

**NAME: USILI QUEENETH**

**MATRIC NUMBER: 17/MHS07/029**

**COURSE CODE: PHA 304**

## **Assignment**

**1. Write on Estrogens and Progestins**

**2. Drugs used As Antifertility Drugs**

Estrogen is a hormone that plays various roles in the body. In females, it helps develop and Estrogen is a hormone that plays various roles in the body. In females, it helps develop and maintain both the reproductive system and female characteristics, such as breasts and pubic hair.

Estrogen contributes to cognitive health, bone health, the function of the cardiovascular system, and other essential bodily processes.

However, most people know it for its role alongside progesterone in female sexual and reproductive health.

The ovaries, adrenal glands, and fat tissues produce estrogen. Both female and male bodies have this hormone,

but females create more of it.

## Types of estrogen

Estrogen plays an important role in many bodily functions.

There are different types of estrogen:

### Estrone

This type of estrogen is present in the body after menopause. It is a weaker form of estrogen and one that the body can convert to other forms of estrogen, as necessary.

### Estradiol

Both males and females produce estradiol, and it is the most common type of estrogen in females during their reproductive years.

Too much estradiol may result in acne, loss of sex drive, osteoporosis, and depression. Very high levels can increase the risk of uterine and breast cancer. However, low levels can result in weight gain and cardiovascular disease.

### Estriol

Levels of estriol rise during pregnancy, as it helps the uterus grow and prepares the body for delivery. Estriol

levels peak just before birth.

## Function

Estrogen enables the following organs to function:

**Ovaries:** Estrogen helps stimulate the growth of the egg follicle.

**Vagina:** In the vagina, estrogen maintains the thickness of the vaginal wall and promotes lubrication.

**Uterus:** Estrogen enhances and maintains the mucous membrane that lines the uterus. It also regulates the flow and thickness of uterine mucus secretions.

**Breasts:** The body uses estrogen in the formation of breast tissue. This hormone also helps stop the flow of milk after weaning.

## Levels of estrogen

Estrogen levels vary among individuals. They also fluctuate during the menstrual cycle and over a female's lifetime. This fluctuation can sometimes produce effects such as mood changes before menstruation or hot flashes in menopause.

**Factors that can affect estrogen levels include:**

pregnancy, the end of pregnancy, and breastfeeding

puberty

menopause

older age

overweight and obesity

extreme dieting or anorexia nervosa

strenuous exercise or training

the use of certain medications, including steroids, ampicillin, estrogen-containing drugs, phenothiazines, and tetracyclines

some congenital conditions, such as Turner's syndrome

high blood pressure

diabetes

primary ovarian insufficiency

an underactive pituitary gland

polycystic ovary syndrome (PCOS)

tumors of the ovaries or adrenal glands

Learn more about high estrogen levels and low estrogen levels [here](#).

Estrogen imbalance

An imbalance of estrogen leads to:

irregular or no menstruation

light or heavy bleeding during menstruation

more severe premenstrual or menopausal symptoms

hot flashes, night sweats, or both

noncancerous lumps in the breast and uterus

mood changes and sleeping problems

weight gain, mainly in the hips, thighs, and waist

low sexual desire

vaginal dryness and vaginal atrophy

fatigue

mood swings

feelings of depression and anxiety

dry skin

Some of these effects are common during menopause.

Some hereditary and other conditions can lead to high levels of estrogen in males, which can result in:

infertility

erectile dysfunction

larger breasts, known as gynecomastia

Males with low estrogen levels may have excess belly fat and low libido.

### *Estrogen sources and uses*

If a person has low levels of estrogen, a doctor may prescribe supplements or medication.

Estrogen products include:

synthetic estrogen

bioidentical estrogen

Premarin, which contains estrogens from the urine of pregnant mares

### *Estrogen therapy*

Estrogen therapy can help manage menopause symptoms as part of hormone therapy, which people usually refer to as hormone replacement therapy.

The treatment may consist solely of estrogen (estrogen replacement therapy, or ERT), or it may involve a combination of estrogen and progestin, a synthetic form of progesterone.

Hormone treatment is available as a pill, nasal spray, patch, skin gel, injection, vaginal cream, or ring.

It can help manage:

hot flashes

vaginal dryness

painful intercourse

mood changes

sleep disorders

anxiety

decreased sexual desire

It may also help reduce the risk of osteoporosis, which increases when people enter menopause.

Side effects include:

bloating

breast soreness

headaches

leg cramps

indigestion

nausea

vaginal bleeding

fluid retention, leading to swelling

Some types of hormone therapy can also increase the risk

of a stroke, blood clots, and uterine and breast cancer. A doctor can advise a person on whether estrogen therapy is suitable for them.

In addition to menopause, estrogen therapy can also help resolve:

primary ovarian insufficiency

other ovarian issues

some types of acne

some cases of prostate cancer

delayed puberty, for example, in Turner's syndrome

High levels of estrogen can increase the risk and progression of some types of breast cancer. Some hormone treatments block the action of estrogen as a way of slowing or stopping cancer development.

Hormonal therapy is not for everyone. A family history of breast cancer or thyroid issues may contradict using hormones. People who are unsure can speak to a doctor.

Estrogen can help a person develop female secondary sexual characteristics, such as breasts, and reduce male pattern hair formation.

Estrogen therapy will be part of a broader treatment approach.



## Food sources of estrogen

Some foods contain phytoestrogens, which are plant-based substances that resemble estrogen.

Some studies suggest that these may affect levels of estrogen in the body. However, there is not enough evidence to confirm this.

Foods that contain phytoestrogens include:

cruciferous vegetables

soy and some foods containing soy protein

berries

seeds and grains

nuts

fruit

wine

Some people believe that foods containing phytoestrogens can help manage hot flashes and other effects of menopause, but this does not have scientific backing.

In addition, eating whole soy foods, for example, is unlikely to have the same effect as taking extracts from soy as a supplement.

## Supplements

Some herbs and supplements contain phytoestrogens, which act in a similar way to estrogen. These may help regulate estrogen and treat symptoms of menopause.

Examples are:

black cohosh

red clover

soy isoflavones

## Progestins

Progestins are synthetic forms of the body's naturally-occurring hormone progesterone.

Progestins were designed to interact with progesterone receptors in the body in order to cause progesterone-like effects . This means that they do some of what the body's natural progesterone does. For instance, progestins can cause changes to the endometrium (the lining of the uterus) that prevent it from proliferating (building up) too much, and that can help it support implantation and the continuation of an early pregnancy.

Progestins were originally developed because natural progesterone isn't absorbed well when **taken as a pill by**

mouth and is metabolized (processed) by the body too quickly to have much effect .Now progesterone is available in a micronized (smaller particle) form that is absorbed easier and lasts longer in the body , but only progestins—not micronized progesterone—are used in birth control.

Uses of progestins

Progestins in hormonal birth control

Progestins are present in all forms of hormonal birth control, either alone in progestin-only methods (like the implant, hormonal IUDs, injection, or mini-pill) or with an estrogen in combined hormonal birth control (like most pills, patch, vaginal ring, and some injections) .

Progestins prevent pregnancy by inhibiting ovulation and reducing the amount and stretchiness of cervical mucus, making it unfriendly to sperm that are trying to enter the uterus

Some common progestins and the type of birth control they are found in:

Progestin-only birth control and irregular bleeding and spotting

In combined hormonal birth control, it is mainly the

progestin that is preventing pregnancy by suppressing ovulation and inhibiting the secretion of stretchy, fertile mucus .

The purpose of estrogen in combined hormonal birth control is to make bleeding predictable .. Without the estrogen, progestin-only methods commonly cause changes in menstrual bleeding.

Non-cyclical (or unpredictable) bleeding or spotting is common with the hormonal IUD, etonogestrel implant, injection, or mini-pill. This type of bleeding typically decreases over time for people using the hormonal IUD and injection. Amenorrhea (the absence of menstrual bleeding), is possible with all progestin-only methods .Heavy bleeding is uncommon with the hormonal IUD and implant, but may be a side effect for people using the injection.

Progestins in menopausal hormone therapy

Estrogen is sometimes prescribed for people experiencing symptoms related to menopause, such as hot flashes or vaginal dryness.. Estrogen (whether naturally occurring in the body or taken as a medication) causes the endometrium to grow so that it builds a thick layer. Too much estrogen can cause an overgrowth of the endometrium, which is a risk factor for endometrial Cancer

Progestins are sometimes used as part of menopausal hormone therapy because they prevent the endometrium from building up too much and becoming cancerous

Other uses of progestins

Progestins are prescribed for amenorrhea (the absence of periods) and irregular menstrual bleeding . They are also used to treat the chronic pelvic pain and period cramps experienced by people with endometriosis .

How do progestins differ from natural progesterone?

Before we get into potential side effects of progestins, some important background info.

If you are wondering whether to take a progestin-containing birth control or medication, it's important to know about the different kinds of progestin and how they might affect your body.

Progestins are created in a lab, usually starting with a hormone as a building block. Most progestins are created from testosterone, some from progesterone, and one is a type of spiro lactone (class of synthetic hormones that can impact the body's salt and water balance).

Progestins may also bind to receptors for:

androgens

other hormones, like mineralocorticoids, or

glucocorticoids (hormones produced by the adrenal glands)

If progestins bind to these receptors, they can cause different side effects—depending on whether the progestin activates or blocks the receptor .

That doesn't necessarily mean there will be any noticeable changes for someone . For example, just because a progestin is androgenic (binds to androgen receptors), doesn't necessarily mean someone taking that progestin will notice androgen-like effects such as increased acne or excess hair growth.

### Progestin side effects

If there are progestins in your birth control, hormone therapy, or how you manage medical conditions, you may experience side effects.

Side effects of progestin can be related to:

the dose or strength of a particular progestin

the specific hormone receptors with which the progestin is interacting

or a person's individual response to a progestin

Understanding what causes side effects can be further complicated by the fact that different effects may be produced when a progestin is combined with different

doses of estrogen.

Progestins are compounds that interact with PROGESTERONE RECEPTORS in target tissues to bring about the effects similar to those of PROGESTERONE. Primary actions of progestins, including natural and synthetic steroids, are on the UTERUS and the MAMMARY GLAND in preparation for and in maintenance of PREGNANCY.

ATC Classification

L – ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS

L02 – ENDOCRINE THERAPY

L02A – HORMONES AND RELATED AGENTS

L02AB – Progestogens

## **Antifertility Drugs**

Antifertility drugs are chemical substances which suppress the action of hormones that promote pregnancy. These drugs actually reduce the chances of pregnancy and act as a protection. Antifertility drugs are made up of derivatives of synthetic progesterone or a combination of derivatives of estrogen and progesterone. Antifertility drugs are actually synthetic hormones. When progesterone pills are taken, the mucus in the cervix gets

thickened. This makes it very difficult for sperm to enter the uterus and fertilize the egg and hence chances of pregnancy are reduced. Progesterone is a hormone which suppresses ovulation in women. The synthetic progesterone derivatives are more potent as compared to natural progesterone. Norethindrone is an example of synthetic progesterone which is one of the most commonly used antifertility drugs. Ethynylestradiol is a combination of derivatives of estrogen and progesterone.

### **Benefits of Antifertility Drugs**

These drugs generally do not have many side effects, weight gain is the only issue known to be reported. These drugs are very useful if taken in the proper dose, following are its significant benefits:

They cause no interference in sexual activities and risk of pregnancy is reduced.

They might cause the reduction in menstrual bleeding.

They can be taken immediately after childbirth.

The cycle of the medicine should be maintained. The chance of cancer in the uterus is reduced if the pills are taken in long-term dose. They also provide protection against pelvic inflammatory diseases. Progesterone acts as an anti-inflammatory drug and regulates the immune system.



