



Key Facts About the Menstrual Cycle

What is menstruation?

Menstruation is the shedding of tissue and blood from the lining of the womb through a woman's vagina. This process takes place about once a month during a woman's reproductive years. Menstruation is also called monthly bleeding, menses, menstrual course, menstrual period, and period.¹

Why does a woman have monthly bleeding?

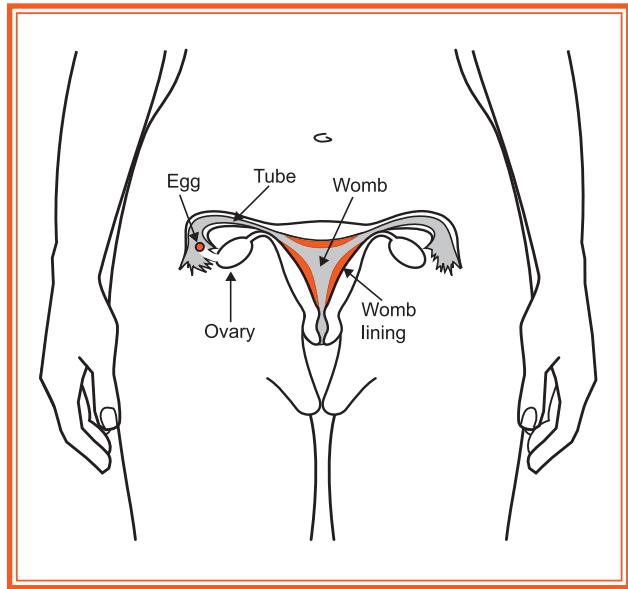
Monthly bleeding happens when a woman has not become pregnant in the few weeks before her bleeding starts. The lining of the womb builds up in these weeks in case pregnancy occurs. When pregnancy does not happen, this tissue and blood is shed.

How long does monthly bleeding last?

Usually, from two to seven days, often around five days.

Is the bleeding dangerous to a woman's health?

Not usually. A woman's monthly bleeding is not like bleeding that occurs with a cut or wound. Most of the menstrual fluid is extra tissue from the lining of the womb. It contains only about 10 ml to 35 ml of blood over the course of a menstrual period. If a woman has heavy bleeding every month, however, it could contribute to anemia.



Why does the bleeding happen again and again?

A woman's body goes through a cycle, or process, of getting ready for pregnancy each month. This is called the menstrual cycle. She can get pregnant only on certain days of that cycle. If she does not get pregnant, then she has monthly bleeding, and the process starts over again. If she does get pregnant, though, monthly bleeding stops.

Just what happens in the body during the menstrual cycle?

Hormones in a woman's body start a few eggs growing, and one is released into one of the tubes that are attached to her womb (see chart, p. 3). The egg travels down the tube on its way to the womb. This takes several days. During this time the lining of the womb is thickening, getting ready in case an egg is fertilized by a sperm that has traveled up from the vagina after vaginal intercourse. If a sperm reaches the tube at the right time and joins with the egg, and then this fertilized egg attaches itself to the lining of the womb, the woman becomes pregnant. But if the egg is not fertilized by sperm, the egg breaks up, and the womb sheds its thickened lining because it will not be needed that month. The lining passes out of the body through the vagina.

When can a woman get pregnant?

If a couple is not using family planning, vaginal intercourse can lead to pregnancy when it takes place in the five days before a woman's egg is released or on the day that the egg is released. If sex takes place during this time, the egg and sperm can reach the tube at the same time, and an egg may be fertilized.

See companion
Population Reports,
"When Contraceptives
Change Monthly
Bleeding"



¹ These terms for menstruation are used interchangeably in this report.



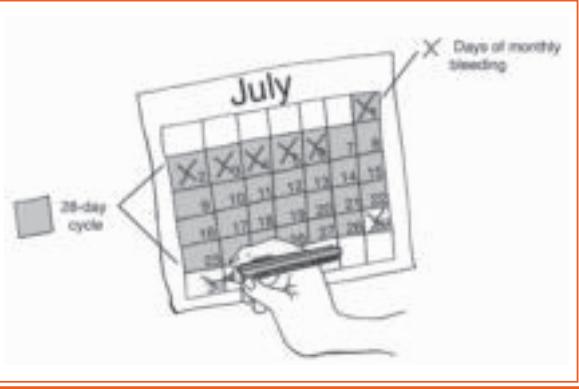
A woman's egg is released once a month, usually about midway between two menstrual periods. The exact timing is difficult to predict, however. Women with 28-day cycles (see next question) are most likely to be fertile between days 8 and 15 of each cycle.

How are the days of the menstrual cycle counted?

A menstrual cycle starts with the first day of monthly bleeding. The last day of the menstrual cycle is the day before the next monthly bleeding starts. For example, if bleeding started on July 1, that is the first day of the menstrual cycle. If the menstrual cycle that month is 28 days long, the next monthly bleeding

would start on July 29.

If this woman usually has 28-day cycles, she can expect monthly bleeding to start again on August 26.



The most common length is 28 days. But many women have longer or shorter cycles. The length of some women's cycles varies by a few days from month to month. All these patterns are normal.

Why would a woman want to keep track of the length of her menstrual cycles?

Keeping track of the menstrual cycle helps a woman know when to expect her next monthly bleeding. If her menstrual pattern suddenly changes, it could be a sign of a health problem, and she can seek help. Also, keeping track of the days in a cycle is necessary to use the *Standard Days Method*®, a fertility awareness-based method of family planning. If a woman wants to get pregnant, keeping track of her menstrual cycle can help her identify the days when she is most likely to get pregnant.



The Menstrual Cycle at Different Times of Life

When do girls usually start having menstrual periods?

Girls usually start to have periods between the ages of 11 and 16, and on average between 12 and 13. As socioeconomic conditions and nutrition have improved, the age at which a girl's period starts has gradually decreased. In some parts of the world, it is not uncommon for girls to start their periods before age 11.

How To Use This Tool

This tool offers health care providers, educators, and communicators a quick reference to answer common questions about menstruation and the menstrual cycle that girls, women, male family members, and other community members have. It also answers questions about how some contraceptive methods affect the menstrual cycle. Information is presented in a simple way and accompanied by illustrations that can be used with clients. It is a companion tool to the "When Contraceptives Change Monthly Bleeding" *Population Reports* issue.

This report was prepared by Ruwaida M. Salem,

MPH and Vidya Setty, MPH.

Research assistance by Faraz Naqvi, MHS
and R. Taylor Williamson, MPH.

Ward Rinehart, Editor.

Richard Blackburn, Editorial Supervisor.

Francine Mueller, Designer.

INFO Reports appreciates the assistance of the following reviewers: Dinesh Agarwal, Jean Ahlborg, Ravi Anand, Bruno M. Benavides, Jane T. Bertrand, Gloria Coe, Soledad Diaz, Anna Glasier, John Guillebaud, Ellen Hardy, Robert A. Hatcher, Monica Jasis, Jan Kumar, Enriquito R. Lu, Shawn Malarcher, Diana Mansour, Leslie Miller, Anita L. Nelson, Tonya Nyagiyo, Malcolm Potts, Pauline Russell-Brown, Stephen Settimi, Marni Sommer, J. Joseph Speidel, Martin T. Vaessen, Marcel Vekemans, and Mary Beth Weinberger.

Suggested citation: Salem, R. and Setty, V. "Key Facts About the Menstrual Cycle." *INFO Reports*. No. 7. Baltimore, Johns Hopkins Bloomberg School of Public Health, The INFO Project, Aug. 2006.

Available online:
<http://www.infoforhealth.org/inforeports/>

The INFO Project
Center for Communication Programs
The Johns Hopkins Bloomberg School of Public Health

Earle Lawrence, Project Director;
Stephen Goldstein, Chief, Publications Division;
Theresa Norton, Associate Editor;
Linda Sadler, Production Manager.

INFO Reports is designed to provide an accurate and authoritative report on important developments in family planning and related health issues. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development or the Johns Hopkins University.

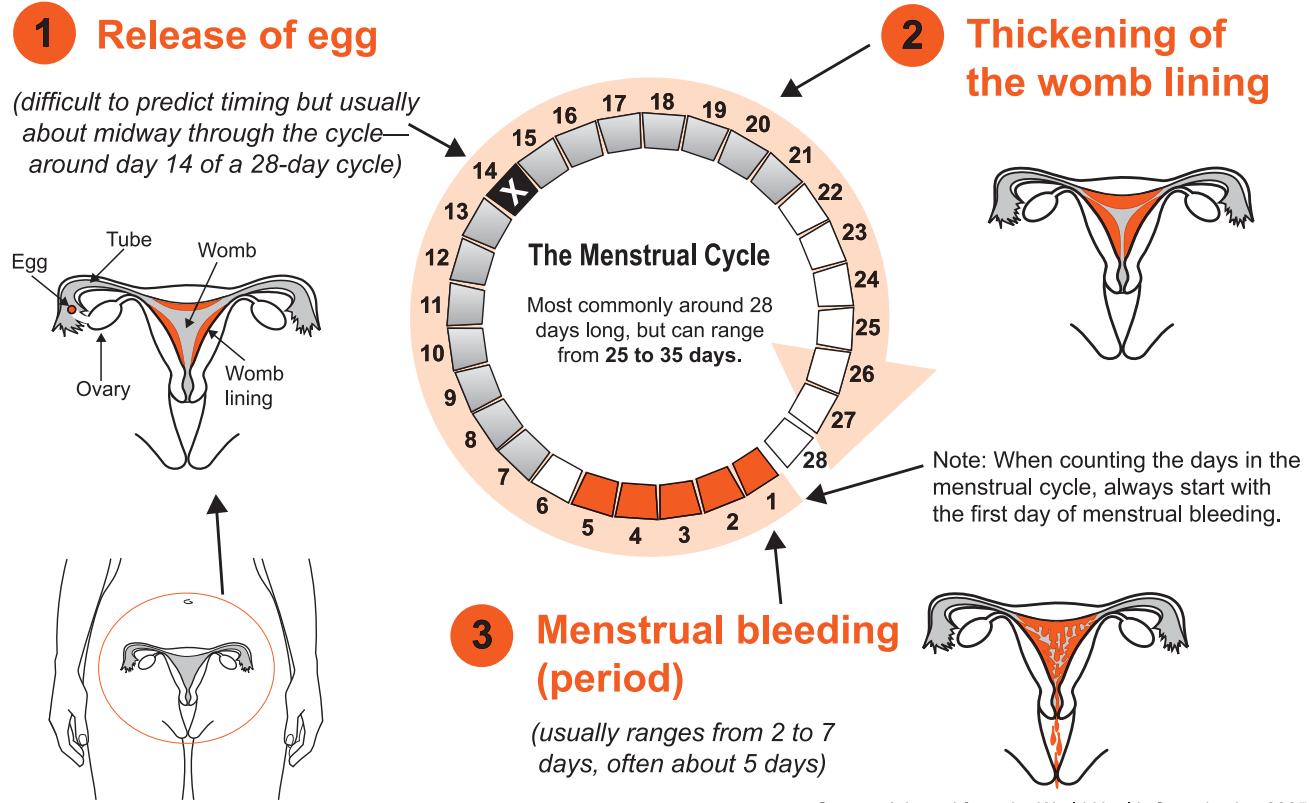


U.S. Agency for
International Development

Published with support from USAID, Global, GH/POP/PEC,
under the terms of Grant No. GPH-A-00-02-00003-00.

A 28-Day Menstrual Cycle

- The FERTILE TIME of the cycle is the day the egg is released and the five days before that.
- For full protection from pregnancy, it is best to use contraception THROUGHOUT THE CYCLE.



Source: Adapted from the World Health Organization 2005 (23)

How does a girl know when she will begin to have periods?

A girl cannot know for sure when she will begin to have periods. However, a girl's first period usually comes about a year after her breasts begin to develop and after her pubic hair becomes coarser and darker.



Do adolescent girls have different cycle lengths than adult women?

The lengths of adolescents' cycles vary more than for adult women, especially in the first two to three years. Cycles become more regular with time. Most adolescents' cycles range between 21 and 45 days. For women in general, 24 to 35 days in length is usual. Menstrual bleeding for adolescents usually lasts between two and seven days, the same as for adult women.

Why do women stop having menstrual periods during pregnancy?

When a fertilized egg attaches to the lining of the womb and starts to develop into an embryo, it signals the body to release certain hormones. These hormones help keep the lining thick and prevent it from being shed as menstrual bleeding. The thickened lining helps protect and nourish the embryo. Later the lining becomes part of the placenta, which protects and nourishes the fetus until birth. These same hormones also stop the ovaries from releasing additional eggs.

Is bleeding just after giving birth the same as menstrual bleeding?

No, this kind of bleeding is not menstrual bleeding because it does not follow the release of an egg. After childbirth, the womb contracts in order to expel the extra blood, tissue, and mucus left over from the pregnancy, and to return to normal size. This bleeding gradually decreases during the weeks following childbirth.



If a woman is not breastfeeding, how soon after childbirth can she get pregnant?

For women who are not breastfeeding, menstrual cycles can start again as soon as three weeks after childbirth. Some women may be able to get pregnant again even before monthly bleeding resumes.



What keeps monthly bleeding from starting again for some breastfeeding women?

Just after childbirth a woman's body releases a hormone that signals her breasts to produce milk for the baby. This hormone also blocks other hormones that would lead to release of an egg from the ovary. If a woman breastfeeds her baby, the baby's active suckling keeps the level of this hormone high, and so she does not release eggs. When the baby's suckling eventually becomes less frequent, her menstrual cycles—and thus her ability to become pregnant—soon return. The time it takes for monthly bleeding to resume cannot be predicted and differs for each woman. It can depend on how frequently and intensely she breastfeeds, her age, how many children she has, and on biological differences among individual women.

When do women usually stop having menstrual cycles permanently?

Most women stop having menstrual cycles—that is, they reach menopause—between the ages of 45 and 55. It is assumed that a woman has reached menopause and can no longer become pregnant when she has not had a menstrual period in 12 months and there is no other biological cause for this.

Why does menopause happen and how long does it last?

Menopause is a natural part of aging. The ovaries gradually stop working, they stop releasing eggs, and monthly bleeding stops. After reaching menopause, women are no longer at risk of pregnancy because they do not produce eggs. The transition to menopause occurs when certain hormonal changes take place in the body. These changes cause irregular menstrual cycles—more or fewer days of menstrual bleeding and changing cycle lengths. The transition to menopause—from the time that menstrual cycles start to become irregular to the time that a woman has her last menstrual period—takes an average of four years.

Hygiene During Monthly Bleeding

What can a woman use during monthly bleeding to absorb the blood?



Women can use homemade or commercial menstrual products (see illustration on left). They can use pieces of cotton cloth, which are either placed on a woman's undergarment or on a homemade belt that wraps around the waist. These cloths can be washed, dried, and used again. Commercial products include pads, tampons, and cups. Menstrual pads also are placed on a woman's undergarment or come with belts that wrap around her waist. They are thrown away after they are used. Tampons are shaped like cylinders and may be available in different thicknesses for light to heavy flow. A woman inserts a tampon into the opening of her vagina. A tampon has a string at the end so that a woman can pull it out of her vagina. A menstrual cup can also be inserted into the vagina. It collects blood but does not absorb it. Some cups can be reused, and others are meant for one-time use. They are made from either silicone rubber or pure gum rubber—similar to the material used to make baby bottle nipples.

How often should menstrual products be changed?

Each woman decides for herself what is comfortable. Menstrual cloths or pads should be changed at least three to five times a day, but more frequent changes may be necessary. The cloth or pad should be changed before it is soaked with menstrual blood. If using menstrual cloths, the woman should wash used cloths as soon as possible and dry them completely before reuse. Tampons should be changed often, at least every four to eight hours. Reusable menstrual cups are emptied two to four times a day and sterilized by placing them in boiling water for about five minutes. Single-use cups can be worn for up to 12 hours and then thrown away.

How often should a woman wash her genital area during monthly bleeding?

A woman should wash the genital area at least once a day. This practice, along with changing menstrual pads or cloths before they are soaked with blood, can help avoid problems such as genital itching and burning during urination.

Bleeding Changes With Contraceptive Use

Which contraceptive methods can change monthly bleeding?

The copper IUD, combined hormonal methods (such as combined oral contraceptives, monthly injectables, the vaginal ring, and the contraceptive patch), and progestin-only methods (such as progestin-only pills, progestin-only injectables, implants, and the hormonal IUD) all can change monthly bleeding.

What kinds of changes to bleeding patterns can these methods cause?

Bleeding changes can range from heavier or longer monthly bleeding to lack of bleeding or spotting at unexpected times during the monthly cycle. Different methods typically cause different changes. (See the last five questions at the end of this section.) Also, the Lactational Amenorrhea Method (LAM)—breastfeeding in a way that reliably postpones the return of fertility—delays the return of monthly bleeding after childbirth.

Is there danger in these changes? Are they signs that some serious problem is developing?

No. Bleeding changes related to contraceptive methods are not harmful. They are not signs of illness. They do not mean that a serious health problem is developing.



Can anything be done if the bleeding changes bother a woman using these contraceptive methods?

Changes to monthly bleeding occur most often in the first few months of using these methods. Sometimes just knowing that they are not harmful and are likely to lessen can be reassuring to a woman. Some kinds of bleeding changes can be treated. If at any time a woman is not satisfied and wants to stop the method, she can switch to a method that better suits her.

Are there contraceptive methods that make bleeding shorter, lighter, and more regular, or that can be used to treat menstrual problems such as heavy bleeding and cramps?

Yes. Combined hormonal methods, which contain both estrogen and progestin hormones, usually make monthly bleeding lighter, shorter, more regular and predictable, and less painful. These methods include combined oral contraceptives, monthly injectables, the patch, and the ring.

Which contraceptive methods are most likely to cause heavy or prolonged bleeding?

Heavy or prolonged bleeding occasionally happens with progestin-only pills and implants. This also is common in the first few months of using an injectable or IUD, but with these methods it usually lessens over time.



Which methods are most likely to cause infrequent or no monthly bleeding?

Infrequent or no monthly bleeding is common with progestin-only pills, progestin-only injectables, and the hormonal IUD. These bleeding changes also occasionally happen with combined oral contraceptive pills, implants, and combined (monthly) injectables.

Which methods are most likely to cause bleeding at unexpected times during the monthly cycle?

Unexpected bleeding or spotting happens sometimes with combined oral contraceptive pills, progestin-only pills, injectables, implants, and IUDs. It is most common during the first few months of use and usually lessens or stops with time.

Are there any contraceptive methods that do not change menstrual bleeding patterns?

Yes. Male and female sterilization and barrier methods (male and female condoms, diaphragms, and spermicides) are contraceptive methods that do not change menstrual bleeding patterns. Also, fertility awareness-based methods, such as the *Standard Days Method* and the *TwoDay Method*®, do not change menstrual bleeding patterns.

Contraceptive Methods That Do Not Change Bleeding



Menstrual Problems

What if a woman suddenly stops having monthly bleeding?

Women do miss a monthly bleeding once in a while, and this is not harmful. It could be caused by stress, minor illness, or weight loss, and sometimes it happens for no apparent reason. Missing a monthly bleeding is most common among girls in the first two to three years after periods start and among women nearing menopause. If a woman normally has regular monthly bleeding and then misses one, however, it could mean that she is pregnant if she had unprotected sex or was not using a contraceptive method correctly and consistently. She should look for other signs and symptoms of early pregnancy, such as frequent urination, morning nausea, or fatigue, and see a health care provider if she thinks that she could be pregnant. Also, some hormonal contraceptive methods cause infrequent monthly bleeding or stop bleeding altogether. This is normal and not harmful. It is not likely to be due to pregnancy if the woman has been using her method correctly and consistently.

What if a woman has monthly bleeding only a few times a year?

This may be due to stress, intense exercise, weight loss, inadequate nutrition, or because she is nearing menopause. A mild imbalance in a woman's hormone levels also can cause her to have no monthly bleeding sometimes. If her normal bleeding pattern changes and she has no monthly bleeding for several months, and the change is not related to contraceptive use, pregnancy, or menopause, she should see a health care provider.

What if a woman is bleeding more than usual?

If a woman is bleeding for longer than eight days or is bleeding twice as much as usual for her, she should see a health care provider. Women usually bleed for two to seven days and lose between 10 ml to 35 ml of blood per cycle. In practical terms, each woman should be aware of what is normal for her. She can count how many menstrual cloths or pads she usually uses during monthly bleeding over a few months to determine what is typical for her.

What if a woman has spotting in between monthly bleeding?

Some women bleed a little during the middle of their cycles, around the time when the egg is released from the ovary. This is nothing to worry about. Combined oral contraceptive pills and progestin-only pills may cause spotting. This, too, is not harmful. If a woman who is not using such a method has spotting or bleeding at other times than mid-cycle, she should see a health care provider, especially if after menopause or if she is approaching menopause.

What causes menstrual cramps?

Menstrual cramps happen during monthly bleeding when the lining of the womb breaks down and the womb contracts to help the blood leave the body. Cramps are one of the most common menstrual problems that women face. Cramps are more severe or last longer for some women than for others.

Are there ways to manage menstrual cramps?

Nonsteroidal anti-inflammatory drugs (such as ibuprofen and aspirin) can help ease the pain of menstrual cramps. Heating pads or hot water bottles and warm baths also can help soothe the pain, as can moderate exercise.



What is premenstrual syndrome (PMS)?

PMS is a group of symptoms that some women have one to two weeks before their monthly bleeding starts. These symptoms can include mood swings, breast soreness, bloating, acne, cravings for certain foods, increased hunger and thirst, and fatigue. The symptoms usually disappear within a few days after the start of a woman's monthly bleeding.

Are there ways to manage PMS?

The best way to deal with symptoms of PMS is to exercise, eat a variety of healthy foods, get enough rest, and avoid caffeine, salty foods, and stressful situations. Some medications might help, such as diuretics (medicines that increase urination) to help get rid of extra fluid in the body or combined oral contraceptives.

When should a woman see a health care provider for bleeding problems?

A woman should see a health care provider if:

- She has not started monthly bleeding by age 16.
- Her monthly bleeding pattern changes suddenly. (However, it is normal for users of hormonal contraceptive methods and copper IUDs to have changes in their bleeding patterns after starting their method, especially in the first several months.)
- Her monthly bleeding has stopped suddenly, and this is not a normal effect of a contraceptive method that she is using.
- She has severe pain during her monthly bleeding.
- She has bleeding after sex.
- She bleeds for longer than eight days.
- She loses twice as much blood as she usually does.
- She bleeds at unexpected times (more than just a few drops outside of regular monthly bleeding), especially if she is getting close to menopause and is not using a hormonal contraceptive method.
- Her monthly bleeding is far apart (more than 35 days apart in adult women or more than 45 days in adolescents).
- Her monthly bleeding is close together (less than 24 days apart in adult women or less than 21 days in adolescents).
- She is using a copper IUD and has infrequent or no monthly bleeding. (This is not common with copper IUD use and probably not related to the IUD.)
- She is using combined oral contraceptives and she has heavy or prolonged bleeding. (This is not common with combined pills and probably not related to the pills.)



Subscribing to *INFO Reports*

There are three ways that you can make sure to receive ALL future issues of *INFO Reports*:

1. By e-mail: To receive *INFO Reports* issues fastest, please send an e-mail message with "Electronic subscription to *INFO Reports*" in the "Subject" line to inforeports@infoforhealth.org and include your full name, complete mailing address, e-mail address, and client id (if known; found on top line of mailing label). We will send you future issues electronically, as e-mail attachments. (If you would prefer to just receive an e-mail notification that a new issue has been published online, please type "Electronic notification to *INFO Reports*" in the "Subject" line.)
2. By surface mail: To receive print copies of *INFO Reports*, please send an e-mail message with "Print subscription to *INFO Reports*" in the "Subject" line to inforeports@infoforhealth.org and include your full name, complete mailing address, e-mail address, and client id (if known; found on top line of mailing label). English reports are available in print or electronic format; non-English reports are available in electronic format only. Alternatively, write to: Orders, *INFO Reports*, Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health, 111 Market Place, Suite 310, Baltimore, MD 21202, USA.
3. By the *INFO* Web site: Go to <http://www.infoforhealth.org/inforeports/infoelectsub.php> and follow instructions for subscribing.

Please Note: If you do not want to subscribe but wish to order INDIVIDUAL issues of *INFO Reports* and other publications from the Center for Communication Programs at the Johns Hopkins Bloomberg School of Public Health, please send an e-mail message to: orders@jhuccp.org, or go online to our order form at: <http://www.jhuccp.org/cgi-bin/orders/orderform.cgi>, or write to Orders, Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health, 111 Market Place, Suite 310, Baltimore, MD 21202, USA.

To order the companion *Population Reports*, "When Contraceptives Change Monthly Bleeding"

Please send an e-mail message to: orders@jhuccp.org, or go to our online order form at: <http://www.jhuccp.org/cgi-bin/orders/orderform.cgi>, or write to Orders, Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health, 111 Market Place, Suite 310, Baltimore, MD 21202, USA.

Sources

The links included in this report were up-to-date at the time of publication.

1. ADAMS HILLARD, P.J. Menstruation in young girls: A clinical perspective. *Obstetrics and Gynecology* 99(4): 655–662. Apr. 2002.
2. CAMPBELL, O.M. and GRAY, R.H. Characteristics and determinants of postpartum ovarian function in women in the United States. *American Journal of Obstetrics and Gynecology* 169(1): 55–60. Jul. 1993.
3. CENTER FOR YOUNG WOMEN'S HEALTH. Health information for teens. <<http://www.youngwomenshealth.org/healthinfo.html>>. Children's Hospital Boston, Jul. 25, 2006.
4. CRONIN, T.J. Influence of lactation upon ovulation. *Lancet* 2(7565): 422–424. Aug. 24, 1968.
5. CUNNINGHAM, G., GILSTRAP, L.C., LEVENO, K.J., BLOOM, S.L., and HAUTH, J.C. *Williams Obstetrics*, 22nd ed. McGraw-Hill Companies, Mar. 2005. 1600 p.
6. FLUG, D., LARGO, R.H., and PRADER, A. Menstrual patterns in adolescent Swiss girls: A longitudinal study. *Annals of Human Biology* 11(6): 495–508. Nov./Dec. 1984.
7. FRANZBLAU, N. and WITT, K. Normal and abnormal puerperium. <<http://www.emedicine.com/med/topic3240.htm>>. eMedicine from WebMD, Aug. 24, 2006.
8. GRAY, R.H., CAMPBELL, O.M., ZACUR, H.A., LABBOCK, M.H., and MACRAE, S.L. Postpartum return of ovarian activity in nonbreastfeeding women monitored by urinary assays. *Journal of Clinical Endocrinology and Metabolism* 64(4): 645–650. Apr. 1987.
9. HATCHER, R.A. and NAMNOUM, A.B. The menstrual cycle. In: Hatcher, R.A., Trussell, J., Nelson, A.L., Stewart, F.H., Cates, W. Jr., Guest, F., and Kowal, D. *Contraceptive Technology*. 18th ed. New York, Ardent Media, Inc., Oct. 2004. p. 63–72.
10. MCNEILLY, A.S. Lactation and fertility. *Journal of Mammary Gland Biology and Neoplasia* 2(3): 291–298. Jul. 1997.
11. MORABIA, A. and COSTANZA, M.C. International variability in ages at menarche, first livebirth, and menopause. World Health Organization collaborative study of neoplasia and steroid contraceptives. *American Journal of Epidemiology* 148(12): 1195–1205. Dec. 15, 1998.
12. MTAWALI, G., PINA, M., ANGLE, M., and MURPHY, C. The menstrual cycle and its relation to contraceptive methods: A reference for reproductive health trainers. IntraHealth, 1997. 90 p.
13. NATIONAL WOMEN'S HEALTH INFORMATION CENTER. Menstruation and the menstrual cycle. <<http://www.4woman.org/faq-menstru.htm>>. United States Department of Health and Human Services, Jul. 25, 2006.
14. PRIOR, J.C. Very heavy menstrual flow. <http://www.cemcor.ubc.ca/articles/misc/very_heavy_menstrual_flow.shtml>. Centre for Menstrual Cycle and Ovulation Research, Jul. 25, 2006.
15. SPEROFF, L., GLASS, R.H., and KASE, N.G. *Clinical gynecologic endocrinology and infertility*. 5th ed. Baltimore, Williams and Wilkins, 1994.
16. STRICKLAND, J.L. and WALL, J.W. Abnormal uterine bleeding in adolescents. *Obstetrics and Gynecology Clinics of North America* 30(2): 321–335. Jun. 2003.
17. TAY, C.C., GLASIER, A.F., and MCNEILLY, A.S. Twenty-four hour patterns of prolactin secretion during lactation and the relationship to suckling and the resumption of fertility in breastfeeding women. *Human Reproduction* 11(5): 950–955. May 1996.
18. THOMAS, F., RENAUD, F., BENEFICE, E., DE MEEUS, T., and GUEGAN, J.F. International variability of ages at menarche and menopause: Patterns and main determinants. *Human Biology* 73(2): 271–290. Apr. 2001.
19. WIDHOLM, O. and KANTERO, R.L. A statistical analysis of the menstrual patterns of 8,000 Finnish girls and their mothers. *Acta Obstetricia et Gynecologica Scandinavica* 14 (Suppl 14): 1–36. 1971.
20. WILCOX, A.J., DUNSON, D., and BAIRD, D.D. The timing of the "fertile window" in the menstrual cycle: Day specific estimates from a prospective study. *British Medical Journal* 321(7271): 1259–1262. Nov. 18, 2000.
21. WORLD HEALTH ORGANIZATION (WHO). Research on the menopause in the 1990s: Report of a WHO scientific group. Geneva, WHO Scientific Group on Research on the Menopause in the 1990s, 1996. (WHO Technical Report Series 866) 116 p. (Available: http://whqlibdoc.who.int/trs/WHO_TRS_866.pdf)
22. WORLD HEALTH ORGANIZATION (WHO). Nutrition in adolescence: Issues and challenges for the health sector. Geneva, WHO, 2005. 115 p. (Available: http://cdrww.who.int/child-adolescent-health/New_Publications/ADH/ISBN_92_4_159366_0.pdf)
23. WORLD HEALTH ORGANIZATION (WHO) and JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH CENTER FOR COMMUNICATION PROGRAMS, INFORMATION AND KNOWLEDGE FOR OPTIMAL HEALTH (INFO). Decision-making tool for family planning clients and providers. Baltimore and Geneva, WHO and INFO, 2005. (WHO Family Planning Cornerstone) (Available: http://www.who.int/reproductive-health/family_planning/tool.html)
24. WORLD HEALTH ORGANIZATION (WHO) AND THE JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH (JHSPH) CENTER FOR COMMUNICATION PROGRAMS. Family planning: A global handbook for providers. Baltimore, JHSPH, The INFO Project, and WHO, 2006. (Forthcoming)
25. WORLD HEALTH ORGANIZATION (WHO) TASK FORCE ON METHODS FOR THE NATURAL REGULATION OF FERTILITY. The World Health Organization multinational study of breastfeeding and lactational amenorrhea: Factors associated with the length of amenorrhea. *Fertility and Sterility* 70(3): 461–471. Sep. 1998.

Illustrations by Johns Hopkins' CCP: page 1, Rita Meyer; page 2, Rafael Avila; page 3, top: Rita Meyer, bottom: Rafael Avila; page 4, Rafael Avila; page 5, Rita Meyer and Fran Mueller; page 6, Rita Meyer and Mark Beisser; page 7, Rafael Avila.