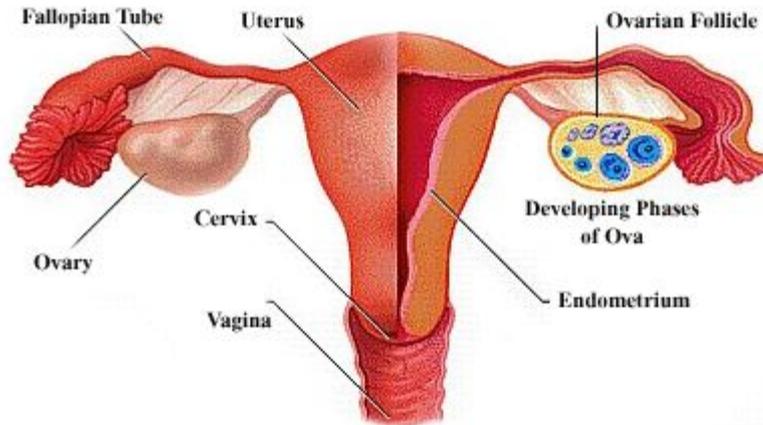


## Clomid and Ovulation



### Ovulation

Ovulation is a complicated process, controlled by several hormones and all orchestrated by the part of the brain called the *hypothalamus*. Because of its complexity, several things can go wrong to prevent normal ovulation, from the brain right down to the ovaries which produce the eggs.

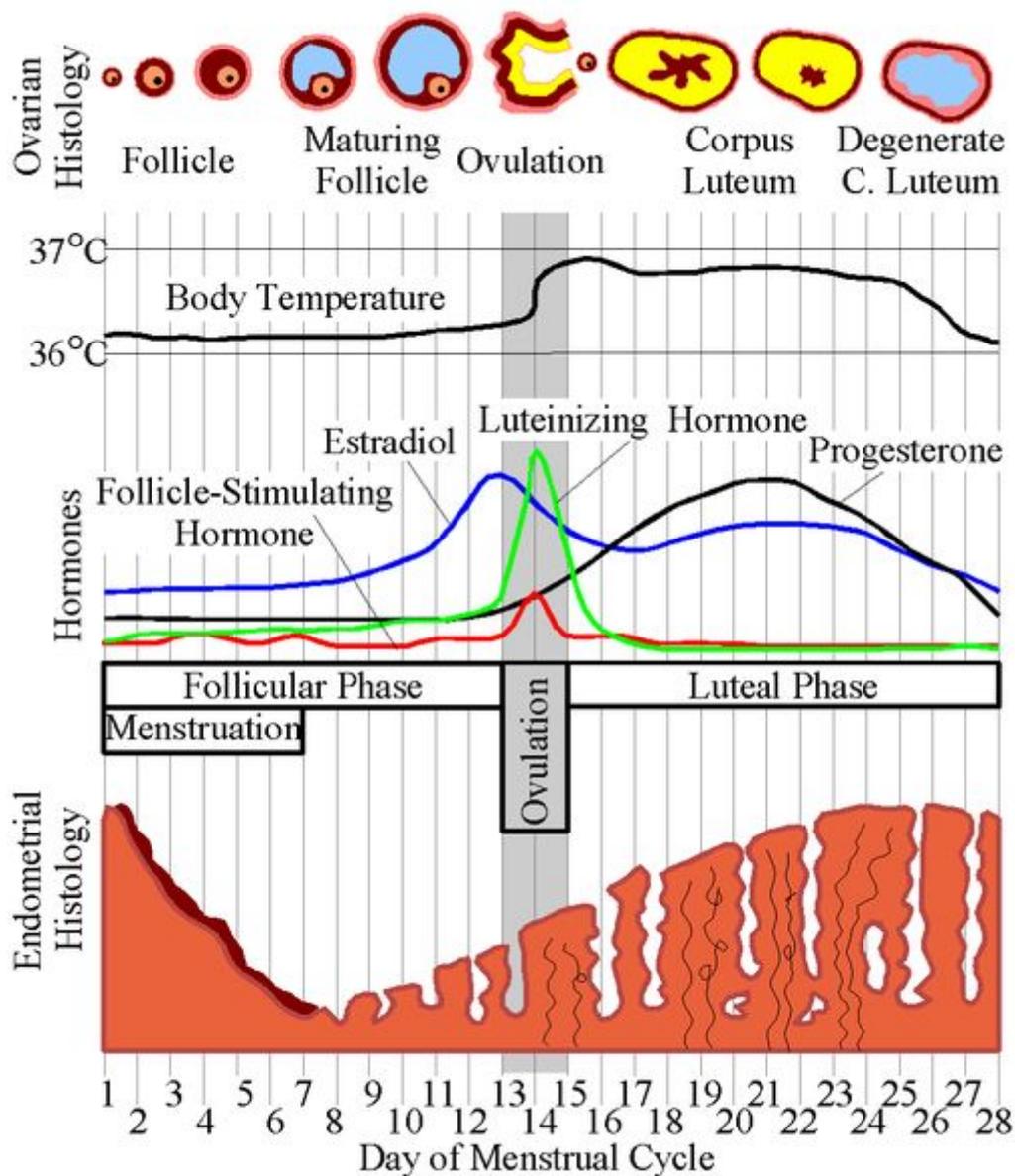
A normal woman's menstrual cycle consists of 3 main phases, menstruation or 'the period' (which when it starts is usually referred to as day 1 of the cycle), the follicular phase and the luteal phase.

There are 4 main hormones involved in the cycle, FSH (follicle stimulating hormone), LH (luteinising hormone), oestrogen and progesterone.

FSH and LH are produced in the pituitary gland within the brain, under the influence of the hypothalamus.

Oestrogen and progesterone are produced within the ovaries.

Normal ovulation occurs mid cycle (usually around day 14 of a 28 day cycle) and women are highly fertile a couple of days before and after ovulation.



*(Average values. Durations and values may differ between different females or different cycles.)*

### Follicular phase

The follicular phase of the menstrual cycle starts on day 1 when the pituitary produces FSH which has the effect of stimulating the ovaries to produce follicles containing the eggs (or ova). These can be clearly seen with a microscope on the outside of the ovaries. The follicular phase normally lasts 12 to 14 days until the follicles are fully developed. At day 14 there is a surge in the circulating oestrogen levels which triggers the hypothalamus to stimulate a sudden spike in the levels of FSH and LH. One of the follicles then 'pops' and an egg is released into the fallopian tube.

The remaining cells of the follicle then collapse inwards to produce the *corpus luteum* but still have an important function in producing oestrogen and in particular, progesterone which

stimulate the womb to grow a soft spongy and welcoming lining for the fertilised egg to implant in. This is the luteal phase.

### The luteal phase

During the luteal phase the cells in the corpus luteum continue to produce oestrogen and in particular progesterone. As well as stimulating the womb to grow its lining, progesterone has the effect of increasing body temperature by 0.5 - 1 C and at around 21 days is at its highest level. That is why evidence of a temperature rise in the second half of the cycle and a high 21 day progesterone level, are used as indicators that ovulation has occurred.

The egg passes along the fallopian tube towards the womb and if it encounters a viable sperm, then fertilisation occurs. The embryo (as it is now called) continues its journey and settles in the lining of the womb where it burrows into it and implants.

If the egg does not encounter a sperm, it just passes through the womb and out. Hormone levels plummet and menstruation occurs

### Menstruation

During menstruation, the now unused lining of the womb is shed along with blood and the whole menstrual cycle starts all over again with the production of FSH.

### **How can it all go wrong?**

Some women unfortunately have erratic and irregular ovulation and this is one of the main causes of infertility.

Certainly any severe stress, anxiety or physical illness can have a direct effect on the hypothalamus preventing it from stimulating the release of FSH and LH.

Extreme exertion (such as that seen in long distance runners) is also associated with little or no ovulation.

Women who have too little body fat (oestrogen and progesterone are manufactured from fat) are also frequently infertile.

Conversely, female obesity is also associated with poor ovulation and this may be part of the syndrome of polycystic ovaries (PCOS).

Many of the above can be reversed with careful adjustments to lifestyle.

### Polycystic ovaries syndrome (PCOS)

PCOS is a fairly common condition (between 5 and 15 % of all women in some studies) and is characterised by obesity, hirsutism, irregular periods and irregular or no ovulation. It is a very common cause of infertility.

Because of the obesity, type II diabetes is common.

Women with PCOS have higher circulating levels of testosterone which helps to cause a general disruption of the complex hormone pathways described above leading to irregular or no ovulation. If the ovaries are viewed with ultrasound, multiple cysts can be seen within the ovaries.

There is almost certainly a genetic or hereditary component to the condition as well as being secondary to lifestyle choices.

## **So what can be done? What is the role of Clomid?**

Clomid is otherwise known as clomiphene citrate and is an artificial oestrogen-like substance that acts directly on the hypothalamus to stimulate the release of FSH and LH. It is highly effective in women with poor ovulation and in particular, in PCOS.

It is usually taken daily as a 50mg tablet, for 5 days between days 2 or 3 and days 6 or 7. It is recommended that it should be taken for no longer than 6 months at a time mainly because it suppresses levels of normal oestrogen, although these levels bounce back as soon as clomid is stopped.

It is remarkably side-effect free, but can cause dizziness, nausea, hot flushes, headaches and occasionally mild abdominal discomfort.

Before it can be prescribed for you, we would normally recommend that some evidence of poor ovulation is provided, either through ovulation kits, or monitoring temperature. A diagnosis of PCOS also qualifies.

It is also important to ensure that the fertility problem lies not with the woman and the man's sperm test should therefore also have been done.

If you would like to try Clomid for ovulation then email me on [doctor@mywebdoctor.co.uk](mailto:doctor@mywebdoctor.co.uk)



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