

Menstrual Cycle among adolescent girls – Disease and Causes

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Abstract

Menstruation, also known as a period or monthly, is the regular discharge of blood and mucosal tissue (known as menses) from the inner lining of the uterus through the vagina. The first period usually begins between twelve and fifteen years of age, a point in time known as menarche. However, periods may occasionally start as young as eight years old and still be considered normal. The average age of the first period is generally later in the developing world, and earlier in the developed world. The typical length of time between the first day of one period and the first day of the next is 21 to 45 days in young women, and 21 to 31 days in adults (an average of 28 days). Bleeding usually lasts around 2 to 7 days. Menstruation stops occurring after menopause, which usually occurs between 45 and 55 years of age. Periods also stop during pregnancy and typically do not resume during the initial months of breastfeeding.

Up to 80% of women report having some symptoms prior to menstruation. Common signs and symptoms include acne, tender breasts, bloating, feeling tired, irritability, and mood changes. These may interfere with normal life, therefore qualifying as premenstrual syndrome, in 20 to 30% of women. In 3 to 8%, symptoms are severe.

Introduction

A lack of periods, known as amenorrhea, is when periods do not occur by age 15 or have not occurred in 90 days. Other problems with the menstrual cycle include painful periods and abnormal bleeding such as bleeding between periods or heavy bleeding. Menstruation in other animals occur in primates (apes and monkeys).

The menstrual cycle occurs due to the rise and fall of hormones. This cycle results in the thickening of the lining of the uterus, and the growth of an egg, (which is required for pregnancy). The egg is released from an ovary around day fourteen in the cycle; the thickened lining of the uterus provides nutrients to an embryo after implantation. If pregnancy does not occur, the lining is released in what is known as menstruation.

The first menstrual period occurs after the onset of pubertal growth, and is called menarche. The average age of menarche is 12 to 15. However, it may start as early as eight. The average age of the first period is generally later in the developing world, and earlier in the developed world. The average age of menarche has changed little in the United States since the 1950s.

Painful menstrual cramps that result from an excess of prostaglandin release are referred to as primary dysmenorrhea. Primary dysmenorrhea usually begins within a year or two of menarche, typically with the onset of ovulatory cycles. Treatments that target the mechanism of pain include non-steroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives. NSAIDs inhibit prostaglandin production. With long-term treatment, hormonal birth control reduces the amount of uterine fluid/tissue expelled from the uterus. Thus resulting in shorter, less painful menstruation. These drugs are typically more effective than treatments that do not target the source of the pain (e.g. acetaminophen). Risk factors for primary dysmenorrhea include: early age at menarche, long or heavy menstrual periods, smoking, and a family history of dysmenorrhea. Regular physical activity may limit the severity of uterine cramps.

For many women, primary dysmenorrhea gradually subsides in late second generation. Pregnancy has also been demonstrated to lessen the severity of dysmenorrhea, when menstruation resumes. However, dysmenorrhea can continue until menopause. 5–15% of women with dysmenorrhea experience symptoms severe enough to interfere with daily activities.

Secondary dysmenorrhea is the diagnosis given when menstruation pain is a secondary cause to another disorder. Conditions causing secondary dysmenorrhea include endometriosis, uterine fibroids, and uterine adenomyosis. Rarely, congenital malformations, intrauterine devices, certain cancers, and pelvic infections cause secondary dysmenorrhea. Symptoms include pain spreading to hips, lower back and thighs, nausea, and frequent diarrhea or constipation. If the pain occurs between menstrual periods, lasts longer than the first few days of the period, or is not adequately relieved by the use of non-steroidal anti-inflammatory drugs (NSAIDs) or hormonal contraceptives, women should be evaluated for secondary causes of dysmenorrhea.

Mood and behavior

Some women experience emotional disturbances starting one or two weeks before their period, and stopping within a few days of the period starting. Symptoms may include mental tension, irritability, mood swings, and crying spells. Problems with concentration and memory may occur. There may also be depression or anxiety.

These symptoms can be severe enough to impact a person's performance at work, school, and in everyday activities. Greater loss in workplace productivity, quality of life, and greater healthcare costs occur in those with moderate to severe symptoms in comparison to those without. This is part of premenstrual syndrome (PMS) and is estimated to occur in 20 to 30% of women. In 3 to 8% it is severe. Extreme psychological stress can also result in periods stopping.

Bleeding

The average volume of menstrual fluid during a monthly menstrual period is 35 milliliters (2.4 tablespoons of menstrual fluid) with 10–80 milliliters (1–6 tablespoons of menstrual fluid) considered typical. Menstrual fluid is the correct name for the flow, although many people prefer to refer to it as menstrual blood. Menstrual fluid is reddish-brown, a slightly darker color than venous blood. About half of menstrual fluid is blood. This blood contains sodium, calcium, phosphate, iron, and chloride, the extent of which depends on the woman. As well as blood, the fluid consists of cervical mucus, vaginal secretions, and endometrial tissue. Vaginal fluids in menses mainly contribute water, common electrolytes, organ moieties, and at least 14 proteins, including glycoproteins.

Menstrual disorders

There is a wide spectrum of differences in how women experience menstruation. There are several ways that someone's menstrual cycle can differ from the norm, any of which should be discussed with a doctor to identify the underlying cause:

Symptom	See article
Infrequent periods	Oligomenorrhea
Short or extremely light periods	Hypomenorrhea
Too-frequent periods (defined as more frequently than every 21 days)	Polymenorrhea
Extremely heavy or long periods (one guideline is soaking a sanitary napkin or tampon every hour or so, or menstruating for longer than 7 days)	Hypermenorrhea
Extremely painful periods	Dysmenorrhea
Breakthrough bleeding (also called spotting) between periods	Metrorrhagia
Absent periods	Amenorrhea

OLIGOMENORRHEA

Oligomenorrhea is infrequent (or, in occasional usage, very light) menstruation. More strictly, it is menstrual periods occurring at intervals of greater than 35 days, with only four to nine periods in a year. Menstrual periods should have been regularly established before the development of infrequent flow. The duration of such events may vary.

Causes

Oligomenorrhea can be a result of prolactinomas (adenomas of the anterior pituitary). It may be caused by thyrotoxicosis, hormonal changes in perimenopause, Prader–Willi syndrome, and Graves disease.

Endurance exercises such as running or swimming can affect the reproductive physiology of women athletes. Female runners, swimmers and ballet dancers either menstruate infrequently in comparison to non-athletic women of comparable age or exhibit amenorrhea. A more recent study shows that athletes competing in sports that emphasise thinness or a specific weight exhibit a higher rate of menstrual dysfunction than either athletes competing in sports with less focus on these or control subjects. Breastfeeding has been linked to irregularity of menstrual cycles due to hormones that delay ovulation.

HYPOMENORRHEA

Hypomenorrhea or **hypomenorrhoea**, also known as short or scanty periods, is extremely light menstrual blood flow. It is the opposite of hypermenorrhea which is more properly called menorrhagia.

In some women it may be normal to have less bleeding during menstrual periods. Less blood flow may be genetic and, if enquiries are made, it may be found that woman's mother and/or sister also have decreased blood flow during their periods. Pregnancy can normally occur with this type of decreased flow during the period. The incidence of infertility is the same as in women with a normal blood flow. Constitutional scanty menstruation perhaps best explained by assuming the presence of an unusual arrangement, or relative insensitivity, of the endometrial vascular apparatus.

POLYMENORRHEA

Abnormal uterine bleeding (AUB), also known as **dysfunctional uterine bleeding**, is vaginal bleeding from the uterus that is abnormally frequent, last excessively long, is more than normal, or is irregular. Vaginal bleeding during pregnancy is excluded. Iron deficiency anemia may occur and quality of life may be negatively affected.

The underlying causes may include ovulation problems, fibroids, the lining of the uterus growing into the uterine wall, uterine polyps, underlying bleeding problems, side effects from birth control, or cancer. More than one category of causes may apply in an individual case. The first step in work-up is to rule out a tumor or pregnancy. Medical imaging or hysteroscopy may help with the diagnosis.

HYPERMENORRHEA (Heavy Menstrual Bleeding)

Heavy menstrual bleeding, previously known as **menorrhagia**, is a menstrual period with excessively heavy flow. It is a type of abnormal uterine bleeding (AUB). Abnormal uterine bleeding can be caused by structural abnormalities in the reproductive tract, anovulation, bleeding disorders, hormone issues (such as hypothyroidism) or cancer of the reproductive tract. Initial evaluation aims at figuring out pregnancy status, menopausal status, and the source of bleeding.

DYSMENORRHEA

Dysmenorrhea, also known as **painful periods** or **menstrual cramps**, is pain during menstruation. Its usual onset occurs around the time that menstruation begins. Symptoms typically last less than three days. The pain is usually in the pelvis or lower abdomen. Other symptoms may include back pain, diarrhea or nausea.

In young women, painful periods often occur without an underlying problem. In older women, it is more often due to an underlying issues such as uterine fibroids, adenomyosis or endometriosis. It is more common among those with heavy periods, irregular periods, whose periods started before twelve years of age or who have a low body weight. A pelvic exam in those who are sexually active and ultrasound may be useful to help in diagnosis. Conditions that should be ruled out include ectopic pregnancy, pelvic inflammatory disease, interstitial cystitis and chronic pelvic pain.

METRRORRHAGIA (Inter Menstrual Bleeding)

Intermenstrual bleeding, previously known as **metrorrhagia**, is uterine bleeding at irregular intervals, particularly between the expected menstrual periods. It is a cause of vaginal bleeding.

In some women, menstrual spotting between periods occurs as a normal and harmless part of ovulation. Some women experience acute mid-cycle abdominal pain around the time of ovulation. This may also occur at the same

time as menstrual spotting. The term breakthrough bleeding or breakthrough spotting is usually used for women using hormonal contraceptives, such as IUDs or oral contraceptives, in which it refers to bleeding or spotting between any expected withdrawal bleedings, or bleeding or spotting at any time if none is expected. If spotting continues beyond the first 3-4 cycles of oral contraceptive use, a woman should have her prescription adjusted to a pill containing higher estrogen:progesterone ratio by either increasing the estrogen dose or decreasing the relative progestin dose.

Besides the aforementioned physiologic forms, metrorrhagia may also represent abnormal uterine bleeding and be a sign of an underlying disorder, such as hormone imbalance, endometriosis, uterine fibroids, uterine cancer, or vaginal cancer.

If the bleeding is repeated and heavy, it can cause significant iron-deficiency anemia.

AMENORRHEA

Amenorrhea is the absence of a menstrual period in a woman of reproductive age. Physiological states of amenorrhoea are seen, most commonly, during pregnancy and lactation (breastfeeding), the latter also forming the basis of a form of contraception known as the lactational amenorrhoea method. Outside the reproductive years, there is absence of menses during childhood and after menopause.

Amenorrhoea is a symptom with many potential causes. Primary amenorrhoea is defined as an absence of secondary sexual characteristics by age 14 with no menarche or normal secondary sexual characteristics but no menarche by 16 years of age. It may be caused by developmental problems, such as the congenital absence of the uterus, failure of the ovary to receive or maintain egg cells, or delay in pubertal development. Secondary amenorrhoea (menstrual cycles ceasing) is often caused by hormonal disturbances from the hypothalamus and the pituitary gland, from premature menopause or intrauterine scar formation. It is defined as the absence of menses for three months in a woman with previously normal menstruation, or six months for women with a history of oligomenorrhoea.

Causes

- Low body weight
- Drug-induced

- Breastfeeding
- Celiac disease
- Physical
- Stress

Menstruation is a biological phenomenon laden with cultural implications. Individuals do not experience the body in a socio-cultural vacuum. In turn, women's interpretations of the physiological and hormonal changes associated with menstruation cannot be understood outside of the social and historical context in which they live, which is influenced by the meaning ascribed to these menstrual changes by westernised medical discourses (Ussher, 2006). Throughout history, menstruation has been assigned roles that ranged from defining a woman's status and social role to being seen as a curse that all women had to endure (Anjum, Zehra, Haider, Rani, Siddique & Munir, 2010). It is this positioning of the female reproductive body as inadequate and needing to be controlled, and of menstruation as a site of madness and debilitation, which provide the framework for women to interpret changes associated with menstruation as pathological symptoms (Ussher, 2006). For centuries, both medicine and religion have methodically devalued the roles assigned to females and excluded women from power in society through patriarchal beliefs about the female reproductive body (Cahill, 2001). This is still evident in many cultures and religions today (Tiwari, Oza & Tiwari, 2006; Umeora & Egwuatu, 2008).

Conclusion

All over the world women are encouraged by culture and religion to avoid certain activities such as cooking, working, praying and having sexual intercourse while menstruating, as they are considered to be in a state of uncleanliness (Buckley & Gottlieb, 1988). In many societies menstruation also encompasses an element of secrecy, where, although menarche may be celebrated as a developmental milestone, menstruation is regarded as something about which women should always be discreet (Marván & Molina-Abolnik, 2012). These restrictions during, and the secrecy surrounding menstruation, may in turn, impact negatively on womanhood by essentially assaulting the women psychologically, degrading their self-image and self-esteem, creating a feeling of shame and undermining the physiological significance of menstruation (Umeora & Egwuatu, 2008).

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