

IN SUMMARY  
NON-HORMONAL CONTRACEPTION

**NON-HORMONAL CONTRACEPTION**

**HISTORY**

- Ebers Papyrus (1550 BC)
- Pliny the Elder (23-79 AD)
- Dioscorides (58-64 AD)
- Soranus (100 AD)
- Al-Razi (923 AD)
- Ali ibn Abbas (994 AD)
- Avicenna (1037 AD)

***Lactational Control of Fertility***

- Darwin (1809-1882)
- Koran (2:223)
- “Mothers shall give suck to their offspring for two whole years if they desire to complete the term”
- Stillborn → pregnancy interval reduced
- Higher fertility rates among users of “wet nurse”
- Patterns changed around 1750’ when breast feeding started to decline

***Reasonable at Time***

- Wiping out the vagina
- ? Reasonable but ineffective
- Honey, alum, lactic acid, pepper as pessaries and barriers
- Totally unreasonable and ineffective
- Holding breath at time of ejaculation
- Jumping backwards 7 times after coitus

***Contraception***

- (Population control ???)
- Infanticide
- Opiates, gin, too little food, smothering (common in 18<sup>th</sup> century)
- Abandonment
- Foundling Hospital (Coram 1741)
- 10,204/14934 infants admitted then died
- Majority were illegitimate children
- 50% of all legitimate births admitted were of mothers with 6 or more children

***IUD History***

- 1909 Richter used silkworm gut
- 1909 Graefenberg used silkworm gut and silver wire
- 1960 Lippes Loop, Margulies Spiral, Saf-T-Coil
- 1960’s Zipper used copper devices
- Tail-less steel ring used in China by 45 million
- About 10% of contraceptors in USA
- Progesterone impregnated
- Copper coated (various shapes)
  - 10 year use

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**CONDOMS**

***Condom History***

- Used for centuries
- Pregnancy protection
- Infection protection
- Stimulation
- Decoration
- 1350 BC Egyptians wore decorative covers for penis
- 1564 Fallopius described linen sheaths
- 1700's animal intestines:
- Given name "Condom": Protection from venereal disease and numerous bastard offspring
- 1798 Casanova (from his memoirs)

***Barrier Methods***

Dr. Condom - English physician  
Charles II had many children  
1800 in brothels all over Europe  
English Cape  
French letters  
1844 Vulcanization of rubber  
1850 rubber condoms in USA  
1880 Diaphragm in Germany

***Sponge***

Real sponges used for centuries  
June 1983 "TODAY" (Two Day)  
2 inches long by 1.25 inches thick  
Polyurethane - 1 gram nonoxynol-9  
125-150 ug per 24 hours (10-15%)  
Rare toxic shock  
Bacteriocidal/virocidal/spermicidal  
Not carcinogenic  
Remove 6 hours after the last coitus

<b>FUNDAMENTAL QUESTIONS</b>
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1. What are condoms made of?
2. Which sexually transmitted disease do the various types of condoms protect against and why?
3. What is a contraceptive sponge made of? How effective is it?
4. How does the IUD work?
5. What are the different types of IUD available?
6. What are life spans of the various types of IUD's in current use?
7. What non-contraceptive benefits does the MIRENA have?
8. What is the causative organism of "toxic shock syndrome"? What are the clinical manifestations of this syndrome?
9. Discuss the history of the IUD.

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#### **CERVICAL CAP**

- Thousands of years old
- Molded opium into cup-like devices
- Placed over the cervix
- Beeswax and oiled paper - shaped into "thimbles"
- Casanova, - lime or lemon and cut it in half.
- Acid of the juice - spermicidal agent
- Skin of the fruit - cap to cover the cervix
- Modern cap (**The Prentif Cavity-Rim Cervical Cap**) - latex rubber  
most exotic of all caps were made of gold!

#### **ADVANTAGES**

- One small application of spermicide
- Less messy than the diaphragm
- more aesthetic for the user.
- Smaller than a diaphragm
- Less noticeable to either partner.
- May use with poor vaginal muscle tone.
- Assist in avoiding urinary tract infections associated with diaphragm use.
- Sturdier than a diaphragm.
- Less spermicide is used - more pleasant oral sex.
- Fewer and less serious side effects than the pill or IUD.
- Protection against some sexually transmitted diseases.
- No reports of cases of toxic shock
- Can be left in place for up to 48 hours

#### **MAY NOT BE USED WITH**

- An unusually long or short cervix precludes use
- A history of cervical lacerations or scarring.
- Current cervicitis.
- An unusually shaped or asymmetrical cervix.
- Current vaginal infections.
- Unresolved Abnormal Pap smears

#### **PROBLEMS**

- Sometimes more difficult to insert or remove than a diaphragm.
- Can be dislodged from the cervix during sex.
- Development of abnormal PAP smear

#### **VAGINAL SPONGES**

- Polyurethane material
- Impregnated with nonoxynol-9
- TODAY - effectiveness due to release of spermicide not as a barrier
- Left in place 6 hours
- Wear up to 48 hours
- 6 hours without replacement
- Collagen Sponge (traps sperm, absorbs semen, is large, grows bacteria, TSS enhancement)

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FUNDAMENTAL QUESTIONS
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1. What is a cervical cap ?
2. What is the contraceptive efficacy ?
3. What is the mechanism of action of the cap ?
4. What are cervical caps made of and why ?
5. What is a contraceptive sponge ?
6. What spermicide is used in the sponge ?
7. Are there any risks in using the sponge ?

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**FEMALE CONDOMS**

**ADVANTAGES**

- Effective immediately
- Do not affect breastfeeding
- Do not interfere with intercourse (may be inserted up to 8 hours before)
- Can be used as backup to other methods
- No method-related health risks
- No systemic side effects
- No prescription or medical assessment necessary
- Controlled by the woman
- May provide protection against STDs
- May help prevent cervical cancer

**DISADVANTAGES**

- Expensive (at this time)
- Moderately effective (5-21 pregnancies per 100 women during the first year<sup>1</sup>)
- Effectiveness as contraceptives depends on willingness to follow instructions
- User-dependent (require continued motivation and use with each act of intercourse)
- Disposal of used condoms may be a problem
- Adequate storage must be available at the client's home
- Supplies must be readily available before intercourse begins
- Resupply must be available

**FOR THESE**

Women

- Who prefer not to use hormonal methods or cannot use them (e.g., smokers over 35 years of age)
- Who prefer not to use IUDs
- Who are breastfeeding and need contraception
- Who want protection from STDs and whose partners will not use condoms

Couples:

- Who need contraception immediately
- Who need a temporary method while awaiting another method (e.g., implants, IUD or voluntary sterilization)
- Who need a backup method
- Who have intercourse infrequently
- In which either partner has more than one sexual partner (at high risk for STDs, including HBV and HIV/AIDS), even if using another method

**PROBLEMS**

- Diminished sexual pleasure:
- Condom breaks or breakage suspected (before intercourse):
- Condom breaks or slips off during intercourse

**FUNDAMENTAL QUESTIONS**

1. Of what are female condoms made?
2. What is the efficacy of the female condom?
3. Do female condoms protect against STD's?
4. Who might be a good candidate for the female condom?

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**SPERMICIDES**

**NONOXYNOL-9**

- Spermicide used in contraceptive products
- Mixture of compounds having the general formula  $C_{15}H_{23}(OCH_2CH_2)_nOH$
- Average of nine ethylene oxide groups per molecule .  
STD Protection
- Choice of contraception can affect risk for HIV
- Some contraceptives containing nonoxynol-9 (N-9) might increase the risk for HIV sexual transmission.
- Three randomized controlled trials of N-9 failed to demonstrate any protection against HIV infection
- One trial showed an increased risk
- N-9 contraceptives also failed to protect against infection with *Neisseria gonorrhoeae* and also Failed to protect against *Chlamydia trachomatis* in two randomized trials
- The 2002 STD treatment guidelines state that condoms lubricated with spermicides are no more effective than other lubricated condoms in protecting against the transmission of HIV infection and other STDs
- CDC recommends that previously purchased condoms lubricated with N-9 spermicide continue to be distributed provided the condoms have not passed their expiration date. The amount of N-9 on a spermicide-lubricated condom is small relative to the doses tested in the studies in Africa and the use of N-9--lubricated condoms is preferable to using no condom at all.

**FUNDAMENTAL QUESTIONS**

1. What is the most widely used spermicide worldwide?
2. How does nonoxynol-9 work?
3. Are there any deleterious effects of nonoxynol-9?