

Birth Control

Presentation 1: Group 5

What is Birth Control/ Contraception?

Any methods, medicine or devices used to prevent pregnancy

6 broad categories of Birth Control

- Long- Acting Reversible Contraception
- Hormonal Method
- Barrier Method
- Natural Family Planning
- Permanent Birth Control
- Emergency Contraception

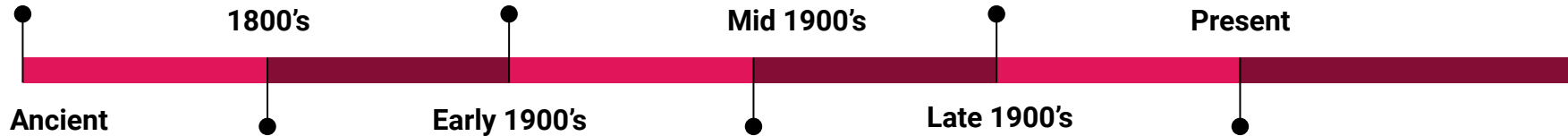


Timeline of Contraceptives

Ingestion of honey, willow shoots, deer horns etc. (Egypt)

1909 - 1st IUD from silkworm gut
1920s - Silver IUD rings
1944 - Tubal ligation by Culdoscopy

1980s - Biphasic/Triphasic pills
1996 - Hormone-releasing IUDs
2002 - Hysteroscopic sterilization
2003 - 1st contraceptive patch (Ortho Evra)

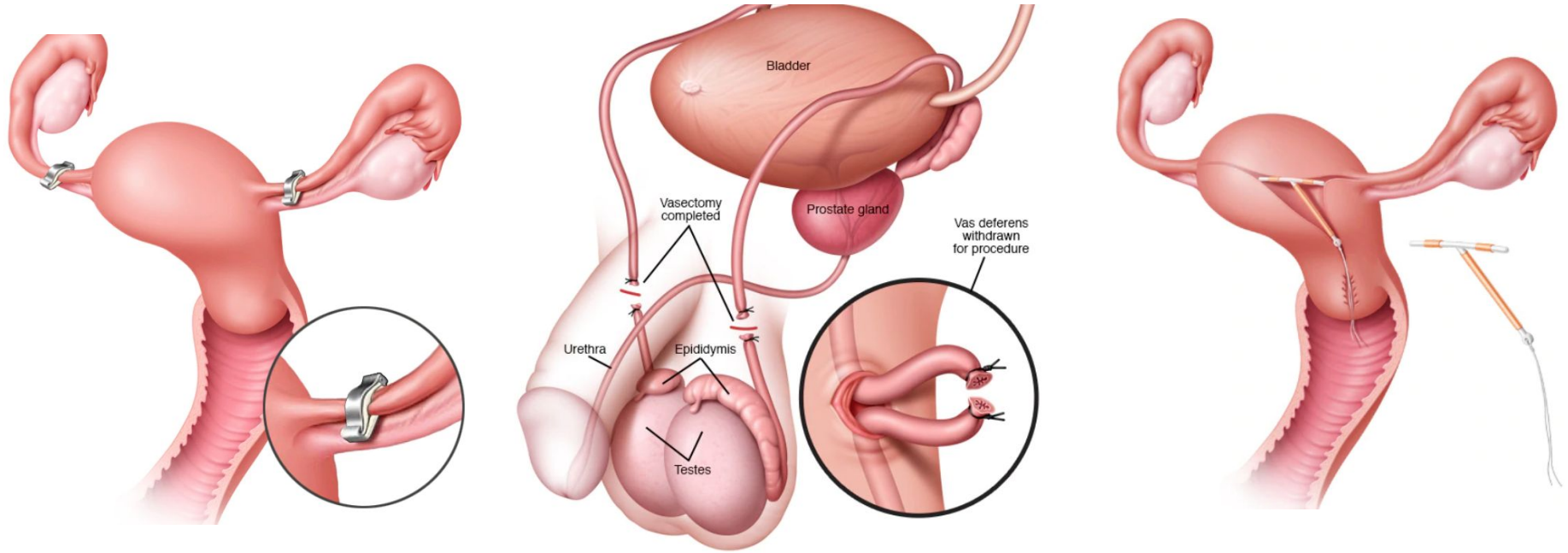


1823 - 1st human vasectomy (UK)
1868 - Cervico-uterine stems
1880 - 1st tubal ligation by incision (US)

1960 - Enovid pills FDA-approved
1960s - Plastic IUDs
1969 - Copper IUDs
1971 - Laparoscopic postpartum sterilization
1974 - Non-scalpel vasectomy (China)

Intra-vas device (male)
Combined copper/hormonal IUDs
Oral contraceptive for males

Non-hormonal approach



1. Sterilization - Vasectomy & Tubal Ligation

- Vasectomy

- Conventional versus Non-scalpel
- Nearly 99% effective
- Range from \$0-\$1000 depending on location
- Potential side effects:
 - swelling and bruising of scrotum, discomfort or pain, inflammation or infection

- Tubal Ligation

- Abdominal incision → laparoscope insertion → fallopian tubes are coagulated, cauterized or obstructed
- Over 99% effective
- Range from \$0-\$6000 depending on location
- Potential side effects:
 - Abdominal pain or discomfort, fatigue, dizziness, shoulder pain

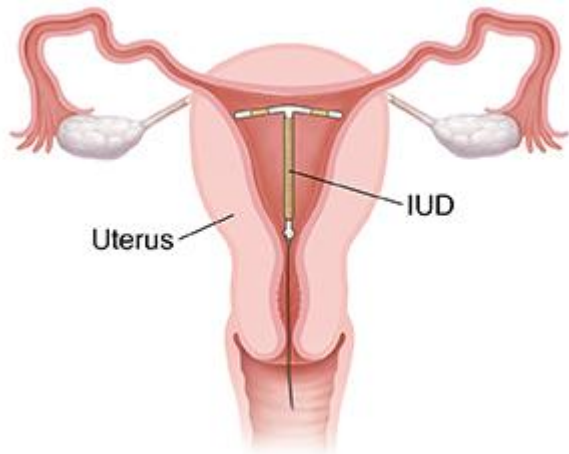
2. IUDs- Copper (non-hormonal)

- 99.2% Effective
- Lasts up to 10 years
- How it works:
 - reduce chance of sperm and egg meeting
 - Copper is toxic to sperm and egg
 - make uterus unable to support a fertilized egg
- Advantages:
 - no hormonal side effects
 - fertility goes back to normal straight away
- Disadvantages:
 - does not protect against STIs
 - insertion can be uncomfortable
 - small chance of infection
 - can sometimes come out by itself
 - can have irregular spot bleeding in the first few months

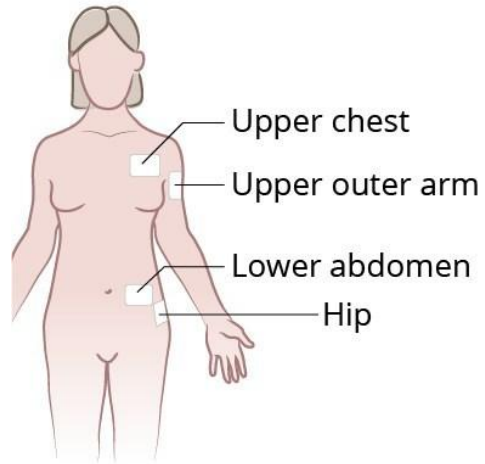


(Murray & Bsn, 2019)

Hormonal approach



(Mount Nittany, 2017)



(Murrell, 2018)



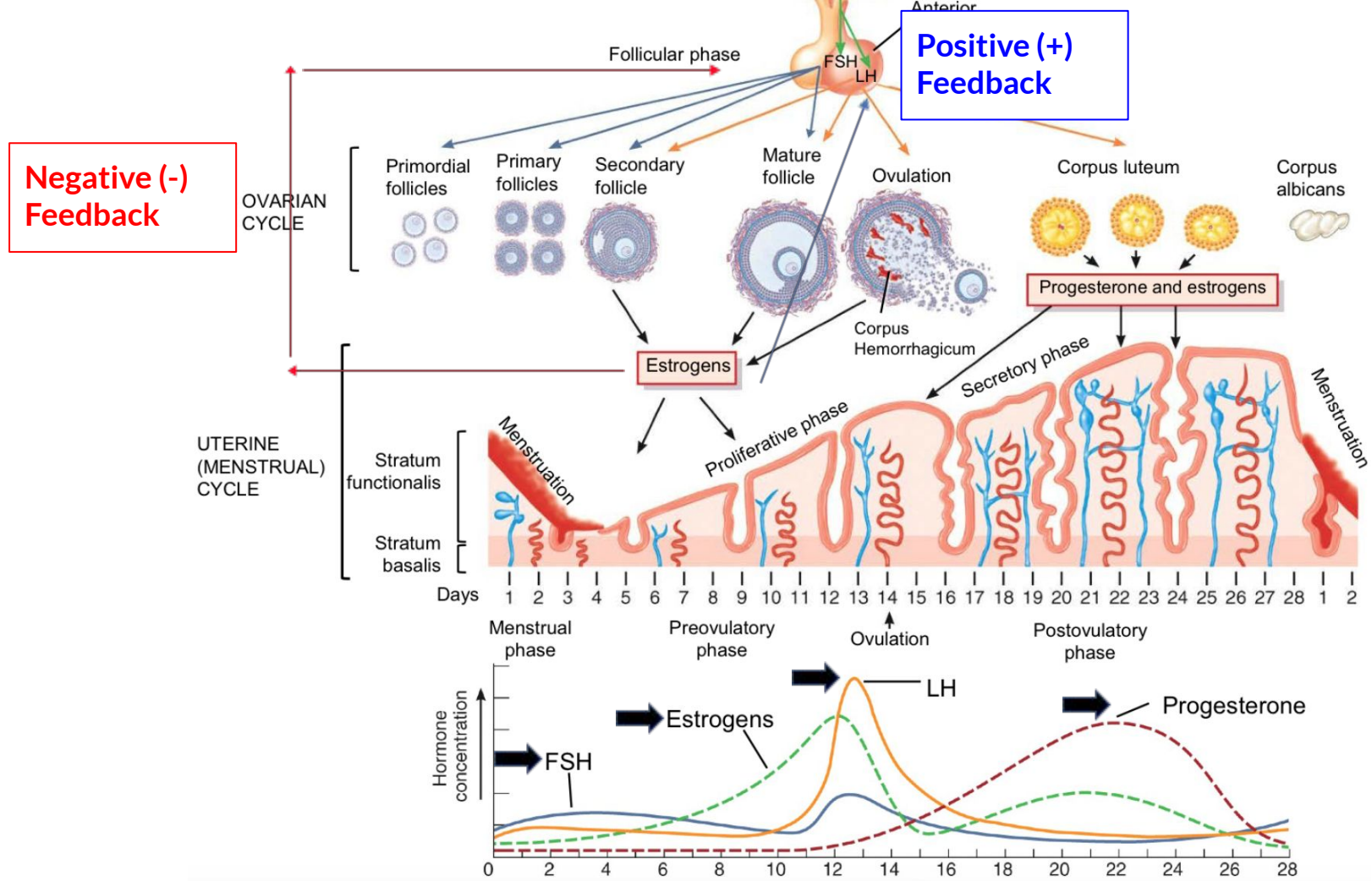
(Hein, 2016)

Menstrual Cycle

- Important cycle to remember to understand the mechanism of hormonal contraceptives

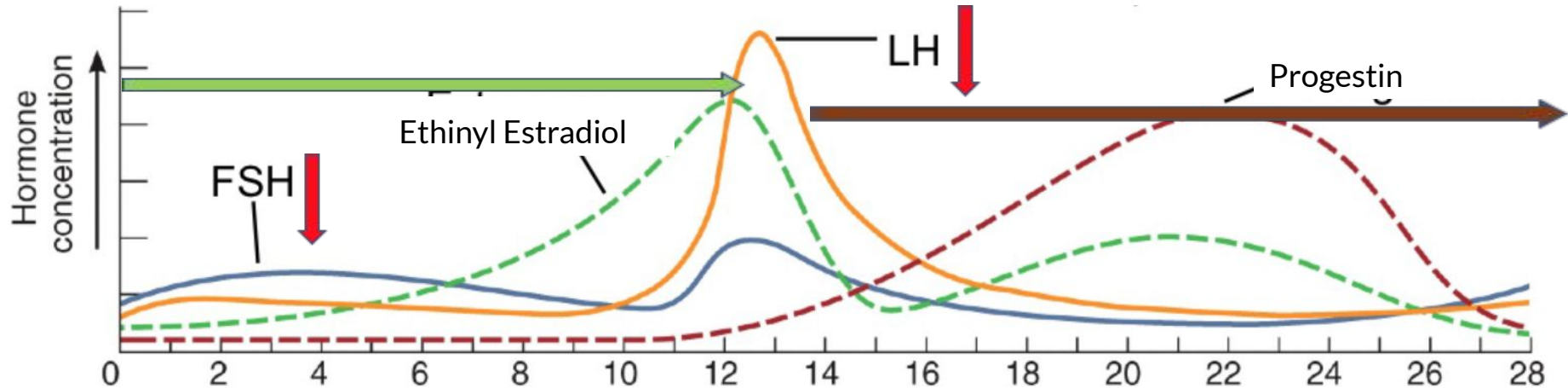
- Consists of 4 major hormones
 - Follicle Stimulating Hormone (FSH)
 - Luteinizing Hormone (LH)
 - Estrogen
 - Progesterone





Mechanism of Hormonal Contraceptive

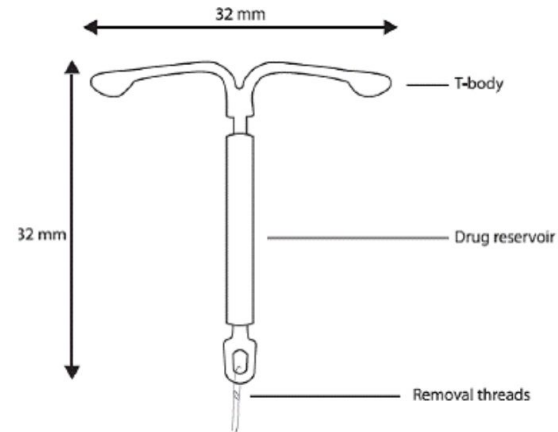
- Hormonal Contraceptives are about MANIPULATING the hormones..
“Tricking the body into thinking it’s pregnant”



IUD- Hormonal

- 99.8% effective
- Lasts 5 years
- Side Effects:
 - Irregular and unpredictable bleeding
 - mood changes
 - Depression
- Advantages: highly effective, more regular periods and hormone

- How it works: thickens mucus at cervix which blocks and traps sperm
- Releases progestin hormones to stop eggs from leaving ovaries
- Thins uterus lining



(2018)

Oral Contraceptive

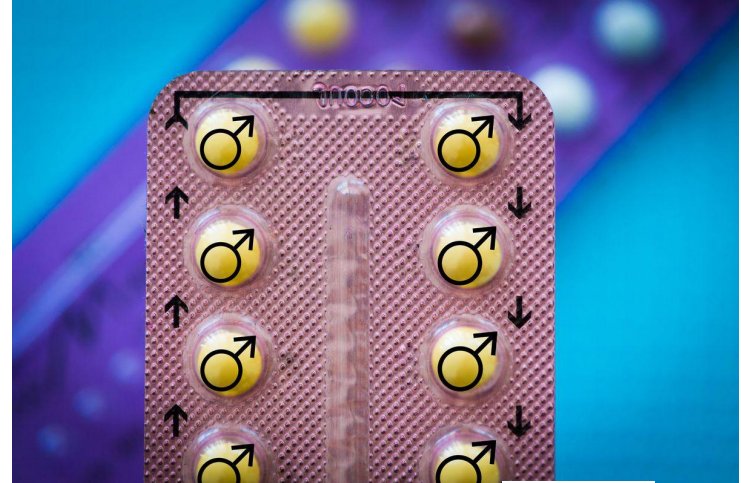
- **Cost:** 20-30 dollars per month
- **Side effects:** nausea, vomiting, stomach bloating/ cramps, changes in menstrual flow, risk of Cardiovascular disease VTE (41.8/100,000 women-years)
- **Consumption:** 21, 28, 91 days packs (almost everyday)
- **Efficacy:** 0.12-0.16 unintended pregnancies/ women years
- **Satisfactions:** 55.1%

V S Transdermal Contraceptive

- **Cost:** free to 85 dollars per month
 - **Side effects:** risk of Cardiovascular disease VTE (52.8/ 100,000 women-years)
 - **Usage:** less effective if worn on the abdomen compared with the buttock, thigh, or upper arm, though at all sites
 - **Efficacy:** 0.34 unintended pregnancies/ women years
 - **Satisfactions:** 49.1% (among the ages 14-45 years)
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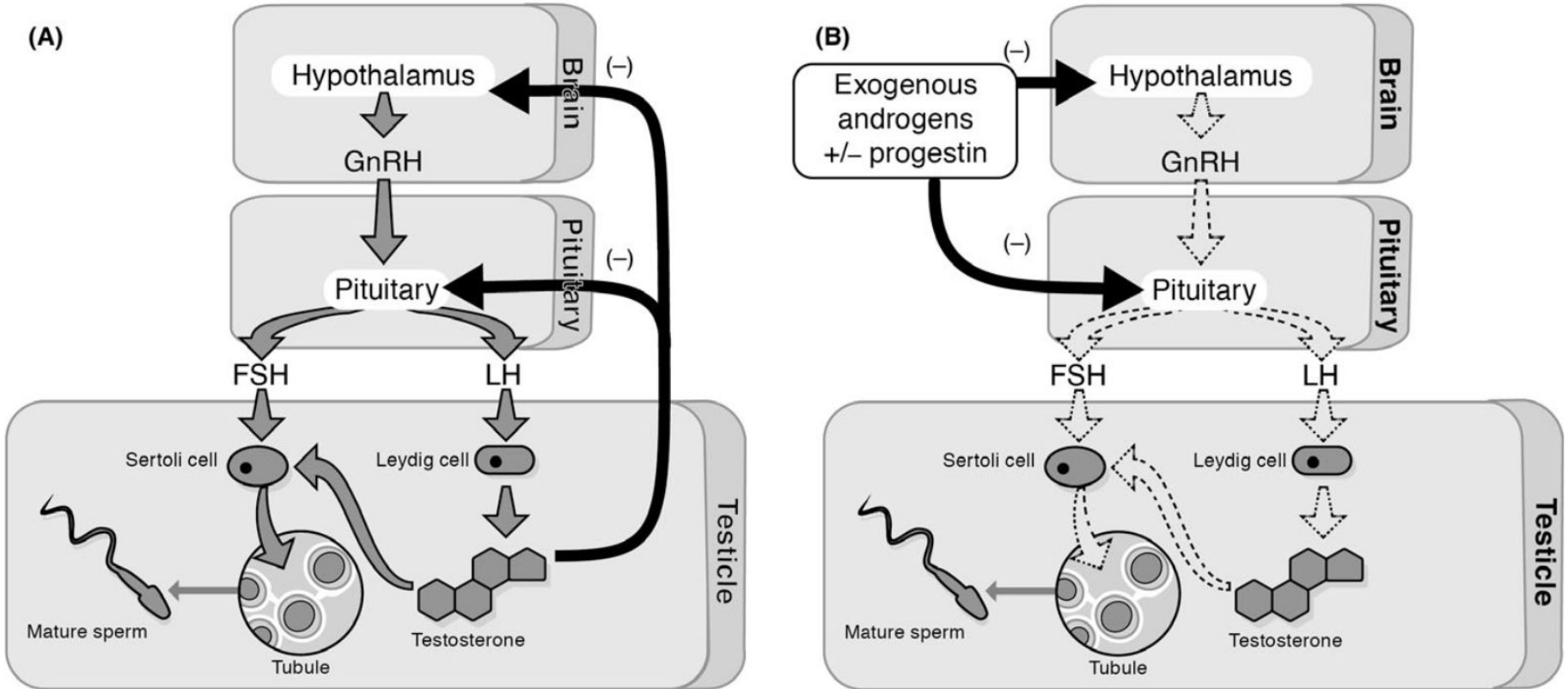
Male Contraceptives

- More than 25% of the couples worldwide use the male contraception
 - Ex. Condom, Vasectomy
- Side Effects
 - Acne, Changes in body weight, Change in Cholesterol level (-) LDL, (-)HDL, mood changes
- Three Major Clinical Trials
 - Nestorone and Testosterone
 - Dimethandrolone Undecanoate (DMAU)
 - 7- Alpha- Methyl- 19- Nortestosterone (MENT)



(Belluz, 2019)

Mechanism of Male Contraceptive



Conclusion

- Contraceptives have evolved significantly over the past two centuries
- Transitioned from a predominantly physical barrier approach to more sophisticated hormone-based techniques
- Increasing efficacy and safety
- Wide range of options: permanent, long-term reversible, emergency etc.
- OHIP coverage - most combined birth control pills, emergency IUDs, injections
- Explore the market - rest assured that there's something that works for everyone! HURRAY!
- This is where everyone lives happily ever after...

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Multiple Choice Questions

Which of the following contraceptive methods, with typical use, has the highest success rate?

- a. Birth control pills
- b. Condoms
- c. Transdermal patches
- d. Copper IUDs
- e. Vasectomy ##

Multiple Choice Questions

Which of the following hormones are not included in hormonal contraceptive mechanism?

- a. Estrogen
- b. Progestin
- c. FSH
- d. LH
- e. None of the above ##