

## Reproductive Pharmacology Review

### Estrogens and Estrogen Related Drugs

Natural Estrogens: Estradiol → Estrone → Estriol

Steroidal Estrogens: Ethinyl estradiol, Mestranol, Quinestrol

Non-steroidal estrogens: Diethylstilbestrol (DES), Chlorotrianisene, Methallenestril

*Note: Estradiol is very quickly metabolized to later forms and has a short half-life.*

Uses: Contraception, Hormone Replacement (primary and secondary absence),  
Cancer therapy

Side effects: Nausea, Vomiting, hypertension, vaginal bleeding, headache,  
*Increased risk of stroke and DVT*, increased weight and salt and water retention,  
increased risk of breast cancer and endometrial cancer.

Tamoxifen: Estrogen receptor blocker with “weak” estrogen effects. Blocks estrogen receptors on the breast decreasing estrogen’s effect on these cells. Estrogen like effects on bone (good) and endometrium (bad).

Clomiphene: Blocks estrogen receptors in the hypothalamus → more GnRh → more FSH and LH → ovulation. Used for inducing ovulation (women undergoing ovarian harvest for in vitro fertilization).

Side effects: Hot flashes, stomach pain, headache, vomiting, multiple pregnancy

### Progestins and Progesterone Related Drugs

Progestins:

Uses: -Contraception – inhibits ovulation by negative feedback on hypothalamus and makes endometrium unfavorable for implantation  
-HRT – counters the endometrial effects of estrogens (less endometrial ca.)  
- Withdrawal bleeding in secondary amenorrhea

Side Effects: Edema, abdominal bloating, anxiety, irritability depression, muscle pain, ?increase in breast ca.

Mifepristone: Blocks progesterone receptors causing breakdown of uterine lining and abortion of embryo