Contraception

Chapter 6

Explaining Contraception

- Definitions:

  Conception: the fusion of an ovum and sperm that creates a fertilized egg

  Contraception: the prevention of conception through the use of a device, substance, or method

- Modern contraceptive methods are much more predictable and effective than in the past

  Many—the "barrier methods"—play a role in the prevention of sexually transmitted infections

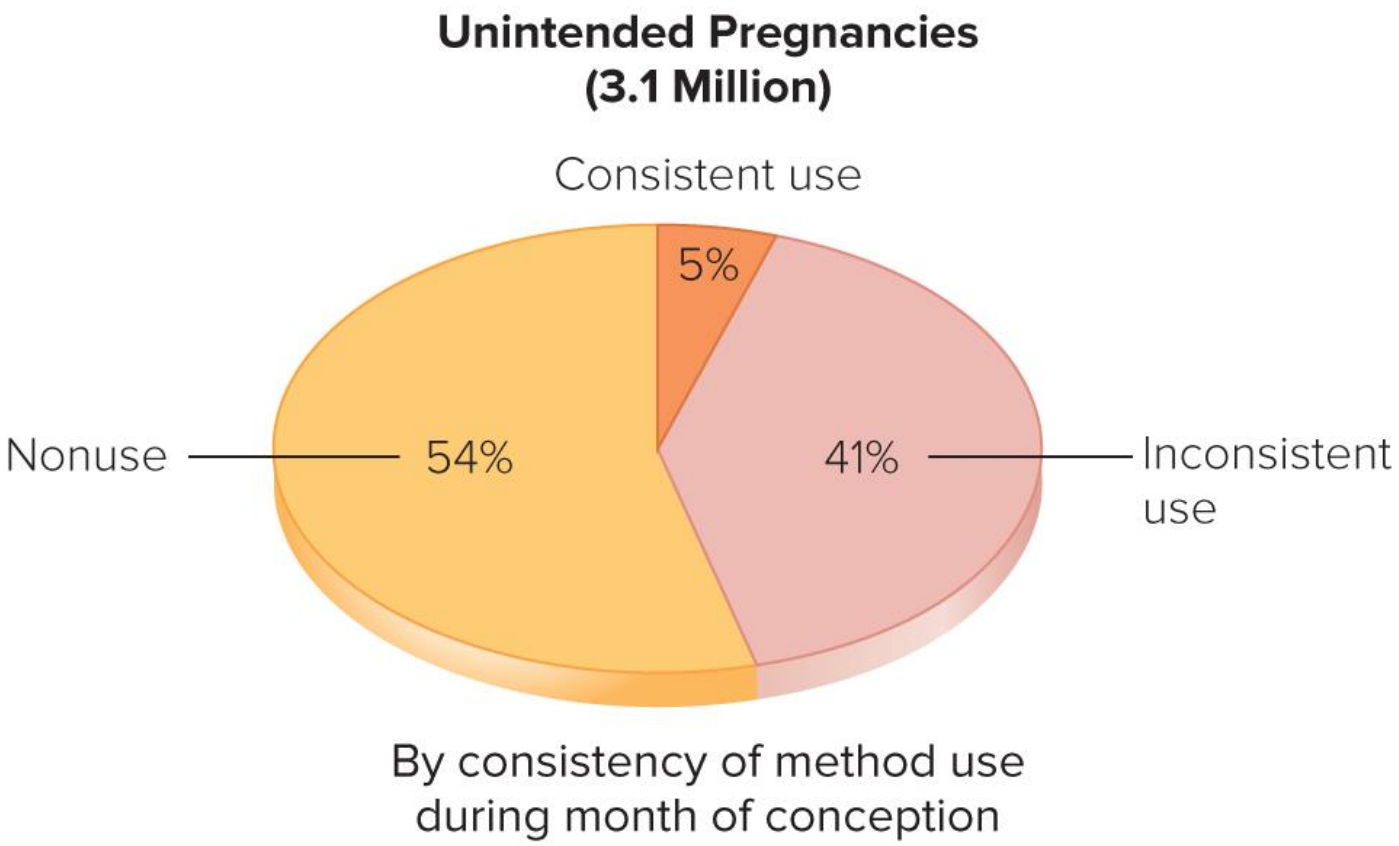

Figure 6.1 Unintended Pregnancies in Relation to Contraception Use

SOURCES: Curtin S. C., J. C. Abma, and K. Kost. 2015. 2010 Pregnancy rates among U.S. women (http://www.cdc.gov/nchs/data/hestat/pregnancy/2010_pregnancy_rates.htm); Guttmacher Institute. March 2016. Unintended Pregnancy in the United States (https://www.guttmacher.org/fact-sheet/ unintended-pregnancy-united-states).

How Contraceptives Work

- Based on the physiology of reproduction
  - Barrier methods
  - Hormonal methods
  - Intrauterine devices
  - Natural methods
  - Surgical methods
- Several factors affect the choice of method
- Effectiveness is defined in terms of failure rate and continuation rate

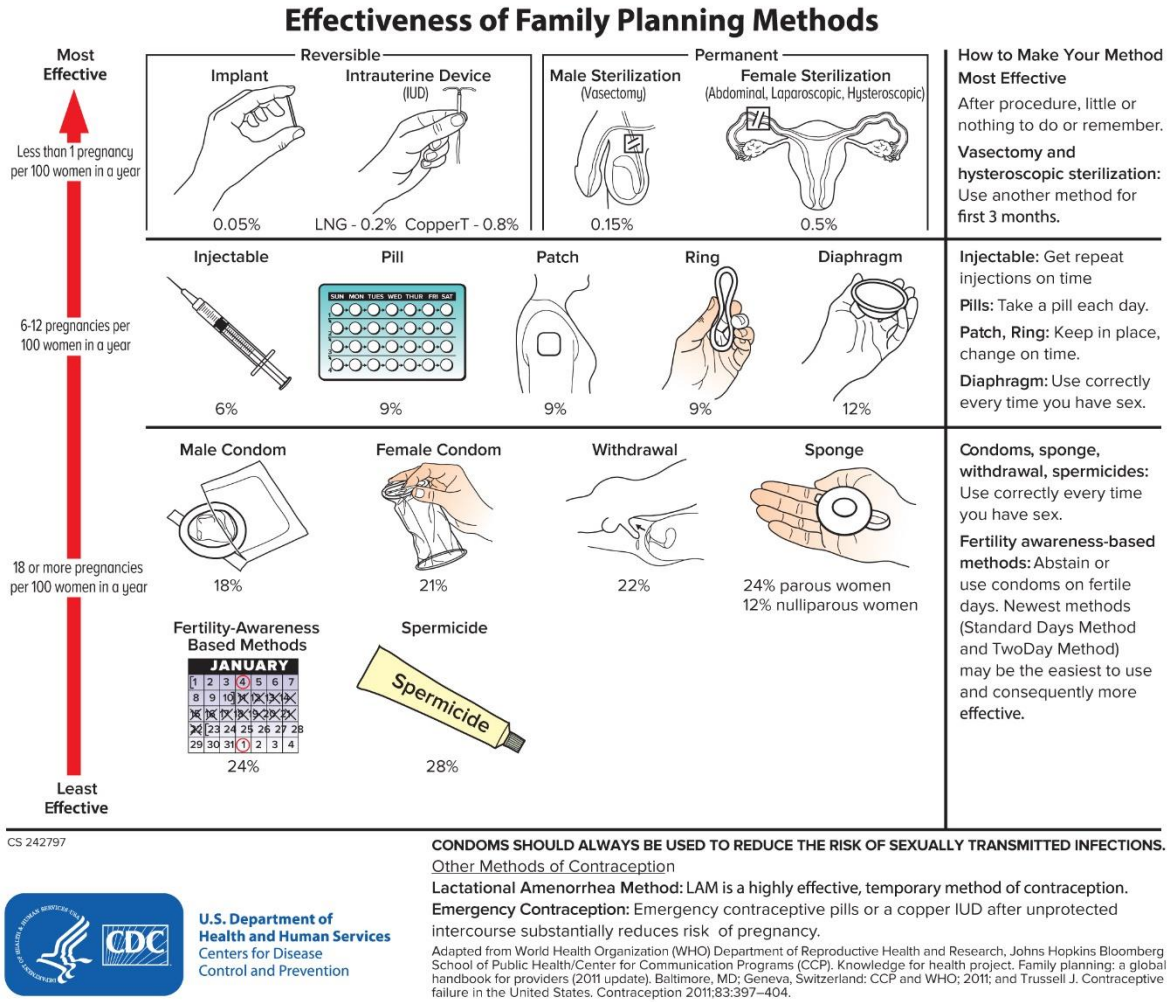

Figure 6.2 Categorization of Contraceptives Based on Efficacy

The percentages indicate the number out of every 100 women who experienced an unintended pregnancy within the first year of typical use of each contraceptive method.

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SOURCE: Centers for Disease Control and Prevention. n.d. Effectiveness of family planning methods (http://www.cdc.gov/reproductivehealth/UnintendedPregnancy/PDF/Contraceptive_methods_508.pdf).

Long-Acting Reversible Contraception (LARC)

- Two types:
  - Intrauterine devices (IUDs)
  - Implants
- High satisfaction rates
- Decreased instances of unintended pregnancy

Intrauterine Devices (IUDs)

- Small plastic object placed in uterus
  - Copper T-380A (ParaGard)
  - Mirena and Skyla
    - Release small amounts of progestin
- Primarily works by preventing fertilization
- Must be inserted and removed by a trained professional

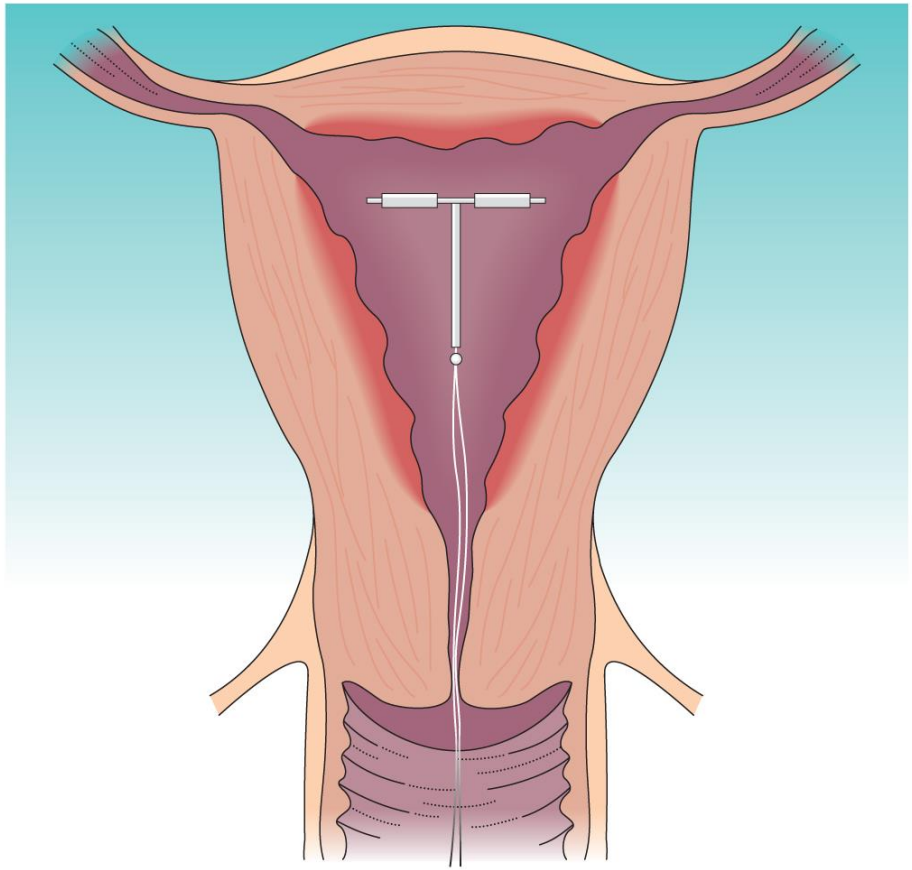


Figure 6.3 An IUD (Copper T-380A, or ParaGard) Properly Positioned in the Uterus

The device is threaded into a sterile inserter that is introduced through the cervix; a plunger pushes the IUD into the uterus. IUDs have two threads attached that protrude from the cervix into the vagina so that a woman can feel them to make sure the device is in place. These threads are trimmed so that only 1–1½ inches remain in the upper vagina.

Intrauterine Devices (IUDs) (2)

- Advantages:
  - High reliability
  - Simplicity and convenience
  - Side effects are localized
- Disadvantages:
  - No protection against STIs
  - Pelvic inflammatory disease is a serious though rare complication
- Effectiveness: first-year failure rate, 0.2–0.8%

Contraceptive Implants

- Placed under the skin of the upper arm
  - Delivers a small, steady dose of progestin
- Inhibits ovulation and affects the development of the uterine lining

Contraceptive Implants (2)

- Advantages: highly effective; and effects are quickly reversed upon removal
- Disadvantages: no protection against STIs; only specially trained practitioners can insert or remove; significant up-front cost
- Side effects: menstrual irregularities
- Effectiveness: one of the most effective and discreet methods of contraception, with a 0.05% failure rate

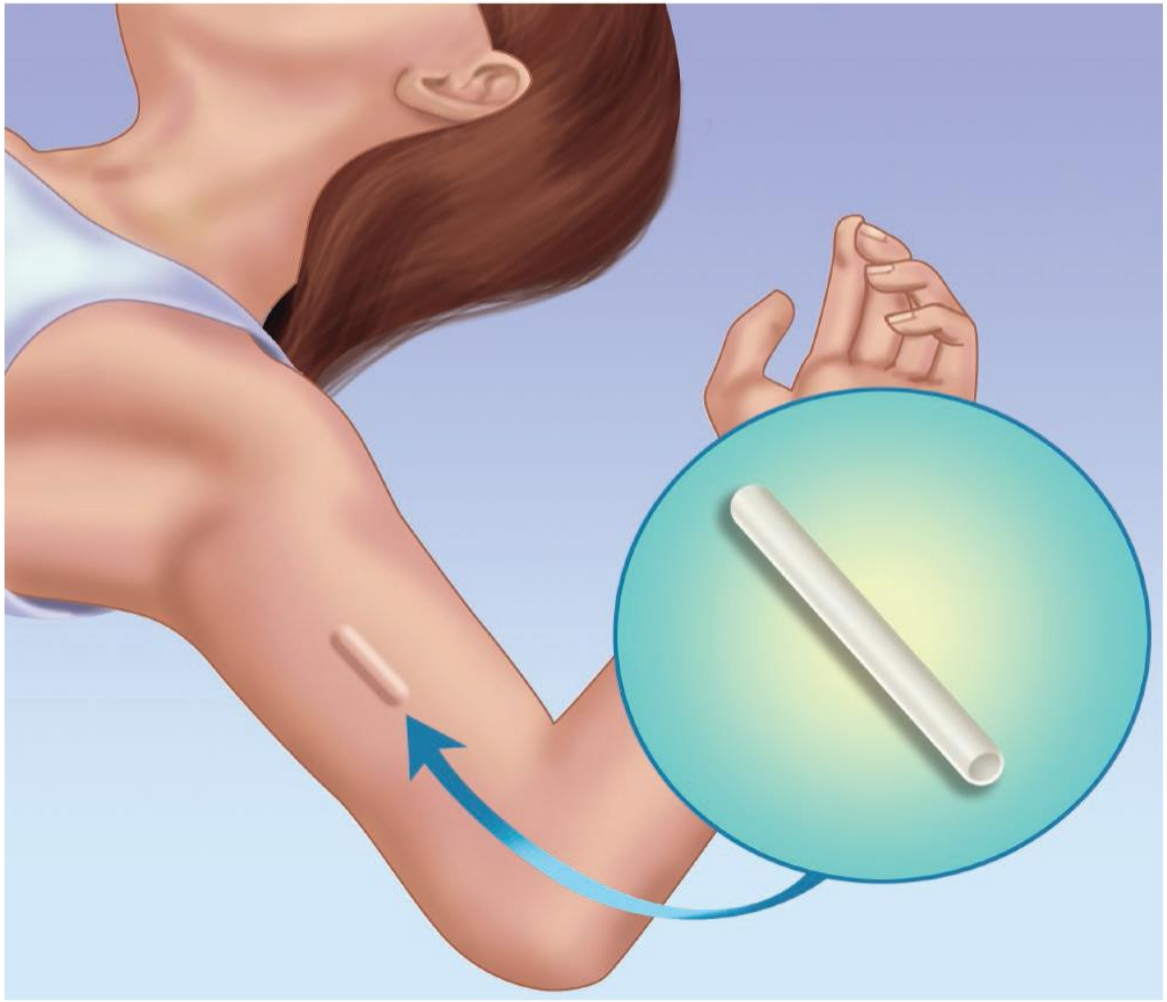


Figure 6.4 Placement of Contraceptive Implant

The Implanon/Nexplanon implant device has to be placed and removed by a trained medical professional.

Oral Contraceptives: The Pill

- Estrogen and progesterone taken orally
- Mimics the hormonal activity of the corpus luteum
  - Corpus luteum secretes high levels of progesterone and estrogen to suppress ovulation
- Combination pill
  - Most common form; 1-month packet containing estrogen and progestin, one week of placebo pills
  - Newer pills offer different schedules
- Minipill
  - Small dose of synthetic progesterone

Oral Contraceptives: The Pill (2)

- Advantages: very effective in preventing pregnancy when taken as directed; does not hinder spontaneity; suppresses menstruation; decreases risk of certain conditions
- Disadvantages: does not protect against STIs; must remember to take a pill every day
- Side effects

  Minor; include breakthrough bleeding

  Less common: depression, headaches, discharge

Oral Contraceptives: The Pill (3)

- Follow directions carefully to reduce risks
- Be alert to danger signals—ACHES:
  - Abdominal pain
  - Chest pain, cough, shortness of breath
  - Headaches, dizziness, weakness, numbness
  - Eye or speech problems
  - Severe leg pain
- Effectiveness
  - First-year 9% failure rate for a typical user

Contraceptive Skin Patch

- Ortho Evra, thin square patch
  - Releases estrogen and progestin slowly into the bloodstream
  - Prevents the same way as OCs
  - Worn for 1 week, replaced on the same day of week for 3 consecutive weeks; fourth week, no patch
- Advantages: very effective; high compliance
- Disadvantages: does not protect against STIs
- Effectiveness: similar to that of the oral contraceptive pill

Vaginal Contraceptive Ring

- The NuvaRing
  - Resembles the rim of a diaphragm and is molded with progestin and estrogen
  - Two-inch ring slowly releases hormones
  - During the fourth week the ring is removed and replaced
- Advantages: one month of protection with no daily or weekly action required
- Disadvantages: no protection against STIs
- Effectiveness: similar to the pill and patch

Table 6.1 Risks of Contraception, Pregnancy, and Abortion

CATEGORY	RISK OF DEATH
Oral contraceptives in nonsmokers aged 15–34	1 in 1,667,000
Oral contraceptives in nonsmoker aged 34–44	1 in 33,300
Oral contraceptives in smoker aged 15–34	1 in 57,800
Oral contraceptives in smoker aged 34–44	1 in 5,200
IUDs	1 in 10,000,000
Barrier methods, spermicides	None
Fertility awareness–based methods	None
Tubal ligation	1 in 66,700
Pregnancy	1 in 6,900
Spontaneous abortion	1 in 142,900
Medical abortion	1 in 200,000
Surgical abortion	1 in 142,900

SOURCE: Hatcher, R. A., et al. Contraceptive Technology, 20th revised ed. 2011, Ardent Media.

Injectable Contraceptives

Depo-Provera

- Progestin injected every 12 weeks
- Advantages: highly effective; requires little action on the part of the user
- Disadvantages: no protection against STIs; the woman must visit a health care facility every 3 months to receive an injection
- Side effects: menstrual irregularities, weight gain, temporary infertility, decreased bone density
- Effectiveness: perfect use failure rate is 0.2%; 6% typical failure rate in the first year of use

Male Condoms

- Barrier method of contraception
  - Thin latex sheaths that prevent sperm from entering the vagina
  - Prelubricated; some contain spermicide
- Advantages: protection against STIs, readily available, relatively inexpensive
- Disadvantages: diminish sensitivity, interfere with spontaneity
- Effectiveness: varies considerably

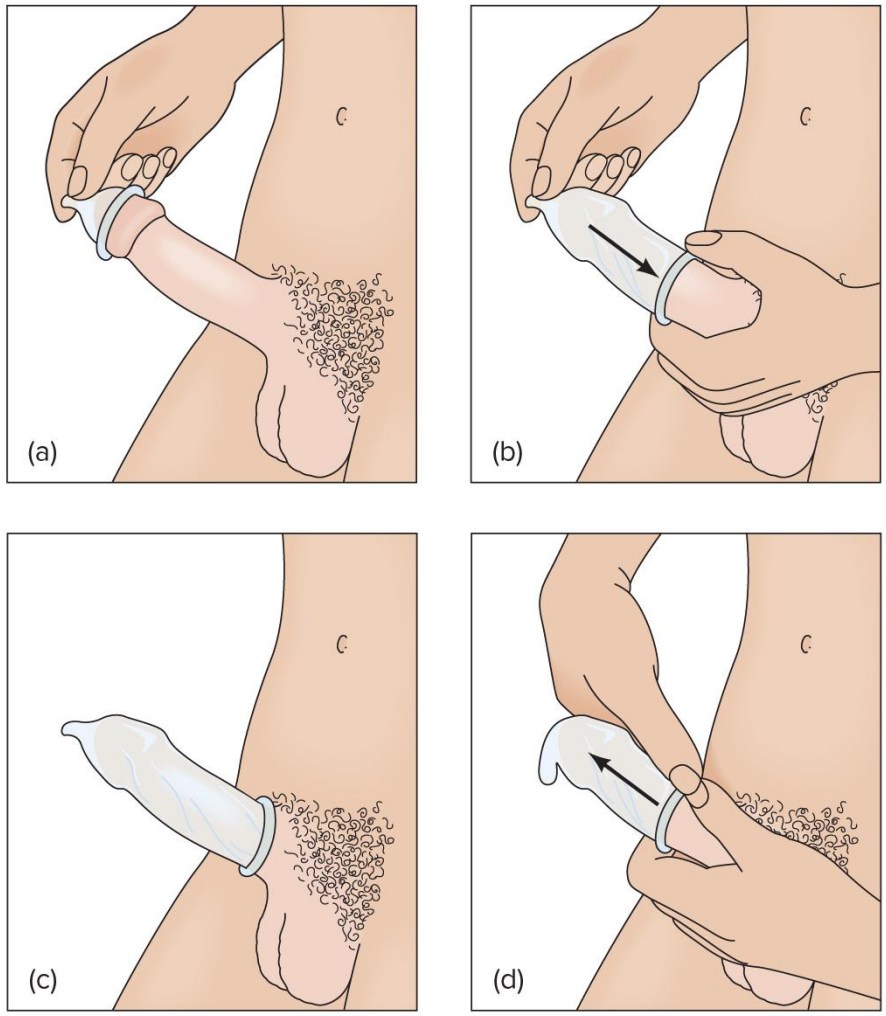


Figure 6.5 Use of the Male Condom

(a) Place the rolled-up condom over the head of the erect penis. Hold the top half-inch of the condom (with air squeezed out) to leave room for semen. (b) While holding the tip, unroll the condom onto the penis. Gently smooth out any air bubbles. (c) Unroll the condom down to the base of the penis. (d) To avoid spilling semen after ejaculation, hold the condom around the base of the penis as the penis is withdrawn. Remove the condom away from your partner, taking care not to spill any semen.

Female Condom

- Barrier method
  - Clear, stretchy, disposable pouch with two rings that can be inserted into a woman's vagina
  - Can be inserted up to eight hours before intercourse
- Advantages: gives females control over contraception and STI prevention
- Disadvantage: unfamiliar, requires practice to learn effective use; cost; harder to find
- Effectiveness: 21% first-year failure rate

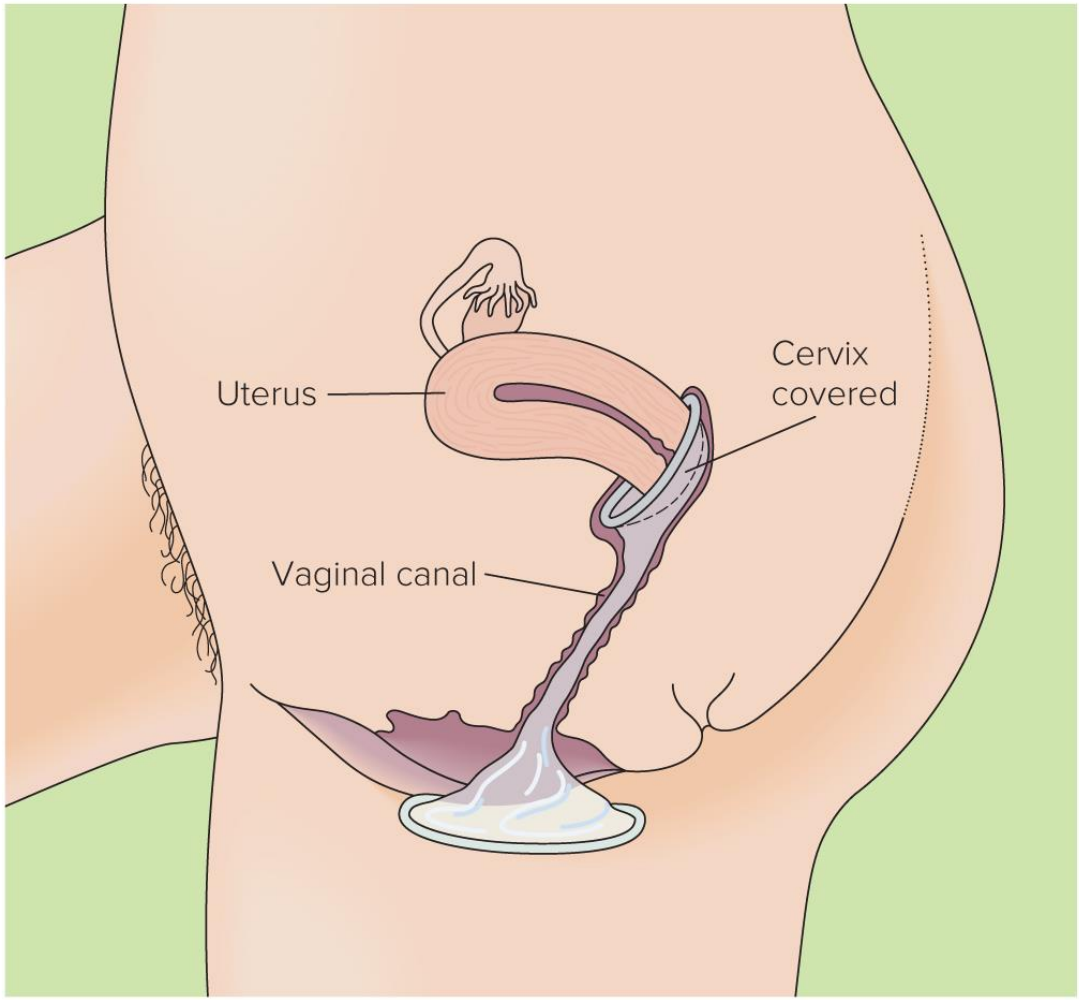


Figure 6.6 The Female Condom Properly Positioned

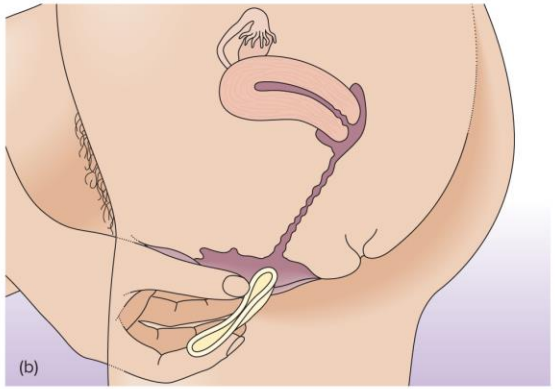
The ring at the closed end is inserted into the vagina and placed at the cervix much like a diaphragm. The ring at the open end remains outside the vagina. The female condom protects the vaginal canal and part of the external genitalia.

Diaphragm with Spermicide

- Barrier method

  Dome-shaped cup of thin rubber stretched over a collapsible metal ring

  - Custom fit; available only by prescription; used with spermicide
  - Must be left in place for 6 hours following intercourse to give the spermicide enough time to kill all the sperm
- Advantages: less intrusive than a male condom
- Disadvantages: must be used with spermicide; requires significant care and planning; associated with increased risk of toxic shock syndrome (TSS)
- Effectiveness: typical first-year failure rate is 12%



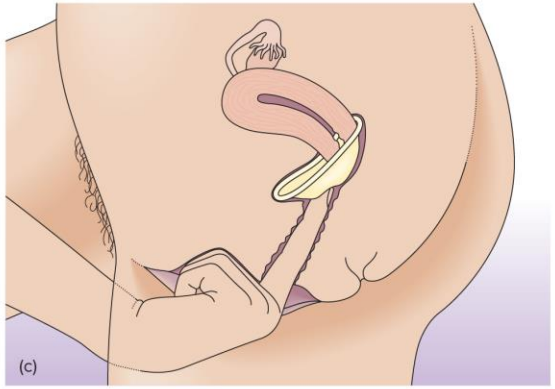


Figure 6.5 Use of the Diaphragm

Wash your hands with soap and water before inserting the diaphragm. It can be inserted while squatting, lying down, or standing with one foot raised. (a) Place about a tablespoon of spermicidal jelly or cream in the concave side of the diaphragm, and spread it around the inside of the diaphragm and around the rim. (b) Squeeze the diaphragm into a long, narrow shape between the thumb and forefinger. Insert it into the vagina, and push it up along the back wall of the vagina as far as it will go. For the Caya, use the grip nubs to fold and grasp the device during insertion. (c) Check its position to make sure the cervix is completely covered and that the front rim of the diaphragm is tucked behind the pubic bone.

Cervical Cap

- Barrier device; used like a diaphragm
  - Small flexible cup that fits snugly over the cervix
  - Holds spermicide and traps sperm
  - Fitted by a trained clinician
- Advantages: similar to the diaphragm; may be left in place for up to 48 hours
- Disadvantages: difficulty with insertion and removal
- Effectiveness: 16% first-year failure rate in women who have never had a child; 32% in women who have had a child

Contraceptive Sponge

- Round, absorbent device about 2 inches in diameter
  - Presaturated with the same spermicide that is used in contraceptive creams and foams
- Advantages: similar to the diaphragm; obtained without prescription
- Disadvantages: toxic shock syndrome (TSS); difficulty in removing
- Effectiveness: 12% failure rate in the first year in women who have never had a child; 24% in women who have had a child

Vaginal Spermicides

- Foams, creams, jellies
  - Spermicidal suppository
  - Vaginal contraceptive film (VCF)
- Alone, not a very effective method of contraception—most people use them in combination with a barrier method
- Advantages: simple use; reversible; readily available
- Disadvantages: interferes with spontaneity; increased risk for yeast infections
- Effectiveness: 28% first-year failure rate

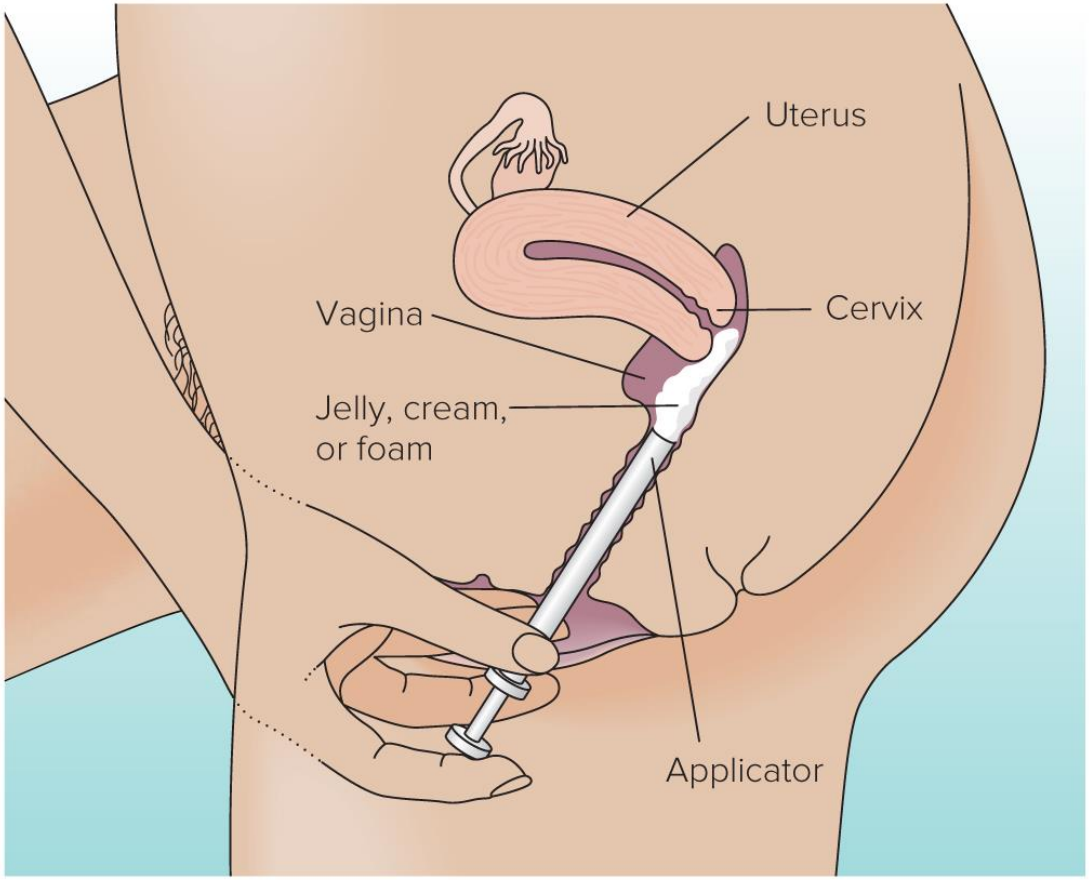


Figure 6.8 The Application of Vaginal Spermicide

Foams, creams, and jellies must be placed deep in the vagina near the cervical entrance and must be inserted no more than 60 minutes before intercourse. The spermicidal suppository is small and easily inserted like a tampon. The vaginal contraceptive film (VCF) is a paper-thin two-inch square of film that contains spermicide. It is folded over one or two fingers and placed high in the vagina, as close to the cervix as possible.

Abstinence, Fertility Awareness, and Withdrawal

- Abstinence

  Decision not to engage in sexual intercourse

  Based on many factors:

  - No contraceptive measures available
  - Concern over contraceptive side effects, STIs, and unwanted pregnancy
  - Cultural and religious beliefs
  - Personal values

Abstinence, Fertility Awareness, and Withdrawal (2)

- Fertility awareness–based methods

  Abstention from intercourse during the fertile phase of the menstrual cycle

  Methods:

  - Calendar methods
  - Temperature methods
  - Mucus method

- Withdrawal

  Coitus interruptus

  22% failure rate

Combining Methods

- Couples can combine methods
  - Added STI protection
  - Increased contraceptive effectiveness
- Added benefits typically outweigh the extra effort and expense

Table 6.2 Contraception Methods and STI Protection

METHOD	LEVEL OF PROTECTION
Hormonal methods	Do not protect against HIV or STIs in lower reproductive tract; may increase risk of cervical chlamydia; provide some protection against PID.
IUD	Does not protect against STIs.
Latex, polyisoprene, or polyurethane male condom	Best method for protection against STIs (if used correctly); does not protect against infections from lesions that are not covered by the condom. (Lambskin condoms do not protect against STIs.)
Female condom	Reduction of STI risk similar to that of male condom; may provide extra protection for external genitalia.
Diaphragm, sponge, or cervical cap	Provides some protection against cervical infections and PID. Diaphragms, sponges, and cervical caps should not be relied on for protection against HIV.
Spermicide	Modestly reduces the risk of some vaginal and cervical STIs; does not reduce the risk of HIV, chlamydia, or gonorrhea. If vaginal irritation occurs, infection risk may increase.
Fertility awareness–based methods	Do not protect against STIs.
Sterilization	Does not protect against STIs.
Abstinence	Complete protection against STIs (as long as all activities that involve the exchange of body fluids are avoided).

Emergency Contraception

- Used after unprotected sexual intercourse or when a regularly used method has failed
  - Emergency use only; not be relied on as a regular birth control method
  - Not an abortifacient; inhibits or delays ovulation
- May prevent 75–95% of expected pregnancies if taken within 24 hours after intercourse
  - Overall 89% reduction in pregnancy risk
- IUD's can also be used for emergency contraception
  - If inserted within 5 days of unprotected intercourse

Permanent Contraception

- Sterilization is the altering of the reproductive system to prevent pregnancy
  - Permanent and highly effective
  - Most common method worldwide
- In most cases, it cannot be reversed
- Male sterilization is often preferable to female sterilization
  - Cost
  - Complexity of surgery
  - Likelihood of complications
  - Likelihood of regret

Male Sterilization: Vasectomy

- Surgically severing the vasa deferentia (the ducts that carry sperm to the seminal vesicles)
  - May return to work in 2 days
- Semen analysis is required after surgery
- Effectiveness: overall failure rate of 0.15%
- Vasectomy reversal is costly
  - About 50% of reversals are effective

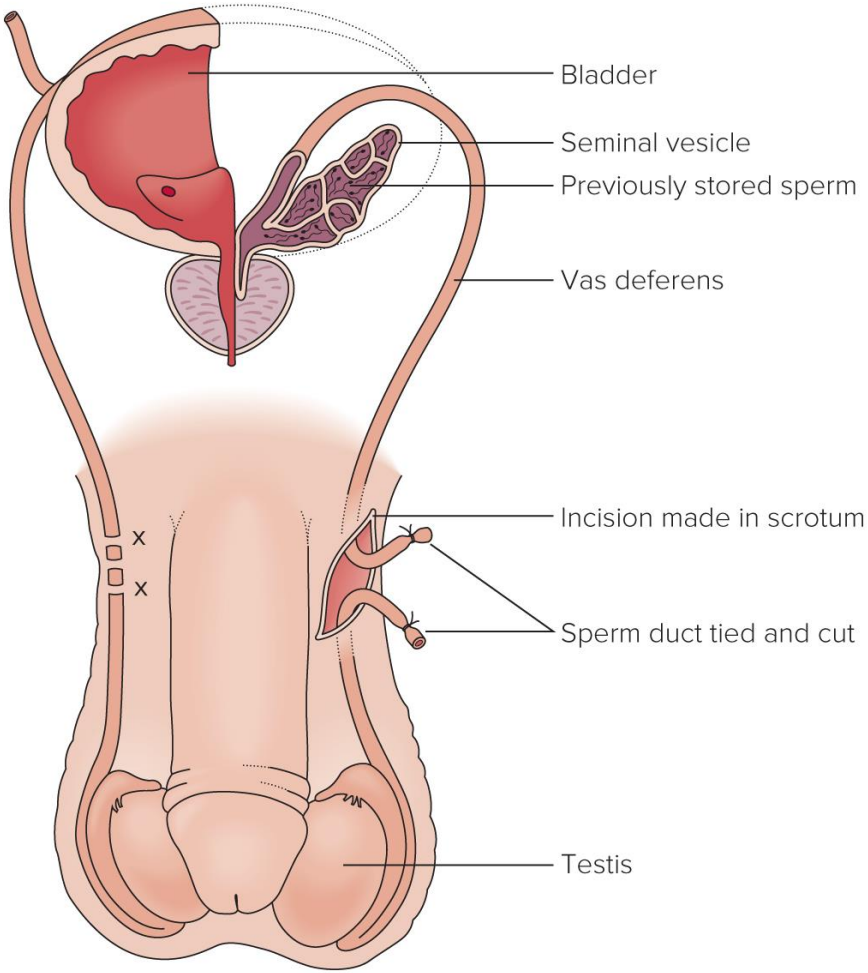


Figure 6.9 Vasectomy

This surgical procedure involves severing the vasa deferentia, thereby preventing sperm from being transported and ejaculated.

Female Sterilization

- Involves severing or blocking the oviducts, preventing eggs from reaching the uterus and sperm from entering the fallopian tubes
- Tubal sterilization (tubal ligation) is most commonly performed by laparoscopy
    - Fallopian tubes are sealed off with ties, staples, or electrocautery
    - 0.5% failure rate

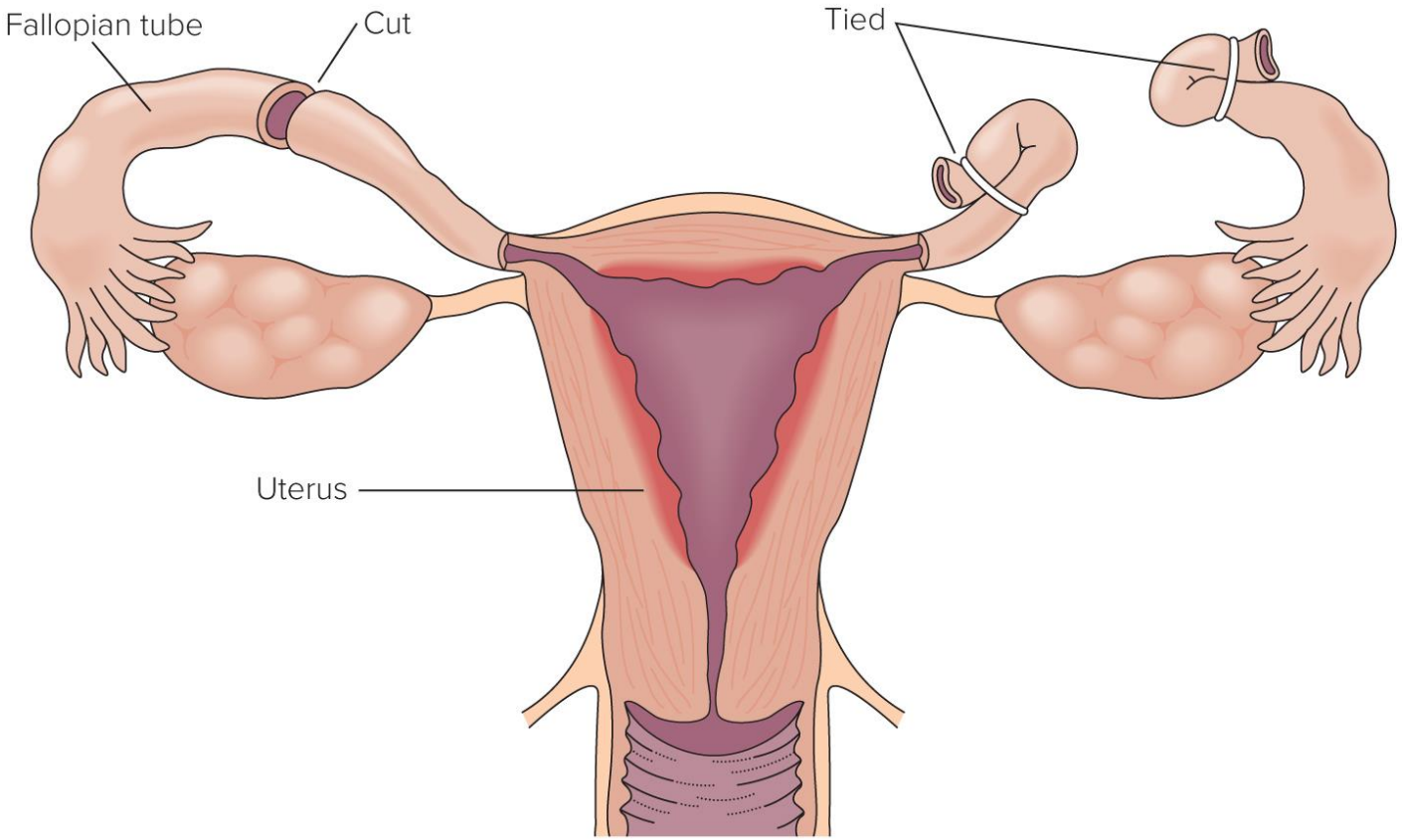


Figure 6.10 Tubal Sterilization

This procedure involves severing or blocking the fallopian tubes, thereby preventing eggs from traveling from the ovaries to the uterus. It is a more complex procedure than vasectomy.

Female Sterilization (2)

- Essure system is an incision-free form of female sterilization
  - Tiny spring-like metallic implants cause scarring, blocking the fallopian tubes
- Hysterectomy: removal of uterus
  - Preferred by women with preexisting menstrual or other uterine problems
  - Because of risks, not recommended unless disease or damage to the uterus exists

Issues in Contraception

- When is it okay to begin having sexual relations?
  - Wide range of opinions
  - As the age of first marriage increases, sex outside of marriage becomes more likely
- Contraception and gender differences:
  - Consequences of inadequate protection and of an unintended pregnancy are different for men and women
  - Condom use and prevention of STIs is the responsibility of both men and women
  - Women are apt to be more profoundly affected by an unwanted pregnancy

Sexuality and Contraceptive Education for Teenagers

- Sex education and pregnancy prevention programs are controversial in the United States
- Studies have shown that sexuality education and contraceptive availability do *not* lead to more sexual activity
    - Abstinence-only school programs do not reduce the number of teens having sex and have led to decreased rates of contraceptive use

Which Contraceptive Method is Right for You?

Contraceptive method considerations:

- Implication of unplanned pregnancy and the efficacy of the method
- Health risks
- STI risks
- Convenience and comfort level
- Type of relationship
- Ease and cost of obtaining and maintaining each method
- Religious or philosophical beliefs
- Potential noncontraceptive benefits

Review

- Explain how contraceptives work
- Explain the types of long-acting reversible contraceptives and how they work
- Explain the types of short-acting reversible contraceptives and how they work
- Explain approaches to emergency contraception
- Explain the types of permanent contraception
- Discuss key interpersonal and educational issues related to contraception
- Choose a contraceptive method that is right for you

Long image descriptions

APPENDIX A

Figure 6.2 Categorization of Contraceptives Based on Efficacy Appendix

Of the most effective methods, two are reversible, and two are permanent. Reversible methods: implant (0.05%) and intrauterine device, or IUD (0.2%–0.8%). Permanent methods: male sterilization, or vasectomy (0.15%); and female sterilization (0.5%). After these most effective methods, there is little or nothing to do or remember. Vasectomy and hysteroscopic sterilization require another method to be used for the first 3 months.

Methods of medium effectiveness lead to 6–12 pregnancies per 100 women in a year: injectable (6%); pill (9%); patch (9%); ring (9%); diaphragm (12%). The injectable form requires a repeat injection on time. Pills must be taken every day. Patches and rings must be kept in place and changed on time. Diaphragms must be used correctly every time you have sex.

Methods of least effectiveness lead to 18 or more pregnancies per 100 women in a year: male condom (18%); female condom (21%); withdrawal (22%); sponge (12%–24%); fertility-awareness-based methods (24%); and spermicide alone (28%). Condoms, sponges, withdrawal, and spermicides must be used correctly every time you have sex. Fertility-awareness-based methods depend on abstaining or using condoms on fertile days. The newest methods (Standard Days Method and TwoDay Method) may be the easiest to use and consequently more effective.

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