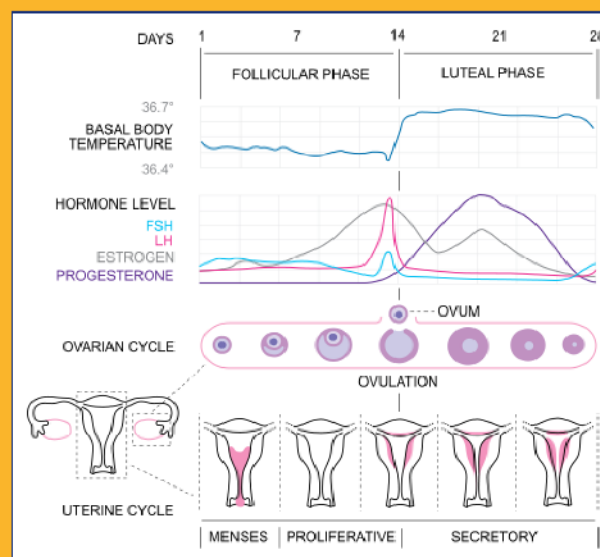


# Part 1: The menstrual cycle

During her fertile years, a woman's body prepares for pregnancy every month in 2 phases. In the first phase, the oocytes in the follicles in the **ovary** mature and get ready to be released. Also, endometrium builds up in the uterus in a reaction to hormones (oestrogens and progesterone) produced by the follicles to form a layer where implantation of an embryo can occur. The first phase ends with the release of an oocyte/egg from the **ovary**. If the egg is fertilized with a sperm, an embryo may develop and after implantation, a pregnancy may be established. In cycles where there is no pregnancy, the layer in the uterus, the endometrium, will start degrading which results in menstruation.

The processes in the menstrual cycle are regulated by hormones like follicle stimulating hormone (FSH), luteinizing hormone (LH), estrogen and progesterone.



*The menstrual cycle*

*Wikimedia Commons (GNU Free Documentation License)*

When **pregnancy** occurs, the hormones will adapt, making sure that the layer within the uterus will remain in place, so the embryo can be nourished.

When the woman reaches **menopause**, estrogens and progesterone are not produced any more with a consequent rise of FSH and LH. There will be no more ovulation or building up of the layer in the uterus, and the monthly menstruation will stop. Effects of hormonal changes during menopause are for instance hot flushes and vaginal dryness.

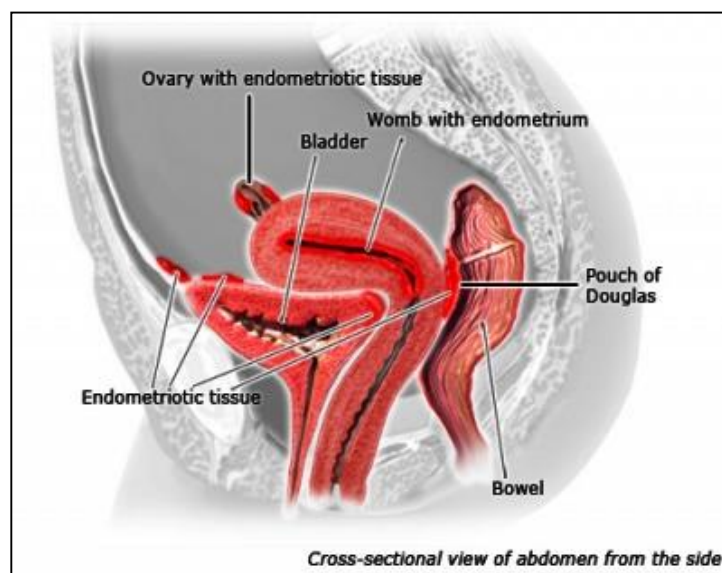
## Part 2: About Endometriosis

It is estimated that between 2 and 10% of the women within the general population have endometriosis and that up to 50% of the infertile women have endometriosis.

Women with endometriosis often have severe complaints and significantly reduced quality of life, including restraint of normal activities, pain/discomfort and anxiety/depression.

### What is endometriosis?

Endometriosis is defined as the presence of endometrial-like tissue outside the uterus (Kennedy *et al.*, 2005). Endometriosis triggers a chronic inflammatory reaction resulting in pain and **adhesions**. **Adhesions** develop when scar tissue attaches separate structures or organs together. The activity and the complaints due to endometriosis may vary during the woman's menstrual cycle as **hormone** levels fluctuate. Consequently, symptoms may be worse at certain times in the cycle, particularly just prior to and during the woman's menstrual period. While some women with endometriosis experience severe pelvic pain, others have no symptoms at all or regard their symptoms as simply being 'ordinary menstrual pain'.



*Endometriotic tissue in the abdomen  
NIH fact sheet : Endometriosis (2011)*

## What are the symptoms of endometriosis?

The classical symptoms of endometriosis are:

- **Dysmenorrhea** or painful **menstruation**
- Nonmenstrual pelvic pain or pain occurring when a woman is not menstruating.
- **Dyspareunia** or painful intercourse
- **Infertility**
- Fatigue
- Cyclical intestinal complaints: periodic bloating, diarrhoea or constipation
- Cyclical **dyschezia**, painful or difficult defecation.
- Cyclical dysuria, painful urination
- Cyclical hematuria, or the presence of blood in the urine
- Cyclical rectal bleeding
- Cyclical shoulder pain
- Any other cyclical symptom

Cyclical symptoms are symptoms that develop a few days before a woman's **menstruation** and disappear a few days after her **menstruation** has stopped, or symptoms that occur only during the menstruation. The symptoms reappear the next month, following the woman's menstrual cycle.

If you experience one or more of these symptoms and they cause you (severe) pain, you should go to your family doctor and ask him to consider endometriosis. Severe pain can be measured by not doing your normal daily activities (without taking pain medication).

### Recommendations in the guideline:

The GDG recommends that clinicians should consider the diagnosis of endometriosis in the presence of gynecological symptoms such as: dysmenorrhea, non-cyclical pelvic pain, deep dyspareunia, infertility, fatigue in the presence of any of the above. *(Good Practice Point)*

The GDG recommends that clinicians should consider the diagnosis of endometriosis in women of reproductive age with non-gynecological cyclical symptoms (dyschezia, dysuria, hematuria, rectal bleeding, shoulder pain). *(Good Practice Point)*

Some symptoms are frequently reported by women with endometriosis, however it is unclear whether these symptoms are actually caused by endometriosis. Some of these symptoms may be indicative of other diseases or be side effects of treatment, but some may also be related to endometriosis (although these were not yet examined in clinical studies). These symptoms include:

- Heavy Menstrual Bleeding
- Migraine
- Vaginism
- Weight Gain
- Fungal Infections
- Insomnia
- Cardiac Arrhythmia
- (Lower)Back Pain
- Radiating pain
- Pain during ovulation
- Nausea

If you experience these symptoms, please also mention these to your doctor.

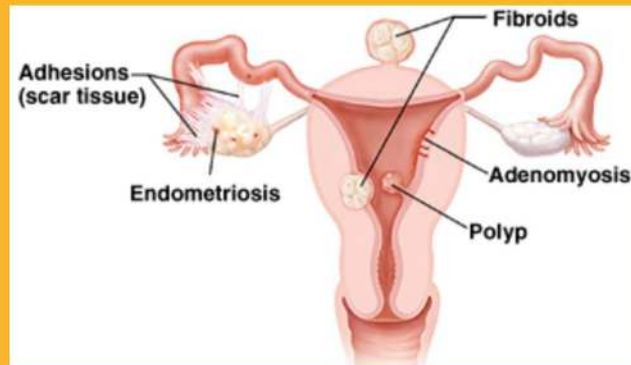
## What causes endometriosis?

The cause of endometriosis remains unknown. There are several theories, but none of them has been entirely proven. The most accepted theory is centred on the so-called retrograde **menstruation**. During **menstruation**, pieces of **endometrium** arrive in the abdominal cavity through the Fallopian tubes, adhere to the peritoneal lining and develop into endometriotic **lesions**. The **hormone estrogen** is crucial in this process. Subsequently, most of the current treatments for endometriosis attempt to lower **estrogen** production in a woman's body in order to relieve her of symptoms.

It has been argued that endometriosis is a genetic disease, since some families show more patients with endometriosis compared to other families. Other suggestions are an immune response triggering inflammation

## Endometriosis, adenomyosis, uterine fibroids and polyps?

Adenomyosis, uterine fibroids and uterine polyps have symptoms that are similar to the symptoms of endometriosis. These symptoms are, e.g. painful menstrual periods, painful intercourse, pelvic pain, pain during bowel movements.



*Endometriosis, adenomyosis, uterine fibroids and polyps  
Illustration from <http://www.fairview.org/healthlibrary/Article/85716>*

While endometriosis is characterized by the presence of endometrial-like tissue **outside** the uterus, adenomyosis is where endometrium is present **within** the walls of the uterus.

Uterine fibroids are abnormal, benign (non-cancerous) growths of muscle within the wall of a woman's uterus. Uterine polyps are abnormal, benign (non-cancerous) growths attached to a short stalk that protrudes from the inner surface of a woman's uterus.