

# Contraceptives

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Dr. L. Köles

[koles.laszlo@med.semmelweis-univ.hu](mailto:koles.laszlo@med.semmelweis-univ.hu)

[semmelweis.hu/pharmacology](http://semmelweis.hu/pharmacology)

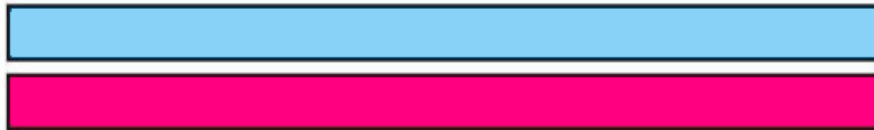
# **Hormonal contraception**

- **oral contraceptives**
- **parenteral (depot) contraceptives**
- **transdermal contraceptives**
- **contraceptive implantates**
- **local contraceptives**
- **postcoital contraceptives**

# Oral contraceptives



Typical changes in menstrual cycle



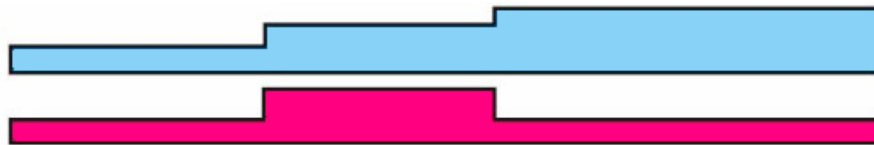
Monphasic combinations



Biphasic combinations



Biphasic combinations



Triphasic combinations



Minipill (gestagen only)



Duration of the menstrual cycle

# Oral contraceptives

## estrogen + progestin combinations

- **monophasic**

- estrogen component (mg): **ethinylestradiol** (0,02-0,035-0,05)
- progestin component (mg): **levonorgestrel** (0,1-0,25), **norgestimate** (0,25), **desogestrel** (0,15), **gestodene** 0,075), **chlormadinone** (1,71), **drospirenone** (3)

- **biphasic: days 1-10, 11-21**

- **ethinylestradiol** (0,03-0,05) + **levonorgestrel** (0,05→0,125 mg) or **desogestrel** (0,025→0,125 mg)

- **triphasic: eg. days 1-7, 8-14, 15-21**

- **ethinylestradiol** 0,03→0,04→0,03 + **gestoden** (0,05→0,07→0,1 mg) or **levonorgestrel** (0,05→0,075→0,125 mg) or

# **Oral contraceptives: estrogen + progestin effects on sexual organs**

- **contraceptive mechanism of action: inhibition of pituitary function, inhibition of ovulation, changes in the cervical mucus, endometrium, motility, secretion**
- **chronic use depresses ovarian function, and the ovary becomes smaller (when drugs are discontinued – longer amenorrheic period is possible)**
- **uterus: cervix hypertrophy (polyp formation), thicker and less copious cervical mucus, preparations containing 19-norsteroids – glandular atrophy, less bleeding**
- **breast: enlargement, suppression of lactation**

# Oral contraceptives: estrogen + progestin side effects

## advantageous side effects

- lower incidence of ovarian and endometrial cancer, ovarian cysts, mastopathies
- less bleeding, lower incidence of anemias
- improvement of endometriosis, dysmenorrhea

# Oral contraceptives: estrogen + progestin side effects

## disadvantageous side effects

- mild adverse effects
  - nausea, mastalgia, edema, endocrine changes, headache, loss of withdrawal bleeding
- moderate adverse effects
  - breakthrough bleeding, weight gain, skin pigmentation, acnes, hirsutism, ureteral dilation, vaginal infections, amenorrhea
- severe adverse effects
  - increased risk of vascular disorders: venous thromboembolism, myocardial infarction, cerebrovascular disease
  - increased risk of gastrointestinal disorders: cholestasis, gallbladder disease, hepatic adenomas
  - mental depression
  - cervical and breast cancer – controversial studies

# **Oral contraceptives: estrogen + progestin**

## **Contraindications**

- **thromboembolism, cerebrovascular disorders**
- **estrogen-dependent neoplasms**
- **vaginal bleeding with unknown origin**
- **before the epiphyseal closure is completed**



# Oral contraceptives progestins alone („minipill“)

- daily progestin tablets: **norethindrone** (0,35) or **norgestrel** (0,075)
- useful in patients for whom estrogens are undesired or contraindicated (e.g. hepatic disease, prior thromboembolism)
- side effects: headache, dizziness, weight gain, impaired glucose tolerance, abnormal (irregular) bleeding

# Parenteral (depot) contraceptives

- injection of depot **medroxyprogesterone acetate** (150 mg i.m.) every 2-3 months
  - common side effects: headache, impaired glucose tolerance, disadvantageous lipid changes, abnormal (irregular) bleeding
  - long amenorrheal episodes after the discontinuation of the treatment (6-12 months)
- **estrogen+progestin** depot injections - like the oral combinations

# Contraceptive patches

- **estrogen+progestin combinations**
  - **ethinylestradiol** 0,6 mg + **norelgestromin** 6 mg (active metabolite of norgestimate)
  - daily release of 20 µg ethinylestradiol és 0,15 mg norgestromin
  - **adverse effects - like oral combinations**
    - **less liver effects - both advantageous and disadvantageous**

# Contraceptive implantates

- **sc. implantates of norgestrel or etonorgestrel (active metabolite of desogestrel)**
  - **duration of action: 3-6 years**
  - **low incidence of adverse effects (low hormone level)**
    - **headache, dizziness, acnes, alopecia, mood changes, breast tenderness, decreased libido, weight gain, vasomotor problems**
  - **major bleeding disturbances (mostly irregular cycles)**

# Local contraceptives

- **intrauterine device cont. levonorgestrel**
  - duration of action: 5 years
  - daily levonorgestrel release 20 µg
  - low systemic hormone level
- **vaginal ring**
  - 15 µg **ethinylestradiol** and 12 mg **etonorgestrel** released every day
  - 3 week use - 1 week pause
- **spermicidal desinfectants**
  - benzalkonium, nonoxinol
  - less effective, but inhibit the transmission of STD

# Hormonal contraception

## postcoital contraceptives

- „morning after” pill
  - progestin alone or in combination with estrogen (combination doesn't have any beneficial effect over the progestin monotherapy)
    - within 72 hours after coitus (best within 12h)
    - high dose (e.g. 0,75-1,5 mg **levonorgestrel**)
    - common side effects: nausea, vomiting, headache, dizziness, breast tenderness, abdominal and leg cramps
  - ulipristal-acetate
    - SPRM, within 5 days (best – earlier)
    - side effects: similar to progestins
- abortion pill
  - mifepristone (RU 486)