Contraception

4.5.3.4 · Biology · revision notes

The hormonal and non-hormonal ways of preventing pregnancy, how each one works, and their advantages and disadvantages. Expect 'explain how this method prevents pregnancy' and 'evaluate' questions, often based on a scenario or data.

Key facts

- Pill: hormones inhibit FSH → no eggs mature
- Condom, diaphragm: barriers that stop sperm reaching the egg
- Spermicide: kills or disables sperm
- Sterilisation: surgery to cut or tie sperm ducts or oviducts; permanent
- Implant, injection, patch: slow-release progesterone → eggs do not mature or get released
- IUD: prevents an embryo implanting (some release a hormone)
- Abstinence: avoid intercourse when an egg may be in the oviduct
- Condoms are the only method here that protects against STIs

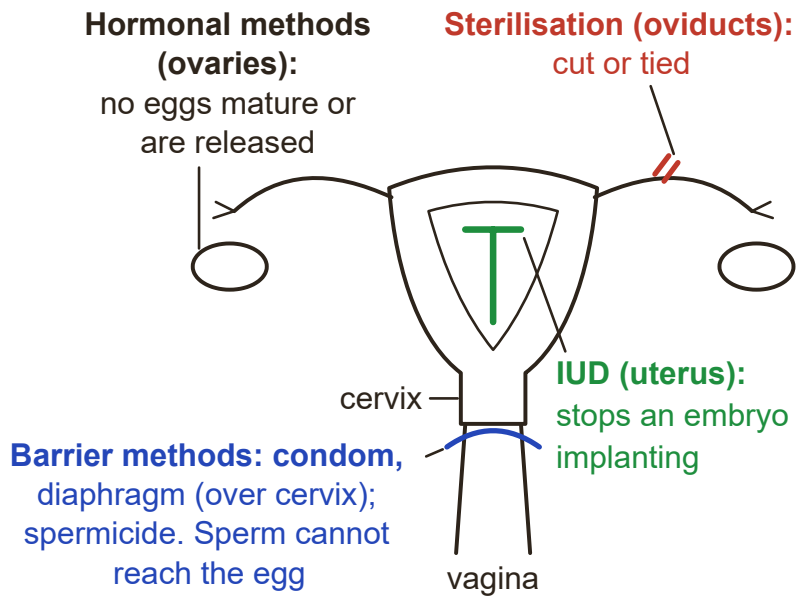
Notes

Hormonal methods

- **Oral contraceptives (the pill)** contain hormones (usually oestrogen and progesterone) that **inhibit FSH** production, so **no eggs mature**.
- **Injections, implants and skin patches** slowly release **progesterone**, which inhibits the maturation and release of eggs for months or years.
- Some **intrauterine devices (IUDs)** also release a hormone.

Non-hormonal methods

- **Barrier methods**: **condoms** and **diaphragms** stop sperm reaching an egg. Condoms also protect against sexually transmitted infections (STIs).
- **IUDs** prevent the **implantation** of an embryo in the uterus.
- **Spermicidal agents** kill or disable sperm.
- **Abstaining** from intercourse when an egg may be in the oviduct (around ovulation).
- **Surgical sterilisation**: the sperm ducts (male) or oviducts (female) are cut or tied. It is very effective but difficult to reverse.



Where each method of contraception works.

Weighing up methods

- Hormonal methods are very effective if used correctly, but can have side effects (e.g. headaches or mood changes) and do not protect against STIs.
- The pill must be taken every day. Implants and injections last months or years, so there is nothing to remember.
- Condoms have no hormonal side effects and protect against STIs, but they can split or be used incorrectly.
- Science can compare how well methods work, but the choice also depends on religious, ethical and personal views, so science alone cannot decide it. Abstinence is less reliable because the timing of ovulation varies.

How to answer each type of question

Explain how a method prevents pregnancy

2 marks | Grade 5

1. Name what the method does (hormone effect or barrier).
2. Link it to the step it blocks: eggs maturing, sperm reaching the egg, or implantation.

Example. A contraceptive implant is placed under the skin of the arm. It releases progesterone slowly for up to three years.
Explain how the implant prevents pregnancy.

Model answer. Progesterone inhibits the maturation and release of eggs (1), so there is no egg for a sperm to fertilise (1).

Link a hormone to its contraceptive effect

2 marks | Grade 5

1. Say what the hormone normally does in the menstrual cycle.
2. Say what happens when it is blocked.

Example. Oral contraceptives contain hormones that inhibit the production of FSH.
Explain why this prevents pregnancy.

Model answer. FSH causes eggs to mature (1), so if FSH is inhibited no eggs mature and none can be fertilised (1).

Evaluate methods of contraception

4 to 6 marks | Grade 5

1. Give advantages and disadvantages of each method named.
2. Use the details in the scenario (e.g. a long-term couple, worries about side effects).
3. Finish with a justified conclusion.

Example. A couple are choosing between the oral contraceptive pill and condoms.
Evaluate the use of these two methods.

Model answer.

Any three from:

the pill is very effective if taken correctly (1)

but it must be remembered every day and can have side effects, e.g. headaches or mood changes (1)

condoms protect against sexually transmitted infections and have no hormonal side effects (1)

but condoms can split or be used incorrectly, so they are less reliable (1)

plus a justified conclusion, e.g. using both gives the best protection against pregnancy and STIs (1)

Don’t lose marks

- Saying the pill kills sperm or eggs. It stops eggs maturing by inhibiting FSH.
- Saying hormonal methods protect against STIs. Only condoms do.
- Giving only advantages in 'evaluate' questions, or leaving out a conclusion.
- Vague points such as 'it's easier'. Say why, e.g. 'there is nothing to remember for three years'.

More tips

Memory tricks

- Sort methods by what they stop: eggs maturing (pill, implant), sperm reaching the egg (condom, diaphragm), sperm working (spermicide), implantation (IUD).
- Pill = FSH blocked = no egg ready.
- Condoms are the only method on the list that also stops STIs.

Exam technique

- For 'explain how it works', link the method to the step it blocks.
- In 'evaluate' questions, use the information in the scenario, give pros and cons of each method and end with a justified conclusion.
- Name the hormone precisely: the pill inhibits FSH; implants release progesterone.

What each grade needs

What you need to be able to do, from the first marks up to the top grade.

Grade 3 — **Name hormonal and non-hormonal contraceptive methods**
E.g. the pill, implant, condom, diaphragm, IUD, spermicide, abstinence and sterilisation.

Grade 4 — **Explain how barrier methods work**
Condoms and diaphragms stop sperm reaching the egg.

Grade 5 — **Explain how hormonal methods work**
The pill inhibits FSH so no eggs mature; progesterone implants stop eggs maturing and being released.

Grade 5 — **Describe how IUDs and spermicides work**
IUDs prevent an embryo implanting or release a hormone; spermicides kill or disable sperm.

Grade 5 — **Evaluate different methods of contraception**
Compare effectiveness, side effects, STI protection, convenience and whether the method is reversible.

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