

## Oral Contraceptives

Are drugs that decrease fertility mainly by preventing ovulation

Oral contraceptive drugs are of two types:

1. Combined oral contraceptive pills
2. Progestogen only pills

### Combined oral contraceptive pills

Is a combination of estrogen (ethinylestradiol, mestranol) and progestogen (2<sup>nd</sup> generation like norethisterone, levonorgestrel or 3<sup>rd</sup> generation like desogestrel, gestodene, norgestimate)

These drugs are defined as second or third generation by progestogen component, the first generation is obsolete.

The pills are either:

**a. Monophasic**- contain a fixed amount of estrogen and progestogen given over 21 days.

**b. Biphasic and triphasic**-contain constant doses of estrogen and increasing doses of progestogen, given over 2 or 3 successive 7 –day periods (to achieve effective contraception with minimal distortion of natural hormonal rhythm)

\*The pill started on first day of menstrual cycle (first day of menstruation) and continued for 21 days, followed by a period of 7 days when no pill is taken during which withdrawal bleeding occurs

\*For easy compliance, some combined pills are packaged so that the woman takes one pill daily without interruption (21 active and 7 dummy)

\*The pill should be taken at about the same time (to within 12h) every day to establish a routine

### Mechanism of action

1. The principal mechanism is inhibition of ovulation through suppression of LH surge by hypothalamus and pituitary
2. Alteration of endometrium, so that implantation less likely to occur
3. Cervical mucus becomes more viscous and impedes the passage of sperms

**Benefits of combined contraceptive pills additional to contraception**

1. Decrease the risk of functional ovarian cysts, of ovarian and endometrial cancer and of benign breast disease
2. Decrease the risk of uterine fibroids and less bleeding
3. Regulation of menses with reduction of blood loss, less premenstrual tension and dysmenorrhea
4. For acne in young women (in combination with cyproterone)

**Adverse effects**

Are mainly due to estrogen component

**1. Major**

breast discomfort, fluid retention, headache (worsen migraine), nausea and rarely vomiting, lethargy, abdominal discomfort, vaginal discharge or dryness

**2. Cardiovascular**

thromboembolism, hypertension, increased incidence of myocardial infarction, cerebral and coronary thrombosis

**3. Carcinogenicity**

increase risk of breast and cervical carcinoma and of hepatoma

**4. Metabolic**

abnormal glucose tolerance (peripheral effect decreasing action of insulin), weight gain (with norethisterone derivatives)

**5. Serum lipids**

estrogen increases HDL and decreases LDL, while potent progestogen (like norgestrel) causes greatest increase in LDL:HDL ratio

**6. Effect on menstruation**

some will have intermenstrual bleeding

**Contraindications****Absolute**

1. History of thromboembolic disease
2. Transient ischemic attacks without headache
3. Infective hepatitis
4. Migraine
5. Past or present carcinoma of breast or genital tract
6. Undiagnosed vaginal bleeding
7. Smoking >40 cigarettes/day with age >35y

**Relative (i.e. use with caution)**

1. Family history of thromboembolism
2. Diabetes mellitus
3. Hypertension (less than 160/100 mmHg)
4. Smoking > 40 cigarettes /day
5. Age > 35y
6. Obesity
7. Breast feeding

**Drug interactions**

1. Enzyme inducers- will cause breakthrough bleeding or unwanted pregnancy
2. Broad spectrum antimicrobials – ampicillin reduces efficacy of contraceptive pills by diminishing bacterial flora (that metabolize ethinylestradiol in the large bowel and make it available for enterohepatic recycling)

**Missed pill**

1. If an omitted dose is remembered within 12h, it should be taken at once and the next dose at the usual time
2. If more than 12h have elapsed, it should be taken at once with the next dose at the usual time but additional barrier method of contraception should be used for 7 days

**Progestogen only contraception**

Is indicated

1. when estrogen is contraindicated
2. In lactating women

**Mechanism of action**

Progestogens render cervical mucus less easily permeable by sperms and induce premature secretory changes in endometrium so that implantation does not occur