

Section 15.3: Review Answers

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1. (a) Artificial Insemination: the sperm is collected from the male, concentrated, and then placed within the woman's vagina. Since she is reproductively healthy, this should work from this point.
- (b) Super ovulation to ensure she produces and releases a viable ovum; hormone treatments will be necessary and may be used with other technologies.
- (c) *In-vitro* fertilization, in which fertilization takes place within laboratory glassware. After successful fertilization, the developing embryo is placed in the uterus, avoiding the blocked oviducts.
- (d) Sperm bank: the man could donate his sperm to be preserved within the sperm bank. If he does find a partner in the future, they could use his stored sperm.
- (e) The woman could access a sperm bank. She could choose her donor sperm, and then, through techniques such as artificial insemination or *in-vitro* fertilization, she could conceive and carry a child.

2. Students' charts on enhancing fertility should show any three of the following:

Name and Description	How it works	Who would use it
Lifestyle changes: adopting a healthier lifestyle (quit smoking, avoid alcohol, improve nutrition)	Improves the chances of producing healthy sperm and ova	Couples who are having initial difficulties conceiving
Artificial insemination: sperm is collected, concentrated, and then injected into the woman's vagina	A quantity of viable sperm are injected into the vagina at ovulation to improve the chances of healthy sperm being able to penetrate the ovum	An infertile couple (if the man has a low sperm count); a woman who does not have a male partner and wants a child
<i>In vitro</i> fertilization: eggs and sperm are combined in a lab	Fertilized egg is implanted in the uterus	Woman who has damaged or blocked oviducts
Superovulation (multiple eggs are produced)	FSH injections stimulate the maturation of multiple follicles; hCG stimulates ovulation; insemination may or may not be used as well	Woman who rarely ovulates or has endometriosis
Surrogate motherhood (zygote is carried to term by a third party)	Zygote is placed in uterus of surrogate mother; or artificial insemination may be used, with sperm from the male of the infertile couple	Woman is unable to bring a child to term or who is carrying a disease such as MS that would be activated by the stress of pregnancy; infertile couple who have had no success with other treatments

3. Students' charts on methods of contraception should show any three of the following:

Name and Description	Effectiveness	How it works	Risks
Abstinence: couple refrains from sexual intercourse	100%	Egg and sperm do not meet	None
Vasectomy: sperm ducts are cut and tied	Close to 100%	No sperm in the ejaculate	Not easily reversed
Birth control pill: daily hormone medication, taken orally	Close to 100% (if used correctly)	FSH and LH are not released	Blood clots, especially in smokers, plus hormonal side effects
Tubal ligation: oviducts are cut and tied	Close to 100%	Eggs do not reach the oviduct	Not easily reversed
Needle (Depo-Provera): a hormone injection every three months	99%	FSH and LH are not released	Hormonal side effects
Contraceptive implant (e.g. Norplant): hormones are implanted in the skin	Over 90%	FSH and LH not released	Hormonal side effects
IUD: plastic coil or armature is inserted into the uterus; lasts up to 5 years	Over 90%	Prevents implantation	Pelvic inflammatory disorders
Diaphragm: large latex cup that fits over the cervix	About 90%	Prevents sperm from entering cervix; usually used with spermicide	Reaction to latex

Name and Description	Effectiveness	How it works	Risks
Cervical cap (must be used with spermicide): latex cup attached to cervix by suction	Almost 85%	Sperm is blocked and killed by spermicide	Reaction to latex
Male condom: latex sheath fits over erect penis	About 85%	Traps sperm	Reaction to latex
Female condom: polyurethane pouch inserted into the vagina	About 85%	Traps sperm and prevents it from entering the vagina	None known
Spermicidal jelly and foam: inserted into vagina before intercourse	About 75%; most effective when used with condoms	Kills a large percentage of sperm	Reaction to spermicide
Rhythm method: ovulation tracked and intercourse is avoided during fertile periods	About 70%	Egg and sperm do not meet	None

4. *In-vitro* fertilization is a technique in which both the male and female gametes are united in the glassware of a laboratory. Cells in the resultant zygote begin to divide; the zygote is inserted directly into the uterus for implantation. *Artificial insemination* is the collection and concentrating of a man's sperm. Once the sperm has been concentrated and enough collected, it is then deposited directly into the female's vagina at times during her menstrual cycle when she is most fertile.

5. Students should cite any three of the following:

- Do zygotes have rights? i.e., Once they have been created, do they have the right to continue to exist or can they be destroyed at will? Some people view the creation and destruction of zygotes as immoral.

- Should human reproduction be commercialized? Should we allow the buying and selling of human gametes? Should surrogate mothers be allowed to make a profit? (How much?)
- Do gamete donors and surrogate mothers have rights? If yes, what would they cover? The right to anonymity? The right to see their child? The right to intervene if the child is in jeopardy?
- Does everyone have the right to be a parent? Should there be criteria and an application process for people wishing to have a child? Should this process apply to everyone, rather than just to infertile people? Is it discrimination to require the qualification process only for those who are infertile? Is it discrimination if only those who are infertile and able to afford treatment are allowed access to the treatments? Is it poor social planning to make infertility treatments available to those who can't afford to raise the child?
- Does a society have the right to enforce contraception on those it perceives are unable to care for the children (financially or otherwise)?