

# Reproductive Technologies

## Introduction:

- I. What reproductive technologies are and why study them
  - A. “Reproductive technologies” for this study
    1. Methods used in the conception or production (and/or prevention of conception or production) of a human being which are outside of normal or natural sexual intercourse between a man and a woman
    2. Includes: abortion, birth control, in vitro fertilization, artificial insemination, cloning, some stem cell research / therapy, etc.
  - B. Need to study these from a Biblical perspective
    1. No taboo topics -- “Test all things...” 1 Th 5:21
    2. “New” (and therefore unexamined) methods of birth control. Abortion and fertility / conception treatment have been and are being developed
    3. Christians need to know if, and when, sin is involved so they can reject what the world is embracing and encouraging – 1 Ti 4:16
    4. Technology is outrunning public discussion and teaching on morality
      - a. Remember: Physical science can only demonstrate what is physically possible, not what is moral (right) – what *can* be done, not what *should be done!*
      - b. That something *can* be done does not mean it *should* be done
- II. Topic is intimidating because...
  - A. There are more qualified people than I to address it
    1. I have asked counsel of older preachers and teachers
    2. I have asked counsel of scientific professionals who are Christians (two doctors and a geneticist), and many published materials (believers and unbelievers)
  - B. There are new aspects which are rarely addressed
  - C. Childbearing can be a very sensitive issue
    1. Birth control sensitive issue for those not desiring children at this time
    2. Fertility solutions are a sensitive issue for those unable to conceive children (10-15% of married couples are affected by some form of infertility)
    3. We have the responsibility to be “speaking the truth in love” – Ep 4:15
  - D. Difficult to know what is reliable information on reproductive tech because of bias which affects scientists, doctors, drug companies, pro & con organizations (politics, societal norms, religious views, financial rewards, personal consequences, etc.)
  - E. Issues involving sexuality require tact and consideration of one’s audience
    1. Public audiences are composed of people with wide ranges of age, experience, social propriety standards, etc.
    2. Sex education is not the job of the preacher or the church
    3. Note that the Bible often uses euphemistic terms when referring to the sex act, genitals, etc. (Ex: Ge 4:1; 18:11; 24:2; Le 18:14, 22; Nu 5:22; 2 Sa 16:21, etc.)
    4. Some preachers damage their effectiveness (and therefore the effectiveness of the gospel they preach) by not considering their audience and being too explicit or graphic. Whether some should be offended or not is not the point. As preachers and teachers we need to be willing to “...become all things to all men, that I might by all means save some” (1 Co 9:22). Not all things are expedient or edify (1 Co 10:23, 33)
    5. The audience of this lesson is admittedly different from a mixed public audience and will contain some material that might not be appropriate to present in a public forum in its present form

III. **This study will be based on the acceptance of these principles:**

A. *A human fertilized egg is a human being from conception (the point at which the egg and sperm join) and its treatment must be governed by what God requires concerning respect and preservation of all those who bear His image (honor, protect, nourish, not abuse, not murder, etc.)*

1. It is not the point of this lesson to provide extensive Biblical proof that life begins at conception and that it is God Who forms the unborn, however the following verses clearly affirm this
  - a. Mt 1:20; Lk 1:41-43
  - b. Ex 21:22-25; Ps 139:13-16; Jer 1:5
2. Excellent material at:
  - a. <http://www.thinkonthesethings.com/BckISS37.htm#anchor8448449>
  - b. <http://www.gospelway.com/morality/abortion.php>
  - c. Be aware that some use scientific terms to dehumanize unborn babies and desensitize audiences, but there are also valid uses of these terms (zygote)
3. Generally, choosing to take innocent life (murder) has been against the will of God (sin) in all dispensations (Ge 9:5-6; Ex 20:13; Mk 10:19; Ga 5:21; etc.)

B. *God has ordained heterosexual monogamous marriage and it is His will that the sexual relationship and/or the conception of children take place within this relationship*

1. It is not the point of this lesson to provide extensive Biblical proof concerning God's will and the marriage relationship (and the bearing of children), however the following verses highlight important principles
  - a. Marriage is for companionship – Ge 2:18 (Note: This original intention of God for marriage can be fulfilled with or without bearing children)
  - b. Sexual contact / intercourse / fulfillment are only right within lawful marriage – 1 Co 7:2-5; He 13:4 – marriage is a sexual monopoly!
  - c. If children are to be conceived, the sperm and egg are to be of the married couple – Ge 1:28; Jn 8:41 (Note: Children born outside of marriage are not despised or sinful – although the act which conceived them is)
  - d. Marriage is an exclusive relationship (1 Co 7:2; Mt 19:4-6) – the Bible does not provide for the fulfillment of intimate companionship, sexual need, or childbearing outside of (or using a partner outside of) that relationship
2. Sexual actions are sinful which involve people outside of lawful (scriptural) heterosexual monogamous marriage – and it is not the will of God that children be conceived outside of marriage (singles, married couples using sperm / egg from someone outside of their marriage, etc.)

C. *Children are a blessing from God – and parental responsibilities exist*

1. A view of children as a burden (financial, career, time / energy, physically to mother, stress, lifestyle, on society, etc.), even if the child is unhealthy, is unbiblical – and it opens the door to emotional arguments to justify their abuse, neglect, abandonment and disposal (murder)
2. Children are a blessing from God and fulfillment of parental responsibilities, even at great personal sacrifice, are an expression of our love of God and the child
  - a. Ps 127:3-5; Pr 17:6
  - b. Ep 6:4
  - c. Warning: We live in days when many are “without natural affection” – Ro 1:31; 2 Ti 3:3
  - d. Selfishness and materialism have negative affects on attitudes toward children

## Body

### I. Abortion

#### A. Mechanism(s) – what it does

1. “b) any deliberate procedure that removes, or induces the expulsion of, a living or dead embryo or fetus” (Webster’s New World College Dictionary – 1999)
2. It is not my purpose here to list or explain the various surgical and chemical methods of modern abortion (material is readily available)

#### B. Any procedures, treatments, or medications which deliberately remove or induce the expulsion of a living embryo or fetus are wrong – SIN

1. This applies principle “A” above that life begins at conception and therefore an embryo or fetus is a human baby at any stage in its growth and God demands that we respect, nourish, protect, etc. it.
2. The only exception may be when a unborn baby cannot survive and its continued growth will take the life of the mother (example: ectopic pregnancy [growing outside the uterus]). This is NOT the same as permitting abortion when the “mother’s life is in danger” – I am describing situations where the baby cannot live and further growth will take the life of its mother
3. General arguments to attempt to defend abortion:
  - a. Embryos are not human – Everything is present in a fertilized egg to be “you” – just add nourishment, environment and growth
  - b. Viability (it cannot sustain life on its own) – This is also true of a newborn (and some elderly) – just add nourishment and growth!
  - c. Burden (to parent[s], child, society) – Burdens are a matter of perspective. Suffering and trials give opportunity to demonstrate love and faith – Ja 1:2-8
  - d. Individual rights
    - 1) Rights are granted and defined by law – what is fair or just is what is consistent with law, not whether it is expected, desired, or easy
    - 2) Human rights begin and end with God’s law
    - 3) The “right to choose”
      - a) God chooses, NOT man
      - b) Man’s choice is in choosing NOT to sin (and to submit to God’s will)
      - c) God’s will and the rights of the unborn must affect our choices

### II. Birth control / contraception

#### A. Mechanism(s) – what it does

1. Concept has evolved from meaning methods of preventing conception – hence (the joining of egg and sperm) – hence, “contra-ception” -- to include the prevention of embryo implantation, or even stopping a live birth
2. Methods
  - a. Barrier – prevent sperm from physically reaching the egg
  - b. Chemical – kill or disable sperm before reaching the egg
  - c. Hormones (for the woman)
    - 1) These hormones are administered in a variety of ways: pill, patch, implants, injection, some IUD’s
    - 2) “Although the primary mechanism of this action is the inhibition of ovulation, other alternatives include changes in the cervical mucus (which increase the difficulty of sperm entry into the uterus) and the endometrium (which reduce the likelihood of implantation)” (2006 Physicians’ Desk Reference,pg. 2402) Note: A similar note appears with essentially every hormonal contraceptive I found in the PDR. I believe a similar statement appears in the material provided with the prescribed hormone

- 3) Some controversy surrounds to what degree hormones reduce the likelihood of implantation of a fertilized egg in the uterus. Some call it an “interception” mechanism (rather than contraception or abortion). Many are unaware of this mechanism since advertisements and articles usually only say, “Hormones work by preventing ovulation.”
  - d. IUD (IntraUterine Device)
    - 1) Small T shaped device placed within the uterus – how or why it works is not entirely agreed on or understood
    - 2) It is made of a material and/or secretes hormones which may affect sperm (and therefore fertilization) and which alters the lining of the uterus, discouraging implantation if an egg is fertilized
- B. Any method of birth control which damages, kills or may kill an unborn child is wrong
1. Authority for controlling the number of children a couple chooses to conceive
    - a. Sexual relations are not only for procreation – 1 Co 7:2-5; Pr 5:19
    - b. Stewardship – 1 Ti 5:8
    - c. Case of Onan – Ge 38:8-10 – used “withdrawal method” of birth control, but condemned for refusing to “...raise up an heir to your brother”
  2. Methods which allow (or may allow) fertilization, but then negatively affect, threaten, or kill the developing baby (at any time after fertilization) are wrong
    - a. Most, if not all, hormone methods are potentially abortive
    - b. IUD’s have a great potential to be abortive
    - c. “Emergency contraceptives” (ECP’s, morning after pills, etc.) all attempt to attack and kill the baby – usually by affecting its environment within 5 days of conception. Most doctors and laws consider this “contraception” and birth control, however they are abortifacients (induce abortion).
    - d. Note: The ease of use and personal physical benefits must not supersede our desire to protect, nurture, and preserve the lives of the unborn
- III. Artificial insemination (AI)
- A. Mechanism(s) – what it does
1. Medically known since the 1940’s, popularized in the 1970’s, AI is a procedure in which sperm is artificially placed into a woman’s cervix (intracervical insemination) or uterus (intrauterine insemination).
  2. A woman’s husband’s sperm can be used (AIH) or that of a donor (AID)
    - a. Numerous sperm banks exist to provide anonymous sperm AID
    - b. Advertised as a method for conception for married couples, singles, and same-sex female couples
- B. Pregnancy arising from someone who is not one’s lawful spouse is wrong
1. AIH – using the husband’s sperm – is simply medical technology assisting what may scripturally occur through intercourse, but cannot because of physical reasons
    - a. This involves a conception between two people allowed by God to conceive children
    - b. This conceives children within the marriage relationship
    - c. Note: Some believe intercourse is the only method approved by God since it is how He designed conception. However, we do not make the same argument concerning natural childbirth over cesarean section
  2. AID – using donor sperm – has several moral problems
    - a. In every recorded Biblical case, that has the approval of God, a man had relations with his own wife in order for her to conceive, if she conceived at all. Children are to be from within the marriage relationship. The attempt of Sarah to conceive children for herself by using Hagar as a surrogate didn’t go well – Ge 16

- b. Human reproduction is “sexual” because sexual organs and sex cells (egg & sperm) are required.
  - 1) Human reproduction is “bi-sexual” – requiring two sexes (male & female). The lack of a donor’s presence does not make conception “asexual” or “non-sexual”
  - 2) It is unreasonable or naive to think that nothing sexual has occurred simply because intercourse was avoided
- c. In AID, a woman receives a physical part (sperm) of a man to whom she is not married. Can someone show this to be right? May a woman receive any other part of a man to whom she is not married and it be right?
- d. A man is not free from parental responsibilities (Ex: Ep 6:4) and therefore would not be a “donor” to father children he would never know or raise

#### IV. In vitro fertilization (IVF)

##### A. Mechanism(s) – what it does

1. First human IVF in 1968 (England). There are several methods, but basically IVF removes several eggs (5 to 20 eggs which have been artificially stimulated to ripen at the same time with hormones) from a woman and fertilizes them with sperm in a petri dish (“in vitro” = “in glass”). Fertilized eggs are then placed in the woman’s uterus (on day 3 to 5 after fertilization) where implantation and growth may occur. The number of eggs placed in a woman’s uterus depends on 1) how many were successfully fertilized, 2) the health of the embryos, 3) the woman’s age [more for older women because of greater difficulty of success], 4) risk level for multiple pregnancy
  - a. Donor eggs can be used, as well as donor sperm
  - b. Embryo transfer can also be used in which a donor woman is impregnated through artificial insemination and then the embryo implanted in the infertile woman’s uterus (allows surrogate mother to experience pregnancy and childbirth).
  - c. IVF fertilizes a number of eggs, examines them and usually implants 2 to 5 of the healthiest / strongest ones. Leftover embryos are either disposed of (killed), frozen for future implantation, or used for experimentation (see stem cell material below). About 400,000 human embryos are currently frozen in the US, thousands of them are now unclaimed leaving clinics and lawmakers wondering what to do with them. In 2003, patients had designated about 2% for discard, about 2% for donation to other couples, about 3% for donation to private research and about 88% for future “family building” (although the majority will never be used by the parents)
2. Of the up to 5 million couples experiencing fertility problems, 20% decide to undergo IVF. About 112,000 IVF procedures are done in the US each year . Since 1989 about 3 million births have occurred world-wide through the use of IVF

##### B. Moral problems with IVF

1. Interesting that this was once touted as “creating life in a test-tube” and now the embryos are not regarded as human life!
2. It unnecessarily risks and destroys (kills) human life (embryos)
  - a. Multiple eggs are always harvested, fertilized and implanted because it is known that some of the embryos will not survive. The average success rate of IVF is less than 10 to 15% of the fertilized embryos actually implanting and producing a live birth
  - b. It is true that some embryos do not survive the process of natural pregnancy, however, scientists know the procedures of IVF put human embryos at high risk of dying (hence the use of high numbers of them in each attempt). It is estimated that 11,000 embryos are killed each year in the US as a byproduct of IVF
  - c. I believe that there may be emergency situations where procedures and even experimentation may be done which risks an individual’s life in an attempt to save their life, but it is not right to knowingly highly risk and destroy the lives of several babies

(embryos) to increase the chance that one might survive. I would oppose IVF even if done with one embryo because of the high risk of it dying

- d. It is claimed that, “embryo cryopreservation avoids many of the ethical dilemmas inherent in producing a large number of embryos,” however the Christian will disagree. About 70% of embryos that are frozen survive the freezing and thawing process. The freezing of embryos risks all of them and knowingly destroys (kills) 30% of them and is therefore wrong. Although, in theory, embryos can be frozen indefinitely, doctors prefer to use embryos frozen less than four years
3. The “disposal” (killing) of embryos because they are weak, imperfect, unwanted is wrong because it is murder of innocent human life (same as abortion). It is estimated that over 100,000 embryos are being “discarded” (killed) by IVF clinics. Note: People who use IVF are often uninformed (due to many factors) and are often surprised to know what really was done, even that they have frozen embryos (not just eggs or sperm, etc.)
4. Multiple embryos are inserted into the uterus to increase the chance of one surviving. Sometimes multiple embryos survive and when this is unwanted or deemed dangerous (to mother or other embryos) they may do “selective termination” (abort one or more)
5. The use of donor eggs and/or sperm would be opposed for the same reasons given above on donor artificial insemination
6. Note: Very recent studies are beginning to point to various physical problems in a percentage of children conceived via IVF

## V. Stem cells

### A. Mechanism(s) – what it does

1. Stem cells are immature cells which develop into the specific cells and tissues of the body. Some has been known of them for over 40 years. Named “stem cells” in 1981. Embryonic stem cells identified in 1997.
  - a. There are a variety of different kinds of stem cells
    - 1) Early embryonic stem cells can become any kind of cell in the body (totipotent) – each can also become a whole independent child
    - 2) An embryo at 7 days has stem cells which can develop into almost any kind of cell in the body (pluripotent)
    - 3) Umbilical cord blood contains stem cells that are genetically identical to the child – they have a limited range of cells they can become (multipotent)
    - 4) Adult stem cells (also in infants and children) are throughout body tissues directing their growth and maintenance (limited range stem cells – multipotent)
    - 5) Note: Stem cells are difficult to study because they look like regular cells
  - b. Embryonic stem cells have been preferred by most scientists for study and experimentation because, unlike other stem cells, 1) they are easy to isolate, identify and harvest; 2) they can become any cell; and 3) they replicate very quickly
2. Stem cells are being touted as being able to cure Parkinson’s disease, patch damaged hearts, replace the pancreas, rewire the spinal cord, cure cancer and restore memories of Alzheimer’s disease. The truth is stem cells therapies are a very long way from doing any of these. In fact, it not yet known what triggers a stem cell to become a specific body cell. The most well-known and most successful stem cell therapy is bone marrow transplant for leukemia patients (first time 1956)

### B. Moral considerations in stem cell research and use

1. The use of umbilical cord blood stem cells and adult stem cells in research and therapies is no different from the use of other cells in the human body. They may be used in research and treatments as long as it is not to the detriment of the donor or recipient. Promising research is being done with adult stem cells – however embryonic stem cells present fewer problems for scientists to overcome (easier to research and manipulate)

2. Embryonic stem cell research, use, and therapies require the risk, disassembly of, and destruction (killing) of the embryo. This is a violation of God's will concerning respect, nourishing, and protection of human life and is therefore wrong. The fact that they are easier to work with, more versatile, etc. does not change the immorality of using, abusing, and destroying the embryos which produce them!
3. We must not be enticed by the promise of potential (or real) cures which require the destruction of human life to research, develop, and produce. May not do evil that good may come – Ro 3:8
4. Note: There are no federal laws banning embryonic stem cell research. In 1995, President Clinton signed a law which prohibited federally appropriated funds to be used for research where human embryos would be either created or destroyed. In 2001, President Bush allowed federal funding for stem cell research, however not where human embryos would be created or destroyed – except for 64 embryonic stem cell lines that were slated for destruction. The National Stem Cell Bank (NSCB) was created to manage these stem cells. The cell “lines” are kept alive and propagated (allowed to replicate) so that a continuing supply of stem cells is available. Some consider these lines useless because of contamination. Millions, if not billions, of dollars of private money is going into stem cell research with huge historical, academic, patent, and financial rewards awaiting those who discover and/or perfect human stem cell applications

## VI. Cloning

### A. Mechanism(s) – what it does

1. Cloning is the creation of an organism that is an exact genetic copy of another (possesses the same DNA)
  - a. Normally a child receives half its DNA from each of its parents and therefore has a different mix of DNA than any other person
  - b. Creatures with the same DNA code occur in nature – some twins (human and animal), some plants, some worms.
  - c. This outline is focusing on creating creatures with identical DNA by manipulating them at the cellular level
2. Artificial embryo twinning separates embryo cells soon after egg fertilization (as when twins are naturally formed). The offspring will develop with identical DNA (twins). This method has been used with some animals since the late 1800's. Since fertilization is from two parents, the offspring are clones of each other, but not of either of their parents
3. Somatic cell nuclear transfer (SCNT) – is the artificial transfer of the DNA from the nucleus of a donor adult cell to an egg whose nucleus – with its genetic material – has been removed. The egg then develops using the donor DNA and the resultant offspring has the same DNA (and therefore many of the same physical attributes) as the donor
  - a. “Dolly” the sheep was produced via SCNT in 1996 -- the first mammal cloned from adult DNA (required 277 tries) – considered one of the most significance scientific breakthroughs of the decade (euthanized at age 6 in 2003, although her breed often live to age 11 or 12. The DNA donor was 6 years old, leading some scientists to believe Dolly's lung and arthritis problems were due to premature aging)
  - b. This method has been used to clone: Sheep, bull, cows, dog, goat, cat, rabbit, mule, horse, deer, rats, pig, wolf and just last week (Nov. 14, 2007) scientists announced the first cloned primate (rhesus monkey)
4. Note: This brings about the “formation” of life, but does not “create” life in the same sense in which God created life at the beginning (Ge 1). Man can only manipulate created matter and life – he cannot take something dead and make it alive, or take nothing and make something come into existence

B. Moral problems with human cloning

1. It has not been scripturally demonstrated that this is an acceptable method of human reproduction – this must be done before any Christian chooses to participate in any way in human cloning or its research or development (or condone it)
2. What moral justifications are there for human cloning?
3. Experimenting on humans – with the risks, failures, defects, and deaths that are involved with the developing babies are completely unacceptable
  - a. Usually a large number of clones are attempted because it is known that many, and sometimes all, will not survive
  - b. There are also all the risks involved with transferring embryos to a surrogate mother (as in IVF)
  - c. Experimentation on human clones to assess, and even address the risks and failures of human cloning is immoral no matter what benefits some believe might come
  - d. Note: Not only do many cloned animals die or have severe defects, premature death (Dolly, the sheep at age 6), may suggest fundamental flaws in the concept of cloning (Ex: DNA age / clock, not just birth age)
4. Note: There is currently a ban on the use of federal funds for human cloning (research, etc.) in the US and several other countries. There is not a federal law banning private human cloning research and development (some states have banned it, California has voted to have the state finance it). There are strong suspicions in the scientific community that it is being attempted in the US. Currently in the US, negative social feelings and pressure have pushed experimentation underground or to other countries (some Asian religions do not oppose cloning, but defend it by citing Buddhist and Hindu beliefs in recycling life through reincarnation.)
5. I do not oppose, from a moral standpoint, cloning of plants, animals, bacteria, etc. The advantages which may be gained are included in the directive of Genesis 1:28. Genetically altered and engineered plants and animals already benefit man (the manufacture of insulin commonly combines human genes with bacteria DNA)
6. Researchers distinguish between “reproductive cloning” of humans, in which an embryo (child) is formed and “therapeutic cloning” in which human cells are formed (blood, brain, nerve, etc.), but an embryo is never formed. Most human cloning research purports to focus on the latter of these two.
  - a. I do not believe pure “therapeutic cloning” of human cells can be opposed based on any of the three principles introduced at the beginning of this study
  - b. However, all current cloning research and attempts seem to be an unregulated, unmonitored (morally), slippery slope that is fraught with spiritual and physical dangers

Conc: God created the genius of man, but does not always appreciate its application (Ex: tower of Babel – Ge 11). There is a great danger in the pride of man to control his life, be master of his fate, and glorify himself. Science could use a good dose of God, both to infuse morality into what is being attempted and to instill humility by showing how little is known and how small we are. Christians need to maintain their contentment in accepting God’s will in all things no matter how profitable Satan makes the way of sin and death look.

David Diestelkamp  
940 N Elmwood Dr  
Aurora, IL 60506  
davdiestel@yahoo.com

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