NON-HORMONAL CONTRACEPTIVE METHODS

A Quick Reference Guide for Clinicians®

Association of Reproductive Health Professionals

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This publication has been made possible by an unrestricted educational grant from Barr Laboratories, Inc.

NON-HORMONAL CONTRACEPTIVE METHODS
A Quick Reference Guide for Clinicians

Using This Guide

Despite the fact that contraceptives with high efficacy rates have been available for several decades, the rate of unintended pregnancy in the United States remains high—about 49 percent.[1] Women need to know about their range of contraceptive choices, and it is important for providers to present all the available options. This *Quick Reference Guide for Clinicians* is designed to help health care providers quickly counsel women about the non-hormonal contraceptive methods that are currently available in the United States.

Separate sections in this guide are devoted to each of the following methods:

- Female sterilization (tubal ligation and microinserts)
- Male sterilization (vasectomy)
- Non-hormonal intrauterine device
- Barrier methods (the diaphragm, cervical caps, and female and male condoms)
- Spermicides (including the vaginal sponge)
- Fertility awareness–based methods
- Withdrawal
- What has been termed "othercourse" or "outercourse"—a range of sexual expression that does not include penile–vaginal intercourse

Each section describes the method and presents information on its use, effectiveness, risks and side effects, and concludes with a list of principal advantages and disadvantages of the method and counseling messages. The last section of this *Quick Reference Guide for Clinicians* includes a chart that compares features of the non-hormonal methods described in this guide, to help make counseling more efficient.

The following abbreviations are used throughout this document:

AIDS: acquired immunodeficiency syndrome
BBT: basal body temperature
HIV: human immunodeficiency virus
IUD: intrauterine device
STI: sexually transmitted infection
TSS: toxic shock syndrome
UTI: urinary tract infection

In this guide, effectiveness rates for each contraceptive method are expressed as *failure rates*, or the percentage of women who can be expected to become pregnant within the first year they use that method. Effectiveness rates are given with both *perfect use* (correct and consistent use of the method with every act of intercourse) and *typical use* (actual use, including occasional inconsistent or incorrect use). Except where otherwise noted, these rates are based on those reported in the 18th edition of *Contraceptive Technology*.[2]

Although their time during office visits is limited, health care providers have a clear responsibility to counsel their patients on contraceptive options. The Association of Reproductive Health Professionals has created this *Quick Reference Guide* to facilitate an effective, comprehensive discussion with patients and foster individualization of contraceptive choice.

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Tubal Ligation

Description. Various procedures for female surgical sterilization via tubal ligation have been used for many years with high success rates and low risks of complications. In these procedures, the fallopian tubes are occluded with clips, rings, or cauterization. Women should be counseled that, although procedures for reversal of tubal ligation exist, reversal is costly and may have a low rate of success (although in some cases success rates may be as high as 50 percent). Tubal ligation should be considered as a permanent end to a woman's fertility. It should not be undertaken by women who may wish to have their own biological offspring at some point in the future.

Use. Tubal ligation may be done as a laparoscopic procedure or as mini-laparotomy or laparotomy. Mini-laparotomy and laparotomy procedures are usually selected for sterilization after childbirth, whereas laparoscopic sterilization is generally done as an interim procedure. These procedures are performed on an outpatient basis as ambulatory surgery.

After these procedures, women may resume having sexual intercourse as soon as they feel comfortable. Tubal ligation does not protect a woman from acquiring sexually transmitted infections (STIs), including human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). Women at risk for STIs should use male or female condoms to protect against STI transmission.

Effectiveness. The effectiveness of surgical sterilization varies according to the method used and the age of the woman but is still among the highest of contraceptive methods, with a failure rate of 0.5–3.6 percent.[1]

Risks and Side Effects. Other than complications associated with anesthesia and surgery, there are no long-term side effects of female sterilization. The hormonal milieu is unaffected by these surgeries, so

women continue to have normal menstrual cycles. There is no evidence that the timing of menopause is affected in older women who undergo surgical sterilization. Because there is a risk of regret after sterilization,[2] a woman should feel certain that she wants to end her childbearing capacity before she has the procedure.

Principal Advantages:

- Highly effective
- Discreet
- Low risk of side effects
- Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse
- No effect on hormonal milieu
- Cost-effective (no ongoing cost to maintain method)

Principal Disadvantages:

- Permanent procedures with possibly low reversal success rate
- Risk of ectopic pregnancy if method fails
- Lack of protection against STIs, including HIV

Principal Counseling Messages:

Tubal ligation procedures should be considered as a permanent end to a woman's fertility and should not be undertaken if there is a chance that the patient may desire childbearing in the future. Women who rely on tubal ligation to prevent pregnancy still need to protect themselves against STIs.

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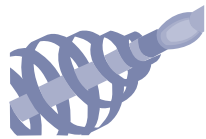
Tubal Microinserts



Description. Microinserts (Essure®) are a relatively new procedure for permanent female sterilization. Approved by the US Food and Drug Administration (FDA) in November 2002, the Essure device consists of two small, concentric, expanding metal coils around a mesh of polyethylene terephthalate (PET) fibers. PET fibers have been used in other medical applications (e.g., surgical mesh and vascular grafts) and have been demonstrated to produce a local inflammatory response.[1] The device is placed within the proximal end of each fallopian tube, near where it joins the uterus. After insertion, the outer coils expand to hold the device in place and the PET fibers evoke a moderate foreign-body inflammatory reaction that causes local ingrowth of fibrous tissue from the surrounding tubal walls. This tissue ingrowth completely occludes the tubal lumen over the course of the following 3–6 months.

Use. Tubal microinserts are placed by a hysteroscopic procedure, usually under local anesthesia or sedation, that takes about 15 minutes. A follow-up hysterosalpingogram is performed at 3 months to ensure tubal occlusion. Patients should be counseled to use a backup method of birth control until tubal occlusion is verified. Tubal occlusion appears to be complete within 3–6 months.[2]

Microinsert placement cannot be reversed surgically. The use of Essure should be considered a permanent form of female sterilization. Like surgical sterilization, microinserts do not protect against STIs, and at-risk women should use male or female condoms to protect against STI transmission.

Effectiveness. Because the Essure device has been available for only a short time, more data are needed before its effectiveness can be estimated accurately.[2,3]

Risks and Side Effects. The long-term effects of Essure are not yet known. Risks include perforation of the uterus, tube, or both during insertion and improper placement of the device. Side effects include cramping, pain, and bleeding or spotting on the day of the placement procedure.

As with other forms of sterilization, pregnancy sometimes can occur even years after the procedure. Though this is not common, a pregnancy that does occur is more likely to be ectopic, a condition that itself carries risks of tubal rupture and infection.

Principal Advantages:

- Discreet
- Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse
- No effect on hormonal milieu
- Cost-effective (no ongoing cost to maintain method)

Principal Disadvantages:

- Few data on effectiveness, risks, and side effects
- Permanent, irreversible procedure
- Need for backup contraception for 3 months and follow-up hysterosalpingogram
- Risk of ectopic pregnancy
- Lack of protection against STIs, including HIV

Principal Counseling Messages:

Microinserts are not designed for removal. This method should be considered as a permanent end to a woman's fertility and should not be undertaken if there is a chance that the patient may desire childbearing in the future. Women who use microinserts to prevent pregnancy still need to protect themselves against STIs and need to be informed that definitive data on its effectiveness and risks are not yet available.

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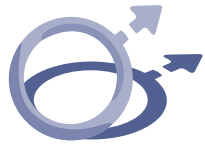
Male Sterilization: Vasectomy



Description. Vasectomy has been used for decades for male sterilization and has a high rate of safety and effectiveness with very few side effects. The procedure is done on an outpatient basis with local anesthesia.

Use. Two types of surgical procedures are commonly used for vasectomy. The older method involves making a small incision made on either side of the scrotum, through which the vas deferens are isolated and occluded with electrocautery or clips. Sutures are used to close the incisions. In no-scalpel vasectomy, both vas are isolated through a single small puncture made in the center of the vas, without the need for sutures. Although both procedures have a low rate of complications, the no-scalpel technique is associated with less pain and a lower risk of infection.[1-3] Sexual activity may be resumed as soon as the patient feels comfortable, but because sperm remain in the vas beyond the point of occlusion, a reliable form of contraception should be used for the first 15–20 ejaculations after the procedure.

Like female sterilization, vasectomy should be considered a permanent form of contraception. Reversal procedures exist but are technically complex and expensive and have a variable success rate. Vasectomy does not protect against transmission of STIs, including HIV/AIDS.

Effectiveness. The failure rate of vasectomy is very low—0.10 percent with perfect use and 0.15 percent with typical use.[4] Failure may be due to incomplete occlusion or to omission of a backup contraceptive method until sperm are completely cleared from the vas.

Risks and Side Effects. Acute complications associated with surgery, such as reactions to local anesthesia, are rare. The rate of infection at the incision site is also low and is minimized by careful attention to incision care. Some short-term tenderness and bruising may occur at the surgery site.

Principal Advantages:

- Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse
- Low risk of side effects
- Cost-effective (no ongoing cost to maintain method)

Principal Disadvantages:

- Non–woman-controlled method; for women to rely on as primary form of contraception, trust between partners is needed
- Need to use backup method of contraception for first 15–20 ejaculations
- Permanent procedure with low reversal success rate
- Lack of protection against STIs, including HIV

Principal Counseling Messages:

Although reversal procedures exist for vasectomy, it should be considered a permanent method of male sterilization. Vasectomy should not be performed in any patient who thinks there may be a chance that he may wish to father children in the future. At-risk women whose partners have had a vasectomy should be counseled to protect themselves against STI transmission.

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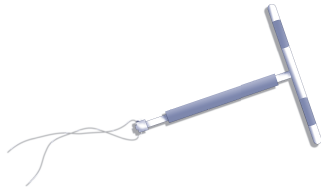
Non-Hormonal Intrauterine Device



Description. Intrauterine devices (IUDs) are placed inside the uterus to prevent fertilization. These contraceptive methods have a high rate of effectiveness, a relatively low risk of side effects, and are readily reversible by removal of the device. Two IUDs are currently available in the United States: the Copper T 380A (ParaGard®) and the levonorgestrel intrauterine system (Mirena®). The levonorgestrel intrauterine system is chiefly a hormonal method of contraception. It works by the continuous release of small amounts of levonorgestrel into the uterus. (This device is described fully in the ARHP *Quick Reference Guide, Administration of Hormonal Contraceptive Drugs*.[1])

Use. The Copper T IUD is a small, T-shaped device made of polyethylene. The device has two flexible arms that fold down for insertion and expand to form a T shape when released inside the uterus. In its opened configuration, the device is 36 mm tall and 32 mm wide. The vertical stem of the device is wound with fine copper wire, and the two horizontal arms also have a sleeve of copper. At the bottom of the vertical stem, a 3-mm bulb houses a monofilament polyethylene string that enables the device's easy removal. The device is approved for 10 years of use, although studies have shown it to be effective for up to 12 years.[2]

The Copper T IUD causes an increase in uterine fluids containing copper ions, enzymes, prostaglandins, and macrophages that create a hostile environment for sperm and prevent them from fertilizing an ovum. In addition, it appears that the device also disrupts the normal division of oocytes and the formation of fertilizable ova.[3]

Effectiveness. The Copper T IUD is the most effective form of non-hormonal contraception other than sterilization. The pregnancy rate in the first year of IUD use is 0.6 percent with perfect use and 0.8 percent with typical use. Failure may be due to expulsion or to improper placement of the device.

Risks and Side Effects. Complications associated with the IUD include uterine perforation during the insertion procedure. Some women experience increased menstrual bleeding and cramping. These side effects may lessen over time. About 2 to 10 percent of Copper T IUD users expel the device within the first year. Expulsion may be more common in women who have never been pregnant. Because bacteria may be introduced into the uterus during IUD insertion, the risk of infection related to IUDs is highest during the first month of use. The risk of upper-genital-tract infections has been shown to be lower than previously thought and is primarily related to risk factors for STIs.[4]

Principal Advantages:

- Discreet
- Long-term (up to 10 years)
- Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse
- Cost-effective (no ongoing cost after initial insertion)

Principal Disadvantages:

- Requires visit to trained clinician for insertion and removal
- Some risk of expulsion within first year
- For some women, increased menstrual bleeding and cramping
- Lack of protection against STIs, including HIV

Principal Counseling Messages:

The IUD is an excellent choice for women who desire a highly effective and long-term but reversible method of contraception. At-risk women using the IUD should be counseled to protect themselves against STI transmission.

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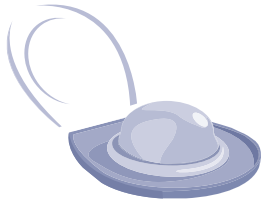
Diaphragm



Description. First developed in the mid-19th century, the diaphragm is one of the oldest known methods of birth control. It is a dome-shaped device with a flexible outer rim that is inserted into the upper vagina and covers the cervix. The diaphragm is designed for use with a spermicidal cream or jelly; the device's principal contraceptive effects are thought to be due not to the prevention of sperm from reaching the cervix but to the creation of a spermicidal barrier at the cervical opening.

Diaphragms require a prescription from a health care provider. Most types are made of latex, but a silicone diaphragm is available for patients with latex allergy. Diaphragms come in diameters ranging from 50 to 95 mm, and a woman must be fitted for the correct size before she uses the device. Patients should be refitted after pregnancy or childbirth or if they gain or lose 10 or more pounds.

Use. Once the correct size of diaphragm has been selected, the clinician should teach the patient how to apply spermicide to the device, how to insert it and check it for correct placement, and how and when to remove it. The patient should practice inserting and removing the device in the clinician's office until she feels comfortable with these procedures. The patient also should learn how to check the diaphragm for tears and holes before each use and how to clean and store the device properly.

The diaphragm can be inserted up to 6 hours before intercourse and should be left in place for at least 6 hours after the last act of intercourse. If the patient has additional acts of intercourse before 6 hours have elapsed, she should insert fresh spermicide into the vagina without removing the device. The diaphragm should not be left in place for more than 24 hours, because doing so is associated with an increased risk of toxic shock syndrome (TSS). Patients should be counseled never to use any type of oil-based lubricant (e.g., petroleum-based products, mineral or baby oil, or vegetable oil) with

the latex diaphragm, because these substances will dissolve the latex. They should also be advised not to douche while wearing the diaphragm or immediately after removing it, because this may wash live sperm into the cervical canal. A diaphragm should be replaced every 2 years.

Effectiveness. With correct and consistent use of the diaphragm, the rate of unintended pregnancy is 6 percent within the first year of use. Typical use is associated with a 20 percent failure rate within the first year of use.

Risks and Side Effects. Side effects of diaphragm use are rarely serious and mostly pertain to latex allergy or sensitivity to spermicides. The incidence of urinary tract infections (UTIs) has been reported to be increased in some women who use a diaphragm[1] and may be due to irritation caused by pressure against the urethra through the anterior vaginal wall. This problem can be ameliorated by ensuring correct fitting of the diaphragm and counseling the patient not to leave the device in place for longer than 6 hours after the last act of intercourse. The use of vaginal barrier methods with spermicides has been associated with an increased risk of bacterial vaginosis and vaginal candidiasis.[1,2]

Some evidence indicates that the risk of gonorrhea, chlamydia, and trichomoniasis may be slightly decreased with the use of the spermicides that are used with a diaphragm.[2] However, women who use a diaphragm to prevent pregnancy still need to protect themselves against STIs.

Principal Advantages:

- Low risk of side effects and complications
- After initial fitting and instruction, no need for repeated visits to health care provider other than for replacement every 2 years
- Easily reversible method should pregnancy be desired
- Relatively low ongoing cost (i.e., for spermicide and for replacement every 2 years)

Principal Disadvantages:

- Need to use with each act of intercourse
- Slightly increased risk of UTIs in some women
- Lack of protection against STIs, including HIV

Principal Counseling Messages:

Consistent and correct use is key to the diaphragm's effectiveness. Some women and/or their partners may dislike the relative lack of spontaneity afforded by the diaphragm, although it can be inserted in advance of intercourse to avoid interruption of lovemaking. The diaphragm can provide a reasonably cost-effective, woman-controlled, and long-term method of contraception when used properly, with easy reversibility should pregnancy be desired. It is important for patients to check for a need to refit to a new diaphragm size if they gain or lose 10 pounds or more. It is also important that patients replace the device every 2 years. At-risk women who use a diaphragm should be counseled to protect themselves against STI transmission.

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Cervical Cap

Description. The cervical cap is a small, bowl-shaped device that fits snugly over the cervix. Like the diaphragm, the cervical cap is designed for use with spermicide. It works by creating both a physical and a spermicidal barrier at the opening of the cervix. The dome of the cap fits snugly over the cervix, preventing sperm from entering. In addition, spermicide is held up against the opening of the cervix, which kills any sperm that manage to swim around the edge of the cap.

Two types of cervical caps are currently available in the United States. Both require a prescription. The FemCap® comes in various sizes that must be fitted for each patient, whereas Lea's Shield® is a one-size-fits-all device. Both types of cervical caps are more effective in nulliparous than in parous women.

FemCap is made of silicone and comes in three sizes (22, 26, and 30 mm in diameter). It has a flared brim surrounding the inner rim and a strap over the dome of the bowl for easy removal. Lea's Shield, also a silicone device, is oval and has an anterior loop for easy removal. It is held in place by the vaginal wall rather than by suction (like the FemCap) or by pressure against the posterior fornix and pubic bone (like the diaphragm), so one size is designed to fit any woman. In the center of the dome is a one-way valve that prevents air from getting in between the cap and the cervix and allows for cervical secretions to pass through.

Use. To use the cervical cap, a woman places spermicide inside the bowl (and, for the FemCap, inside the groove around the outside of the device) and inserts the device into the vagina. The cap is pressed up against the cervix to form a snug seal. With the FemCap, there is no need to insert more spermicide with additional acts of intercourse. With Lea's Shield, more spermicide should be inserted into the vagina, without removal of the device, with each additional act of intercourse.

The patient should practice inserting and removing the cervical cap in the clinician's office until she feels comfortable with these procedures. After the last act of intercourse, the FemCap should be left in place for at least 6 hours and Lea's Shield for at least 8 hours. The cervical cap should not be worn for more than 48 hours. In addition, the FemCap is not recommended for use during menstruation.[1] Because cervical size and tone may be altered by pregnancy or childbirth, the FemCap should be refitted after a woman has been pregnant, regardless of whether the pregnancy was carried to term.

Effectiveness. The effectiveness of cervical caps is comparable to that of a diaphragm in nulliparous women: the failure rate within the first year is about 9 percent with perfect use and 20 percent with typical use for all types of caps. Cervical caps are less effective in women who have had a vaginal delivery; the failure rate in these women within the first year of use is 26 percent with perfect use and 40 percent with typical use. Like a diaphragm, cervical caps are most effective when used correctly and consistently with each act of intercourse.

Risks and Side Effects. Cervical caps are associated with few and only minor side effects that mostly pertain to latex allergy or sensitivity to spermicides. The use of vaginal barrier methods with spermicides has been associated with an increased risk of bacterial vaginosis and vaginal candidiasis.[2] Some evidence indicates that the risk of gonorrhea, chlamydia, and trichomoniasis may be slightly decreased with the use of the spermicides that are used with the cervical cap.[2] However, women who use the cervical cap to prevent pregnancy still need to protect themselves against STIs.

Principal Advantages:

- Low risk of side effects
- After initial fitting and instruction, no need for repeated visits to health care provider

- Easily reversible method should pregnancy be desired
- Relatively low ongoing cost (i.e., for spermicide)

Principal Disadvantages:

- Need to use with each act of intercourse
- Possible increased risk of certain vaginal infections
- For some women, difficulty in learning insertion and removal techniques
- Lack of protection against STIs, including HIV

Principal Counseling Messages:

Consistent and correct use is key to the cervical cap's effectiveness. Some women and/or their partners may dislike the relative lack of spontaneity afforded by this method, although the cap can be inserted in advance of intercourse to avoid interruption of lovemaking. Like a diaphragm, the cervical cap can provide a reasonably cost-effective, woman-controlled, and long-term method of contraception when used properly, with easy reversibility should pregnancy be desired. At-risk women who use the cervical cap should be counseled to protect themselves against STI transmission.

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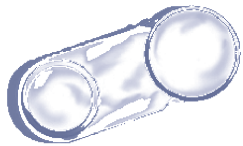
Female Condom



Description. Approved by the FDA in 2003, the female condom is the first woman-controlled birth control method that also provides protection against STIs, including HIV/AIDS.[1] The only brand that is currently manufactured is the Reality® female condom. It consists of a 17-cm-long polyurethane sheath with a closed, flexible, 7.8-mm-diameter ring on one end and an open-ended, slightly larger ring on the other.

Use. The closed end of the female condom is inserted into the vagina and is positioned snugly between the posterior fornix and the pubic bone. The open end lies outside the vaginal opening. The polyurethane sheath completely lines the interior vaginal mucosa and prevents the passage of sperm and infectious organisms into the vagina and cervix. The female condom can be inserted up to 8 hours before intercourse. Unlike the diaphragm and cervical cap, it does not need to remain in place afterward but can be removed and discarded immediately.

The condom is coated on the inside with a silicone-based lubricant. Additional lubricant is provided for the outside of the condom. Female condoms are available over the counter and are intended for one-time use only. They should not be used together with male condoms, because the two materials can adhere to each other and cause slippage or breakage of one or both devices.

Effectiveness. With correct and consistent use, the pregnancy rate within the first year of use of the female condom is 9 percent. Typical use results in a much higher pregnancy rate of 21 percent.[2]

User preferences that can affect attitudes toward condom use include decreased sensation and lack of spontaneity. Effectiveness can be enhanced when patients understand how to discuss condom use with their partners and how to integrate condom use into lovemaking. Counseling can help to increase effectiveness by providing patients with ways to raise the issue of condom use with their partners.

Risks and Side Effects. Because the female condom is made of polyurethane, it can be safely used by women and men who are allergic to latex. A small proportion of the population is allergic to polyurethane. Other than sensitivity to spermicides, there are no significant risks or side effects associated with the use of the female condom.

Principal Advantages:

- Only woman-controlled method that provides protection against STIs as well as pregnancy
- Over-the-counter availability
- Can be inserted ahead of time to avoid interruption of lovemaking
- Easily reversible method should pregnancy be desired

Principal Disadvantages:

- Less discreet than other barrier methods
- Somewhat lower effectiveness than other non-hormonal methods

Principal Counseling Messages:

The female condom is unique in that it is the first woman-controlled birth control method that also affords protection against STIs, including HIV/AIDS. Some women and/or their partners may dislike having to interrupt lovemaking to use the female condom, although insertion can be incorporated into foreplay. Patients who use another contraceptive method and are at risk for STI transmission should also use female (or male) condoms for STI prevention. Counseling on condom use should be tailored to each patient's individual needs, risk factors, and lifestyle.

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Male Condom

Description. One of the oldest known methods of contraception, the male condom is a thin sheath made of latex, natural animal membrane, or synthetic material that fits over the erect penis. During ejaculation, the condom catches semen and prevents it from entering the vagina and cervix. Together with the female condom, the male condom is the only birth control method that also protects against STIs, including HIV/AIDS.

The most commonly used types of male condoms are made of natural rubber latex. Condoms made of animal (natural) membrane are available but are not recommended for STI prevention. Unlike latex condoms, natural membrane condoms contain small pores that may allow the passage of viruses, including hepatitis B virus, herpes simplex virus, and HIV.[1] More recently, condoms made of polyurethane, silicone, and other synthetic materials have become available.

Use. Many brands of male condoms are pre-lubricated with spermicide, although these types of condoms do not appear to be superior in effectiveness, may cause irritation, and are more expensive than condoms without spermicide. Condoms are sold ready to use, rolled up in individual packages. The rolled-up condom is placed on the tip of the erect penis. A small pouch at the tip of the condom accommodates ejaculated semen and is grasped while the condom is unrolled over the penis. Immediately after ejaculation, the condom should be grasped at the base of the penis and the penis withdrawn from the vagina to avoid leakage.

The male condom can be used with other contraceptive methods to increase contraceptive efficacy and provide protection against STIs, including HIV/AIDS. It should not, however, be used with the female condom, because the two materials can adhere to one another and cause slippage or breakage.

Effectiveness. With consistent and correct use, condoms have a failure (pregnancy) rate of only 2 percent. With more typical use, the rate is much higher, about 15 percent.[2] Couples vary widely in their ability to use condoms consistently and correctly with each act of intercourse. User preferences that can affect, in particular, men's attitudes toward condom use include decreased sensation, interference with erection and/or ejaculation, and lack of spontaneity. Effectiveness can be enhanced when both women and men understand how to discuss condom use with their partners and how to integrate condom use into lovemaking. In this regard, counseling can help to increase effectiveness by providing patients with ways to raise the issue of condom use with their partners.

Risks and Side Effects. No adverse health effects are associated with condom use. Some men or women may have sensitivity to latex or other synthetic materials or to the spermicide on pre-lubricated condoms. In such cases, switching to another type or brand of condom may alleviate the problem.

Principal Advantages:

- Over-the-counter availability
- Easy to use
- Low cost
- Protection against STIs, including HIV/AIDS
- Easily reversible method should pregnancy be desired

Principal Disadvantages:

- Lower efficacy than some other non-barrier methods with typical use
- Lack of spontaneity; must be used at the time of intercourse
- Use depends on cooperation of male partner

Principal Counseling Messages:

Condoms provide a readily available, low-cost, and easy-to-use method of contraception and STI prevention. Their contraceptive effectiveness can be increased with the use of other birth control methods. Patients who use another contraceptive method and are at risk for STI transmission should also use male (or female) condoms for STI prevention. Counseling on condom use should be tailored to each patient's individual needs, risk factors, and lifestyle.

References

1. Cates W, Stone KM. Family planning, sexually transmissible infections and contraceptive choice: a literature update D Part I. *Fam Plann Perspect* 1992;24:75-84.
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Vaginal Sponge

Description. The vaginal sponge is a small, circular, polyurethane sponge that contains 1 gram of nonoxynol-9 spermicide. The sponge has a dimple on one side that fits over the cervix and a loop on the opposite side to aid in removal.

First introduced in 1983, the only brand of vaginal sponge available in the United States, marketed under the brand name Today®, was discontinued in 1995 owing to manufacturer problems. The patent was purchased by another company in 1998, and the sponge was re-introduced to the US market in 2005.

Use. The sponge is intended for one-time use only. It is moistened with tap water before use, squeezed once to evenly distribute the spermicide, and inserted into the vagina so that the dimpled side fits against the cervix. There is no need for repeated applications of spermicide with additional acts of intercourse. The sponge remains effective for up to 24 hours after insertion, regardless of the number of times intercourse occurs during that time. After the last act of intercourse, it should be left in place for at least 6 hours but for no more than 24–30 hours (i.e., if the last act of intercourse occurs 24 hours after insertion, it should be left in place for another 6 hours and then removed), because the risk of TSS increases after that time. Some women have difficulty with proper placement and/or removal of the sponge.

Effectiveness. Like that of the cervical cap, the effectiveness of the sponge differs for parous and nulliparous women. In women who have never been pregnant, perfect use can be expected to result in a pregnancy rate of 9 percent during the first year. Typical use more than doubles the rate to 20 percent. In women who have been pregnant, regardless of whether the pregnancy was carried to term, perfect use is associated with a 20 percent failure rate.[1] Typical use in these women results in a 40 percent failure rate.

Risks and Side Effects. Sensitivity to the spermicide used in the vaginal sponge makes its use unsuitable for some women. If it is left in place for longer than 24–30 hours, the risk of vaginal yeast infection may be increased. Some women experience vaginal dryness with sponge use.

Principal Advantages:

- Over-the-counter availability
- Relatively discreet (can be inserted ahead of time to avoid interruption of lovemaking)
- Easily reversible method should pregnancy be desired

Principal Disadvantages:

- Ongoing cost (i.e., of replacement sponges) for maintenance of method
- Lack of protection against STIs

Principal Counseling Messages:

Because it is much less effective in parous women, the vaginal sponge is a better contraceptive choice for women who have never been pregnant. Women should be counseled about not leaving the sponge in place for longer than the recommended time and should be educated about recognizing the signs of TSS. At-risk women who use the contraceptive sponge should be counseled to protect themselves against STI transmission.

References

1. Engender Health. Contraceptive Method Effectiveness. New York, New York. 2005. Available from: http://www.engenderhealth.org/wh/fp/ceff.html. [Accessed July 25, 2006.]

SPERMICIDES

Description. Spermicidal creams, foams, gels, suppositories, and films are preparations containing a chemical that is lethal to sperm. Gels, cream, and foam can be used either alone or together with a barrier method, such as a cervical cap or diaphragm. Suppositories and film can be used alone or with a male condom.

Use. Creams, foam, and gel are supplied in a tube with a plastic plunger-type applicator. The applicator is screwed onto the mouth of the tube, which is then squeezed to dispense enough of the product to fill the applicator. The applicator is then inserted into the vagina and the plunger depressed to dispense the spermicide high up in the vaginal vault near the cervix.

Spermicidal suppositories come individually wrapped and are inserted manually or with an accompanying applicator. The user must allow 10–15 minutes after insertion for the suppository to dissolve before having intercourse.

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Film sheets containing spermicide are draped over the index finger and then inserted into the vagina. As with suppositories, 10–15 minutes is required to allow the film to dissolve before intercourse occurs.

Spermicides can be applied up to 1 hour before intercourse and must be reapplied with each act of intercourse. The woman should refrain from rinsing the vagina or douching for at least 6 hours after the last act of intercourse.

Effectiveness. Used alone, spermicides have a failure rate of 18 percent with perfect use. Typical use is associated with a 29 percent failure rate. Use of a barrier method (diaphragm, cervical cap, or male or female condom) increases the efficacy of spermicides.

Risks and Side Effects. Frequent use (twice daily or more) of spermicides is associated with an increased risk of vaginal irritation, yeast infection, bacterial vaginosis, and UTI. Sensitivity or allergy to spermicides makes them unsuitable for some women. No systemic effects have been found with the use of spermicides.

The chemicals used to kill sperm in spermicidal products are not effective in preventing STIs, including HIV infection.[1] There is some evidence that frequent use (twice daily or more) of nonoxynol-9, a commonly used spermicide, may actually increase the risk of HIV transmission due to disruption of the vulvovaginal epithelium.

Principal Advantages:

- Over-the-counter availability
- Easy to use
- Relatively discreet (can be used up to 1 hour before intercourse)
- Easily reversible method should pregnancy be desired

Principal Disadvantages:

- Increased risk of vaginal irritation and infection with prolonged use
- Lower effectiveness compared with most other contraceptive methods

- With suppositories and films, need to wait 10–15 minutes before intercourse
- Lack of protection against STIs
- Ongoing cost for maintenance of method

Principal Counseling Messages:

Spermicides can be used alone for pregnancy prevention but are most effective when used with barrier methods (diaphragm, cervical cap, or condoms). They are easy to use, do not cause systemic side effects, and are available without a prescription. Spermicides do not protect against STIs, including HIV/AIDS, and if used frequently, they can increase the risk of vulvovaginal irritation and vaginal infection. They provide a readily available and convenient short-term contraceptive method in situations such as waiting to begin oral contraceptives or to have an IUD inserted, or in women who have intercourse infrequently.

Reference

1. Roddy RE, Zekeng L, Ryan KA, Tamoufé U, Weir SS, Wong EL. A controlled trial of nonoxynol 9 film to reduce male-to-female transmission of sexually transmitted diseases. *N Engl J Med* 1998;339(8):504–10.

Fertility Awareness–Based Methods

Description. A variety of contraceptive methods known variously as fertility awareness, natural family planning, rhythm, and other names may be suitable choices for highly motivated couples. Because these methods are based on the woman's ovulatory cycle, they are most effective for women who have reliably regular menstrual periods.

All the fertility awareness–based methods are based on identifying the fertile days in a woman's menstrual cycle. This is done by counting the days in the menstrual cycle and/or noting changes in fertile signs such as cervical mucus and basal body temperature (BBT). On the days identified as fertile, the couple either abstains from vaginal intercourse or uses a barrier method of contraception (diaphragm, cervical cap, or condom).

These methods are based on a menstrual period of between 26 and 32 days in length. Women who have two or more periods of less than or greater than this length within a single calendar year are not good candidates for the use of these methods.

Use. In the Calendar Days Method and the Standard Days Method, the days of the menstrual cycle are tracked on a calendar. In the Standard Days Method, the fertile days are considered to be days 8 through 19 (day 1 being the first day of menstruation). Because ovulation most often occurs in the middle of the menstrual cycle and lasts for only about 6 days, it is highly likely to occur on these days in cycles of between 26 and 32 days in length.

A product called Cycle Beads™ can be used to keep track of the days in each menstrual period on which a woman is most likely to be fertile. These consist of a string of beads, like a necklace, containing beads of different colors and a rubber ring that is moved from bead to bead on each day. The color of the bead indicates the first day of the menstrual period as well as the fertile and non-fertile days.

In the Calendar Days Method, a woman keeps track of her menstrual cycle for 6 months to 1 year and notes the shortest and longest cycles. She then subtracts 18 from the number of days in the shortest cycle and 11 from the number of days in the longest cycle. The two resulting numbers indicate the beginning and end of the fertile period.

The ovulation method involves noting changes in cervical mucus, which changes in amount and texture around the time of ovulation, and tracking these characteristics on a daily chart. This method may be combined with the symptothermal method to increase contraceptive efficacy. In the symptothermal method, the woman takes her temperature each morning upon awakening with a specially calibrated thermometer. The method is based on the fact that, in most women, the BBT rises by about 0.4°F around the time of ovulation and remains elevated until the start of the next menstrual cycle. The daily temperature is tracked on a chart to determine fertile and non-fertile days.

Some couples may find that fertility awareness–based methods impinge on spontaneity, in that they must adjust their sexual behaviors according to their intentions regarding fertility. In addition, for some women, libido is high during fertile days, making abstinence an undesirable practice. Other couples find that intimacy is enhanced by practicing non–penile-vaginal forms of sexual expression during the fertile period (see "Othercourse"). A couple's ability to communicate effectively about sexual matters is key to the success of these methods.

Effectiveness. With consistently accurate identification of the fertile period by calendar day, cervical mucus, and/or BBT charting, the effectiveness of fertility awareness–based methods can approach that of a diaphragm or condom. The efficacy of these methods is highly dependent on a couple's motivation and consistency in refraining from intercourse or using a barrier method during the fertile period.

With correct and consistent use each month and reliance on another form of contraceptive, the failure rate of these methods is 2 to 5 percent. With typical use, the failure rate is much higher, about 12 to 22 percent.[1]

Risks and Side Effects. Because fertility awareness–based methods require no drugs or devices, they are not associated with any risks or side effects other than unintended pregnancy.

Principal Advantages:

- Low cost (i.e., only for calendars, thermometers, Cycle Beads)
- Easily available
- Also can be used to pinpoint fertile days in order to conceive
- Easily reversible method should pregnancy be desired

Principal Disadvantages:

- Requires cooperation of male partner
- Lack of spontaneity on fertile days
- Unsuitable for women with cycles of fewer than 26 or more than 32 days in length
- Lack of protection against STIs, including HIV/AIDS

Principal Counseling Messages:

Counseling in the correct use of fertility awareness–based methods is important for these methods to be used successfully. The difficulty of their use varies. The Standard Days Method can be learned quickly and easily, whereas the ovulation method requires more practice and training for patients to accurately recognize changes in cervical mucus. A couple's ability to communicate effectively about sexual matters is key to the success of these methods. They can be effective in highly motivated couples where the woman has a reliably regular menstrual period.

References

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Withdrawal

Description. Withdrawal, or *coitus interruptus*, is the practice of withdrawing the penis from the vagina before ejaculation occurs. Probably one of the oldest practices to avoid pregnancy, withdrawal has limited effectiveness and should be used only by couples who are willing to accept a high risk of pregnancy.

Use. In withdrawal, the man withdraws his penis from the woman's vagina before he climaxes and ejaculates. The practice requires the man to be able to recognize when he is about to ejaculate and to withdraw the penis from the vagina and away from the woman's external genitalia in time. He must rely on his own sensations to recognize impending ejaculation, because there is no outwardly visible sign of this event. Because pre-seminal fluid may contain live sperm and may harbor microorganisms, the method may not prevent pregnancy even if used correctly, and it does not necessarily protect against STIs, including HIV/AIDS.

Effectiveness. Withdrawal should not be used by couples who wish to avoid pregnancy under any circumstances. Because pre-seminal fluid contains live sperm, it is possible for pregnancy to occur with this technique even if the man does not ejaculate inside the woman's vagina. The pregnancy rate of this method is difficult to determine but is approximated at about 4 percent with perfect use and 27 percent with typical use.

Risks and Side Effects. Withdrawal uses no drugs or devices and is not associated with any health risks or side effects other than unintended pregnancy.

Principal Advantages:

- Readily available
- No cost
- No clinician visit required
- Easily reversible method should pregnancy be desired

Principal Disadvantages:

- Risk of pregnancy even if used correctly
- Requires cooperation and self-control of male partner
- Lack of protection against STIs, including HIV/AIDS

Principal Counseling Messages:

Although withdrawal is a better method of contraception than no method at all, it carries a risk of pregnancy even when used correctly. Couples that rely on this method should be willing to accept a relatively high risk of unintended pregnancy. Women should be aware of the availability of emergency contraception in the event that this technique is attempted unsuccessfully. At-risk women should be counseled about protecting themselves from STI transmission.

"Othercourse"

Description. Sometimes also called "outercourse," "othercourse" is a name given to a variety of sexual acts that do not involve penile–vaginal penetration for the purpose of preventing pregnancy.

Use. Sexual expression aside from intercourse can take a variety of forms, including oral sex, anal sex, hugging, and mutual masturbation. Partners also can focus on eroticizing non-genital body parts, such as hands, feet, hips, and thighs. Fantasy and role playing; erotic conversation, videos, or books; and erotic bathing or showering can be incorporated.

The avoidance of penile–vaginal intercourse as a contraceptive technique is most successful when a couple can communicate effectively about sexual matters. For many couples, this approach will not prove satisfactory as a long-term method of pregnancy prevention, but it can be relied upon under certain circumstances, for example, during the fertile period for couples that practice a fertility awareness–based method.

Non–penile-vaginal sex does not protect against STIs and HIV/AIDS unless both partners avoid contact with bodily fluids that may contain infectious organisms. To protect against STI transmission, partners must avoid semen, vaginal secretions, and blood or broken skin or must use male or female condoms.

Effectiveness. There are no studies on the effectiveness of "othercourse" for pregnancy prevention. The contraceptive effectiveness of this approach depends on the couple's attitudes and self-control to refrain from penile–vaginal intercourse.

Risks and Side Effects. Because this approach involves no devices or drugs, there are no associated health risks or side effects other than unintended pregnancy in the event that partners fail to use the method.

Principal Advantages:

- No need for drugs or devices
- Spontaneity
- For some couples, enhancement of intimacy and understanding of sexual needs, preferences, and desires

Principal Disadvantages:

- May be unsatisfying as a long-term contraceptive approach
- Lack of protection against STIs, including HIV/AIDS, unless contact with bodily fluids is avoided

Principal Counseling Messages:

Couples that plan to use "othercourse" to prevent pregnancy should talk in advance about what practices each of them does and does not feel comfortable with. There should be a clear agreement—in advance, not just before sexual activity—about what activities will take place. Women should be educated about the use of Emergency Contraception in the event that the couple fails to exercise the necessary self-control. At-risk women should be counseled about protecting themselves from STI transmission.

Non-Hormonal Contraceptive Methods

Method	Effectiveness* Typical Use	Perfect Use	Advantages	Consider
STERILIZATION				
Tubal ligation	0.5–3.6	0.5	· Highly effective · Discreet · Very low risk of side effects · Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse · No effect on hormonal milieu · Cost-effective (no ongoing cost to maintain method)	· Permanent procedures with low reversal success rate · Risk of ectopic pregnancy if method fails · Lack of protection against STIs
Microinserts	No data	No data	· Discreet · Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse · No effect on hormonal milieu · Cost-effective (no ongoing cost to maintain method)	· Few data on effectiveness, risks, and side effects · Permanent, irreversible procedure · Need for backup contraception for 3 months and follow-up hysterosalpingogram · Risk of ectopic pregnancy if method fails · Lack of protection against STIs
Vasectomy	0.15	0.10	· Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse · Low risk of side effects · Cost-effective (no ongoing cost to	· Provides only indirect method of female contraception · Need to use backup method of contraception for first 15–20 ejaculations after the

			maintain method)	vasectomy · Permanent procedure with low reversal success rate · Lack of protection against STIs
INTRAUTERINE DEVICE				
Copper T IUD	0.8	0.6	· Discreet · Long-term (up to 10 years) · Freedom from having to remember to use a contraceptive method regularly or at the time of intercourse · Cost-effective (no ongoing cost after initial insertion)	· Requires health care provider visit for insertion and removal · Some risk of expulsion within first year · For some women, increased menstrual bleeding and cramping · Lack of protection against STIs
BARRIER METHODS				
Diaphragm	16	6	· Low risk of side effects and complications · After initial fitting and instruction, no need for repeated visits to health care provider other than for replacement every 2 years · Easily reversible · Relatively low ongoing cost	· Need to use with each act of intercourse · Slightly increased risk of UTIs in some women · Lack of protection against STIs
Cervical cap	P: 32 NP: 16	P: 26 NP: 9	· Low risk of side effects · After initial fitting and instruction, no need for repeated visits to health care provider · Easily reversible · Relatively low ongoing cost	· Need to use with each act of intercourse · Possible increased risk of certain vaginal infections · For some women, difficulty in learning insertion and removal techniques · Lack of protection against STIs

Non-Hormonal Contraceptive Methods

Method	Effectiveness* Typical Use	Perfect Use	Advantages	Consider
Female condom	21	5	· Only woman-controlled method that provides protection against STIs as well as pregnancy · Over-the-counter availability · Can be inserted ahead of time to avoid interruption of lovemaking · Easily reversible	· Less discreet than other barrier methods · Somewhat lower effectiveness than other non-hormonal methods
Male condom	15	2	· Over-the-counter availability · Easy to use · Low cost · Protection against STIs · Easily reversible	· Lower efficacy than other methods with typical use · Lack of spontaneity; must be used at the time of intercourse · Use depends on cooperation of male partner
SPERMICIDES				
Vaginal sponge	P: 32 NP: 16	P: 20 NP: 9	· Over-the-counter availability · Relatively discreet · Easily reversible	· Ongoing cost for maintenance of method · Lack of protection against STIs
Spermicides	29	18	· Over-the-counter availability · Easy to use · Relatively discreet · Easily reversible	· Increased risk of vaginal irritation and infection with prolonged use · Low effectiveness compared with other contraceptive methods

				· With suppositories and films, need to wait 10–15 minutes before intercourse · Lack of protection against STIs · Ongoing cost for maintenance of method
Fertility awareness–based methods	12-22	2 - 5	· Low cost · Easily available · Also can be used to pinpoint fertile days in order to conceive · Easily reversible	· Requires cooperation of male partner · Lack of spontaneity on fertile days · Unsuitable for women with cycles of fewer than 26 or more than 32 days in length · Lack of protection against STIs
OTHER METHODS				
Withdrawal	27	4	· Readily available · No cost · No clinician visit required · Easily reversible	· Risk of pregnancy even if used correctly · Requires cooperation and self-control of male partner · Lack of protection against STIs
"Othercourse"	No data	No data	· No need for drugs or devices · Spontaneity · For some couples, enhancement of intimacy	· May be unsatisfying as a long-term contraceptive approach · Lack of protection against STIs unless contact with bodily fluids is avoided

*Effectiveness is expressed as the percentage of women who have an unintended pregnancy within the first year of use.

Abbreviations: NP = nulliparous; P = parous; STI = sexually transmitted infection; UTI = urinary tract infection.

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