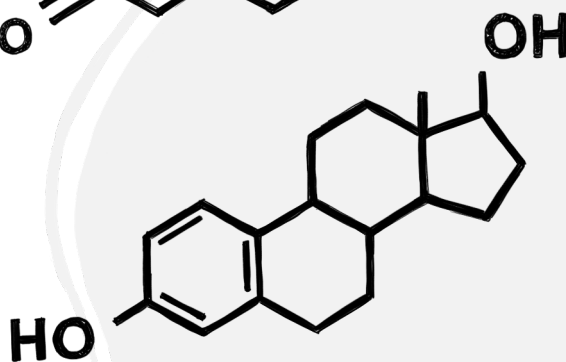
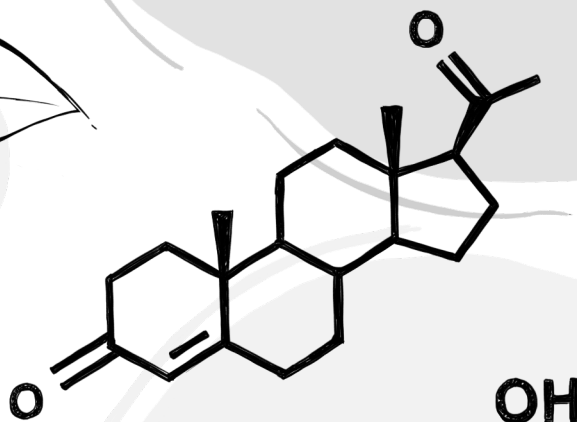


IT'S

ALL



CHEMISTRY

**estrogen & progesterone**

# SEX HORMONE REPLACEMENT THERAPY



## HELLO YOU!

This is intended to help you understand what is going on in your body right now. Hopefully this knowledge can help you feel confident in making your next health decision. Please feel free to ask any questions or share any concerns with your medical team.

**Hormone replacement therapy** is the treatment to replace a hormone that is not present in your body. This treatment is not a cure but a way to give your body the hormone it needs.

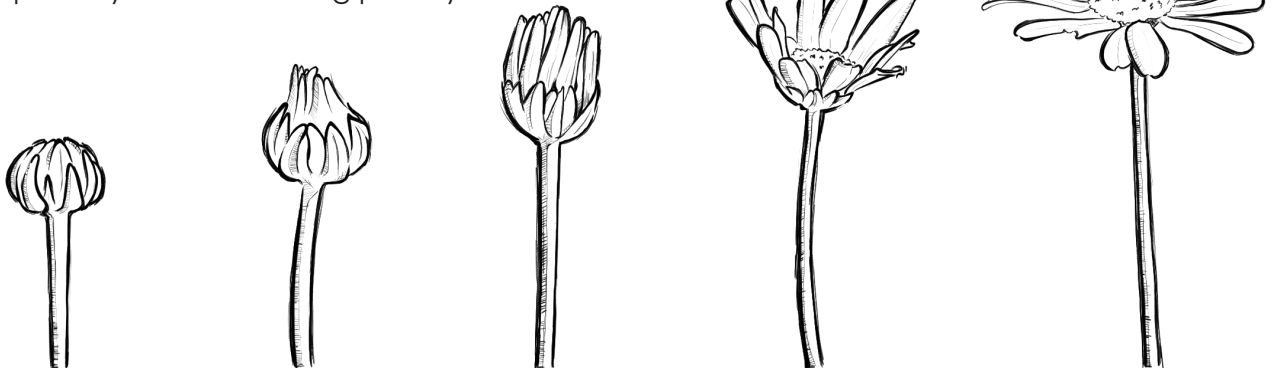
There is a time in everyone's life where you grow the most and the fastest - that is called *Puberty*. *Hormones* are what is needed for it to happen.

### WHAT ARE HORMONES?

Hormones are special chemicals our bodies make. Did you know there are more than 50 types of hormones?

Imagine hormones as tiny messengers carrying secret codes through our blood. When they reach our cells and tissues, they help change and shape our bodies—like making our hair grow!

Some hormones even team up, especially the ones during puberty.

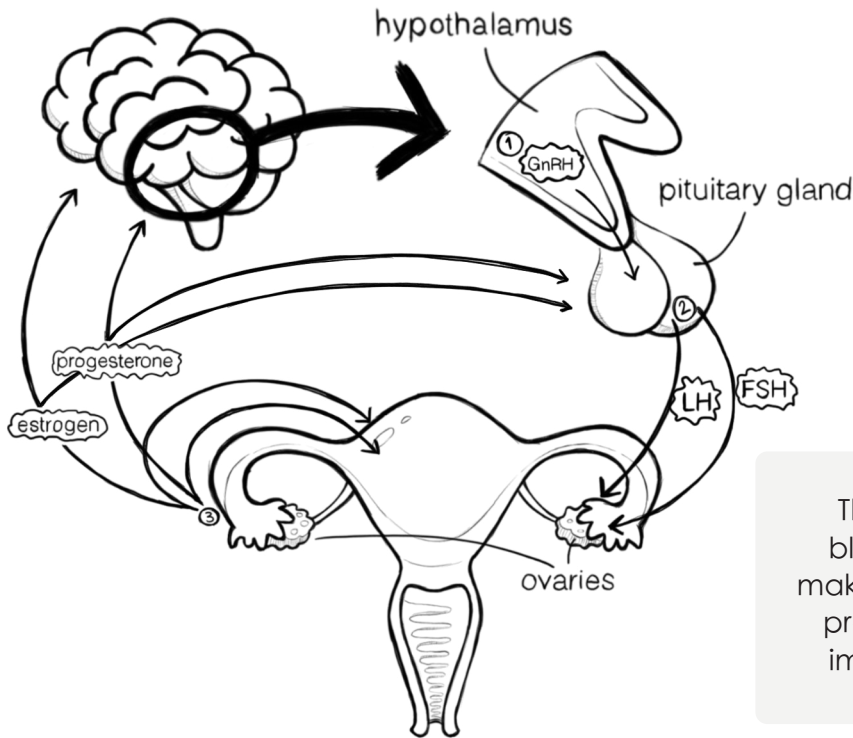


### WHAT IS PUBERTY?

Puberty is the stage in your life where you and your body start to develop and change. It can begin between the age of 8 to 13 years - some may start a little earlier or later. Everyone has their own journey!

Usually, puberty lasts 3 to 4 years. Let us dive deeper on the next page.

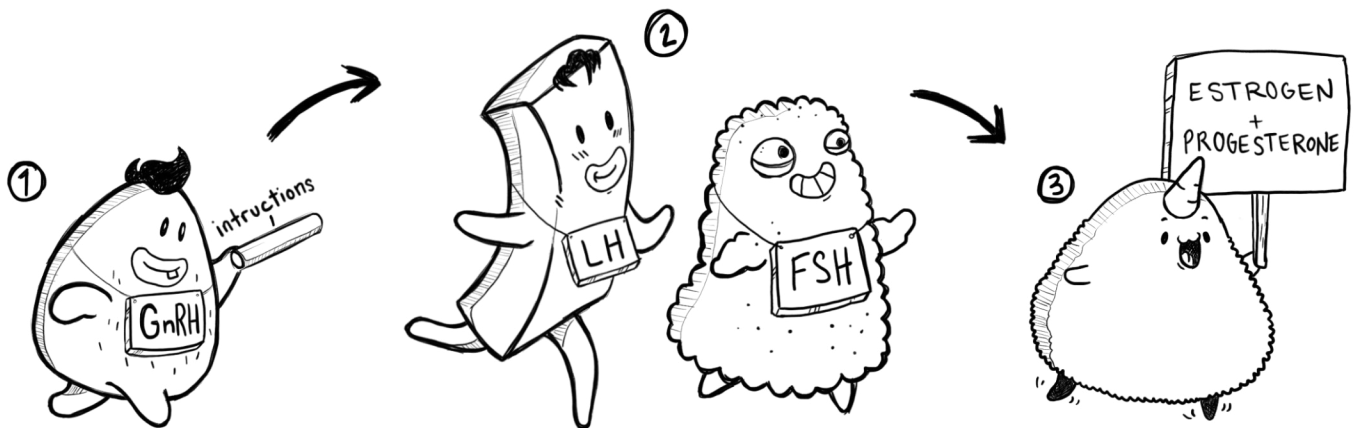
We do not know what triggers puberty, but it starts with a special signal - a pulse-like release of GnRH (gonadotropin-releasing hormone) from a part in the brain called the hypothalamus.



This causes the pituitary gland to make and release LH (luteinizing hormone) and FSH (follicle stimulating hormone).

These hormones travel in our blood to the ovaries and help make the hormones estrogen and progesterone, which is a super important part of growing up!

Think of puberty like a relay race. Each hormone is a runner in a team. They pass off the baton (instructions) to the next runner. The instructions cause their specific action to happen.



1 First up: GnRH is produced in the hypothalamus and then released! They pass over to...

2 The Gonadotropins! LH and FSH are produced and released by the pituitary gland.

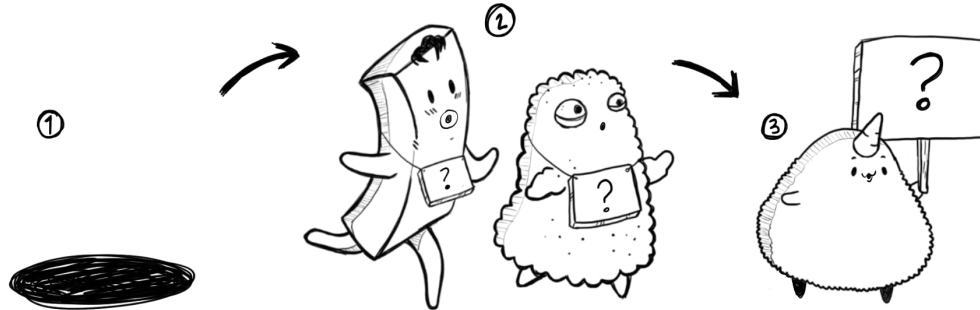
3 Finally, we have the sex hormones: **Estrogen** and **Progesterone**, mainly produced by the ovaries, which are our gonads.

All parts are needed for the body to grow and change.

# WHY DO SOME PEOPLE NEED TO TAKE SEX HORMONES?

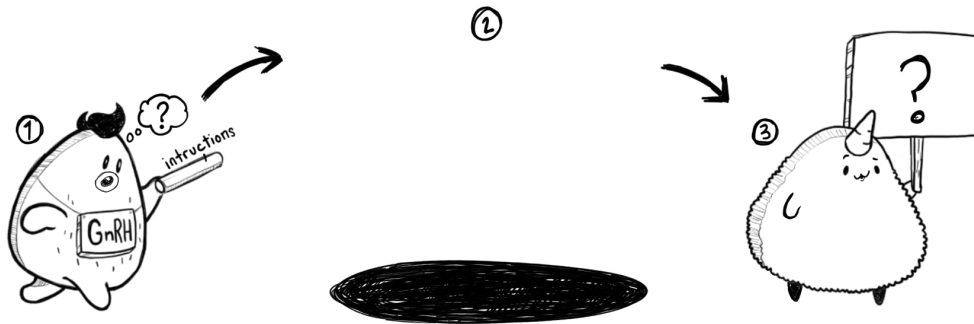
There are various reasons some people may need to take sex hormones. Without these hormones, certain tasks cannot be completed, and puberty will not occur. Here are some reasons why these hormones might be missing:

**#1 GnRH deficiency** is like missing the first runner in a relay race.



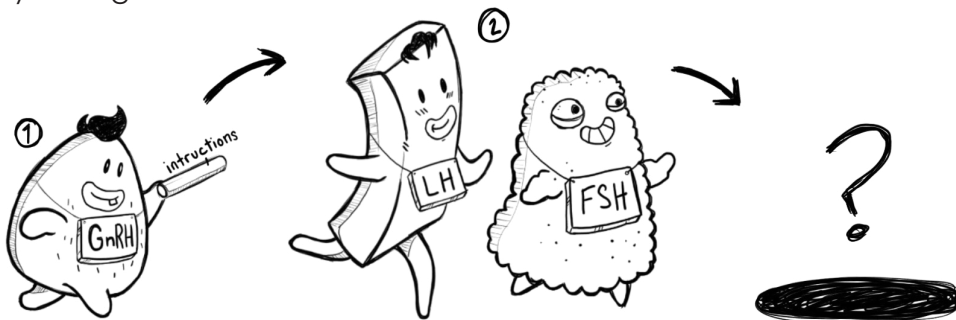
Without GnRH, instructions do not reach the pituitary gland from the hypothalamus. Causes can include brain tumors, treatments for brain tumors like radiation or surgery, as well as genetic syndromes like Kallmann syndrome or Prader-Willi syndrome.

**#2 Gonadotropin (LH, FSH) deficiency** is like missing the second and third runners in a relay race.



Without LH and FSH, instructions do not reach the ovaries from the pituitary gland. Causes can include congenital malformation of the pituitary gland, treatments like radiation or surgery for tumors, or other traumas to the pituitary gland.

**#3 Ovarian insufficiency** is like missing the last runner in our relay race—the one to finish the race and bring about puberty changes.



Since estrogen and progesterone are made in the ovaries, if someone has missing, incompletely formed, or damaged ovaries, they cannot produce these final sex hormones. Causes can include treatments like radiation, chemotherapy, or surgery to the ovaries, being born without ovaries (congenital absence), or conditions like Turner syndrome, androgen insensitivity syndrome, Fragile X syndrome, and galactosemia.

# WHAT CAN WE DO?

As of right now we cannot replace or repair the ovaries or pituitary gland. However, we can introduce chemical copies of the missing hormones into the bloodstream. This provides your body with the instructions it needs to change and grow. Estrogen and progesterone are the hormones your body is looking for.

## HOW DO WE REPLACE THE HORMONES?

We copy what the body does naturally by turning estrogen and progesterone into medicine, which you can get in different forms like pills, patch, or gel! For starting puberty with estrogen, pills are often the preferred method. Let's dive in:

### STEP ①



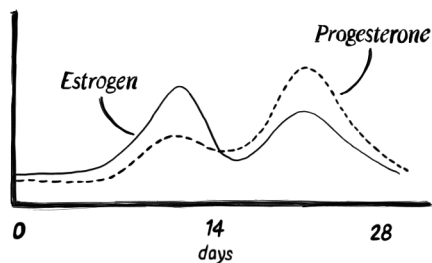
NOTE:  
ESTROGEN PATCHES CAN BE CUT TO DECREASE THE DOSE  
TALK TO YOUR DOCTOR FOR MORE INFO TO DECIDE TOGETHER WHICH IS BEST FOR YOU ♡



Similar to the body's usual pattern, we start with estrogen. A small daily dose of 0.25 - 0.50 mg

The dose will slowly be increased over the next 1 to 2 years to total 1.5 to 2.0 mg

### STEP ②

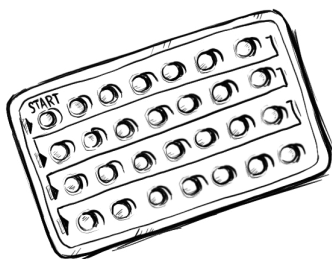


Over approximately a 28 day cycle, the levels of estrogen and progesterone change. Usually, estrogen is higher in the beginning and middle of the cycle and progesterone is higher at the end



Once the body gets used to estrogen, we can start progesterone. Often your doctor will suggest taking it for the first 10 days of the month

### STEP ③



NOTE:  
TO HELP REMEMBER TAKE THE PILL WITH A DAILY ACTIVITY, LIKE BRUSHING YOUR TEETH. IF YOU MISS A DAY AND REMEMBER THE NEXT DAY, TAKE IT FOR THE DAY YOU REMEMBERED AND CONTINUE DO NOT TRY TO MAKE UP PILL(S)

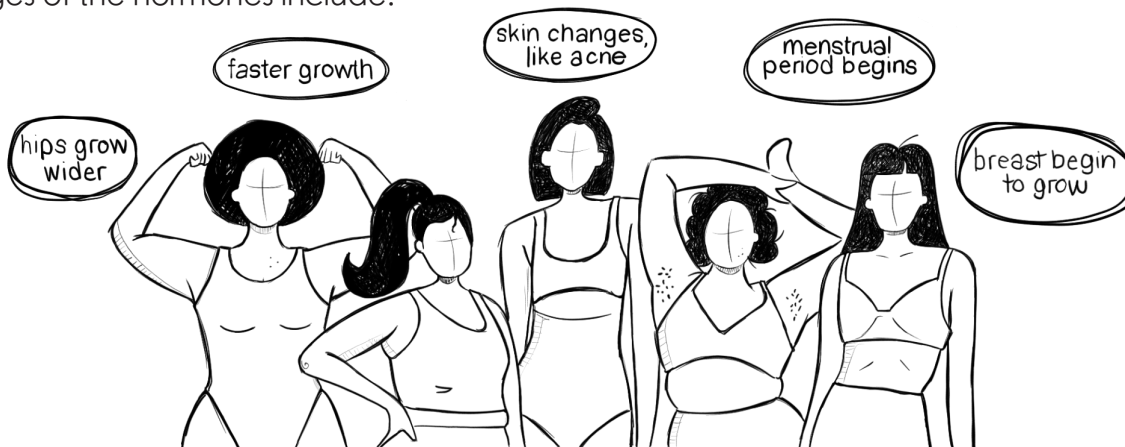


When estrogen and progesterone work together the result can be a menstrual period

As you grow, your dose of estrogen/ progesterone will gradually increase to adult levels so the body can stay healthy. At this point, estrogen and progesterone can be taken in one pill

## WHAT CHANGES CAN WE EXPECT?

Estrogen and progesterone are decoded by many parts of the body. The effects and changes of the hormones include:



All these changes depend on your genes. Such as, how much hair grows, how much taller or bigger your body grows, etc.

Along with these changes you can **see**, you will also have changes in the way you **feel**.



You will become more aware of your feelings. Some may experience them intensely and some less. Some feelings could be: sensitive, emotional, teary, moody, irritable, excitable, angry, embarrassed, etc.

Over time, your body adapts to these hormones, relying on them for a sense of well-being. If you stop taking them, you might feel less equipped to handle stress and changes.

Other changes are:



Strong bones and muscles!  
Without these hormones, bones may become thinner and more brittle, leading to conditions like osteoporosis.



Research has shown that the heart and blood vessels stay healthier with these hormones in the blood stream.



These hormones allow you to mature sexually as a person including having sexual thoughts, feelings and responses.

There are many more changes that come with Puberty. If you would like more information, please do not hesitate to ask! You can also find information online, in a library, or on the last page (Page 8) under Support & Resources.

## WHEN CAN YOU STOP REPLACING HORMONES?



Hormone replacement will need to continue until the time of menopause, the end of menstrual cycles. This typically occurs around the ages of 45 to 55. Please do not hesitate to talk to your doctor when that time comes.

## CAN TAKING REPLACEMENT HORMONES DO ANY HARM?



Be aware that there may be some side effects (see above). Your doctor may recommend waiting to see if these side effects diminish as your body adjusts to the hormones. Alternatively, they might adjust the dosage or switch to a different type of pill that better suits your needs.

Without estrogen and progesterone, your body is vulnerable to various health issues, as we have discussed earlier.



## Breast Self-Examination

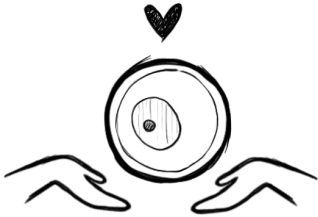
You may have heard that taking estrogen and progesterone increases the risk of breast cancer, but the evidence currently available does not provide a clear answer.

Breast cancer can occur in individuals who take these hormones as well as those who do not.

It is crucial for everyone with breast tissue to perform regular self-examinations to detect any changes early and seek assessment.

# IS HAVING CHILDREN AN OPTION?

A mature egg and a uterus (womb) is needed to support a developing baby. Eggs do not mature unless the hormones (LH and FSH) are present for the ovaries with eggs. Anyone taking hormone replacement therapy is missing one or more of these. Just taking the pill will not give the ability to carry a baby.



If you have no ovaries and therefore no eggs, it may be possible to use a donated egg



If you have eggs but no hormones to mature them, you may be able to take injections of gonadotropins to mature the eggs



Some uteruses cannot support a baby and some bodies may not be able to handle the stress of pregnancy. In these cases surrogacy is an option



Another option is adoption

When the time comes to consider a family, talk to your doctor about a referral to a team of fertility specialists.

## PRACTICING SAFE SEX

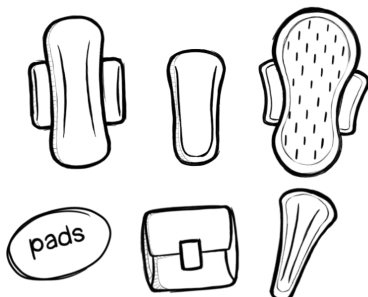
Unless your doctor says you cannot have a baby for sure, it is important to act like you could. Getting in the habit of practicing safe sex is a good way to prevent pregnancy and the spread of sexually transmitted infections (STI).

some options to protect yourself



## PERIOD (MENSTRUAL, MONTHLY CYCLE) CARE PRODUCTS

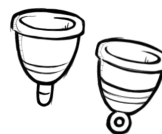
There are many options for period products. Find what works best for you! Please do not hesitate to ask for advice or help from someone you feel comfortable with.



pads

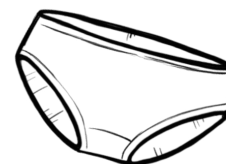


tampons



menstrual cups

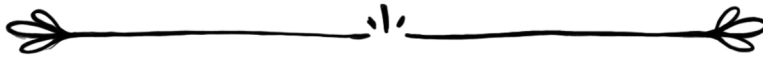
starter kits are available!



padded cotton underwear



We hope the information provided in this booklet has empowered you with greater understanding of hormone replacement therapy. For further support or questions, do not hesitate to reach out to a trusted health professional. Remember, this journey is yours, and we are all here to assist you along the way!



British Columbia Children's Hospital  
4480 Oak Street, Vancouver, BC V6H 3V4  
Endocrinology & Diabetes Unit

## SUPPORT & RESOURCES

Come visit the BCCH Family Support & Resource Centre Library! Resources are available to be borrowed or viewed from the Family Resource Library at BC Children's Hospital, online and from most other libraries!



### ONLINE

<https://bcch.andornot.com>  
(Family Library)

scan me  
for website



### IN PERSON

2nd floor of the  
Ambulatory Care  
Building (above Starbucks,  
end of the hall)

scan me  
for map

## OTHER GREAT WEBSITES



Saleema Noon:  
[www.saleemanoon.com](http://www.saleemanoon.com)  
(check out the resource tab "books and websites")



HealthLink BC:  
[www.healthlinkbc.ca/pregnancy-parenting/parenting-teens-12-18-years](http://www.healthlinkbc.ca/pregnancy-parenting/parenting-teens-12-18-years)



Nemour Kids Health  
[kidshealth.org/](http://kidshealth.org/)



## ACKNOWLEDGEMENTS

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BCCH May 2024