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AN EXPERT GUIDE TO

# Female Sex Hormones

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# Welcome to your guide on female sex hormones.

Hormones seem to be the culprit for just about every health woe these days – from irregular periods and infertility struggles to those tender, under-the-surface zits and polycystic ovarian syndrome (PCOS). But here's the thing: it's not necessarily the hormones themselves that cause trouble.

*Hormonal imbalance* is actually to blame for many of these woes. So, what does hormonal imbalance look like in the body? To answer this question, we created a guide to four of the most important ones. You'll learn what they are, their roles, and how they interact with other hormones to naturally support your menstrual cycle, reproductive health and fertility.

XX,  
Team Bintö

PART ONE:

# Taking a Step Back

We spend so much time talking about hormonal imbalance, it's easy to forget what hormones actually are.

The Endocrine Society defines hormones as "special chemical messengers in the body that are created in the endocrine glands. These messengers control most major bodily functions, from simply basic needs like hunger to complex systems like reproduction, and even the emotions and the mood."

Hormones are made and released by parts of the body called glands. Examples of glands include the pituitary gland, the ovaries, and the adrenal gland.



PART TWO:

# Phases of the Menstrual Cycle

At Bintö, we think the term "monthly cycle" is more clear than "menstrual cycle." Your cycle doesn't just refer to your period and menstruation. No matter what time of the month it is, you're in a particular phase of your cycle. The phase is dictated by how your hormones are behaving. Let's dive in to the four menstrual phases.

**MENSTRUAL PHASE (your period):** Day 1 of your monthly cycle begins the first day of your period. During this phase, the internal lining of your uterus sheds.

**FOLLICULAR PHASE (egg development):** This phase also starts on the first day of your period. Your ovaries begin preparing for a process called ovulation by slowly developing multiple follicles, which are shell-like structures inside your ovaries. During this phase, each follicle is responsible for slowly maturing an egg inside it.

**OVULATORY PHASE (egg release):** As you probably guessed, this is when ovulation occurs. This is the midpoint of your monthly cycle, starting about 14 days after the menstrual and follicular phases. Even though multiple eggs are developing inside a number of follicles, only a single follicle and egg will fully mature. The egg is released by the follicle and ovary into the fallopian tube to be fertilized by sperm. The other follicles and eggs die off.

**LUTEAL PHASE (fertilization prep):** This phase begins the day after ovulation until day 1 of your period. If the egg gets fertilized, it needs to be able to implant in the uterus. Therefore, the inner lining of the uterus - the endometrium - thickens, creating a cushion for a fertilized egg. If fertilization occurs, the egg makes a home here and pregnancy is achieved. If not, the excess uterine lining and the egg shed in the form of your period, which will occur about two weeks later.

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At this point, we're now back to where we started and the monthly cycle repeats. As you can see, there's a heck of a lot happening in your reproductive system during your monthly cycle. How does your body know to mature an egg, ovulate, or thicken the lining of your uterus? That's exactly where hormones come into play.

## **EVER WONDER ABOUT YOUR EGGS?**

Women are born with around one million eggs. Over the course of your reproductive years, you lose eggs each month. Your egg quality will start to decline as you age, and supplements are a great, natural way to improve egg health and increase your chances for a healthy pregnancy in later years.

PART THREE:

# Key Sex Hormones

**ESTROGEN:** Of all the female sex hormones, estrogen is the most well known – and for good reason! Estrogen is like the conductor of the orchestra – it sets everything in motion. It is produced by the ovaries, adrenal glands, and placenta.

**PROGESTERONE:** Like estrogen, progesterone is also secreted by the ovaries, adrenal glands, and placenta. Its primary role is making sure the lining of the uterus thickens in order to support a fertilized egg during the luteal phase. This makes progesterone vital for a successful, healthy pregnancy.

**FOLLICLE STIMULATING HORMONE (FSH):** This hormone is released from the pituitary gland in the brain. It travels from the brain to the ovaries through the bloodstream. During the follicular phase, FSH is primarily responsible for stimulating growth and maturation of multiple ovarian follicles per cycle.

**LUTEINIZING HORMONE (LH):** Ultimately, only one follicle fully matures and releases an egg. This is where LH comes into play. Also released from the brain's pituitary gland, LH's main role is causing the mature, dominant ovarian follicle to release the egg into the fallopian tube during the ovulatory phase (aka ovulation).

PART FOUR:

# Putting It All Together

## **MENSTRUAL PHASE:**

- When estrogen and progesterone are at their lowest point, your period begins
- As menstruation continues, estrogen and progesterone levels steadily begin their climb

## **FOLLICULAR PHASE:**

- FSH makes its way from the brain and travels to the ovaries. There, it stimulates the growth of several ovarian follicles which house your eggs.
- Remember, estrogen levels are still rising. This rise signals to FSH that it has done its job and it can stop working so hard. FSH levels suddenly drop. When balanced, estrogen and FSH work together to ensure only a certain number of ovarian follicles develop - not too many and not too few.
- Eventually, one follicle is named "queen." It continues growing and the others die.



### OVULATORY PHASE:

- The rise in estrogen also triggers LH to be produced in the brain. Like FSH, it travels from the brain to your ovaries. Estrogen is really the director of this show - it says "Action!" and ensures other hormones know when to say their line.
- A rise in LH causes the ovarian follicle to release the egg into the fallopian tube. At this point, ovulation has officially been achieved.

### LUTEAL PHASE:

- Once the follicle releases the egg due to an increase in LH, progesterone knows to prep the uterus for a fertilized egg to implant by thickening the endometrium.
- Pregnancy occurs in the egg is fertilized and implants in the uterus.
- If the egg is not fertilized, progesterone and estrogen levels suddenly drop. This causes the lining of the uterus to shed and menstruation to begin.
- The menstrual phase starts again.



PART FIVE

# What This Means For You

In order for your cycle to function properly, it's critical that your hormones communicate and work together. If estrogen levels are low, for example, things can get thrown out of whack. FSH may not get its cue to stop stimulating ovarian follicles, so it keeps rising instead of dropping. Therefore, too many follicles start to mature.

If LH is low, it may be difficult for women to ovulate. Without the release of an egg to be fertilized, spontaneous conception is difficult. When LH is low, progesterone may not know to prepare the uterus for implantation and pregnancy, thus making both more difficult.

**The bottom line?** Hormone balance is key for a healthy reproductive system. We understand that achieving this balance can feel overwhelming - there are many moving parts, not to mention multiple acronyms. Remember it's extremely common - over half of women suffer from irregular menstrual cycles (a symptom of hormonal imbalance).

**HORMONE BALANCE AND PCOS:** When estrogen levels are low, and FSH is in overdrive, an abundance of maturing follicles can start to create cysts on the ovaries. This is how we get the term "polycystic ovarian syndrome." Many women with PCOS experience irregular cycles but there are ways to help re-balance hormones naturally, like taking daily supplements.

# At Binto, we've got your back.

Our personalized, expert-created daily supplements are formulated with powerful antioxidants that promote balance. This way, you can focus on work-life balance or nailing that balancing yoga pose, and leave hormonal balance to us.

Next time you blame your hormones for a particularly tough mood swing or irregular period, keep in mind that it's a good thing you've got them. It's more about keeping them in balance.

You've got all the parts - it's just a matter of figuring out how they fit and work together (kind of like that IKEA dresser), so you can take control of your health.

**SOURCES:** This e-book was written by English Taylor. A women's health freelance writer and editor, English went to the University of Virginia undergrad and Northwestern for graduate school.

She currently lives in the Bay Area but hails from Nashville (one of our favorite places!).