The *Science* of your Cycle

Day 4: Get to know your cycle (Part II)

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Today's goals

- ➔ Learn how your hormones work together to create the changes that happen during the last two phases of the menstrual cycle
- ➔ Gain an understanding of how ovulation occurs
- ➔ Learn what purpose progesterone serves during your cycle
- ➔ Understand why a pregnancy isn't possible after ovulation

Day 3 recap

- ➔ Menstruation is the shedding of the uterine lining
- ➔ The vagina's default mode is an acidic, sperm-killing machine
- ➔ Growing follicles make estrogen that triggers cervical fluid production
- ➔ Cervical fluid becomes increasingly wet and slippery before ovulation, allowing sperm to survive and reach the egg
- ➔ The length of the follicular phase can be influenced by environmental factors like stress, exercise, diet, sleep changes, illness, etc.

An overview of your cycle

- ➔ Menstruation
- ➔ Follicular phase

You're officially a total PRO at these!

- ➔ Ovulation
- ➔ Luteal phase

We'll cover these today

Ovulation

- ➔ It's part of the **ovarian cycle**
- ➔ It's the release of a matured egg from one of the ovaries
- ➔ It can happen anywhere from about 9–25 days after the first day of your period if you have a "regular" cycle
  - ◆ Someone with PCOS or amenorrhea might go months between the first day of their period and ovulation
- ➔ It's triggered by a sudden increase of LH

What happens during ovulation

1. A follicle's estrogen crosses a threshold
2. The pituitary gland releases an LH surge
3. The follicle releases its egg

1. A follicle's estrogen crosses a threshold

- ➔ The bigger the growing follicles (egg sacs) get, the **more estrogen** they make
- ➔ One follicle's estrogen production will eventually cross a (currently unknown) threshold
- ➔ That's your follicle's way of saying "This egg inside me is ready to ovulate!"

2. The pituitary releases an LH surge

- ➔ One follicle's estrogen production will eventually cross a (currently unknown) threshold
- ➔ The matured follicle's high estrogen production triggers the pituitary gland to produce a surge of LH (**L**uteinizing **H**ormone)

3. The follicle releases its egg

- ➔ This high estrogen production by the matured follicle triggers the pituitary gland to produce a surge of LH (**L**uteinizing **H**ormone)
- ➔ That's your pituitary gland's way of saying "Hey follicle, go ahead and ovulate!"
- ➔ Your matured follicle responds to this LH surge by releasing (ovulating) its egg
- ➔ The ovulated egg will die within 24 hours if it isn't fertilized

One maturing follicle makes enough estrogen to trigger the pituitary gland to produce a surge of LH. This LH surge triggers the follicle to ovulate its egg.

Luteal phase overview

- ➔ It’s part of the **ovarian cycle**, but it affects the **uterine cycle**
- ➔ It’s the time between ovulation and the first day of your next period
- ➔ It typically lasts between 11–16 days, even if your cycles are irregular
- ➔ It’s dominated by the sex hormone progesterone
- ➔ It’s the phase when the lining of the uterus prepares for a potential pregnancy

What happens during the luteal phase?

1. The empty follicle becomes the corpus luteum
2. The corpus luteum makes progesterone
3. Progesterone affects the body
4. The corpus luteum dies

1. The empty follicle becomes the corpus luteum

- ➔ The LH surge that triggered ovulation serves another purpose
- ➔ The sudden surge of LH causes the newly-empty follicle to undergo a process called **luteinization**
- ➔ Luteinization transforms the newly-empty follicle into a structure called the corpus luteum

2. The corpus luteum makes progesterone

- ➔ Luteinization transforms the newly-empty follicle into a structure called the corpus luteum

- ➔ The corpus luteum makes the sex hormone progesterone for the next 11–16 days (by no coincidence, this is the length of the luteal phase)

3. Progesterone affects the body

- ➔ The corpus luteum makes progesterone for 11–16 days
- ➔ Progesterone thickens the uterine lining in case a pregnancy occurs
- ➔ Progesterone counters estrogen's effects and dries up cervical fluid
- ➔ Progesterone stops follicle development, preventing another ovulation
- ➔ Progesterone heats up the body, making the body's resting temperature noticeably higher after ovulation

Progesterone (made by the follicle that ovulated its egg) thickens the lining of the uterus, dries up cervical fluid, prevents another ovulation, and heats up the body.

4. The corpus luteum dies

- ➔ The corpus luteum makes progesterone for 11–16 days (even if your cycles are irregular)
- ➔ If the egg **was not fertilized within 24 hours** of ovulation (aka the egg died), the corpus luteum dies after 11–16 days
- ➔ If the egg **was fertilized** but **did not successfully implant** in the uterine wall, the corpus luteum dies after 11–16 days
- ➔ If the corpus luteum dies, progesterone levels plummet and the uterine wall breaks down (i.e. you start your period)

Progesterone prevents another ovulation, heats up the body, and dries up cervical fluid — BUT ONLY if ovulation has **already happened.**

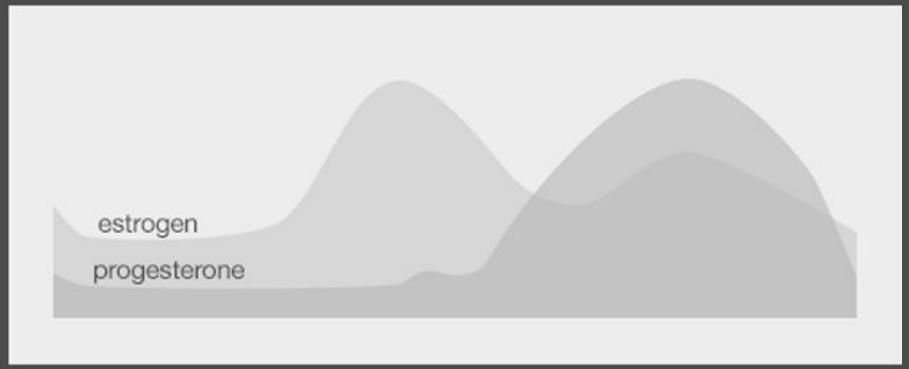
Menstrual cycle summary

- ➔ You start your period
- ➔ FSH causes immature follicles to develop, and they produce increasing amounts of estrogen as they grow
- ➔ Estrogen triggers the cervix to make cervical fluid, which becomes increasingly wet and slippery as ovulation approaches
- ➔ Cervical fluid allows sperm to survive in the female reproductive tract for up to 5 days waiting to fertilize an egg

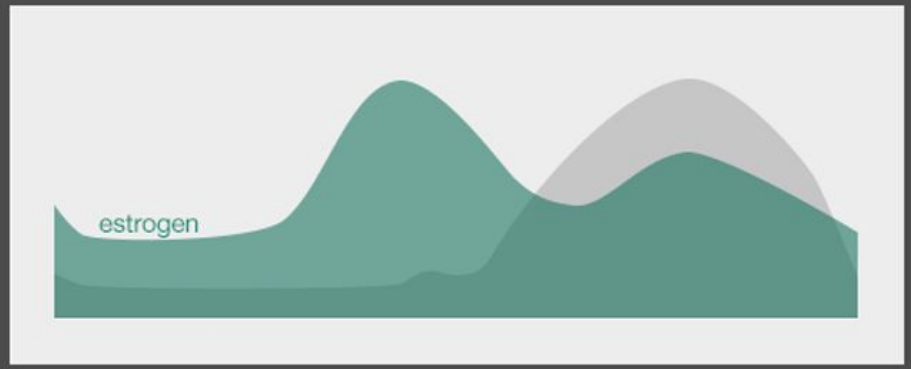
Menstrual cycle summary (cont'd)

- ➔ Ovulation occurs when a matured follicle triggers an LH surge
- ➔ LH transforms the newly-empty follicle into the corpus luteum
- ➔ The corpus luteum makes progesterone for 11–16 days
- ➔ Progesterone dries up cervical fluid, prevents another ovulation, thickens the uterine wall, and heats up the body
- ➔ If a pregnancy doesn't occur, the corpus luteum dies, progesterone levels drop, the uterine wall breaks down, and your period starts

Hormone Cycle



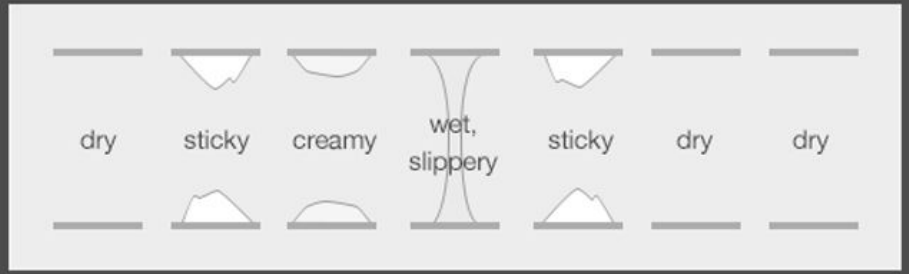
Hormone Cycle



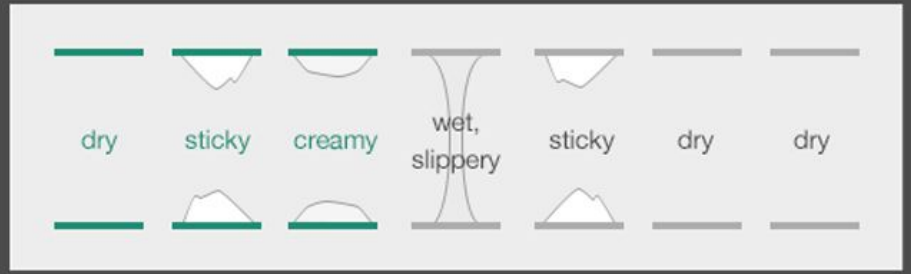
Ovarian Cycle

Ovarian Cycle

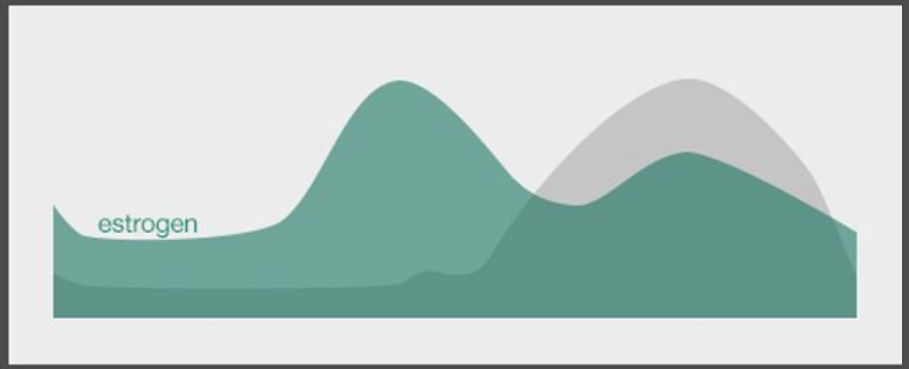
Cervical Fluid



Cervical Fluid



Hormone Cycle



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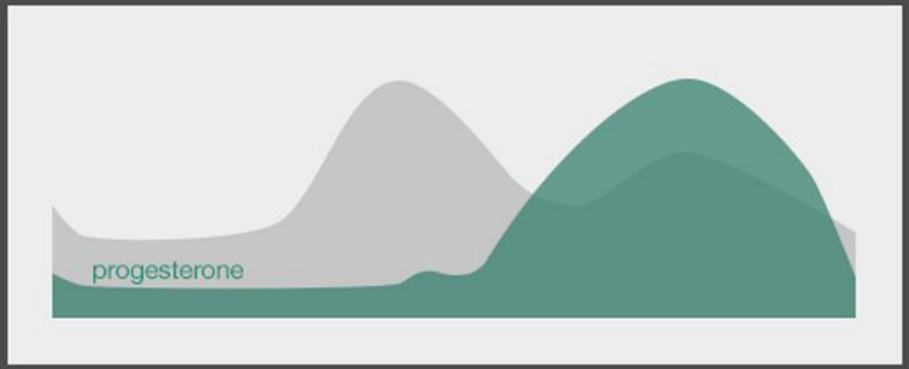

Ovarian Cycle

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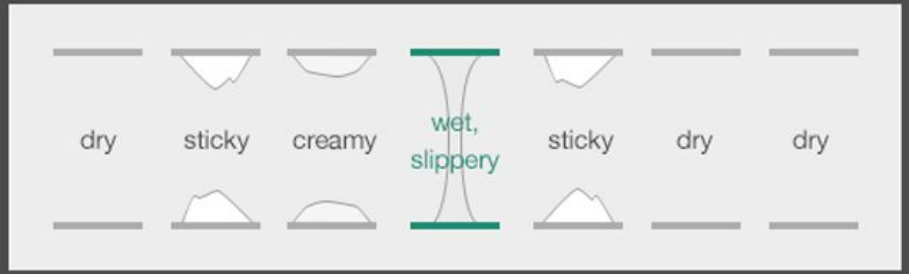

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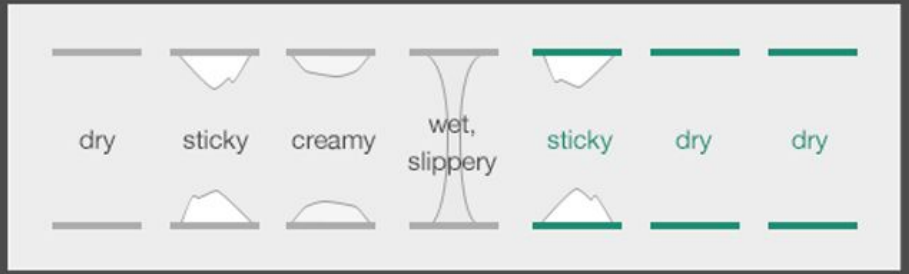

Tomorrow

- ➔ You'll learn how tracking your cycles can BENEFIT your life
- ➔ Learn how to apply what you've recently learned to accurately predict your next period
- ➔ Learn about some very unexpected (but ah-mazing) benefits of tracking your menstrual cycles

You should be SUPER PROUD of everything you just learned.