10 years. It's also completely reversible with an injection of water and baking soda to dissolve and rinse the gel out of the vas deferens. Additionally, it appears to have no side effects.

Although this is extremely promising, further research is still necessary before this option hits the shelves.

The male pill

This year has seen impressive strides in the development of a male pill. Firstly, [research](#) presented at a meeting of the American Chemical Society detailed how a non-hormonal male contraceptive effectively prevented pregnancy in mice and didn't produce obvious side effects.

During the study, male mice received a daily dose of a molecule called YCT529 over 4 weeks. The molecule targets a protein called retinoic acid receptor alpha (RAR-α). This then blocks the effects of retinoic acid, a vitamin A derivative critical in cell development and sperm formation.

Following treatment, the experimental animals' sperm count plummeted. However, the same mice could impregnate females 4 to 6 weeks after they had stopped receiving the compound.

Furthermore, when the researchers tried doses 100 times higher than the effective dose, the compound still didn't show any toxicity.

The researchers have now licensed the drug to a private company that aims to conduct human trials in the U.S. later this year.

Early human clinical trials have also been fruitful. Two novel synthetic compounds — [DMAU](#) and [11 beta-MNTDC](#) — also seem to be potential candidates for a male pill. They appear to be safe and effective in suppressing hormones needed for sperm production.

Dimethandrolone undecanoate (DMAU) and 11 beta-methyl-19-nortestosterone-17 beta-dodecylcarbonate (MNTDC) have properties that resemble [androgens](#) and progesterone to a lesser extent.

Androgens are a group of sex hormones involved in puberty, body development, and reproductive health. Testosterone is the predominant androgen in all genders, but males make more.

In two more [recent studies of each drug](#), 96 healthy male participants were randomly assigned to receive 2 or 4 oral pills of the active drug or placebo daily for 28 days.

After 7 days of taking the active drug, testosterone levels dropped, while levels stayed within the normal range for the placebo group. Men who took the 4-pill daily dose (400 milligrams) had lower testosterone levels than those taking the 2-pill (200-milligram) dose.

Additionally, the study revealed that three-quarters of men taking the active drug said they would consider using it in the future, compared with less than half of those taking a placebo.

When will the male pill for men be available?

The development of a male pill has been something of a holy grail for contraceptive researchers for years and these studies, though still in their early stages, are promising.

They signal that we may be one step closer to a safe and effective male contraceptive pill available on the market. However, further research is still necessary, meaning we're still some time away from the eagerly awaited male pill.

Resources:

1. NIH. [Declines in Unintended Pregnancy in the United States, 2008–2011.](#)
2. IJMR. [Safety & efficacy of an intravasal, one-time injectable & non-hormonal male contraceptive \(RISUG\).](#)
3. NIH. [Effects of 28 Days of Oral Dimethandrolone Undecanoate in Healthy Men: A Prototype Male Pill.](#)
4. NIH. [Daily Oral Administration of the Novel Androgen 11β-MNTDC Markedly Suppresses Serum Gonadotropins in Healthy Men.](#)
5. Endotext. [Androgen Physiology, Pharmacology, Use and Misuse.](#)

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