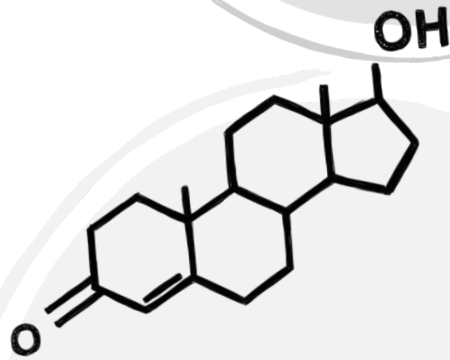


IT'S

ALL



CHEMISTRY

**testosterone**

# 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.

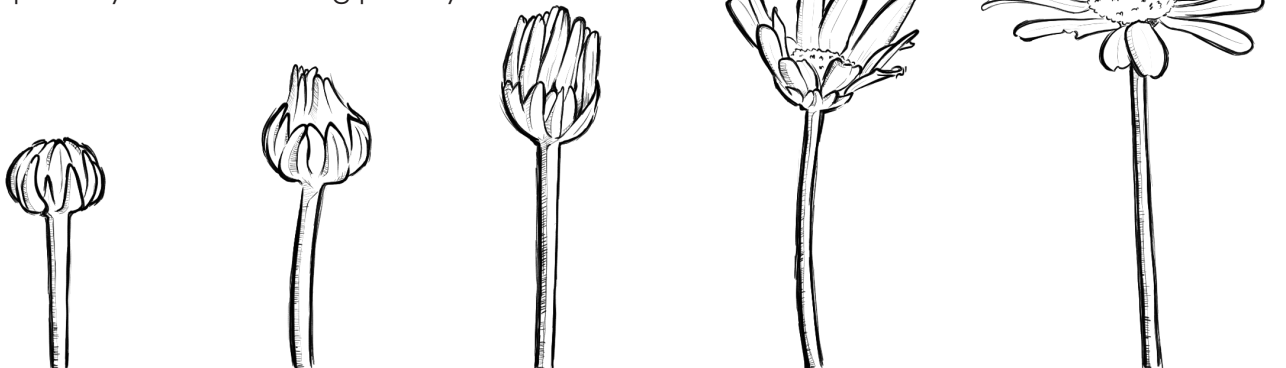
There is a time in everyone's life where you grow the most and the fastest - that is called *Puberty*. *Hormones* are what is needed for it to happen.

### 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.

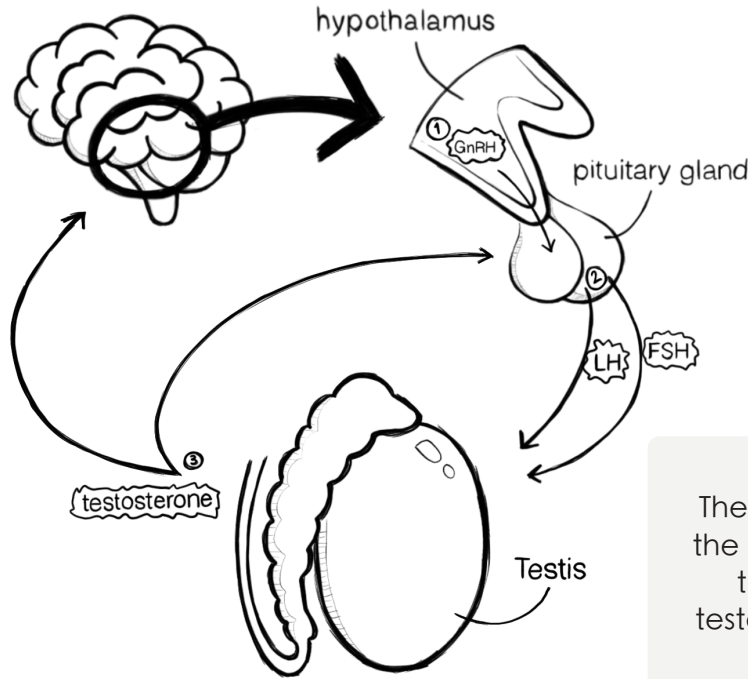


### WHAT IS PUBERTY?

Puberty is the stage in your life where you and your body start to develop and change. It can begin between the age of 9 to 14 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.

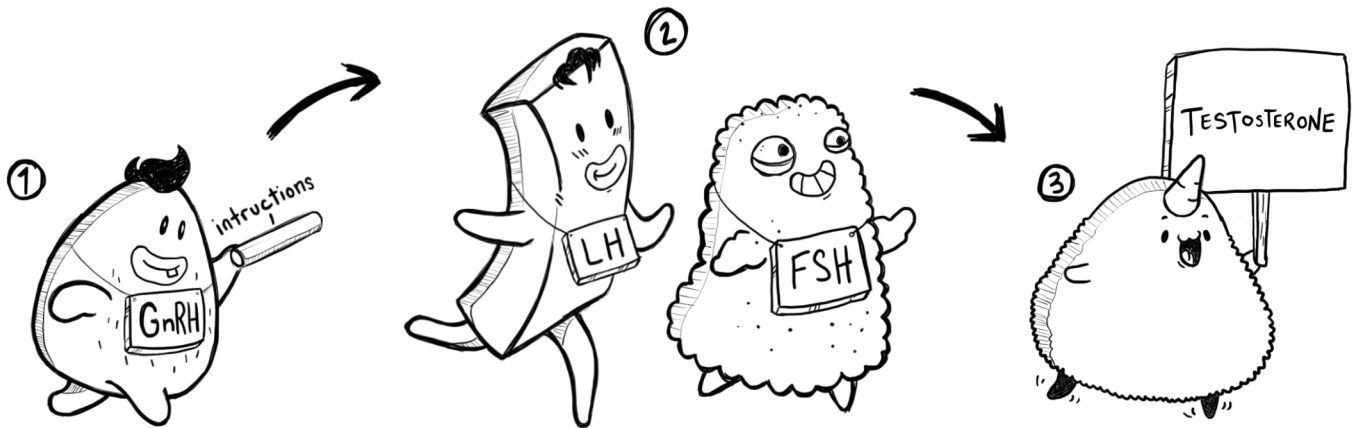
We do not know what triggers puberty, but it starts with a special signal - a pulse-like release of GnRH (gonadotropin-releasing hormone) from a part in the brain called the hypothalamus.



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

These hormones then travel through the bloodstream to the testes, where they prompt the production of testosterone and, eventually, sperm.

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.



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

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

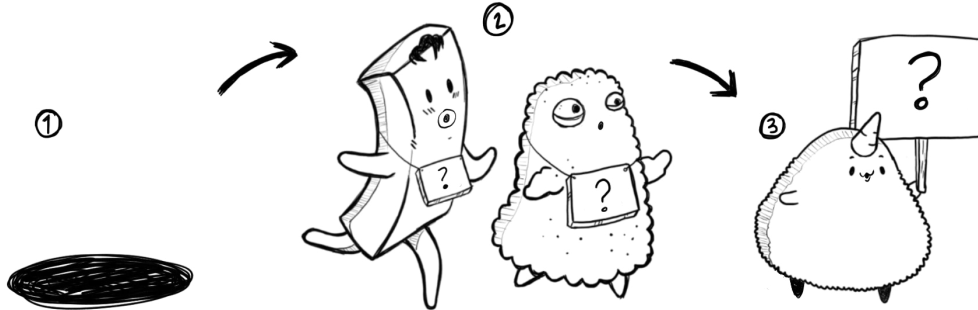
Finally, we have the sex hormone: **Testosterone**, produced mainly by the testicles (testes, or gonads)

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

# WHY DO SOME PEOPLE NEED TO TAKE SEX HORMONES?

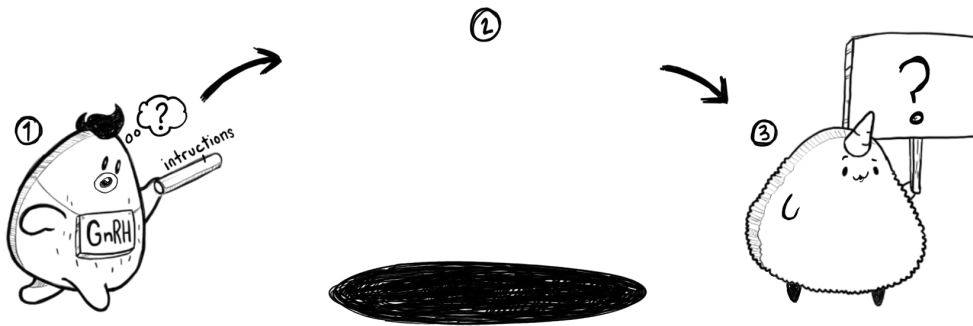
There are various reasons some people may need to take sex hormones. Without these hormones, certain tasks cannot be completed, and puberty will not occur. Here are some reasons why these hormones might be missing:

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



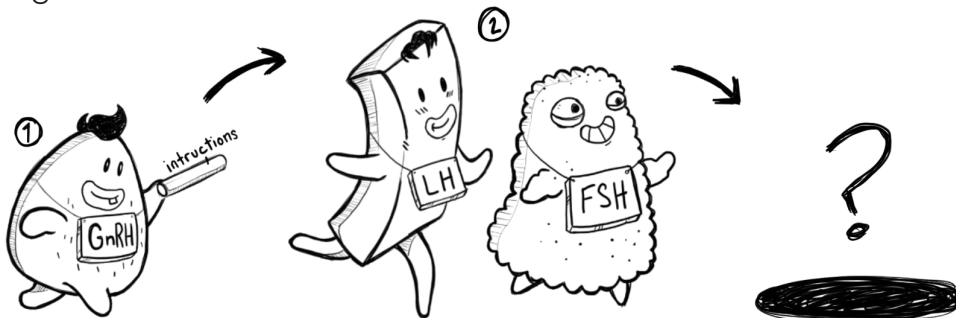
Without GnRH, instructions do not reach the pituitary gland from the hypothalamus. Causes can include brain tumors, treatments for brain tumors like radiation or surgery, as well as genetic syndromes like Kallmann syndrome or Prader-Willi syndrome.

**#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 testes 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 Testicular Failure** is like missing the last runner in our relay race—the one to finish the race and bring about puberty changes.



Testosterone, vital for puberty changes, is produced in the testes. When the testes are missing, undescended, incompletely formed, or damaged, the body lacks the ability to make testosterone. Causes may include radiation, chemotherapy, surgical removal of testes, congenital absence of testes, or other conditions like mixed gonadal dysgenesis, testicular torsion, hemochromatosis, or mumps.

## WHAT CAN WE DO?

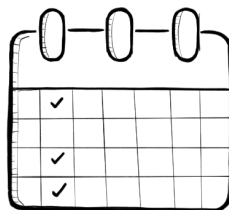
As of right now we cannot replace or repair the testes or pituitary gland. However, we can introduce chemical copies of the missing hormones into the bloodstream. This provides your body with the instructions it needs to change and grow. Testosterone is the hormone your body is looking for.

## HOW DO WE REPLACE THE HORMONES?

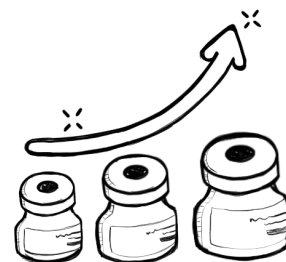
We copy what the body does naturally by turning testosterone into medicine, which you can get in different forms like a shot or gel! For starting puberty with testosterone, injection is often the preferred method. Let's dive in:



Just like the body's usual pattern, we start with a small dose of testosterone every 2 to 4 weeks



Then we progress to a dose every 1 to 2 weeks



It is gradually increased for 1 to 2 years to reach the adult dose of 100 - 200 mg every 1 to 4 weeks



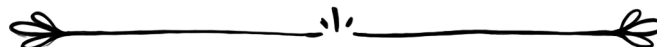
The dose increases will be based on bloodwork and how you are feeling and responding



Once at a higher dose of testosterone, the gel may be an option for you

### NOTE:

NOT ALL FORMS OF TESTOSTERONE ARE PAID FOR BY THE PROVINCIAL OR PRIVATE DRUG PLANS. WE CAN DECIDE TOGETHER WHAT WORKS BEST FOR YOU.



### NOTE:

YOUR ENDOCRINOLOGIST WILL CONTINUE TO WORK WITH YOU TO MAKE SURE YOUR LEVELS ARE INCREASED AND MAINTAINED PROPERLY.



Testosterone is given by injection into fatty tissue (subcutaneous) or into a muscle. You may be nervous about getting the injections. This is normal. Your clinic nurse can show you, your parents, or a trusted individual how to give the injection at home. If you are not yet comfortable, your team can help make a plan for you to get your injections with a healthcare professional.

## WHAT CHANGES CAN WE EXPECT?

Testosterone is 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.

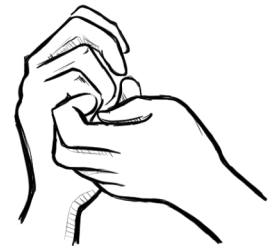
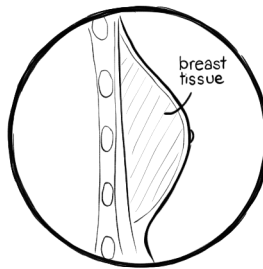
Along with these changes you can **see**, you will also have changes in the way you **feel**.



You may notice changes in your emotions, which can vary in intensity from person to person. These feelings might be particularly strong in the days following your injection. Common emotions include anger, frustration, irritability, increased appetite, and sexual thoughts.

Your body adapts to these hormones over time, relying on them for a sense of well-being. Discontinuing hormone therapy may result in decreased ability to cope with stress and change. Your emotional state can offer insights into the effects of testosterone. Sharing your feelings with your healthcare team aids in adjusting your dose effectively.

Other changes are:



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

3 of 4 people may have some breast tissue development (gynecomastia). For most it can disappear within 6 to 12 months. Using marijuana during puberty can increase the growth.

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.

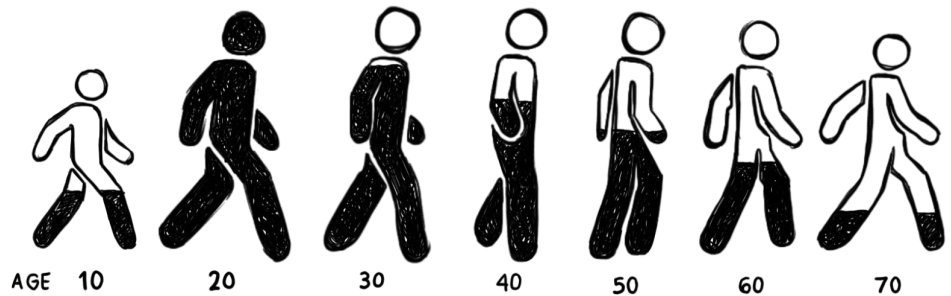
## WHEN CAN YOU STOP REPLACING HORMONES?



Typically, once puberty starts with testosterone, it continues to be produced in the body. That means testosterone as a sex hormone replacement therapy is a lifelong treatment.

## CAN TAKING REPLACEMENT HORMONES DO ANY HARM?

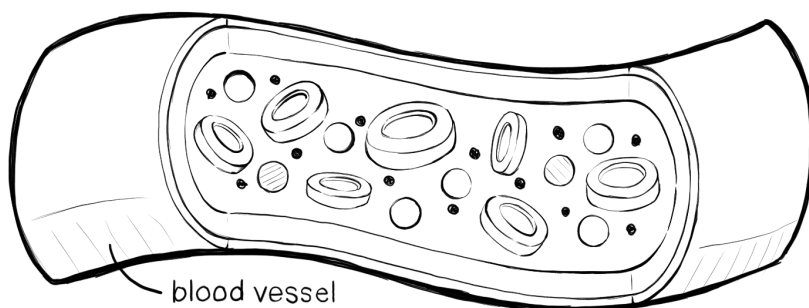
Too much testosterone can do harm. The key is to have enough. "Enough" is the amount that is normally produced by the body at the age you are at. Testosterone levels change as you age.







Some people, like athletes and bodybuilders, want more of the good things that come from testosterone. If they add more to their body, what results is too much of a good thing. They are at serious risk of medical problems and emotional meltdown.



Testosterone affects the balance of fats (cholesterol and triglycerides) in the blood. And the number of red blood cells in your circulation. Your doctor will regularly request blood tests to help keep these levels healthy.



-  red blood cells
  -  HDL
  -  LDL
  -  triglycerides
- } cholesterol

## IS HAVING CHILDREN AN OPTION?

To fertilize an egg, there has to be sperm present. Sperm does not form unless FSH and testosterone work together to carry out the sperm making instructions. Healthy testicular tissue is also needed. Anyone taking replacement therapy is missing one or the other or both of these. Taking testosterone alone will not make you fertile.



If gonadotropins are missing. They can be given if/when a baby is desired. It can be complicated, expensive, and not always successful.



Donated sperm is an option if you have no healthy testicular tissue and therefore no sperm. It is currently not possible to remedy this.



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





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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