



Birth control: Barrier methods as first choice

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If a woman is sexually active and she is fertile and physically able to become pregnant, she needs to ask herself, "Do I want to become pregnant now?" If her answer is "No," she must use some method of birth control (contraception).

Terminology that is used to describe birth control methods includes contraception, pregnancy prevention, fertility control, and family planning. But no matter what terminology, sexually active people can choose from a number of methods to reduce the possibility of their becoming pregnant. Nevertheless, no method of birth control available today offers perfect protection against sexually transmitted infections (sexually transmitted diseases, or STDs), except abstinence.

In simple terms, all methods of birth control are based on either preventing a man's sperm from reaching and entering a woman's egg (fertilization) or preventing the fertilized egg from implanting in the woman's uterus (her womb) and starting to grow. New methods of birth control are being developed and tested all the time. And what is appropriate for a couple at one point may change with time and circumstances.

Unfortunately, no birth control method, except abstinence, is considered to be 100% effective.

Barrier methods of contraception

Barrier methods of contraception work by creating a physical barrier between sperm and egg cells so that fertilization cannot occur. The most common forms of barrier contraception are condoms (male and female), diaphragm, cervical cap, and contraceptive sponge.

Spermicides, a form of chemical contraceptive that work by killing sperm, are often combined with barrier methods of contraception for greater effectiveness.

While barrier methods of contraception generally do not have the side effects of hormonal contraceptives, some forms of barrier contraception (contraceptive sponges and condoms) may be obtained without a prescription.

The only medical contraindication to the use of barrier contraception is latex allergy (when using latex condoms). However, with the exception of male and female condoms that can provide protection against infection with sexually-transmitted diseases (STDs), most methods of barrier contraception are not effective in preventing STDs.

Spermicides

During sexual intercourse, hundreds of millions of sperm are normally released into a woman's vagina. The large majority of these sperm die. They die because of the unfriendly environment of the vagina, which is acidic, and because the mucus in the cervix above the vagina acts as a selective filter for the sperm. Only about 1% of all the sperm released in an ejaculation successfully pass through the woman's vagina and cervix to reach the uterus (the womb). However, it only takes one sperm to fertilize the ovum (the egg) and to achieve conception.

Spermicides are a type of contraceptive agent that work by killing sperm. Spermicides need to be in place in a woman's vagina before intercourse if they are to prevent viable sperm from reaching her uterus. Spermicides come in a wide variety of forms, including jellies, creams, foams, films, and suppositories. The active ingredient in essentially all spermicides is Nonoxynol-9. This is a detergent-like chemical that kills sperm.

Once placed inside the vagina, the spermicide melts into a liquid that coats the vagina in order to set up a chemical barrier between the sperm and the cervix. Spermicidal foams are more effective than creams or jellies. Not only is it possible to achieve a better distribution with foam, but foam adheres better to the vaginal walls and cervix.

Suppositories are solid or semi-solid and need to be inserted in the vagina 15 minutes before intercourse in order to liquefy with vaginal moisture.

Vaginal contraceptive film needs to be in place in the vagina about 5 minutes prior to sexual intercourse in order to liquefy and become effective.

Spermicides are like all other methods of birth control in that they must be used properly in order to prevent pregnancy. Each type of spermicide has a unique method of use. For example, spermicidal creams, gels, and foam need to be deposited high up in the vagina near the cervix. Spermicidal suppositories must be unwrapped and inserted in the vagina. Squares of spermicidal film should be inserted into the vagina with a woman's finger. It is important to follow exact instructions on the package for each different type of spermicide.

A spermicide should be placed in the vagina prior to the man's penis getting anywhere near the vagina. It is a common mistake for a couple to wait too long before using the spermicide.

There are two basic concerns with any given spermicide. 1) How long the spermicide stays in the desired place; and 2) how long the spermicide is active in killing sperm. Therefore, the timing of spermicide use must take into account both of these factors.

In general, spermicides tend to be effective soon after their application. They can be inserted 15 minutes or more before intercourse. However, if there is a significant delay before intercourse (for example an

hour), more spermicide must be added. A fresh application of spermicide must also be used for each act of intercourse.

Douching should be avoided for at least 8 hours after the last intercourse. The effectiveness of spermicides in preventing pregnancy varies from 70 to 90%. This depends on the amount of spermicide and how it is used, the timing of use prior to intercourse, and how well the instructions on the package are followed.

Spermicides should not be used as protection for the woman or man against sexually transmitted infections (sexually transmitted diseases, or STDs). While spermicides may be partially protective against certain organisms that cause sexually transmitted infections, including chlamydia and gonorrhea, they also do not protect against the human Immunodeficiency virus (HIV) infection.

The main objection voiced about spermicides is that they are "messy." A small percent (2% to 4%) of people may have an adverse reaction to Nonoxynol-9, which is experienced as an irritation or a burning sensation.

Spermicides, however, have some positive features. They are relatively inexpensive and they are available over-the-counter (OTC) without a prescription.

Note that some lubricating jellies also available over-the-counter do not contain spermicide and are not meant to be used as a form of birth control. It is important to check the information on the package to be sure that the product contains spermicide or that the word "contraceptive" appears on the label.

Male condom

Male condoms are far more common than female condoms. A male condom is a thin sheath that is worn over the man's penis during sexual intercourse. The condom collects sperm so that the sperm are not released into a woman's vagina. Condoms are also called rubbers, sheaths, prophylactics, and many other names.

Condoms are made out of a variety of materials including latex, rubber, plastic polyurethane, and animal tissue. Condoms are also available in a variety of sizes, colors, styles, and thicknesses. They may be dry, lubricated, or treated with a spermicide. Although convenient, a wallet is not the best place to store condoms. This is because condoms are longer-lasting when they are stored under less moist conditions. In general, condoms have a shelf life of about five years if stored unopened in a cool, dry place.

A condom must be the correct size and fit the man's erect penis properly. There should be 1/2 inch (about 1.25 cm) at the tip of the condom to provide a space for the sperm-filled semen to collect. Some condoms have this feature built in.

Before there is any contact between the penis and the vagina, the condom is unrolled over the erect penis, making sure that the condom is not turned backwards or inside out. Some condoms come pre-lubricated. If additional lubrication is desired, a water-based lubricant should be used. Spermicides may be used as lubricants with condoms and may actually increase their effectiveness. Oil-based products such as Vaseline, vaginal creams, or mineral oil, may damage the condom and should never be used.

There is an obvious problem of lack of barrier protection if the condom breaks, slips, or comes off the penis. Condoms are quality controlled in the U.S. by the Food and Drug Administration (FDA) for manufacturing defects that could result in breakage. But condom failure can also be caused by the user and his partner. For example, long fingernails or jewelry can tear condoms.

Immediately after the male wearing a condom ejaculates, he should remove his penis from the vagina. The man should hold the condom firmly in place, at the base of his penis, as he withdraws from the vagina. He must be careful not to spill any liquid from the condom.

Each condom must be thrown out after a single use. A new condom must be used for the next act of intercourse. Male condoms are not reusable.

Condoms can be purchased over-the-counter (OTC) without a prescription. Most of the condoms on the market are made of latex. The estimated effectiveness of the latex condom is 87% to 90% or 10 to 13 pregnancies/100 women per year of sexual activity.

About 1% to 3% of people are allergic to latex. In such case, they may be able to use condoms made of polyurethane, a type of plastic. However, polyurethane condoms may break more easily than latex condoms and they do not protect against sexually transmitted infections (sexually transmitted diseases, or STDs).

Latex condoms are the condoms that afford the maximum protection against sexually transmitted infections including HIV (human immunodeficiency virus) and herpes virus. According to the U.S. Centers for Disease Control and Prevention (CDC).

Latex condoms, when used consistently and correctly, are highly effective in preventing transmission of HIV, the virus that causes AIDS. In addition, correct and consistent use of latex condoms can reduce the risk of other sexually transmitted diseases (STDs), including discharge and genital ulcer diseases. While the effect of condoms in preventing human papilloma virus (HPV) infection is unknown, condom use has been associated with a lower rate of cervical cancer, an HPV-associated disease.

Animal membrane condoms, made from the intestines of sheep, when used with contraceptive foam, can be effective in preventing pregnancy but may not provide proper protection against all sexually transmitted infections. This is because the pores in the animal membranes permit small organisms such as viruses to pass through.

The most frequent complaint lodged against condoms is that their use decreases sexual pleasure for the male. This is an unfortunate attitude because male condoms are an effective, acceptable, inexpensive, and safe method of birth control.

Female condom

The female condom is not well known in the United States. It is essentially a vaginal pouch made of soft polyurethane (a type of plastic) with two rings at either end. One end of the pouch is open. The other end is closed. A woman inserts the closed end high up in her vagina over her cervix. The open end remains on the outside of her vagina. The vagina is now lined with the condom. When a woman has intercourse, the man inserts his penis into the open end of the woman's condom. Once intercourse is over and the

man withdraws his penis, the condom containing the ejaculated sperm can now be removed and thrown away.

The female condom can be put in up to 8 hours before intercourse. A woman may need some practice before she can easily insert and position the condom within her vagina. The sides of the internal ring can be folded together and inserted into the vagina much like a diaphragm. The female condom is thinner than the male condom and is resistant to degradation by oil-based lubricants.

A female condom should never be used when the man is also wearing a condom. The two condoms can stick together and tear, resulting in no protection at all.

The female condom (Reality) was approved by the U.S. Food and Drug Administration (FDA) in 1993. The Reality Condom is made of polyurethane, but other types of female condoms are available in other areas of the world. Its estimated effectiveness is 79% (21 pregnancies/100 women per year) as compared to 87% to 90% for the male condom.

Objections that have been made to the female condom include irritation and allergic reactions to the polyurethane. Other concerns are that the female condom is cumbersome, difficult to insert, may not remain in place, and is unattractive. It may also produce unpleasant noises if there is not enough lubrication. For this reason, most female condoms are now generously pre-lubricated with silicone and packets of additional lubrication are included.

The female condom (Reality) can be purchased over-the counter (OTC) without a prescription, but it may cost more than a male condom. Package instructions currently advise single use but studies are underway to determine if the female condom can be safely washed and reused up to five times.

The main disadvantage of the female condom is that it is not as effective as the male latex condom in preventing pregnancy.

Contraceptive sponge

The contraceptive sponge is a doughnut shaped sponge. It is made of polyurethane foam and is impregnated with the spermicide Nonoxynol-9. This spermicide is essential to the contraceptive ability of the sponge.

Before intercourse, a woman pushes the sponge up into her vagina (as she would insert a tampon). The spermicidal sponge should then act as a barrier in order to prevent sperm from reaching the cervix. Once in place, the sponge provides protection for up to 24 hours without the need for additional spermicide.

The sponge must remain in the vagina for at least 6 hours after intercourse. However, the same sponge should never remain in the vagina for more than a total of 30 hours because of the risk of toxic shock syndrome. (Toxic shock syndrome is an uncommon and potentially very serious illness that is caused by a type of bacteria. This illness occurs when certain types of products, such as tampons, are left in place for excessive periods of time. This is why package instructions of these products are careful to specify how long they may be safely kept in place.) Each sponge is used only once and then thrown away.

The sponge is generally an effective birth control method. Some users of the contraceptive sponge may experience irritation and allergic reactions. The sponge can also be difficult to remove from the vagina. Removal has been made easier by the addition of a woven polyester loop.

The estimated effectiveness of the sponge as a contraceptive is 64% to 82%. As for protection from sexually transmitted infections, the spermicide may provide some protection against chlamydia and gonorrhea, but otherwise, the degree of protection is unknown.

Diaphragm

The diaphragm is a soft flexible rubber cup shaped like a dome that is inserted into the vagina. The diaphragm blocks access to the cervix so that sperm cannot pass from the vagina into the uterus. The diaphragm must be covered on both sides and especially around its rim with spermicidal jelly, cream, or foam in order to form a tight seal around the diaphragm.

A woman inserts the diaphragm into her vagina no more than 4 hours prior to intercourse. After intercourse, she should check to be sure that the diaphragm has not been dislodged and is still in the correct position. The diaphragm must be left in place for at least 6-8 hours after intercourse; after this time it should be removed. Fresh spermicide jelly or foam must be inserted into the vagina each time intercourse is repeated.

Since diaphragms are only available with a prescription, a woman must see a health care practitioner to have a diaphragm properly fitted (they come in a range of sizes), and to learn proper insertion techniques. There are no known long-term health risks associated with using the diaphragm and spermicide method of birth control. Some women may find spermicides to be irritating, but changing brands of spermicides may help. There is also an increased risk of urinary tract infections with diaphragm use. One possible reason is that the diaphragm puts increased pressure on the urethra or the spermicide may contribute to irritation leading to infection. (The cervical cap is not associated with increases in urinary tract infections.)

The diaphragm may be appealing to women because it offers a safe temporary (not permanent) birth control that is under her control.

When the diaphragm and spermicide are used correctly, they are thought to have over an 82% success rate (18 pregnancies/100 women per year). To ensure protection, it is important that the diaphragm be checked after every use for rips or holes (this is best done by holding the diaphragm up to the light). Also, the fit of the diaphragm should be checked annually, after every pregnancy, and after significant weight loss.

Using a diaphragm does not protect a woman from sexually transmitted infections, although the spermicide does give partial protection against gonorrhea and chlamydia. It can, however, be used with condoms to offer some protection against sexually transmitted infections.

Cervical cap

The cervical cap is a small (1-1/2 inches or about 3 cm.), thimble-shaped dome made of latex or silicone rubber (it is much smaller than a diaphragm) and it fits right over the cervix. The cervical cap is used

along with a spermicide. One small application of spermicide is placed inside the cap at the time of insertion. The cap plus spermicide prevent sperm from going through the cervix and entering the uterus.

A woman pushes the cervical cap up her vagina and into position over her cervix. It can remain in place for up to 48 hours. Unlike the diaphragm, fresh spermicidal jelly or foam does not need to be added each time intercourse is repeated as long as the cervical cap is correctly positioned over the cervix.

As with the diaphragm, a cervical cap requires a prescription. A woman must see a health care practitioner to determine the correct size and to ensure that she understands the proper insertion technique.

There are no known related health risks associated with using the cervical cap and spermicide method of birth control. Some women may find spermicides to be irritating, but changing brands may help. The cervical cap can be difficult to insert, but is handy for women who cannot use a diaphragm because of poor muscle tone. Women who suffer from recurring urinary tract infections related to diaphragm use may want to try using the cervical cap.

It is important to remember that using a cervical cap does not protect from sexually transmitted infections, although spermicides may give some protection against chlamydia and gonorrhea.

When the cervical cap and spermicide are used correctly, they are more than 80% effective for birth control, essentially the same reliability as the diaphragm.

REFERENCES:

CDC.gov. National Center for Health Statistics.
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