Hormonal Contraceptive Methods

Hormonal contraceptive methods are quite popular, mainly due to their overall high effectiveness rates against pregnancy. All of the hormonal methods on the market today are designed to manipulate the release of an ovum from an ovary, to alter cervical fluid (cervical mucus), and/or to change the uterine environment in order to prevent conception. Research to develop hormonal methods that alter sperm development or movement are not new, but they are not yet available in the United States. Although hormonal contraceptive methods are used by many, they are not advised for everyone. For instance, women with cardiovascular complications, diabetes, severe depression, cancer, liver disease, or who are over the age of 35 and smoke may be completely restricted from all or most of the methods. Hormone-based contraceptives currently available in the U.S. include oral contraception (pills), Depo-Provera (shot), Implanon/Nexplanon (implant), contraceptive patch, NuvaRing (vaginal ring), and emergency contraception. The hormone-based intrauterine contraceptive is described in another reading link.

Oral Contraception

As the term implies, oral contraceptives—also known as “The Pill,” or birth control pills—are taken by mouth, and are currently available via prescription in the U.S, though they are available over the counter in Oregon and California (O--New York Times, 1/4/16). Some of these oral contraceptives contain a combination of estrogen and progestin (synthetic progesterone) and are termed “combination pills.” Some oral contraceptives contain only progestin and are called “minipills.” A healthy physical exam and medical history are often needed prior to obtaining a prescription. For more information on how to use oral contraceptives work, travel to Planned Parenthood (O).

Combination Pill

Combination pills typically come in packages of 21 or 28 pills. In either case, 21 pills contain active hormones; in the 28-day package, the other seven pills are “placebo,” and used to maintain the habit of pill-taking everyday throughout the 28-day cycle. For optimal effectiveness, the combination pill should be taken at the same time everyday, and another contraceptive method should be used for approximately two weeks after the oral contraception begins. A physician or nurse practitioner may recommend that another from of contraception be used anywhere between one and four weeks after the initial pill is taken.

Combination pill brands vary in both the form and the amounts of hormones in them, an example of which is Ovral (O). The monophasic pill consists of a constant amount of estrogen (approximately 20-50 micrograms) and a constant amount of progestin (amount of progestin can vary depending upon the type used) throughout an entire pill pack. Because the hormone levels remain constant, side effects related to fluctuating hormones may be lowered. The biphasic pill contains a constant amount of estrogen and contains less progestin during the first half of the cycle. The triphasic pill contains three varying amounts of estrogen and/or progestin, in order to more closely mimic the female reproductive hormone milieu. Estrogen is the hormone responsible for the most complications associated with the Pill. Higher estrogen doses may cause nausea, water retention, breast tenderness and leg pain. Low estrogen doses, however, may result in "breakthrough" bleeding (bleeding which occurs between cycles) or missed menstrual periods. The combination pill works by preventing ovulation.

If a pill is missed, nothing serious should happen, but the individual may be counseled to double the dose, i.e. take two pills the following day. If two or more pills are missed, another form of contraception should be used. Specific directions may vary slightly from provider to provider, as well as vary upon the type of pill taken.
Effectiveness, Advantages & Disadvantages

The combination pill, when taken perfectly, will have a 95-99% effectiveness level against pregnancy. An effectiveness of 95% means that fewer than five out of 100 women will become pregnant while using combination pills to prevent pregnancy, assuming perfect use. Users should ask their health providers about any possible drug interactions. Antibiotics, for example, may decrease pill effectiveness. Some of the combination pill's advantages include: high effectiveness against pregnancy, easy administration, reduced blood loss (conserving iron), reduced menstrual cramping and PMS symptoms, and reduced risk of ovarian cysts and endometrial and ovarian cancers, as well as protection against pelvic inflammatory disease (PID). The pill is also reversible, allowing for pregnancy to occur once the pills are stopped. Disadvantages include: motivation to take the pill everyday, increased risk for blood clots, especially among smokers aged 35 and older, lack of STI protection, ongoing expense, bothersome side effects (nausea, headaches, fluid retention, breakthrough bleeding—which should subside after a few months), and, though rare, some serious health risks, including increased risk for hypertension, gallstones and gall bladder disease, liver ailments and increased heart attack and stroke risk.

Minipill

The progestin-only contraceptive, the minipill inhibits ovulation, thickens cervical mucus and makes the uterine lining less receptive to fertilization. Similar to the combination pill, minipills are taken daily and, if one is missed, one should take it when she remembers, take the next at the regularly scheduled time and use a back-up contraceptive method.

Effectiveness, Advantages & Disadvantages

The minipill is also quite effective against pregnancy, but does not necessarily block ovulation and has a slightly lower rate than the combination pill, approximately 95-97% when used perfectly. The minipill works by altering the cervical mucus to make it difficult for sperm to reach and fertilize an egg. Advantages of the minipill include: no estrogen side effects (blood pressure, cardiovascular complications, liver ailments), its ease of use, its high effectiveness rate, fewer PMS symptoms, and that women may not have menstrual periods. Disadvantages associated with the minipill include: motivation for daily pill taking, increased risk of ectopic pregnancy and ovarian cysts, no STD protection, irregular or absent menses and a continued expense. Some women may find an absence of monthly menstrual period an advantage, while others may find the absence stressful. The minipill is also reversible: if a patient wishes to become pregnant, the pill is stopped.

Depo-Provera (DMPA)

Approved by the FDA in the early 1990's, Depo-Provera is a progestin-only hormonal contraceptive, injected into the arm or buttocks once every three months. Similar to the minipill and other synthetic progesterone methods, Depo-Provera works by preventing ovulation and by thickening cervical mucus.

Effectiveness, Advantages & Disadvantages

Depo-Provera has a greater than 99% effectiveness rate against pregnancy. The contraceptive protection is immediate if the first shot occurs during the first five days of a woman's period; otherwise, another contraceptive method should be used for the first two weeks following the injection. While Depo-Provera does continue to work for one to two weeks past the three month 'safe' period, anyone concerned about becoming pregnant should follow up promptly when a new shot is needed. Advantages associated with Depo-Provera include:

- Convenience: one shot every 90 days is needed to avoid pregnancy
- High effectiveness rate
- Depo-Provera contains progestin only, so there are no estrogen-related health risks
- Depo-Provera may protect against ovarian and endometrial cancers

Depo-Provera has received some negative publicity because of its disadvantages. Some of these include:
Contraceptive Implants

Contraceptive implants became popular with the FDA approval of Norplant in the early 1990's. No longer available in the United States, Norplant consisted of six matchstick-sized, progestin-filed silicone tubes that were inserted into the upper arm. Complicated Norplant removal led to patient pain and injury complications, and subsequent litigation. Healthsquare.com features an illustration showing where the Norplant inserts lay in the upper arm (O). Currently, Implanon, or its more current version, Nexplanon, are the only available contraceptive implants available in the United States. Instead of six separate rods, Implanon/Nexplanon is a single rod, four centimeters in length, containing a slow-releasing form of progestin. Upon insertion into the upper arm, Implanon/Nexplanon lasts for approximately three years. In late 2015, the Centers for Disease Control published results from the National Survey of Family Growth, conducted between 2011-2013. The report showed contraceptive implants, while not used very often among United States contraceptive users, relative use more than doubled from 0.5% in 2006-10 to 1.3% in 2011-13 (O, CDC, page 10 for chart data)

According to Global Health: Science and Practice, Implanon is one of three contraceptive implants used across the world (O). The other two are Jadelle (Norplant II) and Sino-implant II.

Emergency Contraception

There are hormonal methods available to prevent contraception following unprotected intercourse. Emergency contraception, as the name implies, is recommended on rare occasions when necessary, and is not to be considered an ongoing contraceptive method. Emergency contraceptives are available in the pill form and intrauterine device (IUD) form. Initially, emergency contraception, perhaps the most popular option being known as "Plan B," was only available in most states through a physician's prescription. Later, some states, including Washington, began offering Plan B without a prescription for women ages 18 and over. After court battles ended in 2013, the federal government allowed Plan B availability over-the-counter to those of childbearing age (O, The Emergency Contraception Website). The Office of Overpopulation and Research at Princeton University has more information on emergency contraception (O).

Emergency contraception will not treat or cure any sexually transmitted diseases.

Emergency Contraception: Combination and Minipills

In May of 2004 the FDA made a controversial decision not to approve emergency contraception for over-the-counter availability for the rest of the nation. In Washington and five other states, however, a woman may obtain emergency contraception directly from specific pharmacists. This improved availability is important because emergency contraceptive pills (ECP's) should be taken within 72 hours following unprotected
intercourse. The pills are ordinary combination or minipills taken in one dose, sometimes two. Trivora (R-to view photo) is an example of a combination emergency contraceptive pill (O). Minipills are considered more effective than the combined ECP's; they also seem to cause less nausea. Travel to the emergency contraceptive information page at Princeton University for more on progestin-only ECP's (O).

Taking ECP's reduces the pregnancy risk by 75%. This does not mean that 25 out of 100 women will become pregnant after taking ECP's. It does mean that, of those who are at risk of pregnancy through unprotected intercourse, that risk is reduced by approximately 75%.

Emergency Contraception: Intrauterine Device
The Paragard Copper-T intrauterine device, inserted up to five days following unprotected intercourse, or five days after expected ovulation date (whichever is later), can be used as emergency contraception. This emergency IUD is considered more effective than ECP's. Because it is recommended that emergency contraception be used within 72 hours after vaginal sex, obtaining the IUD for this purpose may be more challenging than the more readily available pills.

The Contraceptive Patch
Ortho Evra ("The Patch") is a beige, plastic patch attached to the skin, releasing estrogen and progestin for pregnancy prevention (O). From the beginning of the menstrual cycle, a new patch is applied to the stomach, upper arm, or torso once a week for three weeks, after which the patient goes patch-free for a week. Although the contraceptive patch is meant to adhere for a week, there have been reports of detachment. In such cases, the patch should be reapplied as soon as possible, or replaced if it will not adhere to the skin. If the patch has been detached for more than 24 hours, another form of contraception should be used.

Side effects associated with the Patch are like those for other hormonal methods: breast tenderness, headache, nausea, menstrual cramping, and an increase in blood lipids. Some individuals are sensitive to the adhesive and may subsequently experience itching or redness on the affected skin.

The Vaginal Ring
Approved by the FDA in 2001 (O), the NuvaRing (O--Macromedia Flash software required) is a flexible ring inserted into the vagina, releasing estrogen and progestin to prevent pregnancy. Similar to the cycle of oral contraceptive pills, the ring works for three weeks, after which it is removed for a week. More information on this method can be researched in this week's "Search & Report."

If interested in learning more about how the various hormone-based methods prevent pregnancy, watch an animation created by the Association of Reproductive Health Professionals (O).

Male Contraceptive Possibilities
Developing hormonal contraceptives designed for the male is a challenging task, partly because of ongoing fertility. It is easier to manipulate a single ovum's release than to control multiple ejaculates, each containing tens to hundreds of millions of sperm. There has been ongoing research in Italy on male oral contraception. Each man involved with the experimental method takes a pill to reduce his sperm count. The men also receive injections to boost pill effectiveness. In October of 2003, the BBC reported of successful research using injections in Sydney, Australia (O). The Population Council reports on MENT, a male contraceptive implant (O). Another example of research in this field is a study performed in nine countries, one site of which was Seattle, WA. Of 399 couples involved in this study, men aged 21-45 years received weekly testosterone injections. Only four pregnancies resulted during the two-and-one-half year study. The main
disadvantage, however, was the pain associated with the injections. There is currently continued research on a three-month injection. Other possibilities include subdermal implants and battery-powered capsules, inserted into the vas deferens, which immobilizes sperm though a low-level current.

While hormonal contraceptive methods are highly effective against pregnancy, they do NOT protect against STI's, and they are not appropriate for everyone for a myriad of reasons. An individual should perform research before identifying preferred methods.


