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1. Cyclic changes in the breast

These hormones are believed to be responsible for the **cyclical changes** that many women feel in their **breasts** just before menstruation. These include swelling, pain, and soreness. During menstruation, many women also have **changes in breast** texture. Their **breasts** may feel very lumpy.

What cyclical changes happen to the breasts during the menstrual cycle?

Each month, women go through changes in the hormones that make up the normal menstrual cycle. The hormone estrogen is produced by the ovaries in the first half of the menstrual cycle. It stimulates the growth of milk ducts in the breasts. The increasing level of estrogen leads to ovulation halfway through the cycle. Next, the hormone progesterone takes over in the second half of the cycle. It stimulates the formation of the milk glands. These hormones are believed to be responsible for the cyclical changes that many women feel in their breasts just before menstruation. These include swelling, pain, and soreness.

During menstruation, many women also have changes in breast texture. Their breasts may feel very lumpy. This is because the glands in the breast are enlarging to get ready for a possible pregnancy. If pregnancy does not happen, the breasts go back to normal size. Once menstruation starts, the cycle begins again. What are the symptoms of cyclical breast pain? In many women the symptoms are mild. Indeed, it can be considered normal to have some breast discomfort for a few days before a **period**. However, in some women the pain can be severe and/or last longer - up to **1-2 weeks** before a **period**

Breast pain (mastalgia). Most women (up to 7 in 10 women) develop breast pain at some stage in life develop breast pain at some stage in their life. In about 2 in 3 women the pain develops in the days just before a period - *cyclical breast pain*.

Cyclical breast pain is common. It can occur at any age after periods start, but most commonly occurs between the ages of 30 and 50. It does not occur in women past the menopause when the periods have stopped.

What are the symptoms of cyclical breast pain?

In many women the symptoms are mild. Indeed, it can be considered normal to have some breast discomfort for a few days before a period. However, in some women the pain can be severe and/or last longer - up to 1-2 weeks before a period. The 3-5 days prior to a period are usually the worst. The pain usually eases soon after a period starts. The severity can vary from month to month. Typically, the pain affects both breasts. It is usually worst in the upper and outer part of the breast, and may travel

down the arms. If you have cyclical breast pain your breasts may also become larger, tender and slightly lumpy in the week or so before a period.

What causes cyclical breast pain?

It is thought that women with cyclical breast pain have breast tissue which is more sensitive than usual to the normal hormone changes that occur each month. It is not due to any hormone disease, or to any problem in the breast itself. It is not serious, but it can be a real nuisance.

What are the treatment options for cyclical breast pain?

No treatment may be needed if the symptoms are mild. Many women are reassured by knowing that cyclical breast pain is not a symptom of cancer or serious breast disease. The pain quite often settles by itself within 3-6 months, but can come back from time to time.

If the pain is more severe, or for the times when it may flare up worse than usual, treatment options include the following:

- **Support the breasts.** Wear a well supporting bra when you have pain. Some women find that wearing a supporting bra 24 hours a day for the week before a period is helpful. It is best to avoid underwired bras. Wear a sports bra when you exercise.
- **Painkillers** such as paracetamol or ibuprofen. Take regularly on the days when the breasts are painful.
- **Topical ('rub-on') anti-inflammatory cream.** For example, topical diclofenac or topical ibuprofen. Side-effects from these creams are very rare.
- **Cutting out caffeine.** Caffeine is said by some women to make things worse. This has not been proven in research studies. However, in the week or so before a period it may be worth trying to cut out tea, coffee and cola which contain caffeine to see if this helps.
- **Consider your medication.** The contraceptive pill or hormone replacement therapy (HRT) may make cyclical breast pain worse. If appropriate, it may be worth discussing with your doctor stopping or changing the preparation to see if this helps.
- **Diet.** Fatty acids may have a role in causing breast pain, so adjusting your diet by reducing animal fats (such as butter, cream and fatty meat) and increasing your intake of fresh fruit and vegetables can be helpful.
- **Evening primrose oil** is often recommended as a treatment for breast pain. A dose of 1-2gms of Evening Primrose oil each day for a period of 6 weeks is required before benefit can be assessed. Improvement in severity of cyclical and non-cyclical mastalgia is 58% and 38% respectively. If symptoms improve you should continue these tablets.
- **Drugs to block hormones.** Medication such as danazol or tamoxifen can ease pain in most cases. These medicines work by reducing the level, or blocking the effect of, female hormones such as oestrogen. You need to take them regularly (not just when the pain occurs). However, significant side-effects are common with these drugs. So, they are not usually tried unless you have severe pain which occurs during most months and does not ease with other treatments.

2. Cyclic changes in the cervix

During menstrual bleeding, the **cervix** is normally low **and hard and** slightly open to allow the blood to flow out. It feels like the tip of your nose. After your **period** stops, the **cervix** remains low **and hard and** the opening to the uterus (uterine os) remains closed.

During ovulation, the **cervix** rises to a higher level in the vagina. It will be lower in the vagina around the time of **menstruation**. ... The second noticeable change is in the **feel** of the **cervix**. If you haven't conceived, your **cervix** will **feel** firm before your **period**, like an unripened fruit.

The **cervix** changes throughout a woman's **cycle** in response to the hormone estrogen. Cervical changes increase a woman's odds of conception by making the **cervix** more receptive to sperm. When fertility is **high** and ovulation is near, the **cervix** opens up and becomes **high**, soft, and harder to reach **cervix changes** position many times **throughout** your menstrual **cycle**. For example, it may rise alongside ovulation to prepare for conception or lower to allow menstrual tissue to pass through the vagina.

When you start your period (Day One of your cycle), there's no need to feel your cervix for changes, as you're clearly menstruating. Once your bleeding stops, you may have a few days (possibly up to a week) as a 'pre-fertile' phase. This is the time from when the bleeding finishes and when the fertile phase begins. During the pre-fertile phase, the lining of the uterus starts to thicken, regenerating after the period has finished. At the same time, a group of eggs in the ovaries start to ripen. Feeling your cervix at this time, it should feel relatively low, firm and only slightly moist (or even dryish) and tightly closed when compared to other times in the menstrual cycle.

Fertile ground

After your pre-fertile phase, you move into the fertile phase of your cycle, which is when you really want to start noting any changes in your cervix, particularly if you're having trouble tracking your cervical mucous (CM). As oestrogen levels increase, a woman's uterus and cervix start to produce a special fertile mucous which is capable of protecting the man's sperm and helping them survive for up to three to five days in the woman's body. The fertile mucus sits in the opening of the woman's cervix and lines her uterus and fallopian tubes. The mucus acts as a continuous stream to transport sperm up into a woman's fallopian tubes, in readiness for when an egg is released. Once the woman releases an egg (or ovulates) it only survives for around 12 to 24 hours. The fertile phase is also called the follicular or proliferative stages, as the egg is still maturing and the lining of the uterus continues to thicken. A woman's fertile phase usually starts about three to five days before ovulation, until the egg is released. If you feel your cervix it should be higher, softer, wetter and slightly more open when compared to the previous days. During ovulation, your cervix will now be at its highest point and may even be difficult to reach. It should feel very wet, soft and open.

After ovulation

The time after ovulation is the post-fertile phase of the menstrual cycle. The post-fertile phase lasts for about 14 days (ranging from 12 to 16 days) until the bleeding starts again. The medical terms for this phase are the 'Luteal phase' – which refers to the capsule left in the ovary that encased the released egg called the 'Corpus Luteum' (or 'white body'). The corpus luteum produces the progesterone hormone, bringing the lining of the uterus (or 'endometrium') to maturity. Or the alternative, the 'Secretory phase', because the lining of the uterus is now able to secrete glucose, aimed at feeding a developing baby until they fully implant in the lining of the uterus and start to draw on their mother for nourishment.

At this time, your cervix should feel quite similar to the pre-fertile phase: lower, firmer, only slightly moist or even dry and tightly closed again.

3. Menstrual cycle

The **menstrual cycle** is the regular natural change that occurs in the **female reproductive system** (specifically the **uterus** and **ovaries**) that makes **pregnancy** possible. The cycle is required for the production of **oocytes**, and for the preparation of the uterus for pregnancy. The menstrual cycle occurs due to the rise and fall of **estrogen**. 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**.

Up to 80% of women report having some symptoms during the one to two weeks prior to menstruation. Common symptoms include **acne**, tender breasts, bloating, feeling tired, irritability and mood changes. These symptoms interfere with normal life and

therefore qualify as **premenstrual syndrome** in 20 to 30% of women. In 3 to 8%, they are severe.

The first period usually begins between twelve and fifteen years of age, a point in time known as **menarche**. They may occasionally start as early as eight, and this onset may still be normal. The average age of the first period is generally later in the **developing world** and earlier in **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 35 days in adults (an average of 28 days). Menstruation stops occurring after **menopause** which usually occurs between 45 and 55 years of age. Bleeding usually lasts around 3 to 7 days.

The menstrual cycle is governed by hormonal changes. These changes can be altered by using **hormonal birth control** to prevent pregnancy. Each cycle can be divided into three phases based on events in the ovary (ovarian cycle) or in the uterus (uterine cycle). The ovarian cycle consists of the **follicular phase**, **ovulation**, and **luteal phase** whereas the uterine cycle is divided into **menstruation**, proliferative phase, and secretory phase.

Stimulated by gradually increasing amounts of **estrogen** in the follicular phase, discharges of blood (menses) flow stop, and the **lining** of the uterus thickens. **Follicles** in the ovary begin developing under the influence of a complex interplay of hormones, and after several days one or occasionally two become dominant (non-dominant follicles shrink and die). Approximately mid-cycle, 24–36 hours after the **luteinizing hormone** (LH) surges, the dominant follicle releases an **ovocyte**, in an event called ovulation. After ovulation, the ovocyte only lives for 24 hours or less without fertilization while the remains of the dominant follicle in the ovary become a **corpus luteum**; this body has a primary function of producing large amounts of **progesterone**. Under the influence of progesterone, the **uterine lining** changes to prepare for potential **implantation** of an embryo to establish a pregnancy. If implantation does not occur within approximately two weeks, the corpus luteum will involute, causing a sharp drop in levels of both progesterone and estrogen. The hormone drop causes the uterus to shed its lining in a process termed menstruation.

Fertility

The most fertile period (the time with the highest likelihood of pregnancy resulting from **sexual intercourse**) covers the time from some 5 days before until 1 to 2 days after ovulation. In a 28- day cycle with a 14- day luteal phase, this corresponds to the second and the beginning of the third week. A variety of methods have been developed to help individual women estimate the relatively fertile and the relatively infertile days in the cycle; these systems are called **fertility awareness**.

Cramps

Many women experience painful cramps, also known as **dysmenorrhea**, during menstruation.

Cycles and phases

The menstrual cycle can be described by the ovarian or uterine cycle. The ovarian cycle describes changes that occur in the **follicles** of the ovary whereas the uterine cycle describes changes in the **endometrial lining** of the uterus. Both cycles can be divided into three phases. The ovarian cycle consists of the follicular phase, ovulation, and the luteal phase, whereas the uterine cycle consists of menstruation, proliferative phase, and secretory phase.

Ovarian cycle

Follicular phase

The follicular phase is the first part of the ovarian cycle. During this phase, the ovarian follicles mature and get ready to release an egg.[1] The latter part of this phase overlaps with the proliferative phase of the uterine cycle.

Through the influence of a rise in **follicle stimulating hormone** (FSH) during the first days of the cycle, a few **ovarian follicles** are stimulated.[83] These follicles, which were present at birth[83] and have been developing for the better part of a year in a process known as **folliculogenesis**, compete with each other for dominance. Under the influence of several hormones, all but one of these follicles will stop growing, while one dominant follicle in the ovary will continue to maturity. The follicle that reaches maturity is called a tertiary or Graafian follicle, and it contains the ovum.[83]

Ovulation

Ovulation is the second phase of the ovarian cycle in which a mature egg is released from the ovarian follicles into the oviduct.[84] During the follicular phase, **estradiol** suppresses release of **luteinizing hormone** (LH) from the **anterior pituitary gland**. When the egg has nearly matured, levels of **estradiol** reach a threshold above which this effect is reversed and estrogen stimulates the production of a large amount of LH. This process, known as the LH surge, starts around day 12 of the average cycle and may last 48 hours.

Luteal phase

The luteal phase is the final phase of the ovarian cycle and it corresponds to the secretory phase of the uterine cycle. During the luteal phase, the **pituitary hormones** FSH and LH cause the remaining parts of the dominant follicle to transform into the corpus luteum, which produces progesterone.

Uterine cycle

The uterine cycle has three phases: menses, proliferative, secretory.

