

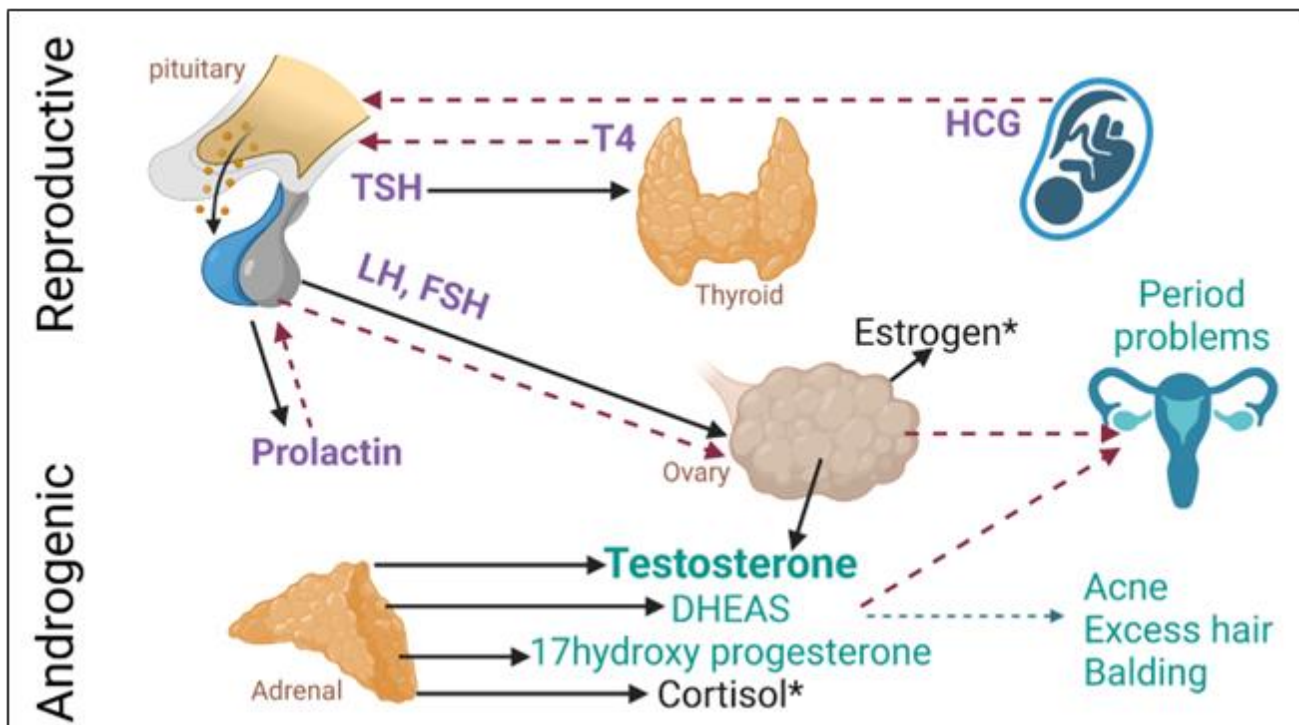
Understanding Periods

Step 1: Diagnosis – Why are my periods irregular? (not once a month)

Non-Hormone Causes: Different shape of the uterus or the vagina, changes in genes (chromosomes)

Hormone Causes:

Reproductive	
Cause	Hormone pattern
Ovary not working	High LH, FSH, low estrogen
LH and FSH hormones not working	Low LH, FSH, low estrogen, low testosterone
Hypothyroid (low)	High TSH and normal/low T4
Hyperthyroid (high)	Low TSH and high T4
Prolactinoma (breast feeding hormone)	High Prolactin (> 30 mg/dL)
Pregnant	High HCG
Prematurity of period hormones	Normal hormones, only 1-3 years from first period
Androgenic (hormones with male-type properties – face and body hair growth, acne, deeper voice)	
Cause	Hormone pattern
Polycystic Ovary Syndrome	High testosterone
Adrenal enzyme problem (rare)	High 17 hydroxyprogesterone is the most common pattern
Adrenal tumor (extremely rare)	High DHEAS (more than 25% above upper limit of normal)
Cushing's (extremely rare)	High Cortisol more than once



Notes:

What is Polycystic Ovary Syndrome (PCOS)?

Polycystic ovary syndrome (PCOS) is a health issue that can affect women and teens of the reproductive age. This condition occurs when teens have extra testosterone (a male hormone) in their body. Due to the increased amount of testosterone, the physical symptoms of PCOS start to show.

PCOS affects the menstrual cycle, hair growth, skin, weight, and the ability to have children.

What can cause PCOS?

PCOS is thought to be caused by a mixture of genetic factors and weight gain. Many teens who have PCOS are overweight, and more than half have family members with either PCOS or type 2 diabetes.

Weight Gain

For overweight teens, decreased physical activity causes weight gain, which increases the amount of insulin in the body. As a result, the increased level of insulin causes more testosterone to be released from the ovaries. The extra testosterone causes the physical symptoms of PCOS, like hair growth.

Excess Testosterone

In all women with PCOS, the ovaries don't work very well. In a healthy female, once a month the ovaries make a follicle (where an egg grows). As the follicle grows, it makes hormones and then it releases an egg. This is commonly referred to as ovulation.

However, the ovary in a woman who has PCOS makes many small follicles instead of one big follicle. The follicles look like cysts on ultrasound, thus giving us the name polycystic ovaries. Although the follicles are harmless, hormone levels become out of balance and ovulation doesn't happen every month the way it is supposed to due to the increased amount of follicles. As a result, periods become irregular or stop altogether.

Who gets PCOS?

Often, PCOS is diagnosed in female adolescents. PCOS can be difficult to diagnose during this stage of life, due to the overlap of normal pubertal developmental symptoms and PCOS symptoms. Genetic factors play a role in causing PCOS, but this condition is also caused by weight gain and other currently unknown factors. This condition is common, 5-10% of all women have PCOS.

Understanding Polycystic Ovary Syndrome (PCOS)

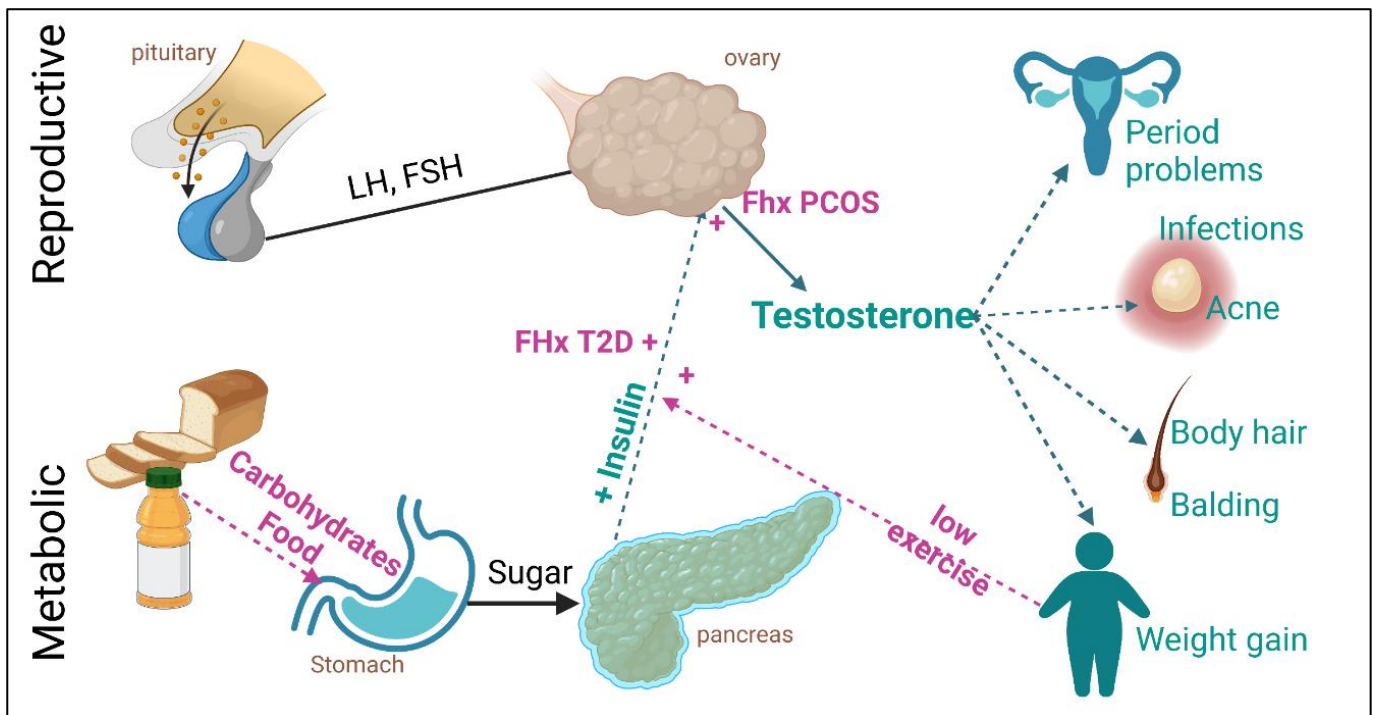
PCOS is a condition where testosterone is high, causing irregular (not monthly) periods and skin changes. Testosterone is high due to high insulin or the ovary thinking the insulin is high.

Causes for high Insulin:

- If your family has type 2 diabetes, your insulin doesn't work well, so you have to make extra insulin.
- If your family has PCOS, the ovary thinks the insulin is high even if it normal.
- Certain medications can make insulin high.

Habits that increase insulin:

- Eating sugary foods – candy, desserts
- Eating too much food with too many carbohydrates – rice, pasta, bread, flour tortilla's
- Drinking sugary drinks including juice, soda, energy drinks, coffee drinks
- Not exercising
- Not enough sleep at night
- Snoring with trouble breathing at night



Conditions Associated with PCOS

High insulin and high testosterone and the combination of the two cause health problems.

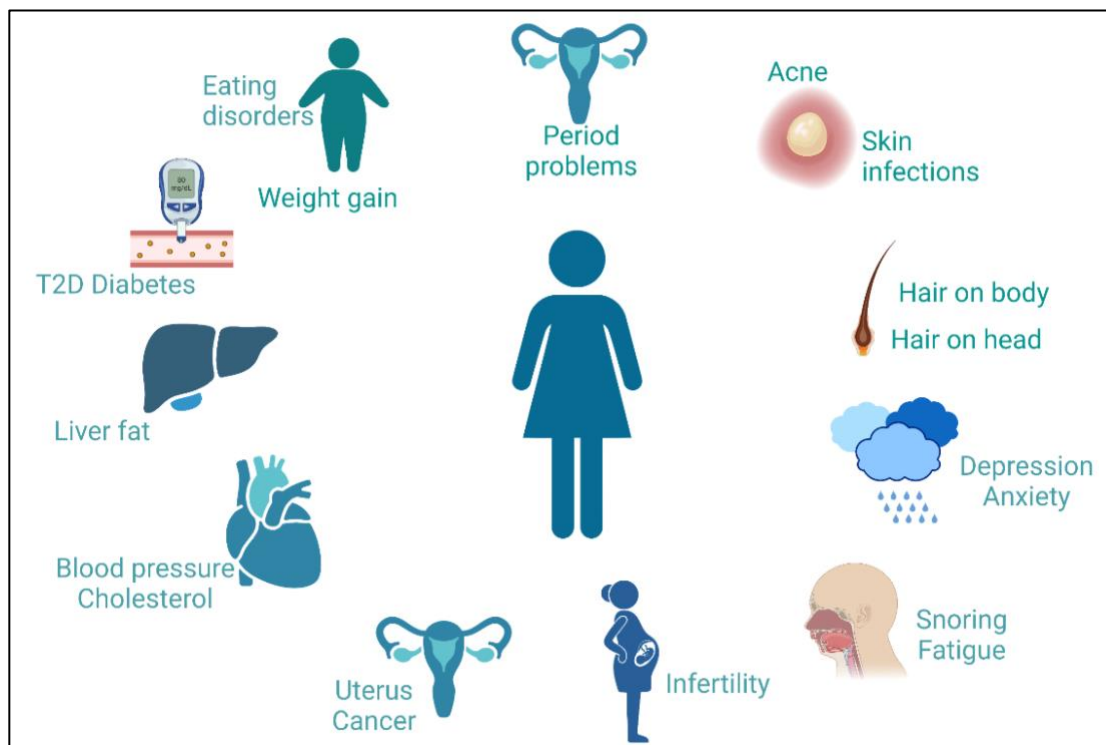
Skin: The high testosterone with PCOS can make acne worse. There can be extra hair growth on the face and body, and hair loss on the head like a male goes bald. Some females have infections in their armpits, groin and under the breasts. The high insulin can cause dark skin at the back of the neck, armpits and groin.

Metabolic conditions: Many of the risks, such as type 2 diabetes, fatty liver disease, high blood pressure and cholesterol, and snoring with trouble breathing (sleep apnea) can be related to extra weight and insulin.

Mood: Mood, anxiety, or eating disorders can be more likely in women with PCOS. Some of this can be related to how you feel about how you look.

Infertility: Infertility (not being able to get pregnant) is common but can be easily treated when you are ready to have a baby. With PCOS it is also easier to get pregnant when you are older. But PCOS is not birth control and you can still get pregnant.

Cancer: Endometrial cancer (uterus lining) cancer risk is higher in women with PCOS but can be prevented with medication, especially with an early PCOS diagnosis. There is not a higher risk for breast cancer or ovary cancer.



Treating PCOS

Goal: Keeping you healthy and feeling good about yourself

Skin: Hormones with estrogen, spironolactone, accutane, antibiotics, creams. Minoxidil shampoo for hair loss on head. Amlactin to decrease dark skin.

Metabolic risk: Food changes to decrease sugar, exercise, enough sleep, fix snoring, metformin, weight loss medications, bariatric surgery

Mood: Counseling, support from other people, medicine

Cancer: Goal is regular periods, or decreased periods from medication. Any hormones. Okay to try lifestyle changes or metformin

