



Polycystic ovarian syndrome (PCOS) and the menstrual cycle

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What usually happens in the menstrual cycle?

The menstrual cycle is regulated by a number of hormones. Luteinizing hormone (LH) and follicle-stimulating hormone (FSH) are produced by the master gland in the brain (the pituitary gland). In response to these hormones, the ovaries produce oestrogen and progesterone. The production of these hormones each month leads to the build-up of the “endometrium”, which is the inner lining of the womb and the release of an egg from the ovary (called “ovulation”). Pregnancy occurs if the egg is fertilised by a sperm. If the egg is not fertilised, then the lining of the womb is shed, and bleeding occurs (called a period). Once the lining is fully shed, the process begins again.

There is usually a balance in the production of hormones during each menstrual cycle, which results in a regular monthly period occurring approximately every 28 days.

What happens to the menstrual cycle in women with PCOS?

The hormones mentioned above (LH, FSH, oestrogen, and progesterone) are out of balance in women with polycystic ovarian syndrome (PCOS). This imbalance is caused mainly by the increase in hormones called androgen in women with PCOS. This hormonal imbalance results in the ovary developing several small follicles (fluid-filled sacs) which contain eggs at an early stage of their development. These follicles fail to develop in a way that would allow the egg to be released.

Because of the hormonal imbalance and inability to release the egg, women often have less frequent periods or no periods at all (although some women can also have more frequent bleeding). This erratic bleeding pattern can happen for women soon after they start their periods. It may also happen if they put on weight.

What are the consequences of not having regular periods?

If egg release does not occur on a regular basis, and therefore no regular bleed occurs, this can cause the lining of the womb to become thicker than usual. This can lead to an overgrowth of the lining of the womb (“endometrial hyperplasia”), which is thought to put women at higher risk of womb cancer later on in life (the average age of women to be diagnosed with this cancer is 50–65 years; in 5% of cases, womb cancer is diagnosed in women under the age of 40 years).

Another consequence of having infrequent periods is that this indicates reduced opportunities to get pregnant, as the eggs are not matured and released every month in the normal way. Please speak to your doctor if you have concerns about becoming pregnant now or in the future. **For more information, see our leaflet on “PCOS and Fertility”**

What will happen in clinic?

Your doctor will ask about how many periods you have a year and what they are like (Are they painful? Do you experience heavy or light bleeding? etc.). Your doctor may measure hormones in your blood and organize an ultrasound scan (ideally an internal scan, if appropriate) to look at your ovaries and the lining of your womb.

If your periods are less than four times a year or the gap between periods is longer than three months, certain medications such as contraceptive pills and medication containing progesterone may be used to keep the lining of your womb healthy and make your periods more regular or less heavy. Having a period at least every three months has been shown to reduce the risk of womb cancer.

What treatments are available for women with PCOS with absent or irregular periods?

Weight loss:

Weight loss of 5–10% can help women with PCOS to experience more regular periods and enhance natural fertility. This can be reassuring to many women with PCOS who wish to avoid the use of medical treatment options.

For more information, see our leaflet on “PCOS and Body Weight”

Combined oral contraceptive pill:

This contains oestrogen and progesterone and is an option for women with PCOS with irregular periods either to protect the lining of the womb or make periods more predictable or less heavy. It also acts as a contraceptive and can help with problems of excess hair.

What are the side effects?

The main risk of taking the combined oral contraceptive pill is the risk of blood clots in your leg veins or lungs. This risk is higher in those women who are older, more overweight, smoke, have diabetes or hypertension and have a family history of blood clots in deep veins, such as in legs. Women with migraines may not be able to take the combined oral contraceptive pills. Common side effects that you may experience can include nausea, bloating, breast tenderness, headaches, mood swings, and occasional bleeding in between your periods. These can be discussed with your healthcare provider when considering treatment and will be tailored to your own needs.

Progesterone preparations:

The hormone progesterone is naturally produced by the ovary after egg release and prepares the lining of the womb for pregnancy. When this does not happen and progesterone levels drop, a period occurs. The hormone progesterone also keeps the lining of the womb thin and healthy. Progesterone treatments may be preferable for women at higher risk of developing the side effects of the combined pill. There

are various options for using progesterone alone when periods are irregular:

- Short courses of progesterone tablets, which maintains the health of your womb. Please note this method will not prevent unwanted pregnancy
- Progesterone only contraceptive pill which would keep the womb healthy and prevent unwanted pregnancies
- Intra-uterine system delivering progesterone (for example, the Mirena coil), which would release a small amount of progesterone direct to the womb and keep the womb healthy and prevent unwanted pregnancies
- Depot injection or implant also introduce progesterone into the body and therefore keep the womb healthy and prevent unwanted pregnancies

What are the side effects?

The progesterone only pill is generally well tolerated by patients, however some of the side effects which you may experience while on this pill include skin changes, spots, breast tenderness and enlargement, nausea, headaches, and occasional changes in your mood.

It is important to discuss these side effects with your healthcare provider when you are selecting the pill that suits you. Please also contact your healthcare provider if you develop any of these side effects while on treatment.

Metformin:

Metformin is a medication which is commonly used to treat Type 2 diabetes. It can also have a role in making periods more regular in women with PCOS. Metformin improves the way the liver responds to insulin and can help maintain a healthy body weight, which is also important in the overall treatment of PCOS.

What are the side effects?

Metformin is usually taken once or twice daily . The main side effects are that it can occasionally cause nausea, vomiting, and loose stools. Your doctor may be able to minimise these effects if the medication is started at a low dose and gradually built up. If you are sick and unwell, your doctor may temporarily pause this medication while you recover from your illness.

It is also used by pregnant women to treat diabetes in pregnancy and does not necessarily need to be stopped if you fall pregnant whilst taking metformin.

Please use the space below to write down any questions you may have and bring this with you to your next appointment.

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