## **ABOUT THIS ACTIVITY**

- Time: 25-30 minutes
- **Objectives:** By the end of this session, participants will be able to:
  - Describe the stages of the female reproductive system;
  - Identify different areas of the female reproductive system.
- M In This Activity You Will...
  - Lead a discussion about the stages of female reproductive system (5 minutes)
  - Ask participants to pair up and fill in blank diagrams (5 minutes)
  - Conduct lecturette/discussion about the female reproductive system (15 -20 minutes)

### Materials:

- Handouts Female Reproductive System
- Handout Menstruation, Menopause, HIV (can be downloaded from http:// www.hivlawandpolicy.org/resources/ view/294)
- Handout 4 Essential Stages of Female Reproduction
- Trainer Sheet Definitions
- **N** Preparation:
  - Print handouts

## Instructions

- 1. Start off by asking participants: how many holes do we have down there (by down there, we mean female reproductive system)?
- 2. Talk about how many holes we have down there...vagina, urethra, and anus.

Explain that the clitoris is not a hole. Nothing can go into it and nothing can come out of it. It is an area that is connected to lots of nerves which, when aroused, create sensation.

- 3. Pass out 4 Essential Stages of Female Reproduction handout. Explain to the group that the female body goes through 4 essential stages. Ask them what these changes are and what happens at each.
- a. Puberty- age 8-13; develop breasts, hormones, pubic hair; menstruation begins
- b. Reproduction Puberty till age 45; pregnancy can happen
- c. Perimenopause age 40-60 (last 2 years or so); time right before menopause where body is getting low on hormone production, irregular periods, hot flashes, night sweats, mood swings, dry vagina and other side effects can occur.
- d. Menopause average age 45 or when full hysterectomy is performed; menstruation ends; pregnancy cannot occur; body stops producing estrogen
- 4. Ask the group to take a few minutes to complete the blank diagrams of the female reproductive system, on the Female Reproductive System handouts. Work in pairs.
- 5. Review with the group the picture and process of the female reproductive system. Pass out remaining handout.

\* This module comes from the Lotus Women's Peer Education Training Manual, Center for Health Training and Women Organized to Respond to Life Threatening Diseases (WORLD), 2008.

### Review Female Reproductive System

- 1. Most women have two ovaries; one on each side of the uterus and are connected by fallopian tubes.
- 2. Our ovaries contain a set number of eggs. Ovaries at birth contain 300,000-400,000 follicles, which are balls of cells with an immature egg in the center. This is the maximum number of follicles a female will ever have. However, only approximately 400 of these eggs will actually mature and ovulate while the rest degenerate.
- 3. One by one, the eggs in a woman's ovaries get used up. When there are no more eggs, she does not have a period. This is called menopause. Once they run out, we cannot make anymore. Men (most) on the other hand can produce sperm until they are very old. Women can also damage or loose our eggs over our lifetime by drinking, smoking, substance abuse, medications such HIV medications, stress, cancer treatments and other health issues.
- 4. For women on a normal cycle, each month ONE egg is released by one of the ovaries. As soon as the egg is released, a lining of tissue and blood is also formed in the uterus.
- 5. The purpose of the lining is so that the woman can hold the baby in her womb if she were to get pregnant.
- 6. Ovarian Hormones are also released when the eggs is released.

**Estrogen** – Prepares the body for pregnancy. Secreted by the follicle and causes the following changes:

• Uterine lining thickens (endometrial cells multiply and "proliferate")

- Cervical secretions become slippery and nourish the sperm
- Cervix softens, lifts and opens
- Resting body temperature is low

**Progesterone** – Sustains pregnancy. Secreted by the corpus luteum and causes the following changes:

- Uterine lining thickens (endometrial cells grow and store nutrients to offer an appropriate condition for implantation of fertilized egg)
- Cervical secretions thicken to keep bacteria and other sperm out
- Cervix firms, lowers and closes
- Resting body temperature is higher
- 7. The egg travels through the fallopian tube. The egg takes approximately 2 weeks to travel from the ovary to the uterus. This period is called ovulation.
- 8. In a woman (with a fairly regular menstrual cycle), ovulation occurs in approximately 14-15 days before her next menstrual period is due. Some women do not have a regular cycle due to various changes in their lives, including emotional stress, drug use, HIV, etc. If you have an irregular cycle, ovulation will also be irregular and unpredictable.
- 9. Ovulation is the time that a woman is most likely to get pregnant. You can get pregnant if you have sex during or near the time of ovulation.
- 10. During sex, sperm are released into the vagina. They travel up through the cervix, through the uterus, and out up to the tubes.
- 11. Around the time of ovulation, there is thin mucus in the cervix that helps the sperm move.
- 12. If a sperm meets an egg in the tube, fertilization (the joining of egg and sperm) can occur. The fertilized egg then moves through the tube into the uterus and

becomes attached there to grow into a fetus.

- 13. If the egg and the sperm do not meet during the ovulation period, the egg is absorbed into the body and the lining in the uterus break apart and come out of the vaginal canal. This is called menstruation. Cramps, changes in mood, breast tenderness, etc may also result during this period due to menstruation.
- 14. In her period a woman may notice clumps as well as blood. The clumps are not blood clots. They are pieces of the tissue that was in the uterus lining. It is very normal to see these clumps.
- 15. If a woman has her "tubes tied", the sperm and egg cannot join to form a fetus but she will continue to have her periods.
- 16. If a man has a vasectomy, he cannot impregnate (get a woman pregnant) BUT he can still transmit STDS and HIV through the semen. Vasectomy is a simple procedure. It makes men sterile by keeping sperm (the reproductive cells in men) out of semen — the fluid that spurts from the penis during sex.

Sperm are made in the testes. They pass through two tubes called the vasa deferentia to other glands and mix with seminal fluids to form semen. Vasectomy blocks each vas deferens and keeps sperm out of the seminal fluid. The sperm are absorbed by the body instead of being ejaculated. Without sperm, your "cum" (ejaculate) cannot cause pregnancy.

Vasectomy does not affect masculinity. And it will not affect your ability to get hard and stay hard. It also will not affect your sex organs, sexuality, and sexual pleasure. No glands or organs are removed or altered. Your hormones and sperm continue being produced. Your ejaculate will look just like it always did. And there will be about as much of it as before.

- 17. Remember that pre-ejaculation or pre-cum can get a woman pregnant as well as transmit STDS and HIV.
- 18. A woman cannot get pregnant if the semen/sperm enters the woman's body through the mouth during oral sex BUT she can get certain STDs in her mouth as we will talk about in the next section.
- 19. Some women because of complications, cancer, diseases or even naturally have less eggs or no eggs at all in their ovaries. They women reach menopause at a much earlier age then what the age an average woman does at 40-60 years of age.
- 20. Some women for health and personal reasons may have a surgical procedure called a hysterectomy. There are several types of hysterectomies.
- 21. A complete hysterectomy is the removal of the uterus, cervix, fallopian tubes and ovaries leads to menopause.
- 22. A partial hysterectomy is the removal of the uterus and the cervix. A woman will continue to ovulate but will have no menstrual periods.
- 23. An oophorectomy is the removal of the ovaries and is usually done in connection with a hysterectomy.

## Summary

Wrap up by reminding the group that they don't have to remember all of the terms discussed, they can refer to their handouts. What's most important is that they have a basic understanding of what the parts are, what they do, and how to take care of them.

<sup>&</sup>lt;sup>6</sup> This module is part of the online toolkit *Building Blocks to Peer Success*. For more information, visit http://www.hdwg.org/peer\_center/training\_toolkit. This module comes from the Lotus Women's Peer Education Training Manual, Center for Health Training and Women Organized to Respond to Life Threatening Diseases (WORLD), 2008.

### DEFINITIONS

**Vagina:** The canal in the female is used for 3 purposes. It is used for sex, birthing (baby comes out of this canal) and menstrual period is released from the body through this canal.

**Clitoris:** The center of sexual arousal for women. The area is made of many nerves and it is sensitive to stimulation for the women. The clitoris is not a hole or an opening but an area with nerves.

**Uterus:** The pear-shaped female organ, which houses the fertilized egg and the developing fetus (baby). The uterus is also known as the "womb".

**Cervix:** The cervix is the base of the uterus. It is located at the end of the vagina. In the cervix thin mucus forms that help sperm travel through for the fertilization of the egg. The cervix is very sensitive to infection. This is also the area which the doctor checks (for infections) when doing a pap smear. The younger we are, the more sensitive the cervix is to developing infections.

**Ovaries:** The primary organ of the reproductive system. We have two ovaries which are sexual glands that hold our eggs. The ovaries also produce the female hormones estrogen and progesterone. Hormones provide essential signals and functions for the body to operate properly.

**Egg:** The female reproductive cell released by the ovaries, which after fertilization (meeting with the sperm) develops into the beginning of human life (a baby).

**Fallopian tube:** Tubes or branches connected to the uterus. After the egg is released by the ovaries it moves through the fallopian tube and then goes to the uterus.

Urethra: A canal that transfers urine from the bladder to the outside.

**The G-Spot (Gafenberg spot)**: An area that has brought much controversy. The G-spot is located on the front wall of the vagina. It is described as being about the size of a small bean during its unaroused state and growing to the size of a dime during arousal. Stimulation may lead to orgasm and sometimes resulting in the ejaculation of a clear fluid from the urethra.

Anus: The opening of the large intestine that carries waste to the outside.

## FEMALE REPRODUCTIVE SYSTEM

How many holes do we have down there (by down there, we mean female reproductive system)?

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- 1. Puberty
- 2. Reproduction
- 3. Perimenopause
- 4. Menopause

### What Happens During the 4 Stages

- 1. Most women have two ovaries; one on each side of the uterus and are connected by fallopian tubes.
- 2. Our ovaries contain a set number of eggs. Ovaries at birth contain 300,000-400,000 follicles, which are balls of cells with an immature egg in the center. This is the maximum number of follicles a female will ever have. However, only approximately 400 of these eggs will actually mature and ovulate while the rest degenerate.
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## **4 ESSENTIAL STAGES OF FEMALE REPRODUCTION (CONT.)**

**Progesterone** – Sustains pregnancy. Secreted by the corpus luteum and causes the following changes:

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### **4 ESSENTIAL STAGES OF FEMALE REPRODUCTION (CONT.)**

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Sperm are made in the testes. They pass through two tubes called the vasa deferentia to other glands and mix with seminal fluids to form semen. Vasectomy blocks each vas deferens and keeps sperm out of the seminal fluid. The sperm are absorbed by the body instead of being ejaculated. Without sperm, your "cum" (ejaculate) cannot cause pregnancy.

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WOMEN



Anne Monroe, MD

There is a growing need for research about the effects of HIV on the menstrual cycle and menopause. HIV positive women and their care providers need to know what to expect at all life stages, and need strategies for optimal long-term care in the HAART era. Once the impact of HIV on menopause is better understood, clinical management can be individually tailored to avoid long-term complications such as osteoporosis and cardiovascular disease.

### The Menstrual Cycle

There is a wide range of "normal" with regard to menstruation. A normal menstrual period ranges from two to six days, with an average length of four days. A mentrual cycle generally concludes in a period every 21 to 35 days, with an average loss of 40 mL of blood per period.

Normal menstruation is characterized by cyclic changes in the levels of hormones produced by the pituitary gland (luteinizing hormone [LH] and follicle stimulating hormone [FSH]) and by the ovaries (estrogen and progesterone). (See "HIV and Hormones" in the Summer 2004 issue of *BETA*.)

Menstrual irregularities are common in both HIV positive and HIV negative women. Amenorrhea is the absence of menstruation. Primary amenorrhea refers to a woman older than 16 years who has never menstruated, while secondary amenorrhea is the absence of menses for three to six months or longer in a woman who previously menstruated. Menorrhagia refers to the loss of more than 80 mL of blood during each cycle of regular length, whereas dysfunctional uterine bleeding (DUB) is defined as loss of more than 80 mL of blood during irregular cycles; both menorrhagia and DUB may result in anemia, or reduced number of red blood cells. Dysmenorrhea refers to pain during menses, which may be a crampy discomfort with no underlying gynecologic condition, or may stem from endometriosis (growth of endometrium, or uterine lining tissue, outside of the uterus) or pelvic inflammatory disease (PID).

Many conditions can cause abnormal menstrual bleeding. Uterine fibroids may cause heavy or prolonged periods. Genital tract infections may cause abnormal bleeding, usually accompanied by other signs of infection, such as pain, vaginal discharge, or fever. Cancer in the genital tract (cervical cancer, endometrial cancer) may also cause bleeding. Other medical conditions, including thyroid abnormalities and low platelet counts, can interfere with regular menstrual cycles. Extreme

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weight loss or being underweight can cause acquired gonadotropin releasing hormone deficiency, eliminating the stimulus for LH and FSH release and resulting in amenorrhea. Hormonal dysfunction that disrupts ovulation can also lead to abnormal bleeding, which may be more common in HIV positive women, although studies are inconclusive.

Use of drugs (including methadone) may interfere with hormonal regulation and cause abnormal bleeding. Some medications commonly used by HIV positive women, such as contraceptives and megestrol acetate (Megace), may also interfere with normal menstruation. Antiretroviral agents may also contribute to abnormal bleeding; for example, one case series reported heavy menstrual bleeding associated with full-dose ritonavir (Norvir) in a small sample of young women.

## Menstrual Irregularities in Women with HIV

HIV positive women and their care providers should be aware of changes in the menstrual cycle that may be related to HIV and its treatment. Many studies have tried to sort out the effects of HIV on the menstrual cycle, with contradictory results. Much of the research on menstrual abnormalities in women with HIV/AIDS was conducted during the early years of the epidemic, when women more often had advanced disease accompanied by wasting. Menstrual irregularities in women on antiretroviral therapy with well-controlled HIV are less well understood.

In a study of the effect of HIV infection on menstrual cycle length, published in the May 2000 issue of the Journal of Acquired Immune Deficiency Syndromes, Sioban Harlow, PhD, and colleagues collected data from 802 HIV positive and 273 HIV negative women. The women completed monthly menstrual calendars and answered questions regarding antiretroviral therapy and recreational drug use. The researchers examined relationships between viral load and CD4 cell count and menstrual cycle length. Overall, HIV infection did not increase the likelihood of having a cycle longer than 40 days (i.e., a longer interval between periods). However, HIV positive women with more advanced immunosuppression (CD4 counts less than 200 cells/mm<sup>3</sup>) were more likely to have long cycles. The researchers concluded that HIV serostatus had little effect on menstrual cycle length, and that other factors-for example, advanced disease, age, race, malnutrition, wasting, and substance use-were more important.

In an earlier study, Keith Chirgwin, MD, and colleagues evaluated 248 HIV positive and 82 demographically similar HIV negative women, and found that women with HIV were more likely to experience amenorrhea for more than three months and had intervals greater than six weeks between menstrual cycles. However, menstrual irregularities were not found to be significantly associated with HIV disease status in this study.

Tedd Ellerbrock, MD, and colleagues interviewed 197 HIV positive and 189 HIV negative women to assess the effect of HIV on menstruation. The researchers collected data retrospectively to identify trends in menstrual cycles over the previous year. The study found no major differences between the two groups, and no relationship between degree of immunosuppression and menstrual irregularities. However, the design of this study was not ideal, as it required that women recall characteristics

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### Tests for Diagnosing Menstrual Abnormalities

A full history and physical give the health-care practitioner clues to the underlying cause(s) of abnormal menstrual bleeding and directs all additional testing. These tests and screenings may include:

#### Blood tests

- Complete blood count (CBC) to screen for anemia, low platelet count
- Endocrine studies to check various hormone levels for abnormalities
- · Coagulation studies to check blood clotting

#### Pelvic exam

- Collection of samples for sexually transmitted infection testing
- · Pap smear to screen for cervical cancer
- · Palpation of uterus and ovaries to check for abnormalities

#### Pelvic ultrasound (if indicated)

An ultrasound probe is inserted in the vagina to assess uterus size, presence of fibroids, thickness of the uterine lining, ovarian abnormalities, and presence of endometriosis.

#### Endometrial biopsy (if indicated)

A thin tube is inserted through the cervix into the uterus and samples from the endometrium (uterine lining) are collected to test for abnormalities, such as inflammation or cancer.

of their menstrual cycles for the entire year prior to the interview.

Wasting syndrome associated with HIV is known to affect the menstrual cycle, as also occurs in HIV negative women—such as athletes and malnourished women who lose a significant percentage of body fat or lean body mass. For example, a small study by Steven Grinspoon, MD, and colleagues found that among 31 HIV positive women with varying degrees of wasting, 20% overall had experienced amenorrhea. Among the women with amenorrhea, muscle mass was significantly lower, as was the total level of estradiol (a form of estrogen). The study revealed a higher rate of amenorrhea in women with less than 90% of ideal body weight.

### Menopause

Menopause is a natural, normal life stage. It is defined as the end of menses and is characterized by 12 months without a menstrual period. The hormonal changes associated with menopause include elevation of FSH and LH levels and decreased estrogen levels. In the United States, the final menstrual period occurs at an average age of 51 years. There is evidence supporting a younger age of menopause onset (48 years) in African-American women.

A diagnosis of menopause can be made in women over the age of 45 years who have stopped menstruating for at least one year. Menopause is a clinical diagnosis; no diagnostic tests are necessary. However, in younger women who stop menstruating and are not pregnant, hormone testing for premature ovarian failure should be performed.

Women beginning the menopausal transition (perimenopause) may have irregular cycles with either light or heavy bleeding. They may also experience hot flashes, a heat sensation that starts on the upper face or chest and can spread throughout the entire body. Hot flashes at night may be particularly troublesome if they disturb sleep. Another common symptom of menopause resulting from decreased estrogen production is vaginal thinning and dryness, which increase in prevalence as women age. Thinning of the vaginal wall may cause pain during sexual intercourse.

Other menopausal symptoms include breast pain or tenderness—more common during the early menopausal transition than in late menopause—and mood changes, such as depression. Other mood-related symptoms may include nervousness, irritability, and frequent mood fluctuations. Some women experience forgetfulness and impaired concentration. Long-term physiological changes associated with menopause include a higher risk of osteoporosis (bone thinning) and cardiovascular disease.

### HIV and Menopause

As women with HIV live longer thanks to effective treatment, more research is needed on the interactions between HIV disease, antiretroviral therapy, and menopause. More than ever, HIV positive women need support and strategies for dealing with the changes of menopause. Considerable research has explored the relationship between menopause and HIV, but this too has yielded inconsistent results.

One large study examined the relationship between HIV disease and onset of menopause. Ellie Schoenbaum, MD, and colleagues examined the effects of HIV infection, HAART, street drug use, and immune status on age of onset of menopause. Their study group included 571 women, half of whom were HIV positive. Half the women in both the HIV positive and HIV negative groups used recreational drugs, and 90% were current or former smokers. About half were African-American, 40% were Latina, and 10% were white. In this population with high rates of drug use, the average age of menopause onset was 46 years in the HIV positive group and 47 years in the HIV negative group.

The likelihood of early menopause rose with increasing degree of immunosuppression. In women with CD4 counts less than 200 cells/mm<sup>3</sup>, the mean age of onset of menopause was 42.5 years. Women with low levels of physical activity were also at risk for earlier onset of menopause. This study showed no association between low body mass index (BMI) or cigarette smoking and early onset of menopause, contrary to some other epidemiological studies. There was also no association observed in this study between HAART use and earlier onset of menopause.

Clearly, more research into the effect of HIV on onset of menopause is necessary. The HIV Menopause Clinic—the first of its kind in the U.S.—was founded by Susan Cu-Uvin, MD, director of the Miriam Hospital's Immunology Center in Providence, Rhode Island. The

### Medications Used to Prevent or Reverse Osteoporosis

Bisphosphonates: alendronate (Fosamax), risedronate (Actonel), ibandronate (Boniva)

Selective estrogen receptor modulators (SERMs): raloxifene (Evista), tamoxifen (Nolvadex)

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clinic is currently collecting observational data as a first step toward large-scale research on menopause in HIV positive women.

In addition, numerous studies are underway to determine the effects of HIV infection and antiretroviral therapy on the risk of developing cardiovascular disease and osteoporosis. These effects may be compounded in HIV positive menopausal women on HAART.

#### **Osteopenia and Osteoporosis**

In the February 20, 2004, issue of *Acquired Immune Deficiency Syndromes*, Sara Dolan, NP, and colleagues report on a study comparing the risk of osteopenia—bone thinning, a precursor to osteoporosis (more severe bone atrophy)—in HIV positive and HIV negative women. They found that women with HIV were more likely to have osteopenia, even after controlling for age and BMI. Prior exposure to antiretroviral therapy did not appear to have any significant effect on bone density. The study also found that abnormal menstrual function was associated with lower bone density, and that women who maintained their baseline weight were more likely to maintain their bone mass, compared with those who had HIV-related wasting.

A study by Julia Arnsten, MD, and colleagues with the U.S. Menopause Study, published in the April 1, 2006, issue of *Qinical Infectious Diseases*, analyzed data from 263 HIV positive and 232 HIV negative women; the median age was 44, most were pre-menopausal, and roughly three-quarters were on HAART. Overall, the HIV positive women had lower bone mineral density (BMD) in their hips and lumbar spines: 27% of the HIV positive women had low BMD, versus 19% of the HIV negative participants.

#### **Cardiovascular Risk**

Post-menopausal women have an increased risk of cardiovascular disease as estrogen levels decrease. HIV positive people on antiretroviral therapy are also at increased risk of cardiovascular disease, as certain antiretroviral medications (especially protease inhibitors) can lead to elevations in low-density lipoprotein (LDL, or "bad") cholesterol and triglycerides. This side effect is quite common: multiple studies have shown that up to 20% of patients on HAART develop hyperlipidemia. Antiretroviral drugs may also cause insulin resistance and diabetes mellitus (impaired glucose tolerance), which in turn increase the risk of heart disease.

#### Management of Menopause

Although menopause is a natural process, many women seek medical assistance to manage the symptoms of menopause, both short-term symptoms such as hot flashes and vaginal dryness and more serious long-term complications such as elevated risk of osteoporosis and cardiovascular disease.

Not long ago, it was widely believed that hormone replacement therapy (HRT)—replacing estrogen, with or without the addition of progesterone—could safely alleviate



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menopausal symptoms while at the same time helping women avoid the detrimental long-term effects of reduced estrogen levels.

In recent years, however, data from large longitudinal studies have shown that the risks of HRT outweigh the benefits for many women. The Women's Health Initiative (WHI) is a group of studies designed to investigate longterm HRT. One study evaluated combined estrogen/progestin (synthetic progesterone) therapy versus placebo in more than 160,000 menopausal women, with an average follow-up period of more than five years.

In 2002, the estrogen/progestin arm of the study was discontinued after it was shown that women receiving long-term combination HRT had an increased risk of cardiovascular disease, cerebrovascular disease (stroke), deep vein thrombosis (blood clots), and breast cancer. The study did, however, reveal some beneficial effects associated with HRT: decreased rates of bone fractures and colon cancer. The estrogen-only arm of the study (which included women who had received hysterectomies and therefore were not at risk for uterine cancer) was later stopped after data showed that estrogen replacement did not reduce the risk of heart attack and slightly raised the risk of stroke.

#### Symptom Management

Acute symptoms often improve spontaneously as the hormonal fluctuations of perimenopause and early menopause level out. Women with severe hot flashes may find relief through short-term, low-dose estrogen/progestin HRT.

Alternatives to HRT for hot flashes include using a selective seratonin reuptake inhibitor (SSRI) antidepressant, most commonly venlafaxine (Effexor). Some women use soy products or herbal remedies such as black cohosh (Cimicifuga racemosa) or evening primrose (Oenothera biennis)—which contain estrogen-like compounds known as phytoestrogens-to alleviate hot flashes, bloating, and mood swings. Dr. Cu-Uvin notes that there is conflicting evidence from clinical trials about the effectiveness of herbal therapies, but for her patients who wish to try soy products, she recommends 40-80 mg of isoflavones taken daily for up to six months. (It is essential, however, for an HIV positive woman to consult with her own health-care provider before beginning a supplement regimen, as some herbal and dietary supplements can interact with antiretroviral medications and other drugs.)

One solution for vaginal dryness and thinning is the use of topical estrogen creams or lubricants during sexual intercourse. There is also an estrogen-releasing silicone ring (Estring) that can be inserted in the vagina and worn for three months at a time to alleviate the symptoms of vaginal atrophy. Local administration of estrogen is not associated with the same risks as systemic HRT.

#### Avoiding Long-Term Complications

One of the beneficial effects of HRT demonstrated in the WHI study was a decrease in the risk of bone fractures. However, there are other interventions that can decrease



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the danger of osteopenia and osteoporosis without the risks associated with HRT. Adequate dietary intake of calcium and vitamin D is extremely important—postmenopausal women need 1500 mg of calcium daily in addition to 400 units of vitamin D (800 units for women over age 70). Weight-bearing exercise also helps maintain bone mass. In addition, several medications can prevent and even reverse osteoporosis (see sidebar, page 41).

Similarly, there are many ways to reduce the risk of cardiovascular disease. The first step is lifestyle modification, including exercising, eating a low-fat diet, and quitting smoking. Statins—drugs such as atorvastatin (Lipitor) and simvastatin (Zocor)—reduce LDL cholesterol and triglyceride levels and can help lower the risk of heart disease. Other strategies include diabetes management and, for some people (and under their doctor's orders), taking a daily aspirin.

### Conclusion

Knowledge regarding the menstrual cycle and menopause in HIV positive women has advanced since the beginning of the epidemic, but much remains to be learned. As women live longer with HIV, it is increasingly important to determine optimal care for a healthy menopause.

As with many aspects of HIV care, management of menopausal symptoms and complications should be tailored to the individual patient. Dr. Cu-Uvin notes that many of her patients have refused even short-term HRT due to their fear of complications, but estrogen replacement remains a viable option for some women, and the absolute risk of complications such as heart attacks and strokes remains small.

Until more is known, HIV positive women are advised to receive the recommended regular health check-ups for their age group (see sidebar, pages 42–43). Women should also discuss bothersome menstrual irregularities or menopause symptoms with their health-care providers and together explore individualized management strategies.

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## Lifestyle Habits That Contribute to Optimal Health

Eat a balanced diet with plenty of fruits, vegetables, and whole grains Get some exercise every day Sleep at least eight hours every night Avoid smoking and second-hand smoke Reduce alcohol intake