

# **Oral Contraceptive Pills**

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Oral contraceptives are medicines taken by mouth to help prevent pregnancy. They are also known as “birth control pills”.

there are three types of oral contraceptive pills:

1-combined estrogen-progesterone,

2-progesterone-only,

3-continuous or extended use pill.

The combined pill (combinations of an estrogen with a progestogen)

-Formulations may be :

1-Monophasic (each tablet contains a fixed amount of estrogen and progestin).

2-Biphasic (each tablet contains a fixed amount of estrogen, while the amount of progestin increases in the second half of the cycle).

3- triphasic have 3 different doses of progestin and estrogen that change approximately every 7 days

The medications are available in various forms, such as pills, injections (into a muscle), topical skin patches, and slow-release systems vaginal rings, skin implants, and contraceptive-infused intrauterine devices

The usual estrogen component is combined with a different generation of progestin components with varying degrees of androgenic and progestogenic potential. The combination is prescribed based on desirable effects and risk of adverse events.

**Estrogen component:** Estradiol, Ethinylestradiol, or Estetrol

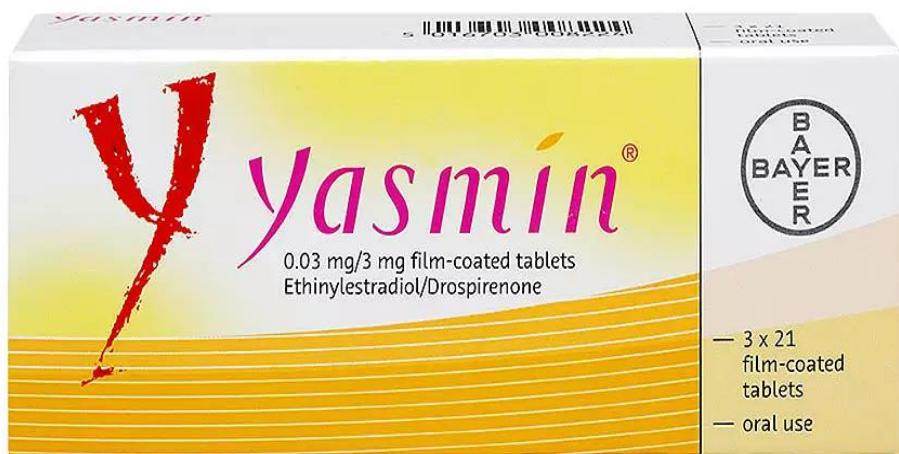
**First-generation progestin:** Norethindrone acetate, Ethynodiol diacetate, Lynestrenol

**Second generation progestin:** Levonorgestrel, dl-Norgestrel

**Third generation progestin:** Norgestimate, Gestodene, Desogestrel

**Unclassified progestin:** Drospirenone, Cyproterone acetate

-in third generation pills- which are more potent, have less androgenic action and cause less change in lipoprotein metabolism, but which probably cause a greater risk of thromboembolism than do second generation preparations.



# Administration

## Combined Oral Contraceptive

**Choice of COC:** Usually, Ethinyl estradiol dose is less than 50 mcg in this combination of pills. Depending on withdrawal bleeding desired by the patient and clinically recommended, it can be prescribed as a cyclic (monthly bleeding), extended cyclic (every three months bleeding), or continuous dosing (no bleeding).

**Cyclic formulations:** The cyclic formulations have active hormone pills for 21-24 days, followed by 7-4 days of hormone-free pills.

**Extended cycle formulations:** extended cycle formulations have active hormone pills every day for three months, followed by a placebo week.

**Continuous use formulation:** can be manipulated by using the only active pills from monthly formulations for one year period, which will functionally stop all menstrual bleeding. The most common complication from the extended cycle is break-through bleeding. Any formulation of a combined oral contraceptive pill can be used in this manner, but typically the monophasic pills are the easiest to manipulate.



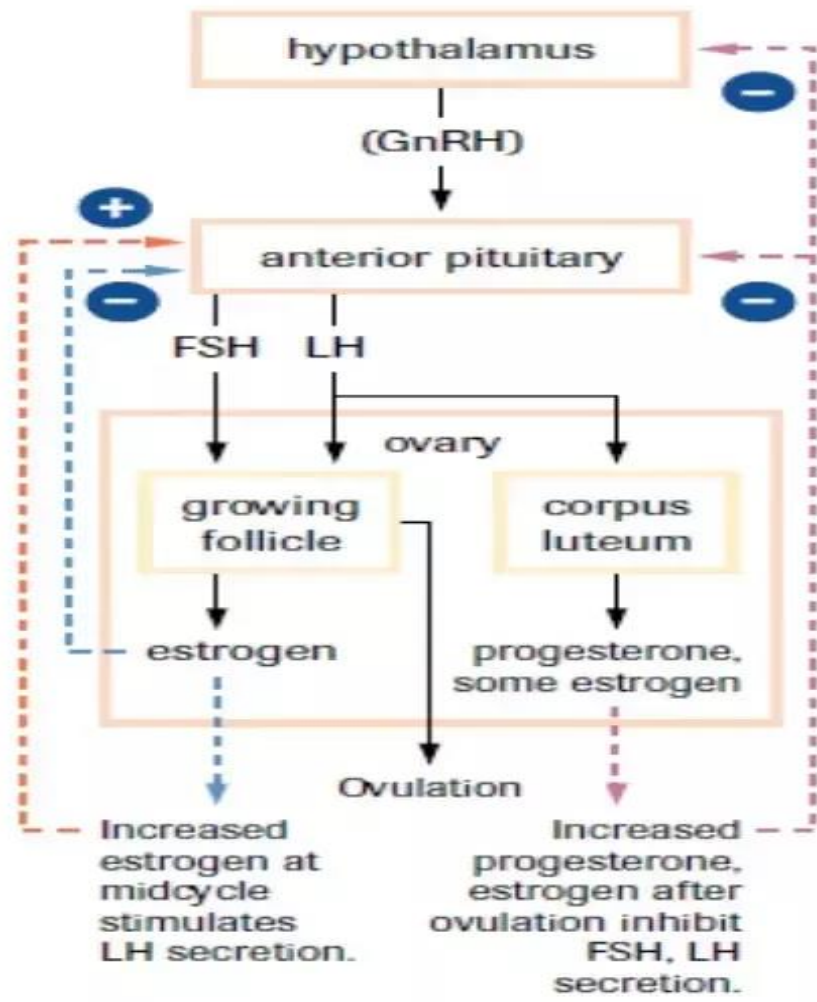
## **mode of action**

1-estrogen inhibits secretion of FSH via negative feedback on the anterior pituitary, and thus suppresses development of the ovarian follicle.

2-progestogen inhibits secretion of LH and thus prevents ovulation; it also makes the cervical mucus less suitable for the passage of sperm.

3-estrogen and progestogen act to alter the endometrium in such a way as to discourage implantation.

4-They may also interfere with the coordinated contractions of cervix, uterus and fallopian tubes that facilitate fertilization and implantation.



## **Pharmacokinetics of oral contraceptives**

- Combined and progestogen oral contraceptives are metabolized by hepatic cytochrome P450 enzymes.
- Because the minimum effective dose of estrogen is used( in order to avoid excess risk of thromboembolism), any increase in its clearance may result in contraceptive failure, and indeed enzyme-inducing drugs can have this effect not only for combined but also for progesterone-only pills.
- Such drugs include rifampicin, carbamazepine, phenytoin, griseofulvin and others.

Broad-spectrum antibiotics such as **amoxicillin** can disturb Enterohepatic recycling by altering the intestinal flora, and cause failure of the combined pill. This does not occur with progesterone-only pills.

## **Emergency Contraceptive (Postcoital )Pill:**

-Any method of contraception which is used after intercourse and before the potential time of implantation to prevent pregnancy.

-Emergency hormone contraceptive regimens are highly effective and decrease the risk of pregnancy by 75 percent

### **Types of ECP:**

-Increased doses of combined oral contraceptive pills

-High doses of Progestogen-only Oral Contraceptive pills within 72 hours of unprotected intercourse, repeated 12 hours later.

-Levonorgestrel 0.5 mg + EE 0.1 mg tablet

-Levonorgestrel (0.75 mg) alone (2 tablets)

# The progestogen-only pill

- The drugs used in progestogen only pills include norethisterone, levonorgestrel or ethynodiol.
- The pill is taken daily without interruption.



## Injectable

-Long acting Progestin alone

1-Depot medroxyprogesterone (DMPA):

150 mg \ 1 ml vial half life 50 days.

2-Norethidrone (Norethisterone):

200 mg \ 1 ml vial repeat at 2 months

-Long acting progestin + estrogen:

Medroxyprogesterone + estradol cypionate – IM  
injection – monthly

## Common adverse effects

- weight gain, owing to fluid retention or an anabolic effect, or both
- flushing, depression or irritability
- skin changes e.g. acne or increase in pigmentation
- amenorrhea of variable duration on cessation of taking the pill.

The most common reason patients discontinue combined OC use is:

Abnormal menstrual bleeding, followed by : Mood changes, Breast tenderness, Headache



## Adverse Effects - Late

-Chloasma, Pruritus vulvae, Carbohydrate intolerance

## Serious Complications

-Leg vein and pulmonary thrombosis

-Coronary and cerebral thrombosis

-Hypertension

-Genital carcinoma

-Benign hepatomas

-Gallstones

Women with the following conditions should not use estrogen- containing birth control medications:

- History of blood clot disorders
- History of stroke or heart attack
- Severe hypertension
- Diabetes that causes blood vessel problems
- Poorly controlled diabetes
- Severe headaches (for example, migraines)
- Breast cancer
- Liver cancer or liver disease

## **Uses :**

1-Prevent pregnancy

2-To regulate menstrual cycle. The combined pill markedly decreases menstrual symptoms such as irregular periods and intermenstrual bleeding

3-Endometriosis (abnormal tissue growing outside the uterine lining)

4-Polycystic ovary syndrome

5-Dysfunctional uterine bleeding

**Thank you**