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After studying the material in this chapter, you should be able to

- Describe the process of human conception.
- Identify factors to consider and discuss with your partner when choosing a contraceptive method.
- Identify contraceptive methods and discuss the advantages and disadvantages of each.
- Evaluate contraceptive methods that would meet your personal criteria, if or when you need them.
- Describe methods used to perform abortions.
- Discuss the physiological effects of pregnancy and describe fetal development.
- Describe the three stages of labor and the birth process.
Justin and Sara, sophomores at the same community college, can’t remember a time when abortion was illegal, when AIDS wasn’t a deadly threat, and when safe sex wasn’t a concern of every sexually active individual. Yet even though they were aware of the risks and the realities involved, neither used contraception during every single sexual encounter. Then one of Justin’s partners had a pregnancy scare. He decided never again to engage in unprotected sex. Sara had a different reality check: At her regular physical, she learned that she had contracted chlamydia, the most common sexually transmitted infection in the United States.

“When we started dating,” Sara recalls, “both of us felt that something was special about our relationship.” Despite their mutual attraction, they decided to take every step toward intimacy slowly. Both considered and talked about their personal priorities and concerns. Even though it was awkward, they also discussed their own sexual histories and underwent tests for STIs.

Looking toward a continuing committed relationship, they decided on not one but two forms of contraception: the birth control pill and a condom. In the future, they realized that they might switch to other forms of birth control or consider different options, including both marriage and parenthood.

As human beings, we have a unique power: the ability to choose to conceive or not to conceive. No other species on earth can separate sexual activity and pleasure from reproduction.

However, simply not wanting to get pregnant is never enough to prevent conception, nor is wanting to have a child always enough to get pregnant. Both desires require individual decisions and actions.

This chapter provides information on conception, birth control, abortion, infertility, adoption, and the processes by which a new human life develops and enters the world.

Reproductive Responsibility

Anyone who engages in vaginal intercourse must be willing to accept the consequences of that activity—the possibility of pregnancy and responsibility for the child who might be conceived—or take action to avoid those consequences. Although many people are concerned about the risks associated with contraception,
using birth control is safer and healthier than not using it. According to the Population Reference Bureau, the use of contraceptives, including oral contraceptives, saves millions of lives each year.

An additional health benefit from contraception for women is a lower risk of ovarian cancer. Birth control pills and tubal ligation have the greatest protective effect, but recent research has found that any type of contraception, including barrier methods, intrauterine devices, and vasectomy, lowers a woman’s risk.1

The typical American woman who wants two children spends about five years pregnant or trying to become pregnant and three decades—more than three-quarters—of her reproductive life—trying to avoid pregnancy. About half of all pregnancies in the United States each year—more than 3 million—are unintended. By age 45, more than half of all American women will have experienced an unintended pregnancy, and about one-third will have had an abortion.

Among all young women ages 20 to 24, 45 percent of pregnancies are unintended. Among African American women in this age group, the percentage rises to 53 percent. Racial differences in unintended pregnancy rates persist even when socioeconomic variables, such as income and education, are accounted for.

In a study that compared college students and nonstudents of the same age, African American undergraduates were more likely to put themselves at risk of unwanted pregnancy by choosing less effective contraceptive methods than African Americans who weren’t enrolled in college.2

There are racial differences in students’ contraceptive choices. Compared with white undergraduates, black students report greater condom use for oral, anal, and vaginal sex. However, black students are less likely to use hormonal contraceptives and have higher rates of unprotected intercourse and unintended pregnancy.3

Women who reported having sex at age 15 or younger are at increased risk of multiple unintended pregnancies throughout their lives.4 Girls are almost twice as likely to have a baby before age 20 if they did not use a contraceptive the first time they had sex or if their mothers had a baby when they were teenagers.5

The equation for making a baby is quite simple: One sperm plus one egg equals one fertilized egg, which can develop into an infant. But the processes that affect or permit conception are quite complicated. The creation of sperm, or spermatogenesis, starts in the male at puberty, and the production of sperm is regulated by hormones. Sperm cells form in the seminiferous tubules of the testes and are passed into the epididymis, where they are stored until ejaculation; a single male ejaculation may contain 500 million sperm. Each sperm released into the vagina during intercourse moves on its own, propelling itself toward its target, an ovum.

To reach its goal, the sperm must move through the acidic secretions of the vagina, enter the uterus, travel up the fallopian tube containing the ovum, then fuse with the nucleus of the egg (fertilization). Just about every sperm produced by a man in his lifetime fails to accomplish its mission.

There are far fewer human egg cells than there are sperm cells. Each woman is born with her lifetime supply of ova, and between 300 and 500 eggs eventually mature and leave her ovaries during ovulation. As discussed in Chapter 9, every month, one or the other of the woman’s ovaries releases an ovum to the nearby fallopian tube. It travels through the fallopian tube until it reaches the uterus, a journey that takes three to four days. An unfertilized egg lives for about 24 to 36 hours, disintegrates, and during menstruation is expelled along with the uterine lining.

Even if a sperm, which can survive in the female reproductive tract for two to five days, meets a ripe egg in a fallopian tube, its success is not ensured. A mature ovum releases the chemical allurin, which attracts the sperm. A sperm is able to penetrate the ovum’s outer membrane because of a protein called fertilin. The egg then pulls the sperm inside toward its nucleus (Figure 10.1). The fertilized egg, called the zygote, travels down the fallopian tube, dividing to form a tiny clump of cells called a blastocyst. When it reaches the uterus, about a week after fertilization, it burrows into the endometrium, the lining of the uterus. This process is called implantation.
Reproductive Choices

Birth Control Basics

Most sexually active women use some form of birth control. According to the Centers for Disease Control and Prevention, more than 98 percent of women between the ages of 15 and 44 who have ever had intercourse have used at least one contraceptive method. Most of the women not using any form of contraception are pregnant, trying to get pregnant, unable to conceive, or not having intercourse.

The use of contraception has declined in recent years, particularly among poor women. As a result, they are more likely to get pregnant unintentionally and to have abortions. An estimated 11 percent of sexually active women, including white, Hispanic, and African American women, who are not trying to get pregnant do not use birth control, up from 7 percent in 1994. Half of unintended pregnancies are carried to term. Annually, about 14,000 women who continue their pregnancies put the children up for adoption; 1.2 million women have abortions.6

If you are engaging in sexual activity that could lead to conception, you have to be realistic about your situation. This means assuming full responsibility for your reproductive ability, whether you’re a man or a woman. The more you know about contraception, the more likely you are to use birth control. Contraceptives cost money; not using contraception can cost much more. (See Health on a Budget, p. 317.)

You also have to recognize the risks associated with various methods of contraception. If you’re a woman, the risks are chiefly yours. Various methods of birth control have side effects, but pregnancy and childbirth account for much higher rates of medical complications and deaths than any contraceptive. Although most women never experience any serious

Conception can be prevented by contraception. Some contraceptive methods prevent ovulation or implantation, and others block the sperm from reaching the egg. Some methods are temporary; others permanently alter one’s fertility.

Figure 10.1 Fertilization

(a) The efforts of hundreds of sperm may allow one to penetrate the ovum’s corona radiate, an outer layer of cells, and then the zona pellucida, a thick inner membrane. (b) The nuclei of the sperm and the egg cells merge, and the male and female chromosomes in the nuclei come together, forming a zygote. (c) The zygote divides into two cells, then four cells, and so on. (d) As fluid enters the ball, cells form a ball of cells called a blastocyst. (e) The blastocyst implants itself in the endometrium.

(a) A sperm penetrates the zona pellucida.

(b) The sperm nucleus fuses with the egg nucleus at fertilization, producing the zygote.

(c) The second cleavage produces the four-cell stage.

(d) Fluid enters the ball and lifts some cells, forming a cavity. This produces the blastocyst, a ball of cells with a surface layer and an inner cell mass.

(e) Implantation begins when the blastocyst attaches to and invades the endometrium.
for various reasons, including waiting until they are ready for a sexual relationship or until they find the “right” partner, respecting religious or moral values, enjoying friendships without sexual involvement, recovering from a breakup, or preventing pregnancy and sexually transmitted infection.

Practicing abstinence is the only form of birth control that is 100 percent effective and risk-free. It is also an important, increasingly valued lifestyle choice. A growing number of individuals, including some who have been sexually active in the past, are choosing abstinence until they establish a relationship with a long-term partner.

Abstinence offers special health benefits for women. Those who abstain until their twenties and engage in sex with fewer partners during their lifetime are less likely to get sexually transmitted infections, to suffer infertility, or to develop cervical cancer. However, some people find it difficult to abstain for long periods of time. There also is a risk that people will abruptly end their abstinence without being prepared to protect themselves against pregnancy or infection.

Individuals who choose abstinence from vaginal intercourse often engage in activities sometimes called outercourse, such as kissing, hugging, sensual touching, and mutual masturbation. Outercourse is nearly 100 percent effective as a contraceptive measure, but pregnancy is possible if there is genital contact. If the man ejaculates near the vaginal opening, sperm can swim up into the vagina and fallopian tubes to fertilize an egg. Outercourse also may lower the risk of contracting sexually transmitted infections. It is an effective form of safe sex as long as no body fluids are exchanged.

Some couples routinely restrict themselves to outercourse; others temporarily choose such sexual activities when it is inadvisable for them to have vaginal intercourse—for example, after childbirth. Other benefits: Outercourse has no medical or hormonal side effects; it may prolong sex play and enhance orgasm; it can be used when no other birth control methods are available.
A Cross-Cultural Perspective

Culture, religion, gender roles, and folklore can affect birth control options and decisions. In countries that are predominantly Catholic, such as Ireland, Italy, and the Philippines, the Church promotes fertility awareness and the rhythm method and condemns other contraceptive methods. Because Jewish law teaches men not to “spill their seed,” methods that can cause damage to sperm, such as vasectomy, condoms, or spermicides, are less acceptable in Israel than oral contraceptives are. In Japan, which has one of the lowest birth rates in the world, men are primarily responsible for birth control decisions. In Kenya, married couples view the use of a condom as an indicator of a husband’s infidelity. In Scandinavian countries, where birth control is free and easily accessible, many women begin taking oral contraceptives before becoming sexually active.7

Worldwide, sterilization is used by more people than any other birth control method. The intrauterine device (IUD) is the most commonly used reversible form of contraception. Among the countries with the highest usage rates are Turkey, China (where an IUD is often inserted immediately after a woman gives birth to her first child), Nigeria, England, Russia, and Korea. About 2 percent of women in the United States rely on IUDs for birth control.8

In developing countries, conception and contraception are life-and-death issues. One in three women give birth before age 20. Some 20 million women have unsafe abortions, which claim the lives of about 70,000 women between the ages of 15 and 19. Effective contraception could prevent about 90 percent of these deaths.9

The reasons why young women in developing countries do not use effective birth control are complex. In a recent analysis of studies in four African countries and Vietnam, the key factors were:

- Limited understanding of how they work (for example, the belief that a woman only needs to take a birth control pill before or after sex).
- Fears that hormonal contraceptives would endanger future fertility.
- Association of condoms with disease and promiscuity.
- Partners’ refusal to use condoms.

Even when premarital sex is widespread, many of these young women view birth control as appropriate only for married couples and feel ashamed to visit a family planning center. These women rely on traditional methods, such as

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Health on a Budget

The Cost of Contraception

The only free forms of birth control are abstinence and the rhythm method. But even the most expensive methods cost less (much, much less) than having and caring for a child. If you’re on a tight budget, you might want to consider the relative cost of a year’s prescription of oral contraceptives compared to the annual cost of condoms or spermicidal foam or jelly.

Here are some cost estimates from the FDA that can help you make sense of the dollars-and-cents of contraception:

<table>
<thead>
<tr>
<th>Contraceptive</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spermicide</td>
<td>Less than a dollar per time</td>
</tr>
<tr>
<td>Contraceptive sponge</td>
<td>$2.50 to $3 per sponge</td>
</tr>
<tr>
<td>Cervical cap</td>
<td>$65 or more for cap; $50 to $200 for fitting</td>
</tr>
<tr>
<td>Diaphragm</td>
<td>$30 to $50 plus fitting</td>
</tr>
<tr>
<td>Female condom</td>
<td>$2 to $4 each</td>
</tr>
<tr>
<td>Male condom</td>
<td>$50 to $2 each</td>
</tr>
<tr>
<td>Progestin-only pill</td>
<td>$15 to $60 a month</td>
</tr>
<tr>
<td>Injection</td>
<td>$30 to $70 per shot plus exam</td>
</tr>
<tr>
<td>Combination pill</td>
<td>$15 to $60 per cycle</td>
</tr>
<tr>
<td>Contraceptive patch</td>
<td>$35 to $70 a month</td>
</tr>
<tr>
<td>NuvaRing</td>
<td>$25 to $35 a month</td>
</tr>
<tr>
<td>Seasonale</td>
<td>$90 to $100 for three-month supply</td>
</tr>
<tr>
<td>Copper-coated IUD</td>
<td>$150 to $300</td>
</tr>
<tr>
<td>Mirena</td>
<td>$150 to $300 every five years</td>
</tr>
<tr>
<td>Female sterilization</td>
<td>$2,000 to $4,000</td>
</tr>
<tr>
<td>Male sterilization</td>
<td>$300 to $1,000</td>
</tr>
<tr>
<td>Emergency contraception</td>
<td>$8 to $25 for Plan B</td>
</tr>
</tbody>
</table>

The cost of each method depends on where you purchase it. Contraceptives are generally less expensive at health care clinics than in pharmacies or private medical practices.

Choosing a Contraceptive

You may choose different types of birth control at different stages of your life, or switch contraceptives for various reasons. (See Self Survey: Which Contraceptive Method Is Best for You?) You and your partner should always consider and discuss these factors:

- **Effectiveness.** Keep in mind that your own conscientiousness will play an important role. If you forget to take your daily pill, or if you decide not to use a condom “just this once,” you’ll increase the odds of pregnancy by interfering with effective birth control.

- **Suitability.** If you don’t have sex very often, a contraceptive with many risks and side effects, such as the pill, may be wrong for you. If you have many sexual partners and are at risk of contracting a sexually transmitted infection, a condom may provide protection against pregnancy and infection, especially if used with a diaphragm or cervical cap.

- **Side effects.** Some complications related to contraceptives are serious health threats. Be sure to ask questions and gather as much information as possible about what side effects to expect.

- **Safety.** The risks of certain contraceptives, such as the pill, may be too great to allow their use if, for example, you have high blood pressure. Be honest in describing your medical history to your physician.

- **Future fertility.** Some women don’t return to regular menstrual cycles for six months to a year after discontinuing oral contraceptives. This possibility may or may not be important to you now, but you should try to look ahead.

- **Reduced risk of sexually transmitted infections.** Some forms of contraception, in particular barrier contraceptives and spermicides, help reduce the risk of transmission of some STIs. However, none provides complete protection.

What is your top priority for any form of birth control? Why? What is your top concern or source of hesitation? Record your reflections in your online journal.

The removal of the penis from the vagina before ejaculation.  

Choosing a Birth Control Method

When it comes to deciding which form of birth control to use, there’s no one “right” decision. Good decisions are based on sound information. You should consult a physician or family-planning counselor if you have questions or want to know how certain methods might affect existing or familial medical conditions, such as high blood pressure or diabetes.

Table 10.1 presents your contraceptive choices. As the table indicates, contraception doesn’t always work. When you evaluate any contraceptive, always consider its effectiveness (the likelihood that it will indeed prevent pregnancy). The **failure rate** refers to the number of pregnancies that occur per year for every 100 women using a particular method of birth control.

The reliability of contraceptives in actual, real-life use is much lower than that reported in national surveys or clinical trials. In general, failure rates are highest among cohabiting and other unmarried women, very poor families, African American and Hispanic women, adolescents, and women in their twenties. (See Figure 10.2.)

Some couples use withdrawal or **coitus interruptus** (removal of the penis from the vagina before ejaculation), to prevent pregnancy, even though this is not a reliable form of birth control. About half the men who have tried coitus interruptus find it unsatisfactory, either because they don’t know when they’re going to ejaculate or because they can’t withdraw quickly enough. Also, the Cowper’s glands, two pea-size structures located on each side of the urethra, often produce a fluid that appears as drops at the tip of the penis any time from arousal and erection to orgasm. This fluid can contain active sperm and, in infected men, human immunodeficiency virus (HIV).

Many unintentional pregnancies are the result of contraceptive failure, either from problems with the drug or device itself or from improper use. Partners can lower the risk of unwanted pregnancy by using backup methods—that is, more than one form of contraception simultaneously. Emergency or after-intercourse contraception (discussed later in this chapter) could prevent as many as 1.7 million unwanted pregnancies each year.

The bottom line is that it takes two people to conceive a baby, and two people should be involved in deciding not to conceive a baby. In the process, they can also enhance their skills in communication, critical thinking, and negotiating. (See Health in Action: Choosing a Contraceptive.)
### Table 10.1 Birth Control Guide

<table>
<thead>
<tr>
<th>Methods</th>
<th>Number of Pregnancies Expected per 100 Women</th>
<th>MD Visit</th>
<th>How to Use It</th>
<th>Some Risks</th>
<th>Noncontraceptive Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterilization Surgery for Women</td>
<td>1</td>
<td>yes</td>
<td>One-time procedure; nothing to do or remember</td>
<td>• Pain</td>
<td>Reduces risk of ovarian cancer</td>
</tr>
<tr>
<td>Surgical Sterilization Implant for Women</td>
<td>1</td>
<td>yes</td>
<td>One-time procedure; nothing to do or remember</td>
<td>• Mild to moderate pain after insertion</td>
<td>Reduces risk of ovarian cancer</td>
</tr>
<tr>
<td>Sterilization Surgery for Men</td>
<td>1</td>
<td>yes</td>
<td>One-time procedure; nothing to do or remember</td>
<td>• Pain</td>
<td>Possible reduction in risk for prostate cancer</td>
</tr>
<tr>
<td>Implantable Rod</td>
<td>1</td>
<td>yes</td>
<td>One-time procedure; nothing to do or remember</td>
<td>• Acne, Hair loss, Weight gain, Headache, Cysts of the ovaries, Upset stomach, Mood changes, Dizziness, Depression, Sore breasts</td>
<td>Can use while breastfeeding; reduced menstrual flow and cramping</td>
</tr>
<tr>
<td>IUD</td>
<td>1</td>
<td>yes</td>
<td>One-time procedure; nothing to do or remember</td>
<td>• Cramps, Lower interest in sexual activity, Pelvic inflammatory disease, Changes in your periods, Infertility, Tear or hole in the uterus</td>
<td>Decreased menstrual flow and cramping; can use while breastfeeding; reduced risk of endometrial cancer</td>
</tr>
<tr>
<td>Shot/Injection</td>
<td>1</td>
<td>yes</td>
<td>Need a shot every 3 months</td>
<td>• Bone loss, Bleeding between periods, Weight gain, Breast tenderness, Headaches</td>
<td></td>
</tr>
<tr>
<td>Oral Contraceptives (Combined Pill) “The Pill”</td>
<td>5</td>
<td>yes</td>
<td>Must swallow a pill every day</td>
<td>• Dizziness, High blood pressure, Nausea, Blood clots, Changes in your cycle (period), Heart attack, Changes in your mood, Strokes, Weight gain</td>
<td>Decreases menstrual flow and cramping, PMS, acne, ovarian and endometrial cancers, and the development of ovarian cysts</td>
</tr>
<tr>
<td>Oral Contraceptives (Progestin-only) “The Pill”</td>
<td>5</td>
<td>yes</td>
<td>Must swallow a pill every day</td>
<td>• Irregular bleeding, Weight gain, Breast tenderness</td>
<td>May have similar noncontraceptive benefits as combined pills; reduction of uterine and ovarian cancers</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Methods</th>
<th>Number of Pregnancies Expected per 100 Women</th>
<th>MD Visit</th>
<th>How to Use It</th>
<th>Some Risks</th>
<th>Noncontraceptive Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Contraceptives Extended/Continued Use “The Pill”</td>
<td>5</td>
<td>yes</td>
<td>Must swallow a pill every day</td>
<td>• Risks are similar to other oral contraceptives</td>
<td>Four periods per year and fewer menstrual-related problems; may reduce uterine fibroids and endometriosis systems</td>
</tr>
<tr>
<td>Patch</td>
<td>5</td>
<td>yes</td>
<td>Must wear a patch every day</td>
<td>• Exposure to higher average levels of estrogen than most oral contraceptives</td>
<td>Decreases menstrual flow and cramping, PMS, acne, ovarian and endometrial cancers, and the development of ovarian cysts</td>
</tr>
<tr>
<td>Vaginal Contraceptive Ring</td>
<td>5</td>
<td>yes</td>
<td>Must leave the ring in every day for 3 weeks</td>
<td>• Vaginal discharge, Swelling of the vagina, Irritation, Similar to oral contraceptives</td>
<td>Decreases menstrual flow and cramping, PMS, acne, ovarian and endometrial cancers, and the development of ovarian cysts</td>
</tr>
<tr>
<td>Male Condom</td>
<td>11–16</td>
<td>no</td>
<td>Must use every time you have sex; requires partner’s cooperation</td>
<td>• Allergic reactions</td>
<td>Protects against STIs; delays premature ejaculation Except for abstinence, latex condoms are the best protection against HIV/AIDS and other STIs</td>
</tr>
<tr>
<td>Diaphragm with Spermicide</td>
<td>15</td>
<td>yes</td>
<td>Must use every time you have sex</td>
<td>• Irritation, Urinary tract infection, Allergic reactions, Toxic shock</td>
<td></td>
</tr>
<tr>
<td>Sponge with Spermicide</td>
<td>16–32</td>
<td>no</td>
<td>Must use every time you have sex</td>
<td>• Irritation, Allergic reactions, Hard time removing, Toxic shock</td>
<td>Possible STI protection</td>
</tr>
<tr>
<td>Cervical Cap with Spermicide</td>
<td>17–23</td>
<td>yes</td>
<td>Must use every time you have sex</td>
<td>• Irritation, Allergic reactions, Abnormal Pap test, Toxic shock</td>
<td></td>
</tr>
<tr>
<td>Female Condom</td>
<td>20</td>
<td>no</td>
<td>Must use every time you have sex</td>
<td>• Irritation, Allergic reactions</td>
<td>Possible STI protection</td>
</tr>
<tr>
<td>Spermicide</td>
<td>30</td>
<td>no</td>
<td>Must use every time you have sex</td>
<td>• Irritation, Allergic reactions, Urinary tract infection</td>
<td></td>
</tr>
<tr>
<td>Emergency Contraception—If your primary method of birth control fails</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Contraceptives “The Morning-After Pill”</td>
<td>15, no if over 18</td>
<td></td>
<td>Must be used within 72 hours of unprotected sex It should not be used as a regular form of birth control</td>
<td>• Nausea, Vomiting, Abdominal pain, Fatigue, Headache</td>
<td></td>
</tr>
</tbody>
</table>

Table 10.1 Birth Control Guide (continued)
Contraception on Campus

In the NCHA American College Health Assessment, 56.6 percent of students—52.7 percent of men and 59 percent of women—reported using contraception the last time they had vaginal intercourse. (See How Do You Compare? Contraceptive Choices of College Students.) Among students who had vaginal intercourse in the last 12 months, 16.4 percent reported that they or their partner had used emergency contraception (the morning-after pill), discussed later in this chapter, while 2.2 percent reported an unintentional pregnancy.12

Even students who know and understand the risks associated with unprotected sex often do not take steps to prevent pregnancy or sexually transmitted infections. One reason is that many believe that “a known partner is a safe partner” and that sex with someone they know as a friend or have been dating for a while is safe. Students are more likely to use condoms with one-night stands or hookups than with someone they feel familiar with. Even when they acknowledge that this is not a wise strategy for others, most consider themselves “better than average” about sexual decision-making and trust their ability to judge a potential partner.13

Barrier Contraceptives

As their name implies, barrier contraceptives block the meeting of egg and sperm by means of a physical barrier (condom, sponge, diaphragm, cervical cap, or FemCap) or a chemical one (vaginal spermicide in jellies, foams, creams, suppositories, or film).
**Male Condom**  The male condom covers the erect penis and catches the ejaculate, thus preventing sperm from entering the woman’s reproductive tract (Figure 10.3). Most are made of thin surgical latex or sheep membrane; a new type is made of polyurethane, which is thinner, stronger, more heat sensitive, and more

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**How Do You Compare?**

**How did you choose it? Did you discuss contraception with your sexual partner? Did you find this difficult? Write down your reflections in your online journal.**

— American College Health Association, American College Health Association-National College Health Assessment II: Reference Group Executive Summary Spring 2010 (Linthicum, MD: American College Health Association, 2010).

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**Nonprescription Barriers**

The nonprescription barrier contraceptives include the male and female condom, the contraceptive sponge, and vaginal spermicides. Condoms provide some protection against HIV infection and other STIs; spermicides, sponges, and films do not.
comfortable than latex. In a study of 901 couples over six months, the polyurethane condom was not as effective as the latex condom for pregnancy prevention. Experts now advise against use of condoms with nonoxynol-9, which may increase rather than lower the risk of sexual infections (see discussion in Chapter 11).

Although the theoretical effectiveness rate for condoms is 97 percent, the actual rate is only 80 to 85 percent. The condom can be torn during the manufacturing process or during its use; testing by the manufacturer may not be as strenuous as it could or should be. Careless removal can also decrease the effectiveness of condoms. However, the major reason that condoms have such a low actual effectiveness rate is that couples don’t use them each and every time they have sex. Users who have little experience with condoms—who are young, single, or childless, or who engage in risky behaviors—are more likely to have condoms break.

Most teenagers—79 percent—report using contraception at first intercourse, most often a condom. Condoms are the most widely used method of contraception among sexually experienced teenage girls; 95 percent report using them at least once.14

Condoms are second only to the pill in popularity among college-age adults. Half of sexually active students report using condoms the last time they had vaginal intercourse. College men give various reasons for not using a condom, including not having one available, a partner’s objection, the belief that proposing its use could lead to problems between the couple, fear of irritation, and the belief that it doesn’t feel natural.15 Comfort is also an issue. Ill-fitting condoms lead to more problems with slippage and breakage as well as diminished sexual pleasure. Men also may be more likely to remove a condom that doesn’t fit well.16

College men also may try to avoid condom use because of concern about erectile dysfunction (ED), the inability to maintain a penile erection sufficient for sexual relations. In an anonymous survey of 234 sexually active males between the ages of 18 and 25 on three university campuses, 25 percent reported ED with condom use. These men were much more inconsistent in their use of condoms than other students. Six percent of all the students surveyed had taken ED medications, such as Viagra. Almost two-thirds mixed these medications with alcohol and drugs, such as ecstasy or methamphetamine.

**Female Condom** The female condom, made of polyurethane or nitrile (a form of rubber), consists of two rings and a polyurethane sheath, and is inserted into the vagina with a tamponlike applicator (Figure 10.4). Once in place, the device loosely lines the walls of the vagina. Internally, a thickened rubber ring keeps it anchored near the cervix. Externally, another rubber ring, two inches in diameter, rests on the labia and resists slippage.

Although not widely used in the West, female condoms have been distributed in 142 countries. Properly used, they are believed to be as good
No spermicide is used with the female condom. Like the male condom, this method does not require a prescription.

As or better than the male condom for preventing infections, including HIV, because they are stronger and cover a slightly larger area. Female condoms may be more prone to slipping and other mechanical problems but are as effective as male condoms in blocking semen. The efficacy of female condoms does increase with a woman’s experience in using them.

**How They Work**

**Male Condom** Most physicians recommend prelubricated, spermicide-treated, American-made latex or polyurethane condoms, not membrane condoms (“natural” or “sheepskin”). Before using a condom, check the expiration date and make sure it’s soft and pliable. If it’s yellow or sticky, throw it out. Don’t check for leaks by blowing up a condom before using it; you may weaken or tear it.

The condom should be put on at the beginning of sexual activity, before genital contact occurs. There should be a little space left at the top of the condom to catch the semen (see Figure 10.3). Any vaginal lubricant should be water-based. Petroleum-based creams or jellies (such as Vaseline, baby oil, massage oil, vegetable oils, or oil-based hand lotions) can deteriorate the latex. After ejaculation, the condom should be held firmly against the penis so that it doesn’t slip off or leak during withdrawal. Couples engaging in anal intercourse should use a water-based lubricant as well as a condom, but should never assume the condom will provide 100 percent protection from HIV infection or other STIs.

**Female Condom** As illustrated in Figure 10.4, a woman removes the condom and applicator from the wrapper and inserts the condom slowly by gently pushing the applicator toward the small of the back. When properly inserted, the outer ring should rest on the folds of skin around the vaginal opening, and the inner ring (the closed end) should fit against the cervix.

**Advantages**

- Effective when used correctly.
- Lowers a woman’s risk of pelvic inflammatory disease (PID) and may protect against some urinary tract and genital infections.
- No side effects, unless the woman is allergic to latex.
- No prescription required.
- Inexpensive.
- The female condom gives women more control in reducing their risk of pregnancy and STIs and does not require a prescription or medical appointment.

**Disadvantages**

- Requires consistent and diligent use.
- Not 100 percent effective in preventing pregnancy or STIs.
- Risk of manufacturing defects, such as pin-size holes, and breaking or slipping off during intercourse.
- May inhibit sexual spontaneity.
- Users or partners may complain about odor, lubrication (too much or too little), feel, taste, difficulty opening the packages, and disposal.
- Some men dislike reduced penile sensitivity or cannot sustain an erection while putting on a condom.
- Some women complain that the female condom is difficult to use, squeaks, and looks odd.

**Do Men and Women Use Condoms for Different Reasons?** The genders have very different motives both for engaging in sex and for using condoms. In focus groups, young women say they engage in sexual relations because of a desire for physical intimacy and a committed relationship. They generally report having sex only with men they care for and deeply trust and expect that these men would be honest and forthright about their sexual history. This trust plays a significant role in their decision whether to insist on condom use.
In contrast, few young men say relationships are an important dimension of their sexual involvements. Their primary motivation is a desire for physical and sexual satisfaction. Most say they are not interested in commitment and view emotional expectations as a complication of becoming sexually involved with a woman. Young men also admit to making judgments about types of girls. To them, young women they didn’t care about were “sluts” with whom they used a condom for their own protection.

Which partner determines whether a couple uses a condom? The answer is often the women—if they choose to do so. Regardless of race or ethnicity, many young women are adamant in demanding that their partners use condoms—and many young men say they would not challenge such a demand out of fear of losing the opportunity for sex. Men often expect potential partners to want to use condoms and describe themselves as “suspicious” of women who do not.

Both sexes name two primary reasons for using condoms: preventing pregnancy and protecting against sexually transmitted infections. Young women see an unwanted pregnancy as an occurrence that would be disruptive and expensive and that could “ruin” their lives and their parents’ lives. Young men see condom use as a way of protecting themselves against emotional entanglements and paternity issues. But young adults of both sexes tend to overestimate how consistently they use condoms.

**Contraceptive Sponge** The Today Sponge, which is made of soft polyurethane foam laced with spermicide, was sold as an over-the-counter contraceptive in the United States from 1983 to 1993, when it was withdrawn because of contamination problems at the manufacturing plant. It has returned to stores several times.

**How It Works** The contraceptive sponge acts as a barrier by blocking the entrance to the uterus and absorbing and deactivating sperm. Prior to inserting it in the vagina, moisten the sponge with water to activate the spermicide. Then fold it in half and insert deep into the vagina. Check to make sure it is covering the cervix. Intercourse can occur immediately or at any time during the next 24 hours. However, the sponge must remain in place for six hours after intercourse. To remove, gently pull the cloth loop or the tabs on the outside.

**Advantages**
- Easy to carry and use.
- Can be inserted up to 24 hours before intercourse.
- Effective immediately if used correctly.
- No effect on fertility.
- Generally cannot be felt by a woman or her partner.
- Can be used by women who are breast-feeding.

**Disadvantages**
- May be difficult to remove.
- May be less effective in women who have had children.
- No reliable protection against STIs.
- Requires advance planning to place the sponge.
- Side effects include vaginal irritation and allergic reactions.
- Should not be used during menstruation.
- Slightly increased risk of toxic shock syndrome (see Chapter 16).

**Vaginal Spermicides and Film** The various forms of **vaginal spermicide** include chemical foams, creams, jellies, vaginal suppositories, gels, and film. Some creams and jellies...
are made for use with a diaphragm; others can be used alone. Several vaginal suppositories claim high effectiveness, but no American studies have confirmed these claims. In general, failure rates for vaginal suppositories are as high as 10 to 25 percent.

One widely used spermicide, nonoxynol-9, has proven to be less effective than once believed. It does not protect against many STIs, including chlamydia and gonorrhea. Nonoxynol-9 also may increase the risk of infection with human papillomavirus (HPV). The CDC has concluded that it is ineffective against HIV, and the World Health Organization describes it as only “moderately effective” for pregnancy prevention.

Vaginal contraceptive film (VCF), a thin two-inch-square film laced with spermicide, is folded and inserted into the vagina, where it dissolves into a stay-in-place gel (see Figure 10.5). VCF, which can be used by people allergic to foams and jellies, is as effective as most spermicides and almost 100 percent effective when paired with a condom.

Although more effective methods of birth control now provide good alternatives to spermicides, they remain popular as a means of lowering the risk of STIs.

**How They Work** Spermicides consist of a chemical that kills sperm and potential pathogens and an inert base, such as jelly, cream, foam, or film, that holds the spermicide close to the cervix. The jelly, cream, or foam spermicide is inserted into the vagina with an applicator or finger. Vaginal suppositories take about 20 minutes to dissolve and cover the vaginal walls. Follow package directions precisely.

You must apply additional spermicide or insert another VCF film before each additional intercourse. After sex, women should shower rather than bathe to prevent the spermicide from being rinsed out of the vagina, and they should not douche for at least six hours.

**Advantages**
- Easy to use.
- Effective if used with another form of contraception, such as condoms.
- Reduces the risk of some vaginal infections, PID, and STIs.
- No effect on fertility.

**Disadvantages**
- Insertion interrupts sexual spontaneity.
- May cause irritation.
- Some people cannot use foams or jellies because of an allergic reaction.
- Some users complain that spermicides are messy or interfere with oral-genital contact.
- Spermicidal suppositories that do not dissolve completely can feel gritty.
Prescription Barriers

The prescription barrier contraceptives are used by women: the diaphragm, cervical cap, and FemCap. They are placed in the vagina with a spermicide. They do not protect against HIV infection and most STIs.

**Diaphragm**  The diaphragm is a bowl-like rubber cup with a flexible rim that is inserted into the vagina to cover the cervix and prevent the passage of sperm into the uterus during sexual intercourse (Figure 10.6). When used with a spermicide, the diaphragm is both a physical and a chemical barrier to sperm. The effectiveness of the diaphragm in preventing pregnancy depends on strong motivation (to use it faithfully) and a precise understanding of its use. If diaphragms with spermicide are used consistently and carefully, they can be 95 to 98 percent effective. Without a spermicide, the diaphragm is not effective.

**Cervical Cap**  Like the diaphragm, the cervical cap combined with spermicide serves as both a chemical and physical barrier blocking the path of the sperm to the uterus. The rubber or plastic cap is smaller and thinner than a diaphragm. It resembles a large thimble that fits snugly around the cervix and may work better for some women. It is about as effective as a diaphragm (95 to 98 percent).

**FemCap**  The FemCap is a nonhormonal, latex-free barrier contraceptive that works with a spermicide (Figure 10.7). The FemCap, designed to conform to the anatomy of the cervix and vagina, comes in three sizes. The smallest usually best suits women who have never been pregnant; the medium size, for women who have been pregnant but have not had a vaginal delivery; the largest, for those who have delivered a full-term baby vaginally.

**How They Work**

**Diaphragm**  Diaphragms are fitted and prescribed by a qualified health-care professional in diameter sizes ranging from two to four inches (50 to 105 millimeters). The diaphragm’s main function is to serve as a container for a spermicidal (sperm-killing) foam or jelly, which is available at pharmacies without a prescription. A diaphragm should remain in the vagina for at least six hours after intercourse to ensure that all sperm are killed. If intercourse occurs again during this period, additional spermicide must be inserted with an applicator tube.

The key to proper use of the diaphragm is having it available. A sexually active woman should keep it in the most accessible place—her purse, bedroom, bathroom. Before every use, a diaphragm should be checked for tiny leaks (hold up to the light or place water in the dome). A health-care provider should check its fit and condition every year when the woman has her annual Pap smear. Oil-based lubricants will deteriorate the latex of the diaphragm and should not be used.

**Cervical Cap**  Like the diaphragm, the cervical cap is fitted by a qualified health-care professional. For use, the woman fills it one-third to two-thirds full with spermicide and inserts it by holding its edges together and sliding it into the vagina. The cup is then pressed onto the cervix. (Most women find it easiest to do so while squatting or in an upright sitting position.) The cap can be inserted up to six hours prior to intercourse and should not be removed for at least six hours afterward. It can be left in place up to 24 hours. Pulling on one side of the rim breaks the suction and allows easy removal. Oil-based lubricants should not be used with the cap because they can deteriorate the latex.

**FemCap**  A prescription is required to purchase FemCap, and the woman selects the appropriate size. Apply spermicide to the bowl of the FemCap (which goes over the cervix), to the outer brim, and to the groove that will face into the vagina. Insert the squeezed, flattened cup into the vagina with the bowl facing upward. The FemCap must be pushed all the way in to cover the cervix completely and left in place at least six hours after intercourse.

**Advantages**

- Relatively inexpensive.
- Doesn’t interrupt sexual activity; can be inserted hours ahead of time.
- Usually not felt by either partner.
- Can easily be carried in pocket or purse.
- No hormones or side effects.
- Cervical caps are an alternative for women who cannot use diaphragms or find them too messy.
Disadvantages
- Less effective than hormonal contraceptives.
- Available by prescription only.
- Requires advance planning or interruption of sexual activity to position the device before intercourse.
- May slip out of place during intercourse.
- May be uncomfortable for some women and their partners.
- Spermicidal foams, creams, and jellies may be messy, cause irritation, and detract from oral–genital sex.
- Some diaphragm users report bladder discomfort, urethral irritation, or recurrent cystitis.
- Some cap users find it difficult to insert and remove and uncomfortable to wear.
- Slightly increased risk of toxic shock syndrome.

Hormonal Contraceptives

In recent years, birth control methods made with synthetic hormones have become available in a variety of forms. Oral contraceptives have been available for decades, and the birth control pill is one of the most well-researched medications. Other options for hormonal birth control include a skin patch, a vaginal ring, a three-month injection, and a three-year implant. All are extremely effective when used consistently and conscientiously.

Hormonal contraceptives can provide benefits beyond birth control, including:
- Regular menstrual cycles.
- Reduction of menstrual pain and excess bleeding.
- Treatment of premenstrual syndrome.
- Prevention of menstrual migraines.
- Decreased risk of endometrial cancer, ovarian cancer, and colorectal cancer.
- Treatment of acne and excess facial hair.
- Improved bone mineral density.\(^{17}\)

Hormonal contraceptives do not protect against HIV infection and other STIs, so condoms and spermicides should also be used to get protection against infections.

Oral Contraceptives

The pill—the popular term for oral contraceptives—is the method of birth control preferred by unmarried women and by those under age 30, including college students. About one in five American women of childbearing age uses the pill. Women 18 to 24 years old are most likely to choose oral contraceptives. In use for 40 years, the pill is one of the most researched, tested, and carefully followed medications in medical history—and one of the most controversial.

Although many women incorrectly think that the risks of the pill are greater than those of pregnancy and childbirth, long-term studies show that oral contraceptive use does not increase mortality rates. In fact, women who took the birth control pill beginning in the late 1960s lived longer than those never on the pill, according to a British study that followed more than 46,000 women for nearly four decades. The pill cut women’s risk of dying from colon cancer by 38 percent and from any other diseases by about 12 percent.\(^{18}\) Combination oral contraceptives significantly reduce the risk of ovarian and endometrial cancer and produce no increase in diabetes, multiple sclerosis, rheumatoid arthritis, and liver disease. However, there is evidence of increased risk of breast cancer in women who have taken the pill within the last ten years for more than a year.

Common antibiotics, including many prescribed for dental procedures or skin conditions, may lower the effectiveness of oral contraceptives, particularly low-dose birth control pills. Always ask a dentist or doctor who prescribes an antibiotic about its potential effect on your oral contraceptive, and check with your gynecologist or primary physician about using an additional nonhormonal means of contraception (such as a condom) to ensure protection against an unwanted pregnancy. Other medicines and supplements that may make hormonal contraceptives less effective include St. John’s wort, certain pills prescribed for yeast infections, certain HIV medications, and certain antiseizure medication.
Doctors have debated making birth control pills available over-the-counter without a prescription. Women given six or more packets of pills at a time are less likely to stop using the pill.\textsuperscript{19} However, women with certain health conditions may put themselves at risk by taking the pill without medical supervision.\textsuperscript{20}

**Combination Pills** These pills consist of two hormones, synthetic estrogen and progestin, which play important roles in controlling ovulation and the menstrual cycle. The doses in today’s oral contraceptives are much lower—less than one-fourth the amount of estrogen and one-twentieth the progestin in the original pill. This means fewer side effects and lower risk of heart disease and stroke.\textsuperscript{21} Stroke risk among women taking newer, low-dose formulations of oral contraceptive pills may be extremely low. However, these pills appear to be less effective than those approved decades ago, with twice the failure rate of previous products.\textsuperscript{22} The reason seems to be lower doses of hormones that stop ovulation. Women on low-dose oral contraceptives should take their pills at the same time every day and follow their doctor’s advice if they miss a dose.

**Monophasic pills** release a constant dose of estrogen and progestin throughout a woman’s menstrual cycle. **Multiphasic pills** mimic normal hormonal fluctuations of the natural menstrual cycle by providing different levels of estrogen and progesterone at different times of the month. Multiphasic pills reduce total hormonal dose and side effects. Both monophasic and multiphasic pills block the release of hormones that would stimulate the process leading to ovulation. They also thicken and alter the cervical mucus, making it more hostile to sperm, and they make implantation of a fertilized egg in the uterine lining more difficult.

One combination pill, Yasmin, contains a unique progestin that works like a mild diuretic and prevents fluid retention. YAZ, a lower-dose 24-day version, can ease the emotional and physical symptoms of premenstrual dysphoric disorder (discussed in Chapter 9). Women who are taking potassium supplements, daily anti-inflammatory drugs, or heparin (a blood-thinner) should talk with their doctor because of potentially dangerous drug interactions. Other pills offer different benefits, such as clearer skin and reduced facial hair, and less spotting.

**Progestin-Only Pills** Progestin-only “minipills” contain only a small amount of progestin and no estrogen. They work somewhat differently than combination pills. Women taking progestin-only pills probably ovulate, at least occasionally. In those cycles, the pills prevent pregnancy by thickening cervical mucus, making it hard for sperm to penetrate, and by interfering with implantation of a fertilized egg.\textsuperscript{23} The risk of heart disease and stroke is lower with progestin-only pills than with any combination pill. For this reason, they are a good choice for women over age 35 and others who cannot take estrogen-containing pills because of high blood pressure, diabetes, or clotting disorders.\textsuperscript{31} Because they do not affect the quality or quantity of breast milk, progestin-only pills often are recommended for nursing mothers, and they are recommended for smokers. Because progestin can affect mood and worsen the symptoms of depression, progestin-only pills are not recommended for women with a history of depression. Antiseizure medications, such as Dilantin, which accelerate liver metabolism, may make the minipill less effective.

Users of progestin-only pills have to be conscientious about taking these pills, not just every day, but at the same time every day. If you take a progestin-only pill three or more hours later than usual, use a backup method of contraception.
such as a condom, for two days after you resume taking the pill.

**How They Work** The pill usually comes in 28-day packets: 21 of the pills contain the hormones, and 7 are “blanks,” included so that the woman can take a pill every day, even during her menstrual period. If a woman forgets to take one pill, she should take it as soon as she remembers. However, if she forgets during the first week of her cycle or misses more than one pill, she should rely on another form of birth control until her next menstrual period.

Even if you experience no discomfort or side effects while on the pill, see a physician at least once a year for an examination, which should include a blood pressure test, a pelvic exam, and a breast exam. Notify your doctor at once if you develop severe abdominal pain, chest pain, coughing, shortness of breath, pain or tenderness in the calf or thigh, severe headaches, dizziness, faintness, muscle weakness or numbness, speech disturbance, blurred vision, a sensation of flashing lights, a breast lump, severe depression, or yellowing of your skin.

Generally, when a woman stops taking the pill, her menstrual cycle resumes the next month, but it may be irregular for the next couple of months. However, 2 to 4 percent of pill users experience prolonged delays. Women who become pregnant during the first or second cycle after discontinuing use of the pill may be at greater risk of miscarriage; they also are more likely to conceive twins.

**Advantages**
- Extremely effective when taken consistently.
- Convenient.
- Moderately priced.
- Does not interrupt sexual activity.
- Reversible within three months of stopping the pill.
- Reduces the risk of benign breast lumps, ovarian cysts, iron-deficiency anemia, pelvic inflammatory disease, endometrial and ovarian cancer.
- May relieve painful menstruation.

**Disadvantages**
- In real life, rates of unintended pregnancies among pill users are much higher: as high as 2.8 percent in the first year of use and 5.7 percent after three years, according to a recent study.
- Requires a prescription.
- Increases risk of cardiovascular problems, primarily for women over age 35 who smoke and those with high blood pressure or other health problems.
- Side effects vary with different brands but include spotting between periods, weight gain or loss, nausea and vomiting, breast tenderness, and decreased sex drive.
- Must be taken at the same time every day (especially critical with low-dose estrogen and progestin-only pills).
- No protection against STIs.
- Must use a secondary form of birth control for the initial seven days of use.

**Before Using Oral Contraceptives**

Before starting on the pill, you should undergo a thorough physical examination that includes the following tests:
- Routine blood pressure test.
- Pelvic exam, including a Pap smear.
- Breast exam.
- Blood test.
- Urine sample.

Let your doctor know about any personal or family incidence of high blood pressure or heart disease; diabetes; liver dysfunction; hepatitis; unusual menstrual history; severe depression; sickle-cell anemia; cancer of the breast, ovaries, or uterus; high cholesterol levels; or migraine headaches. (See Consumer Alert, p. 331.)

**Extended-Use Pills**

For years physicians have prescribed prolonged use of birth control pills to lessen the number of menstrual cycles for women with asthma, migraines, rashes, or other conditions that flare up during their periods. Eliminating periods eliminates symptoms, and having fewer cycles also may lower a woman’s long-term risk of ovarian cancer. However, some women are wary of long-term hormone use or consider a lack of menstrual cycles unnatural.

**Seasonale and Seasonique** Seasonale and Seasonique are prescription forms of oral contraception that prevent pregnancy as
The Risks of Contraceptives

For individuals with certain medical conditions, specific types of birth control can pose a health risk.

Facts to Know

If you have one of the following conditions, you should talk with your doctor about which types of contraceptive may increase your health risks:

- High blood pressure.
- Episodes of depression.
- Seizure disorder.
- Ectopic pregnancy.
- Hepatitis.

Steps to Take

- High blood pressure (180/110 mmHg or higher): Avoid birth control pills or injections containing estrogen, which may increase your risk of a heart attack or stroke.
- Episodes of depression: Avoid products that contain progestin, such as Depo-Provera, the contraceptive implant, and the minipill. In some women with depression, progestin may worsen depressive symptoms. Also, check with your doctor if you are taking an antidepressant medication: it may affect or be affected by oral contraceptives and you may require a different dose.
- Seizure disorder: Avoid low-dose birth control pills. Some antiseizure medications, such as Dilantin, accelerate liver metabolism of all substances, including oral contraceptives, and make them less effective.
- Ectopic pregnancy: Avoid IUDs. Although IUDs do not cause ectopic pregnancies, if your fallopian tubes have been scarred by a previous ectopic gestation, you’re more likely to have another ectopic if you use an IUD.
- Hepatitis: Avoid birth control pills or injections containing estrogen, which is metabolized in the liver—an organ damaged by hepatitis.

How They Work

Unlike traditional birth control pills, women take “active” pills continuously for three months or 84 days. During this time, Seasonale prevents the uterine lining from thickening enough to produce a full menstrual period. Every three months, a woman takes one week of inactive pills to produce a “pill period,” which may be lighter than a regular period. With Seasonique, women take a very low dose of estrogen for seven days to eliminate any symptoms of complete hormone withdrawal.

The chance of getting pregnant ranges from 5 percent with typical use to 1 percent with perfect use. For maximum effectiveness, each pill should be taken at the same time of day.

Advantages

- Fewer periods.
- Tri-monthly periods are usually lighter, with less blood flow.

Disadvantages

- Similar to those of other oral contraceptives in terms of health risks, costs, and side effects. Cigarette smoking increases these risks.
- No protection from STIs.
- More spotting and breakthrough bleeding than with a 28-day pill.
- Determining pregnancy is difficult without a monthly period.

The “No-Period” Pill

Lybrel, described as a continuous contraceptive, works the same way as other combination hormonal birth control pills. However, women take the “365-day” pill every single day without interruption.

How It Works

Like other oral contraceptives, Lybrel stops the body’s monthly preparation for pregnancy by lowering the production of hormones that make pregnancy possible. However, it does not include the “week-off” of placebo pills that leads to vaginal bleeding. Most women resume menstruation within 90 days of stopping Lybrel.

Medical experts see no long-term risk in doing away with regular monthly periods, but the long-term safety of menstrual suppression is unknown.
Advantages
• No menstrual periods, cramps, or other symptoms.
• No need to stop taking pills or to switch to dummy pills for a week.
• Relief from menstruation-linked conditions such as endometriosis and menstrual migraine.

Disadvantages
• Spotting, which generally tapers off over the first year of use.
• Health risks similar to those of other combination pills.
• Determining pregnancy is difficult without a monthly period.
• Some women feel that eliminating periods is unnatural.

The Patch (Ortho Evra)
The Ortho Evra birth control patch, the first transdermal (through the skin) contraceptive, works like a combination pill but looks like a Band-Aid. Embedded in its adhesive layer are two hormones, a low-dose estrogen and a progestin. It prevents pregnancy by delivering continuous levels of estrogen and progestin through the skin directly into the bloodstream so women are exposed to higher overall levels of estrogen, which may increase their risk of blood clots. The patch is waterproof and stays on in the shower, swimming pool, or hot tub.

How It Works A woman applies the 1¾-inch square to her back, upper arm, lower abdomen, or buttocks and changes it every seven days for three weeks. During the patch-free week, she experiences menstrual bleeding. A user should check every day to make sure the patch is still in place. If you don’t replace a detached patch within 24 hours, use a backup method of contraception until your next period.

Advantages
• Good alternative for women who can’t remember, don’t like, or have problems swallowing daily pills.
• Highly effective when used correctly.
• Does not interrupt sexual activity.

• Fewer side effects, such as nausea, breakthrough bleeding, and mood swings, than pills.
• Fertility returns quickly after you stop using it.

Disadvantages
• Must apply a new patch every week.
• Requires a prescription.
• No protection against STIs.
• Increases risk of blood clots, heart attack, and stroke, particularly for women who smoke or have certain health conditions. The risk of dying or suffering a survivable blood clot while using the patch is estimated to be about two times higher than while using birth control pills.26
• Less effective in women who weigh more than 198 pounds.
• Some women report breast tenderness, headaches, bleeding between periods, upper respiratory infections, or self-consciousness wearing the patch.
• Contact lens wearers may experience vision changes.
• Five percent of women report that at least one patch slipped off; 2 percent report skin irritation.
• Must use another form of birth control for the initial seven days of use.

Vaginal Ring (NuvaRing)
The silver-dollar-size NuvaRing, a two-inch ring made of flexible, transparent plastic, slowly emits the same hormones as oral contraceptives through the vaginal tissues (Figure 10.8). Smaller than the smallest diaphragm, it contains less estrogen than any pill. As effective as the pill, it provides a steady dose of hormones and causes fewer side effects. In a campus-based study, women were equally satisfied with birth control pills and with the vaginal ring, but were more likely to forget to take pills.27

How It Works Unlike a diaphragm, the NuvaRing does not have to be exactly positioned within the vagina or used with a spermicide. The flexible, plastic two-inch ring compresses so a woman can easily insert it. Each ring stays in place for three weeks, then is removed for the fourth week of the menstrual cycle.
If a NuvaRing pops out (uncommon but possible), it should be washed, dried, and replaced within three hours. If a longer time passes, users should rely on a backup form of birth control until the ring has been reinserted for a week and the medications have risen to protective levels again.

**Advantages**

- Under medical supervision, may be safer than birth control pills for women with mild hypertension or diabetes.
- Less likelihood of pill-related side effects, such as nausea, mood swings, spotting, and cramping.
- No need to remember a daily pill or weekly patch.
- Fertility returns quickly when ring is removed.

**Disadvantages**

- Some women do not feel comfortable placing and removing something inside their vagina.
- Possible side effects include vaginal discharge, irritation, and infection.
- Cannot use oil-based vaginal medications for yeast infections while ring is in place.
- No protection against STIs.

**Contraceptive Injection**

A progestin-only contraceptive is available in the form of a birth control “shot” or injection. Depo-Provera or its newer form, Depo-subQ Provera, must be given every 12 weeks. Contraceptive injections provide no protection against HIV and other STIs.

Because of the risk of significant bone mineral loss, the FDA has recommended that women not use Depo-Provera for longer than two years. Although mineral loss is common and greater in the first year of use, most individuals regain bone density after discontinuing its use.

**How It Works** One injection of this synthetic version of the natural hormone progesterone provides three months of contraceptive protection. This long-acting hormonal contraceptive raises levels of progesterone, thereby simulating pregnancy. The pituitary gland doesn’t produce FSH and LH, which normally cause egg ripening and release. The endometrial lining of the uterus thins, preventing implantation of a fertilized egg.

**Advantages**

- Because it contains only progestin, it is safe for women who cannot take combination birth control pills.
- No risk of user error.
- No worry about buying, storing, or using contraceptives.
- No need to think about contraception for three months at a time.
- Possible protection against endometrial and ovarian cancer.
- Can be used by women who are breast-feeding.

**Disadvantages**

- Must visit a doctor or clinic every three months for injection.
- Menstrual cycles become irregular. After a year, 50 percent of women stop having periods.
- Potential side effects include decreased sex drive, depression, headaches, dizziness, frequent urination, allergic reactions, hair loss or increased hair growth.
- Increased weight gain, especially for obese women and teenage girls.
- No protection against STIs.
- According to a recent NIH study, appears to triple risk of acquiring chlamydia and gonorrhea compared with women not using a hormonal contraceptive. Scientists do not know the reason for this increased risk.
- Delayed return of fertility.
- Long-term use may significantly reduce bone density, particularly for women who smoke, don’t get enough calcium, and have never been pregnant.

**Contraceptive Implant (Implanon)**

This thin, flexible, plastic implant—about the size of a matchstick—is inserted under the skin of the upper arm to provide birth control that is 99 percent effective for up to three years. Easier to insert and remove than earlier implants, Implanon has been used in other countries for years, and is now available in all 50 states in the U.S.
Teenage mothers who used Implanon were less likely to become pregnant again. \(^\text{30}\)

**How It Works** Implanon works primarily by releasing progestin and suppressing ovulation. It also thickens cervical mucus, which inhibits sperm movement, inhibits the development and growth of the uterine lining, and limits secretion of progesterone during the second half of the menstrual cycle.

**Advantages**
- Can be used while breast-feeding.
- Can be used by women who cannot take estrogen.
- Provides continuous long-lasting birth control without sterilization.
- No medicine to take every day.
- Does not interfere with sexual foreplay.
- Ability to become pregnant returns quickly once Implanon is removed.

**Disadvantages**
- Irregular bleeding, especially in the first 6 to 12 months of use. After one year, one in three women stop having periods completely.
- Side effects, such as dizziness, acne, hair loss, headache, nausea, nervousness, pain at the insertion site.
- No protection against STIs.
- Change in appetite.
- Change in sex drive.
- Cysts on the ovaries.
- Depression.
- Discoloring or scarring of the skin over the implant.

If implanted during the first five days of a woman’s period, Implanon protects against pregnancy immediately. Otherwise, a woman needs to use some form of backup birth control for the first week after getting the implant.

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**Intrauterine Contraceptives**

An **intrauterine device (IUD)** is a small piece of molded plastic, with a nylon string attached, that is inserted into the uterus through the cervix. It prevents pregnancy by interfering with implantation. Once widely used, IUDs became less popular after most brands were removed from the market because of serious complications such as pelvic infection and infertility. The ParaGuard IUD, which contains copper, protects against pregnancy for 12 years. As confirmed in a recent study, neither copper IUDs nor those releasing levonorgestrel increase a woman’s risk of breast cancer. \(^\text{31}\)

**Mirena (Hormonal IUD)**

The Mirena intrauterine system consists of a T-shaped device inserted in the uterus by a physician. It releases a continuous low dose of progestin and provides five years of protection from pregnancy. Used in Europe, Asia, and Latin America for years, it is 99 percent effective.

Mirena is increasingly being used, not just for contraception, but as an alternative to hysterectomy for extremely heavy menstrual bleeding and as a treatment for problems such as iron-deficiency anemia.

**How It Works** A physician must insert the Mirena in a woman’s uterus. In a five-year clinical trial, about 5 in every 100 women reported that the Mirena had slipped out of the uterus. Users should check for the string that extends from the device through the vagina at least once a month.

**Advantages**
- Highly effective at preventing pregnancy.
- No need to think about contraception for five years.
- Allows sexual spontaneity; neither partner can feel it.
- Starts working immediately.
- New mothers can breast-feed while using it.
- Periods become shorter and lighter or stop altogether.
- Low incidence of side effects.
- Can be removed at any time.

**Disadvantages**
- Spotting or breakthrough bleeding in first three to six months.
- No protection against STIs.
- Potential side effects include acne, headaches, nausea, breast tenderness, mood changes.
Increased risk of benign ovarian cysts.
May take up to a year for fertility to return after discontinuation.

Fertility Awareness Methods

Awareness of a woman’s cyclic fertility can help in both contraception and conception. The different methods of birth control based on a woman’s menstrual cycle are sometimes referred to as natural family planning or fertility awareness methods. They include the calendar method, the basal-body-temperature method, and the cervical mucus method. New fertility monitors that use saliva to determine time of ovulation can improve the accuracy of these methods.

Women’s menstrual cycles vary greatly. To use one of the fertility awareness methods, a woman must know and understand her cycle. She should track her cycle for at least eight months—marking day one (the day bleeding begins) on a calendar and counting the length of each cycle. Figure 10.9 shows the days in a 28-day cycle when abstinence or other contraceptive methods would be necessary.

How It Works  The calendar method, often called the rhythm method, is based on counting the woman’s safe days based on her individual menstrual cycle. The basal-body-temperature method determines the safe days based on the woman’s basal body temperature, which rises after ovulation. The cervical mucus method, also called the ovulation method, is based on observation of changes in the consistency of the woman’s vaginal mucus throughout her menstrual cycle. The period of maximum fertility occurs when the mucus is smooth and slippery.

Advantages
• No expense.
• No side effects.
• No need for a prescription, medical visit, or fittings.
• Nothing to insert, swallow, or check.

• No effect on fertility.
• Complies with the teachings of the Roman Catholic Church.

Disadvantages
• Less reliable than other forms of birth control.
• Couples must abstain from vaginal intercourse 8 to 11 days a month or use some form of contraception.
• Conscientious planning and scheduling are essential.
• May not work for women with irregular menstrual cycles.
• Some women find the mucus or temperature methods difficult to use.

Figure 10.9  Safe and Unsafe Days
Events in the menstrual cycle determine the relatively safe days for avoiding pregnancy in unprotected intercourse.

- No effect on fertility.
- Complies with the teachings of the Roman Catholic Church.

Disadvantages
• Less reliable than other forms of birth control.
• Couples must abstain from vaginal intercourse 8 to 11 days a month or use some form of contraception.
• Conscientious planning and scheduling are essential.
• May not work for women with irregular menstrual cycles.
• Some women find the mucus or temperature methods difficult to use.

rhythm method  A birth control method in which sexual intercourse is avoided during those days of the menstrual cycle in which fertilization is most likely to occur.
Emergency Contraception

Emergency contraception (EC) is the use of a method of contraception to prevent unintended pregnancy after unprotected intercourse or the failure of another form of contraception, such as a condom breaking or slipping off. EC is available without prescription to women as young as 17. However, EC remains controversial because, unlike other contraceptives, it prevents pregnancy after fertilization has occurred. EC has proved extremely safe in almost all women, as confirmed by numerous health organizations, including the World Health Organization and the American College of Obstetricians and Gynecologists.

Combination estrogen-progestin pills, progestin-only pills, and the copper-bearing intrauterine device (IUD) have been used as methods of emergency contraception for decades. The progestin-only pills, referred to as Plan B, have proved more effective with fewer side effects than the combination pills. Plan B morning-after pills are available without a prescription for anyone over age 17. Plan B, which should be taken within five days (120 hours) of unprotected sex, can reduce the risk of pregnancy up to 89 percent. An alternative agent, ulipristal acetate, also has proven effective if taken up to five days after unprotected intercourse. The most common side effects are headache, nausea, and abdominal pain. Men can and do purchase emergency contraception for their partners.

Most women can safely use emergency contraception pills (ECPs), even if they cannot use birth control pills as their regular method of birth control. (Although ECPs use the same hormones as birth control pills, not all brands of birth control pills can be used for emergency contraception.) Some women may experience spotting or a full menstrual period a few days after taking ECPs, depending on where they were in their cycle when they began therapy. Most women have their next period at the expected time.

The easier availability of EC has not yet resulted in a decrease in unintended pregnancies because many women, particularly foreign-born Hispanic women, women with incomes below the poverty level, and women who did not complete high school, are unaware of this option. Providing an advance supply of emergency contraception to teens who have given birth may lower their odds of becoming pregnant again.

Among sexually active college women, 11 percent report having used emergency contraception in the past year. According to a national survey of colleges and universities, slightly more than half of student health centers offer emergency contraception. The primary reasons for not dispensing EC are religious affiliation, insufficient staff, and lack of funding. None of the two-year colleges surveyed provide EC. More public institutions, rural schools, four-year institutions, and schools with enrollments smaller than 15,000 are offering EC than in the past.

Among college students who have heard of emergency contraception, few say they know “quite a bit” or “a lot” about it, know if it is available on campus, or are aware of where to obtain EC off-campus. In a recent survey of University of Michigan undergraduates, more than nine in ten knew of EC, yet only 10 percent of the female respondents said that their health-care providers had spoken to them about EC in a routine health visit. A majority—60 percent—felt EC should be available over-the-counter, and a third indicated they would purchase EC in advance “just in case.”

How It Works  Emergency contraception pills stop pregnancy in the same way as other hormonal contraceptives: They delay or inhibit ovulation, inhibit fertilization, or block implantation of a fertilized egg, depending on a woman’s phase of the menstrual cycle. They have no effect once a pregnancy has been established.

Combined ECPs may be moderately effective even if started between the third and fifth days (up to 120 hours) after unprotected sexual intercourse or contraceptive failure. At least one EC agent, levonorgestrel, can be used in a single dose (1.5 mg) rather than two doses of .75 mg 12 hours apart.
The morning-after pill also may be safe for use as a regular birth control method and may appeal to women who do not have sex regularly and who could use it before or after sex. However, it is not as effective as regular birth control pills, patches, or rings, with an estimated 5 percent risk of unintentional pregnancy each year. The most common side effect is irregular bleeding.37

Sterilization

The most popular method of birth control among married couples in the United States is sterilization (surgery to end a person’s reproductive capability). Each year an estimated 1 million men and women in the United States undergo sterilization procedures. Fewer than 25 percent ever seek reversal.

Male Sterilization

In men, the cutting of the vas deferens, the tube that carries sperm from one of the testes into the urethra for ejaculation, is called vasectomy. During the 15- or 20-minute office procedure, done under a local anesthetic, the doctor makes small incisions in the scrotum, lifts up each vas deferens, cuts it, and ties off the ends to block the flow of sperm (Figure 10.10). Sperm continue to form, but they are broken down and absorbed by the body.

The man usually experiences some local pain, swelling, and discoloration for about a week after the procedure. More serious complications, including the formation of a blood clot in the scrotum (which usually disappears without treatment), infection, and an inflammatory reaction, occur in a small percentage of cases.

Sometimes men want to reverse their vasectomies, usually because they want to have children with a new spouse. Although anyone who chooses to have a vasectomy should consider it permanent, surgical reversal (vasovasostomy) is sometimes successful. New microsurgical techniques have led to annual pregnancy rates for the wives of men having undergone vasovasostomies of about 50 percent, depending on such factors as the doctor’s expertise and the time elapsed since the vasectomy.

Female Sterilization

Eleven million U.S. women ages 15 to 44 rely on tubal sterilization for contraception. An estimated 750,000 tubal sterilization procedures are performed each year in the United States. The average age of sterilization is about 30. Female sterilization procedures modify the fallopian tubes, which each month normally carry an egg from the ovaries to the uterus. The two terms used to describe female sterilization are tubal ligation (the cutting or tying of the fallopian tubes) and tubal occlusion (the blocking of the fallopian tubes to prevent pregnancy).
of the tubes. The tubes may be cut or sealed with thread, a clamp, or a clip, or by electrical coagulation to prevent the passage of eggs from the ovaries (Figure 10.11). They also can be blocked with bands of silicone.

One of the common methods of tubal ligation or occlusion uses laparoscopy, commonly called belly-button or band-aid surgery. This procedure is done on an outpatient basis and takes 15 to 30 minutes. A lighted tube called a laparoscope is inserted through a half-inch incision made right below the navel, giving the doctor a view of the fallopian tubes. Using surgical instruments that may be inserted through the laparoscope or through other tiny incisions, the doctor then cuts or seals the tubes, most commonly by electrical coagulation.

The cumulative failure rate of tubal sterilization is about 1.83 percent during a ten-year period. Complications include problems with anesthesia, hemorrhage, organ damage, and mortality.

**Essure** Essure involves placement of small, flexible microcoils into the fallopian tubes via the vagina by a physician. Unlike other methods, it does not require the risks of general anesthesia and surgery. The procedure itself does not require incisions and takes an average of about 35 minutes. Recovery occurs quickly. In clinical trials, about 90 percent of women returned to work within 24 hours. For the first three months after insertion, women should use another form of contraception. An X-ray called a hysterosalpingogram must confirm that the inserts are correctly placed and the fallopian tubes are completely blocked.

Like traditional forms of tubal ligation, Essure cannot be reversed. It is recommended only for women who definitely do not want more children and especially for those with medical and health problems (such as diabetes, heart disease, or obesity) that make surgery and anesthesia more dangerous. There is a risk that the micro-inserts may not be placed correctly at the first attempt (this occurred in 14 percent of women in one study). Long-term data on the effectiveness of Essure are not yet available.

**Advantages**
- Offers permanent protection against unwanted pregnancy.
- No effect on sex drive in men or women. Many couples report greater sexual activity and pleasure because they no longer have to worry about pregnancy or deal with contraceptives.
- Vasectomy and tubal ligation are performed as outpatient procedures, with a quick recovery time.
- Use of Essure requires no incision, so there’s less discomfort and very rapid recovery.
- Essure may be an option for women with chronic health conditions, such as obesity, diabetes, or heart disease.

**Disadvantages**
- All procedures should be considered permanent and used only if both partners are certain they want no more children.
- No protection against STIs.
- Must use another form of birth control for first three months.
- Many long-term risks remain unknown, but there is no evidence of any link between vasectomy and prostate cancer.

**Abortion**

No woman in any country ever chooses to be in a situation where she has to consider abortion. But if faced with an unwanted pregnancy, many women consider elective abortion as an option.
The U.S. abortion rate, which has declined in the last two decades, still remains higher than that of many Western countries, including Canada, Great Britain, the Netherlands, and Sweden. Although there is no one single or simple explanation for this difference, researchers focus on America’s high rate of unintended pregnancies. In many nations with fewer unwanted pregnancies and lower abortion rates, contraceptives are generally easier and cheaper to obtain, and early sex education strongly emphasizes their importance.

After rising steadily through the 1970s, the number of legal abortions leveled off in the 1980s and has declined since. Although women of all backgrounds have abortions, abortion in the United States is most likely to occur among single women, racial or ethnic minorities, low-income women, and women who have had at least one child.

Claims that abortion increases the risk of breast cancer, based on retrospective studies that are less accurate because they rely on individuals’ recall, have proved false. Research has found no correlation between the termination of a pregnancy, whether induced or spontaneous, and increased risk of breast cancer.

Thinking Through the Options

A woman faced with an unwanted pregnancy—often alone, unwed, and desperate—can find it extremely difficult to decide what to do. The political debate over the right to life almost always is secondary to practical and emotional matters, such as the quality of her relationship with the baby’s father, their capacity to provide for the child, the impact on any children she already has, and other important life issues.

Giving up her child for adoption is an option for women who do not feel abortion is right for them. Because the number of would-be adoptive parents greatly exceeds the number of available newborns, some women considering adoption may feel pressured by offers of money from couples eager to adopt. Others, particularly minority women, may feel cultural pressures to keep a child—regardless of their age, economic situation, or ability to care for an infant. Advocates of adoption reform are pressing for mandatory counseling for all pregnant women considering adoption (available now in agency-arranged, but not private, adoptions) and for extending the period of time during which a new mother can change her mind about giving up her child for adoption.

Medical Abortion

The term medical abortion describes the use of drugs, also called abortifacients, to terminate a pregnancy. In 2000, the abortion pill mifepristone (Mifepriva), formerly known as RU-486, became available for use in the United States. Mifepristone, which is 97 percent effective in inducing abortion, blocks progesterone, the hormone that prepares the uterine lining for pregnancy. Two days after taking this compound, a woman takes a prostaglandin to increase uterine contractions. The uterine lining is expelled along with the fertilized egg (Figure 10.12).

Women have compared the discomfort of this experience to severe menstrual cramps. Common side effects include excessive bleeding, nausea, fatigue, abdominal pain, and dizziness. About 1 woman in 100 requires a blood transfusion. The FDA has warned doctors about rare but deadly bloodstream infections in women using mifepristone. The rate of infection is about 1 in 100,000 uses, comparable to infection risks with surgical abortions and childbirth.

Although condemned by right-to-life advocates, abortion medications may in time lower the public profile of pregnancy termination. They are not painless, cheap, or equally available to all, but they do offer women a chance to carry through on their personal choice in greater privacy and safety.

Medical abortion does not require anesthesia and can be performed very early in pregnancy. However, women experience more cramping and bleeding during medical abortion than during surgical abortion, and bleeding lasts for a longer period.

Other Abortion Methods

About half of all abortions (54 percent) are performed within the first 8 weeks of pregnancy. Only about 1 percent of abortions occur after 20 weeks. Medically, first-trimester abortion is less risky than childbirth. However, the likelihood...
Figure 10.12 Medical Abortion
Mifepristone works by blocking the action of progesterone, a hormone produced by the ovaries that is necessary for the implantation and development of a fertilized egg.

Step 1. Taken early in pregnancy, mifepristone blocks the action of progesterone and makes the body react as if it weren’t pregnant.

Step 2. Prostaglandins, taken two days later, cause the uterus to contract and the cervix to soften and dilate. As a result, the fertilized egg is expelled in 97 percent of cases.

Figure 10.13. A curette (a spoon-shaped surgical instrument used for scraping) is used to check for complete removal of the contents of the uterus. With suction curettage, the risks of complications are low. Major complications, such as perforation of the uterus, occur in fewer than 1 in 100 cases.

For early second-trimester abortions, physicians generally use a technique called dilation and evacuation (D and E), in which they open the cervix and use medical instruments to remove the fetus from the uterus. D and E procedures are performed under local or general anesthesia.

To induce abortion from week 16 to week 20, prostaglandins (natural substances found in most body tissues) are administered as vaginal suppositories or injected into the amniotic sac by inserting a needle through the abdominal wall. They induce uterine contractions, and the fetus and placenta are expelled within 24 hours. Injecting saline or urea solutions into the amniotic sac also can terminate the pregnancy by triggering contractions that expel the fetus and placenta. Sometimes vaginal suppositories or drugs that help the uterus contract are used. Complications from abortion techniques that induce labor include nausea, vomiting, diarrhea, tearing of the cervix, excessive bleeding, and possible shock and death.

The Psychological Impact of Abortion
Abortion can have various psychological effects. As decades of research have shown, the primary emotion of women who have just had an abortion is relief. Although many women also express feelings of guilt or sadness, usually their anxiety levels drop to lower levels than immediately before the abortion. Women who experienced violence, including rape, or high anxiety levels prior to becoming pregnant have more anxiety symptoms following an abortion. A Scandinavian study recently found a higher prevalence of depression among young adult women who have had an abortion.

A woman’s responses to abortion often change with passing days, weeks, months, or years. Anniversaries—of conception, of the date a woman found out she was pregnant, of the abortion, of the delivery date—can trigger memories and a

suction curettage A procedure in which the contents of the uterus are removed by means of suction and scraping.
dilation and evacuation (D and E) A medical procedure in which the contents of the uterus are removed through the use of instruments.

of complications increases when abortions are performed in the second trimester (the second three-month period) of pregnancy.

The majority of abortions performed in the United States today are surgical. Suction curettage, usually done from 7 to 13 weeks after the last menstrual period, involves the gradual dilation (opening) of the cervix, often by inserting into the cervix one or more sticks of laminaria (a sterilized seaweed that absorbs moisture and expands, thus gradually stretching the cervix). Some women feel pressure or cramping with the laminaria in place. Occasionally, the laminaria itself starts to bring on a miscarriage.

At the time of abortion, the laminaria is removed, and dilators are used to further enlarge the cervical opening, if needed. The physician inserts a suction tip into the cervix, and the uterine contents are drawn out via a vacuum system.
sense of loss, but most women deal with these and move on with their lives.

The best predictor of psychological well-being after abortion is a woman’s emotional well-being prior to pregnancy. At highest risk are women who have had a psychiatric illness, such as an anxiety disorder or clinical depression, prior to an abortion, and those whose abortions occurred among complicated circumstances (such as a rape, or coercion by parents or a partner). The vast majority of women manage to put the abortion into perspective as one of many life events.

**The Politics of Abortion**

Abortion is one of the most controversial political, religious, and ethical issues of our time (see Health in the Headlines). The issues of when life begins, a woman’s right to choose, and an unborn child’s right to survival are among the most divisive Americans face. Abortions were legal in the United States until the 1860s. For decades after that, women who decided to terminate unwanted pregnancies did so by attempting to abort on their own or by obtaining illegal abortions—often performed by untrained individuals using unsanitary and unsafe procedures. In the late 1960s, some states changed their laws to make abortions legal. In 1973, the U.S. Supreme Court, following a 1970 ruling on the case of Roe v. Wade by the New York Supreme Court, said that an abortion in the first trimester of pregnancy was a decision between a woman and her physician and was protected by privacy laws. The Court further ruled that abortion during the second trimester could be performed on the basis of health risks and that abortion during the final trimester could be performed only for the sake of the mother’s health.

The debate over abortion continues to stir passionate emotions, with pro-life supporters arguing that life begins at conception and that abortion is therefore immoral, and pro-choice advocates countering that an individual woman should have the right to make decisions about her body and health. The controversy over abortion has at times become violent: Physicians who perform abortions have been shot and killed; abortion clinics have been bombed, wounding and killing patients and staff members. Although the majority of Americans continue to support abortion, many feel that it should be more restricted and difficult to obtain.

The Supreme Court has upheld a federal law banning “partial-birth” abortions, a late-term procedure involving the removal of a fetus from the uterus and the collapsing of its skull. Pro-life groups hailed this ruling as a step toward the overthrow of Roe v. Wade. More than 40 years after this landmark ruling, the controversy over abortion and the conflict between pro-lifers and pro-choicers remains intense.

**A Cross-Cultural Perspective**

More than one in four pregnancies worldwide ends in abortion. Of the estimated 46 million global abortions, an estimated 20 million are illegal and lead to the death of about 70,000 women.

More than 50 countries now allow abortion up to at least the twelfth week of pregnancy. Some, such as Great Britain, permit it up to 24 weeks; others have no time limit. In recent years abortion has become more restrictive in terms of limits on timing, grounds, or methods in the United States, Russia, Hungary, and Poland.

![Figure 10.13 Suction Curettage](image)

The contents of the uterus are extracted through the cervix with a vacuum apparatus.
Their reasons for not having children are diverse: a desire to maintain their freedom and have more time with their partners, career ambitions, concern about overpopulation and the fate of the earth. Some women cite the hostile work environment for mothers and the inadequacy of day care. Others say they’re disillusioned with the have-it-all hopes of baby boomers and believe in a have-most-of-it philosophy.

Pregnancy

Birth rates have risen to the highest ever recorded in the U.S. Births rose among all racial and age groups, including teenagers and unmarried women. Although the average age of mothers in the United States has risen, about 70 percent of babies are born to women in their twenties. Mothers are now averaging about two children each.

The number of never-married, college-educated career women who are becoming single parents has risen dramatically. They want children—with or without an ongoing relationship with a man—and may feel that, because of their age, they can’t delay getting pregnant any longer.

Preconception Care

The time before a child is conceived can be crucial in ensuring that an infant is born healthy, full-size, and full-term. Women who smoke, drink alcohol, take drugs, eat poorly, are too thin or too heavy, suffer from unrecognized infections or illnesses, or are exposed to toxins at work or home may start pregnancy with one or more strikes against them and their unborn babies. The best chance for lowering the infant mortality rate and preventing birth defects is before pregnancy. Preconception care—the enhancement of a woman’s health and well-being prior to conception in order to ensure a healthy pregnancy and baby—including risk assessment (evaluation of medical, genetic, and lifestyle risks), health promotion (such as teaching good nutrition), and interventions to reduce risk (such as treatment of infections and other diseases, and assistance in quitting smoking or drug use).
Home Pregnancy Tests

The sooner a woman realizes she is pregnant, the more she can do to take care of herself and her child. Home pregnancy tests detect the presence of human chorionic gonadotropin (hCG), which is secreted as the fertilized egg implants in the uterus. If the concentration of hCG is high enough, a woman will test positive for pregnancy. If the test is done too early, the result will be a false negative. A follow-up test a week later can usually confirm a pregnancy. Although home pregnancy tests are 85 to 95 percent accurate, medical laboratory tests provide definitive confirmation of a pregnancy.

How a Woman’s Body Changes during Pregnancy

The 40 weeks of pregnancy transform a woman’s body. At the beginning of pregnancy, the woman’s uterus becomes slightly larger, and the cervix becomes softer and bluish due to increased blood flow. Progesterone and estrogen trigger changes in the milk glands and ducts in the breasts, which increase in size and feel somewhat tender. The pressure of the growing uterus against the bladder causes a more frequent need to urinate. As the pregnancy progresses, the woman’s skin stretches as her body shape changes, her center of gravity changes as her abdomen protrudes, and her internal organs shift as the baby grows (Figure 10.14). Pregnancy is typically divided into three-month periods called trimesters.

How a Baby Grows

Silently and invisibly, over a nine-month period, a fertilized egg develops into a human being. When the zygote reaches the uterus, it’s still smaller than the head of a pin. Once nestled into the spongy uterine lining, it becomes an **embryo**. The embryo takes on an elongated shape, rounded at one end. A sac called the **amnion** envelops it (see photo in Fig. 10.15). As water and other small molecules cross the amniotic membrane, the embryo floats freely in the absorbed fluid, cushioned from shocks and bumps. At nine weeks the embryo is called a **fetus**.

A special organ, the **placenta**, forms. Attached to the embryo by the umbilical cord, it supplies the growing baby with fluid and nutrients from the maternal bloodstream and carries waste back to the mother’s body for disposal (Figure 10.15).

Complications of Pregnancy

In about 10 to 15 percent of all pregnancies, there is increased risk of some problem, such as a baby’s failure to grow normally. Perinatology, or maternal-fetal medicine, focuses on the special needs of high-risk mothers and their unborn babies. Perinatal centers, with state-of-the-art equipment and 24-hour staffs of specialists in this field, have been set up around the country.
First Trimester

- Increased urination because of hormonal changes and the pressure of the enlarging uterus on the bladder.
- Enlarged breasts as milk glands develop.
- Darkening of the nipples and the area around them.
- Nausea or vomiting, particularly in the morning, may occur.
- Fatigue.
- Increased vaginal secretions.
- Pinching of the sciatic nerve, which runs from the buttocks down through the back of the legs, may occur as the pelvic bones widen and begin to separate.

Second Trimester

- Thickening of the waist as the uterus grows.
- Weight gain.
- Increase in total blood volume.
- Slight increase in size and change in position of the heart.
- Darkening of the pigment around the nipple and from the navel to the pubic region.
- Darkening of the face.
- Increased salivation and perspiration.
- Secretion of colostrum from the breasts.

Third Trimester

- Increased urination because of pressure from the uterus.
- Tightening of the uterine muscles (called Braxton-Hicks contractions).
- Shortness of breath because of increased pressure by the uterus on the lungs and diaphragm.
- Interrupted sleep because of the baby’s movements or the need to urinate.
- Descending (“dropping”) of the baby’s head into the pelvis about two to four weeks before birth.
- Navel pushed out.

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**Figure 10.14  Physiological Changes of Pregnancy**

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**Figure 10.15  The Placenta**

The placenta supplies the growing embryo with fluid and nutrients from the maternal bloodstream and carries waste back for disposal.
Several of the most frequent potential complications of pregnancy are discussed next.

**Ectopic Pregnancy** Any woman who is of childbearing age, has had intercourse, and feels abdominal pain with no reasonable cause may have an *ectopic pregnancy*. In this type of pregnancy, the fertilized egg remains in the fallopian tube instead of traveling to the uterus. Ectopic, or tubal, pregnancies have increased dramatically in recent years, now accounting for 2 percent of all reported pregnancies. STIs, particularly chlamydia infections (discussed in Chapter 11), have become a major cause of ectopic pregnancy. Other risk factors include previous pelvic surgery, particularly involving the fallopian tubes; pelvic inflammatory disease; infertility; and use of an IUD.

**Miscarriage** About 10 to 20 percent of pregnancies end in *miscarriage*, or spontaneous abortion, before the twentieth week of gestation. Major genetic disorders may be responsible for 33 to 50 percent of pregnancy losses. The most common cause is an abnormal number of chromosomes. About 0.5 to 1 percent of women suffer three or more miscarriages, possibly because of genetic, anatomic, hormonal, infectious, or autoimmune factors. An estimated 70 to 90 percent of women who miscarry eventually become pregnant again.

**Infections** The infectious disease most clearly linked to birth defects is *rubella* (German measles). All women should be vaccinated against this disease at least three months prior to conception, to protect themselves and any children they may bear. (See Chapter 16 for more on immunization.) The most common prenatal infection today is *cytomegalovirus*. This infection produces mild flu-like symptoms in adults but can cause brain damage, retardation, liver disease, cerebral palsy, hearing problems, and other malformations in unborn babies.

STIs, such as syphilis, gonorrhea, and genital herpes, can be particularly dangerous during pregnancy if not recognized and treated. If a woman has a herpes outbreak around the date her baby is due, her physician will deliver the baby by caesarean section to prevent infecting the baby. HIV infection endangers both a pregnant woman and her unborn baby, and all pregnant women and new mothers should be aware of the HIV epidemic, the risks to them and their babies, and the availability of anonymous testing.

**Genetic Disorders** In some sense, each of us is a carrier of a genetic problem. Every individual has an estimated four to six defective genes, but the chances of passing them on to a child are slim. Almost all are recessive, which means they are “masked” by a more influential dominant gene. The likelihood of a child inheriting the same faulty recessive gene from both parents is remote—unless the parents are so closely related that they have very similar genetic makeup.

The child of a parent with an abnormal dominant gene has a 50 percent likelihood of inheriting it. The most common of such defects are minor, such as the growth of an extra finger or toe. However, some single-gene defects can be fatal. Huntington’s chorea, for example, is a degenerative disease that in the past was usually not diagnosed until midlife.

Genetic tests can identify “carriers” of abnormal recessive genes for diseases such as sickle-cell anemia (the most common genetic disorder among African Americans), beta-thalassemia (found in families of Mediterranean origin), and Tay-Sachs (found in Jews of Eastern European origin). Two carriers of the same abnormal
recessive genes can pass such problems on to their children.

The American College of Obstetricians and Gynecologists recommends a blood test for biochemical markers and ultrasound to screen for chromosomal abnormalities for all women in their first trimester. More invasive techniques, such as chorionic villus sampling (CVS) and second-trimester amniocentesis, can provide a precise diagnosis but carry a small risk for pregnancy loss.

**Premature Labor**  Approximately 10 percent of all babies are born too soon (before the thirty-seventh week of pregnancy). According to researchers, prematurity is the main underlying cause of stillbirth and infant deaths within the first few weeks after birth. Bed rest, close monitoring, and, if necessary, medications for at-risk women can buy more time in the womb for their babies. But women must recognize the warning signs of premature labor—dull, low backache; a feeling of tightness or pressure on the lower abdomen; and intestinal cramps, sometimes with diarrhea. Low-birth weight premature babies face the highest risks, but comprehensive, enriched programs can reduce developmental and health problems.

**Childbirth**

A generation ago, delivering a baby was something a doctor did in a hospital. Today parents can choose from many birthing options, including a birth attendant, who can be a physician or a nurse-midwife, and a birthing center, hospital, or home birth.

**Preparing for Childbirth**

The most widespread method of childbirth preparation is the Lamaze method (psychoprophylaxis). Fernand Lamaze, a French doctor, instructed women to respond to labor contractions with prelearned, controlled breathing techniques. As the intensity of each contraction increases, the laboring woman concentrates on increasing her breathing rate in a prescribed way. Her partner coaches her during each contraction and helps her cope with discomfort.

Women who attend prenatal classes are less likely to undergo cesarean deliveries and more likely to breast-feed. They also tend to have fewer complications and require fewer medications. However, painkillers or anesthesia are always an option if labor is longer or more painful than expected. The lower body can be numbed with an epidural block, which involves injecting an anesthetic into the membrane around the spinal cord, or a spinal block, in which the injection goes directly into the spinal canal. General anesthesia is usually used only for emergency cesarean births.

**Labor and Delivery**

There are three stages of labor. The first starts with effacement (thinning) and dilation (opening up) of the cervix. Effacement is measured in percentages, and dilation in centimeters or finger-widths. Around this time, the amniotic sac of fluids usually breaks, a sign that the woman should call her doctor or midwife.

The first contractions of the early, or latent, phase of labor are usually not uncomfortable; they last 15 to 30 seconds, occur every 15 to 30 minutes, and gradually increase in intensity and frequency. The most difficult contractions come after the cervix is dilated to about 8 centimeters, as the woman feels greater pressure from the fetus. The first stage ends when the cervix is completely dilated to a diameter of 10 centimeters (or five finger-widths) and the baby is ready to come down the birth canal (Figure 10.16). For women having their first baby, this first stage of labor averages 12 to 13 hours. Women having another child often experience shorter first-stage labor.

When the cervix is completely dilated, the second stage of labor occurs, during which the baby moves into the vagina, or birth canal, and out of the mother’s body. As this stage begins, women who have gone through childbirth preparation training often feel a sense of relief from the acute pain of the transition phase and at the prospect of giving birth.

This second stage can take up to an hour or more. Strong contractions may last 60 to 90 seconds and occur every two to three minutes. As the baby’s head descends, the mother feels an urge to push. By bearing down, she helps the baby complete its passage to the outside.
Chapter 10  Reproductive Choices

Caesarean Birth

In a caesarean delivery (also referred to as a caesarean section, or C-section), the doctor lifts the baby out of the woman’s body through an incision made in the lower abdomen and uterus. The most common reason for caesarean birth is failure to progress, a vague term indicating that labor has gone on too long and may put the baby or mother at risk. Other reasons include the baby’s position (if feet or buttocks are first) and signs that the fetus is in danger.

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Thirty years ago, only 5 percent of babies born in America were delivered by caesarean birth. Now, nearly one in three babies is delivered by this method, many in women who had a previous C-section. A recent analysis of data on more than half a million caesarean births found that more than 95 percent are performed because of risk factors complicating labor or delivery.

**Infertility**

The World Health Organization defines infertility as the failure to conceive after one year of unprotected intercourse. Infertility affects one in seven couples. Women between ages 35 and 44 are about twice as likely to have fertility problems as women ages 30 to 34.

Infertility is a problem of the couple, not of the individual man or woman. In 40 percent of cases, infertility is caused by female problems, in 40 percent by male problems, in 10 percent by a combination of male and female problems, and in 10 percent by unexplained causes. A thorough diagnostic workup can reveal a cause for infertility in 90 percent of cases.

In women, the most common causes of subfertility or infertility are age, abnormal menstrual patterns, suppression of ovulation, and blocked fallopian tubes. A woman's fertility peaks between ages 20 and 30 and then drops quickly: by 20 percent after 30, by 50 percent after 35, and by 95 percent after 40.

Male subfertility or infertility is usually linked to either the quantity or the quality of sperm, which may be inactive, misshapen, or insufficient (less than 20 million sperm per milliliter of semen in an ejaculation of 3 to 5 milliliters). Sometimes the problem is hormonal or a blockage of a sperm duct. Some men suffer from the inability to ejaculate normally, or from retrograde ejaculation, in which some of the semen travels in the wrong direction, back into the body of the male.

Infertility can have an enormous emotional impact. Many women long to experience pregnancy and childbirth and feel great loss if they cannot conceive. Women in their thirties and forties fear that their biological clock is running out of time. Men may be confused and surprised by the intensity of their partner's emotions.

**Options for Infertile Couples**

The treatment of infertility has become a $2 billion a year enterprise in the United States. The odds of successful pregnancy range from 30 to 70 percent, depending on the specific cause of infertility. One result of successful infertility treatments has been a boom in multiple births, including quintuplets and sextuplets. Multiple births are associated with greater risk, both to the babies—including prematurity, low birth weight, neonatal death, and lifelong disability—and to the mothers, including caesarean section and hemorrhage.

**Artificial Insemination** Artificial insemination—the introduction of viable sperm into the vagina by artificial means—is used primarily by couples in which the husband is infertile. Some states do not recognize such children as legitimate; others do, but only if the woman's husband gives consent for the insemination.

**Assisted Reproductive Technology** An estimated 500,000 babies have been born in the United States through assisted reproductive technology (ART) since 1985. The most common ART procedure is in vitro fertilization (IVF),
which removes the ova from a woman’s ovary and places the woman’s egg and her mate’s sperm in a laboratory dish for fertilization. If the fertilized egg cell shows signs of development, within several days it is returned to the woman’s uterus, the egg cell implants itself in the lining of the uterus, and the pregnancy continues as normal.

One of the most common complications of ART is the birth of as many as eight babies. More than half of ART-conceived twins and more than 95 percent of ART triplets are born prematurely or have low birth weights. Born too soon or too small, they face greater risks of short- and long-term complications.

**Adoption**

Men and women who cannot conceive children biologically can still become parents. Adoption matches would-be parents yearning for youngsters to love with infants or children who need loving. Couples interested in adoption can work with either public agencies or private counselors who contact obstetricians directly. Or they can contact organizations that arrange adoptions of children in need from other countries.

There are no reliable statistics on the annual number of adoptions in the United States, but census records indicate there are currently 1.6 million adopted children in the United States. Each year some 50,000 U.S. children become available for adoption—far fewer than the number of would-be parents looking for youngsters to adopt. An estimated 13 percent of adopted children are foreign-born.
Protecting Your Reproductive Health

The decisions you make about birth control can affect your reproductive health—and your partner’s. Here are guidelines that can help prevent pregnancy and protect your reproductive well-being. Check those that you have used or think you will use in the future.

___ Abstinence. The only 100 percent safe and effective way to avoid unwanted pregnancy is not to engage in heterosexual intercourse.

___ Limiting sexual activity to outercourse or oral sex. You can engage in many sexual activities—kissing, hugging, touching, massage, oral-genital sex—without risking pregnancy.

___ Talking about birth control with any potential sex partner. If you are considering sexual intimacy with a person, you should feel comfortable enough to talk about contraception.

___ Knowing what doesn’t work—and not relying on it. There are many misconceptions about ways to avoid getting pregnant, such as having sex in a standing position or during menstruation. Only the methods described in this chapter are reliable forms of birth control.

___ Talking with a health-care professional. A great deal of information and advice is available—in writing, from family planning counselors, from physicians on the Internet. Check it out.

___ Choosing a contraceptive method that matches your personal habits and preferences. If you can’t remember to take a pill every day, oral contraceptives aren’t for you. If you’re constantly forgetting where you put things, a diaphragm might not be a good choice.

___ Considering long-term implications. Since you may well wish to have children in the future, find out about the reversibility of various methods and possible effects on future fertility.

___ Resisting having sex without contraceptive protection “just this once.” It only takes once—even the very first time—to get pregnant. Be wary of drugs and alcohol. They can impair your judgment and make you less conscientious about using birth control—or using it properly.

___ Using backup methods. If there’s a possibility that a contraceptive method might not offer adequate protection (for instance, if it’s been almost three months since your last injection of Depo-Provera), use an additional form of birth control.

___ Informing yourself about emergency contraception. Just in case a condom breaks or a diaphragm slips, find out about the availability of forms of after-intercourse contraception.

___ Which Contraceptive Method Is Best for You?

Answer Yes or No to each statement as it applies to you and, if appropriate, your partner.

1. You have high blood pressure or cardiovascular disease.
2. You smoke cigarettes.
3. You have a new sexual partner.
4. An unwanted pregnancy would be devastating to you.
5. You have a good memory.
6. You or your partner have multiple sexual partners.
7. You prefer a method with little or no bother.
8. You have heavy, crampy periods.
9. You need protection against STIs.
10. You are concerned about endometrial and ovarian cancer.
11. You are forgetful.
12. You need a method right away.
13. You’re comfortable touching your own and your partner’s genitals.
14. You have a cooperative partner.
15. You like a little extra vaginal lubrication.
16. You have sex at unpredictable times and places.
17. You are in a monogamous relationship and have at least one child.

**Scoring:**
Recommendations are based on Yes answers to the following numbered statements:

- The combination pill: 4, 5, 6, 8, 10, 16
- The progestin-only pill: 1, 2, 5, 7, 16
- The patch: 4, 7, 8, 11, 16
- The NuvaRing: 4, 7, 8, 11, 13, 16
- Condoms: 1, 2, 3, 6, 9, 12, 13, 14
- Depo-Provera: 1, 2, 4, 7, 11, 16
- Diaphragm, cervical cap, or FemCap: 1, 2, 13, 14
- Mirena IUD: 1, 2, 7, 8, 11, 13, 16, 17
- Spermicides: 1, 2, 12, 13, 14, 15
- Sponge: 1, 2, 12, 13
Making Change Happen

To Have or Have Not

Maybe you can’t imagine not having a child. Maybe you feel that you’re still a kid yourself but maybe someday you’ll want a baby. Or maybe you’re married and are seriously thinking about starting a family. Regardless of whether your answer to the question of wanting a child is yes, no, maybe, not yet, or it depends, “To Have or Have Not” in Labs for IPC can help you sort through your feelings so you can make a conscious, responsible decision.

Here’s a preview.

In this stage, you test your parental readiness by answering 17 questions including the following three:

Get Real
- How much experience have you had in caring for children in the past? As an older sibling, babysitter, camp counselor? What did you enjoy about it? What didn’t you enjoy?
- What did you enjoy about being a child? What didn’t you enjoy?
- What did you get from your parents that you would like to pass on to your children? What wouldn’t you want to pass on?

You also complete several exercises, including this one:

Imagine that you or your partner (or a woman you slept with a few weeks ago) will take a pregnancy test tomorrow. Spend the next 24 hours thinking about how you might feel if it turns out positive and how you might feel if it’s negative . . .

Get Ready
In this stage you complete several preparatory exercises, including the following:
- Make a wish list. In your IPC Journal, write down everything you want for any child you bring into the world. This list might include:
  - A loving home.
  - Two committed parents.
- Financial security.
- An excellent education.

Put a check mark next to every one that you are confident you and your partner could give to a child at this point in your life. Write a second set of check marks for what you could give to this child if for some reason you become solely responsible for this child . . .

- Budget for a baby. Make a list of all the supplies, equipment, and furniture new parents have to get for their baby’s first year. “Shop” for these items online, and calculate how much they would cost . . .

Get Going
Over an eight-week period, you will engage in five exercises, such as:
- “Shadowing” a new parent. Ask a friend with a baby, or a friend of a friend, or a cousin or neighbor, if you can follow her or him during a typical day. Take notes of when the baby wakes, cries, frets, and sleeps. You get extra credit if you volunteer to change a diaper . . .
- Having a virtual baby. Based on your research, come up with a typical day in the life of a three-month-old baby. Name your baby boy or girl. Record when your baby wakes up. Calculate how much time you would need to drop the baby off at day care on your way to class . . . Throw in some unexpecteds, such as the baby fussing all afternoon so you don’t have time to study . . .

Lock It In
Keep talking—with your partner, your friends, parents you know. Also seek out and talk to people who have decided not to have children. Imagine that you have decided not to have children, and live with this decision for a week. Then imagine you’ve decided to have a child. Think of all the ways your life would change. How does that make you feel?
Review Questions

1. Which statement about prescription contraceptives is not true?
   a. Prescription contraceptives do not offer protection against STIs.
   b. Some prescription contraceptives contain estrogen and progestin, and some contain only progestin.
   c. The contraceptive ring must be changed every week.
   d. IUDs prevent pregnancy by preventing or interfering with implantation.

2. Which of the following statements is true about infertility?
   a. Infertility is most often caused by female problems.
   b. In men, infertility is usually caused by a combination of excess sperm production and an ejaculation problem.
   c. In vitro fertilization involves introducing sperm into the vagina with a long needle.
   d. In some cases of infertility, no cause can be demonstrated.

3. Conception occurs
   a. when a fertilized egg implants in the lining of the uterus.
   b. when sperm is blocked from reaching the egg.
   c. when a sperm fertilizes the egg.
   d. after the uterine lining is discharged during the menstrual cycle.

4. Which of the following statements is true about sterilization?
   a. In women, the most frequently performed sterilization technique is Essure.
   b. Many couples experience an increase in sexual encounters after sterilization.
   c. Vasectomies are easily reversed with surgery.
   d. Sterilization is recommended for single men and women who are unsure about whether they want children.

5. Factors to consider when choosing a contraceptive method include all of the following except
   a. cost.
   b. failure rate.
   c. effectiveness in preventing sexually transmitted infections.
   d. preferred sexual position.

6. During childbirth,
   a. breech birth can be prevented by practicing the Lamaze method.
   b. the cervix thins and dilates so that the baby can exit the uterus.
   c. the intensity of contractions decreases during the second stage of labor.
   d. the placenta is expelled immediately before the baby's head appears.

7. Which statement about abortion is false?
   a. The abortion rate in the United States started declining in the 1990s.
   b. The U.S. abortion rate is higher than the rate in Canada and England.
   c. Most women are traumatized by an abortion.
   d. Mifepristone is 97 percent effective in inducing abortion.

8. Which statement about contraception is false?
   a. Condom alone
   b. Condom plus spermicide
   c. Abstinence
   d. IUD plus spermicide

9. Which of the following contraceptive choices offers the best protection against STIs?
   a. Condom alone
   b. Condom plus spermicide
   c. Abstinence
   d. IUD plus spermicide

10. In the third trimester of pregnancy,
    a. the woman experiences shortness of breath as the enlarged uterus presses on the lungs and diaphragm.
    b. the embryo is now called a fetus.
    c. the woman should begin regular prenatal checkups.
    d. the woman should increase her activity level to ensure that she is fit for childbirth.

Answers to these questions can be found on page 672.
Critical Thinking

1. After reading about the various methods of contraception, which do you think would be most effective for you? What factors enter into your decision (convenience, risks, effectiveness, etc.)?

2. If you are sexually active, how do you start the conversation about contraception with a potential partner? What do you say and do if your partner is not ready for sex? What would you do if you do not have condoms with you to prevent sexually transmitted infection and do not have another form of birth control, such as a diaphragm?

3. Suppose that you and your partner were told that your only chance of having a child is by using fertility drugs. After taking the drugs, you and your partner are informed that there are seven fetuses. Would you carry them all to term? What if you knew that the chances of them all surviving were very slim and that eliminating some of them would improve the odds for the others? What ethical issues do cases like this raise?

Media Menu

Visit www.cengagebrain.com to access course materials and companion resources for this text that will:

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- Allow you to prepare for exams with interactive quizzing.
- Use the CengageNOW product to develop a Personalized Learning Plan targeting resources that address areas you should study.

- Coach you through identifying target goals for behavioral change and creating and monitoring your personal change plan throughout the semester using the Behavior Change Planner available in the CengageNOW resource.

Internet Connections

www.guttmacher.org
This site offers excellent resources on teen pregnancy rates and sexual health for teens and young adults, including discussions on contraceptives versus abstinence.

www.arhp.org
ARHP calls its website “the ultimate resource offering comprehensive information and education on all reproductive health topics to healthcare professionals, policymakers, the media, and the public.”

www.nral.org
The website of this national organization provides information on the politics of the pro-choice movement.

www.plannedparenthood.org
The website for the Planned Parenthood Federation of America offers a wealth of information on sexual and reproductive health, reproductive choices, methods of contraception, and reproductive policy.
### Key Terms

The terms listed are used on the page indicated. Definitions of the terms are in the Glossary at the end of the book.

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7. Carroll, Sexuality Now.

8. Ibid.


10. Ibid.


