

# Spermicide

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**Spermicide** is a contraceptive substance that eradicates sperm, inserted vaginally prior to intercourse to prevent pregnancy. As a contraceptive, spermicide may be used alone. However, the pregnancy rate experienced by couples using only spermicide is higher than that of couples using other methods. Usually, spermicides are combined with contraceptive barrier methods such as diaphragms, condoms, cervical caps, and sponges. Combined methods are believed to result in lower pregnancy rates than either method alone.<sup>[1]</sup>

Spermicides are unscented, clear, unflavored, non-staining, and lubricative.

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<b>Spermicide</b>	
<b>Background</b>	
<b>B.C. type</b>	Spermicide
<b>First use</b>	Ancient
<b>Failure rates (first year)</b>	
<b>Perfect use</b>	18%
<b>Typical use</b>	29%
<b>Usage</b>	
<b>Reversibility</b>	Immediate
<b>User reminders</b>	More effective if combined with a barrier method
<b>Advantages and disadvantages</b>	
<b>STD protection</b>	No
<b>Weight gain</b>	No
<b>Benefits</b>	Provides lubrication
<b>Risks</b>	Genital irritation

## Types and effectiveness

The most common active ingredient of spermicides is nonoxynol-9. Spermicides containing nonoxynol-9 are available in many forms, such as jelly (gel), films, and foams. *Contraceptive Technology* states that spermicides have a failure rate of 18% per year when used correctly and consistently, and 29% under typical use.<sup>[2]</sup>

Menfegol is a spermicide manufactured as a foaming tablet.<sup>[3]</sup> It is available only in Europe.

Octoxynol-9 was previously a common spermicide, but was removed from the U.S. market in 2002 after manufacturers failed to perform new studies required by the FDA.<sup>[4]</sup>

The spermicides benzalkonium chloride and sodium cholate are used in some contraceptive sponges.<sup>[5]</sup> Benzalkonium chloride might also be available in Canada as a suppository.<sup>[6]</sup>

A common urban legend suggests that Coca-Cola or other soft drinks serve as an effective spermicide. This is false.<sup>[7]</sup>

Lemon juice solutions have been shown to immobilize sperm in the laboratory,<sup>[8]</sup> as has Krest Bitter Lemon drink.<sup>[9]</sup> While the authors of the Krest Bitter Lemon study suggested its use as a postcoital douche, this is unlikely to be effective, as sperm begin leaving the ejaculate (out of the reach of any douche) within 1.5 minutes of deposition.<sup>[10]</sup> No published studies appear to have been done on the effectiveness of lemon juice preparations in preventing pregnancy, though they are advocated by some as 'natural' spermicides.<sup>[11]</sup>

Lactic acid preparations have also been shown to have some spermicidal effect, and commercial lactic acid-based spermicides are available.<sup>[12][13]</sup> However, no published studies on the effectiveness of lactic acid in preventing pregnancy appear to have been done since 1936.<sup>[14]</sup> Thomas Moench, a former assistant professor of medicine, has said that research into acids as spermicides has "pretty much been abandoned."<sup>[15]</sup>

Extractives of the neem plant such as neem oil have also been proposed as spermicides based on laboratory studies.<sup>[16]</sup> Animal studies of creams and pessaries derived from neem have shown they have contraceptive effects,<sup>[17]</sup> however trials in humans to determine its effectiveness in preventing pregnancy have not yet been conducted.

## Use with condoms

Spermicides *are* believed to increase the contraceptive efficacy of condoms.<sup>[1]</sup>

However, condoms that are spermicidally lubricated by the manufacturer do not have enough spermicide to aid in preventing pregnancy, have a shorter shelf life,<sup>[18]</sup> and may cause urinary-tract infections in women.<sup>[19]</sup> The World Health Organization says that spermicidally lubricated condoms should no longer be promoted. However, they recommend using a nonoxynol-9 lubricated condom over no condom at all.<sup>[20]</sup>

## Side effects

Nonoxynol-9 has a number of possible side effects. These include irritation, itching, or burning of the sex organs (either partner), and in women, urinary tract infections, yeast infection, and bacterial vaginosis.<sup>[21]</sup> These side effects are uncommon; one study found that only 3-5% of women who try spermicides discontinue use due to side effects.<sup>[22]</sup>

Concern has been raised over possible increased risk of birth defects in children conceived despite spermicide use, and also in children of women who, not yet aware of their condition, continued spermicide use during early pregnancy.<sup>[23]</sup> However, a review in 1990 of large studies on spermicides concluded "*there appears to be no increased risk of congenital anomalies, altered sex ratio, or early pregnancy loss among spermicide users.*"<sup>[24]</sup>

## History

The first written record of spermicide use is found in the Kahun Papyrus, an Egyptian document dating to 1850 BCE. It described a pessary of crocodile dung and fermented dough.<sup>[25]</sup> It is believed that the low pH of the dung may have had a spermicidal effect.<sup>[26]</sup>

Further formulations are found in the Ebers Papyrus from approximately 1500 BCE. It recommended mixing seed wool, acacia, dates and honey, and placing the mixture in the vagina. It probably had

some effectiveness, in part as a physical barrier due to the thick, sticky consistency, and also because of the lactic acid (a known spermicide) formed from the acacia.<sup>[26]</sup>

Writings by Soranus, a 2nd century Greek physician, contained formulations for a number of acidic concoctions claimed to be spermicidal. His instructions were to soak wool in one of the mixtures, then place near the cervix.<sup>[25]</sup>

Laboratory testing of substances to see if they inhibited sperm motility began in the 1800s. Modern spermicides nonoxynol-9 and menfegol were developed from this line of research.<sup>[25]</sup> However, many other substances of dubious contraceptive value were also promoted. Especially after the illegallization of contraception in the U.S. by the 1873 Comstock Act, spermicides - the most popular of which was Lysol - were marketed only as "feminine hygiene" products and were not held to any standard of effectiveness. Worse, many manufacturers recommended using the products as a douche *after* intercourse, too late to affect all the sperm. Medical estimates during the 1930s placed the pregnancy rate of women using many over-the-counter spermicides at seventy percent per year.<sup>[27]</sup>

## See also

- Personal lubricant

## Footnotes

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