



HUMANAE VITAE
Celebrating Love & Life • 1968–2008

THE BIOCHEMISTRY OF SEX

St. Therese Lecture

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Interconnectedness

Grandmother → Mother → You and siblings

Eggs present at 4 months in utero, 6 to 7 million decreased by apoptosis to 2 million at birth and to 400,000 to 450,000 at onset of menses and to none at menopause.

Mitochondria

We all carry only mitochondria from our mother's line

(Book: *The Seven Daughters of Eve* by Sykes)

Y

Men only carry the Y of their father's father's father's father

(Book: *Adam's Curse* by Sykes)

Men and women are truly different

Men are linear thinkers, speak 7000 words per day, have bigger brains but the brain appears to be specialized with only one area lighting up for a task. They are more tactile.. Brains are bigger but highly specialized. Men do not read relationship cues well.

Women are multi-taskers, speak 20,000 words per day, have smaller but more compact brains with several places lighting up for most tasks. Women are hard wired to read relationship issues and emotions. Women very attuned to relationship cues in partners and off-spring.

(Book: *The Female Brain* by Louann Brizendine, MD

Brain Sex: The Real Difference Between Men & Women by Anne Moir, Ph.D. and David Jessel)

XX vs. XY

Women are mosaics. Female is the default model for babies.

3500 to 6000 genes on each X makes us very complex.

Female identical twins are not really identical.

(Book: *The X in Sex: How the X Chromosome Controls Our Lives* by David Bainbridge)

Men are more fragile .Men carry the same number of genes on the X but only around 3 dozen on the Y. Presence of SrY gene on chromosome turns on male characteristics. .More males are conceived, with more dying before and at birth, in childhood and adolescence with the sexes being about even by adulthood unless something in the culture has tipped the naturally occurring balance, like sex selection abortions we see in China, North Korea and India.

Pheremones/Pheromones

-Scent hormones of affiliation—different from olfactory scents

-Receptors in septum of nose—called Jabobsen's Organ by Irish researchers

(Book: *Jacobson's Organ and the Remarkable Nature of Smell* by Lyall Watson)

-Connected to recently discovered Cranial Nerve 0 or the Terminal Nerve

(See *Scientific American Mind*, February/March 2007)

80% perceive, 20% don't (Research of Martha McClintock and Carol Ober)

Female-Female : Women cycle together with a possible Alpha Woman phenomena
Chemical contraceptives interfere with this.
Anthropological explanation: the need for women in clans to birth at the same time to insure survival of infants.

Female-Male: Assists in choosing of possible mate to insure fertility
X vs. II MHC complex (Major Histocompatibility Complex)
Complementary versus similarity
Impact of chemical contraceptives on pheromone perception and mate choice.
(Book: *Beyond Choice* by Alexander Sanger)

Women with II mate match may be more inclined to be unfaithful during the ovulatory phase and go looking for the X male.
(Reported in *New Scientist* magazine January 5, 2007 and January 13, 2007, Christine Garver-Apgar-- researcher)

Male-Female: Males perceive ovulating females, responding with elevated testosterone, making them more sexually aroused and aggressive.

Males perceive pregnant and non-fertile states at least in some cases.

Male lost interest in chemically contracepting females in primate community, turning to other females and when all females were contracepting, the male turned to masturbation, violent rape and had a significantly reduced sperm count.
(Book: *The Decline of Males* by Lionel Tiger)

Males perceive pregnant females and respond with physical changes.

Presence of non-related males in household will cause earlier onset of menses in girls while presence of biological father delays it by several months. (*New Scientist* magazine February 14, 2007)

Presence of a non-related male can induce a miscarriage in some mammals.

Male-Male: Adolescent males without physically present fathers or mentor males have elevated testosterone during adolescence and lower than normal in adulthood.

Mother-Infant Within 24 hours, if mother spent time with baby after birth, she can pick out her baby by scent. Baby if nursed right after birth, at 24 hours will turn toward the breast pad of its mother and away from one of a stranger.

Female System

Ovaries—size of almonds, ovulation alternates sides each month but follicles begin to develop three months before current cycle. One follicle usually ruptures, sending ovum into uterine cavity, and this area now becomes the corpus luteum, which produces chemistry through rest of cycle and into pregnancy should that occur. Other follicles atrophy.

Fallopian Tubes: Cilia create suction that captures ovum and moves it into the Fallopian Tube. Should one tube be damaged or missing, the other side may occasionally collect ovum from opposite side. Move ovum down while helping sperm move up.

Uterus: Normal size of small child's fist and weights 2 ounces. In pregnancy expands to size of watermelon, weighs two pounds and is strongest muscle in body, capable of pushing a baby out and returning to normal within 6 weeks.

-Fed by three spiral arteries. Blood from these does not clot and they are critical in sustaining the growing baby and uterus.

-Only part of body that completely renews itself each month.

Cervix: Opening to uterus, which is often closed. During ovulatory phase it opens. Secretes three types of mucus—one that aids sperm movement, one that captures unhealthy sperm and one that fights pathogens in our system.. Chemical contraceptives impact quality of all three types of mucus.

Menstrual period: These arteries shut themselves off, the lining of the uterus begins to slough off and they turn on again to flush out the lining. This blood does not clot and what we may see as clots are really uterine lining.

Purpose of menstrual cycle:

-Clean uterus, cervix and vaginal area of old cells, dead sperm and pathogens.

-Reduces blood pressure every month and prevents iron overload in women's bodies.

*Serious question about health outcomes in women when cycle is suppressed by chemical contraceptives. Period that occurs is actually break through hormonal bleeding and not a real menstrual period.

(Books: *Woman: An Intimate Geography* by Natalie Angiers
The Blessings of the Curse: No More Periods? By Susan Rako, MD
No More Periods? By Susan Rako, MD

*I believe that the first of these two is basically a reissue in paperback of the first one.)

* New concern about a post-tubal ligation syndrome

(Web site: www.tubal.org/VGHPTS.htm)

(Book: *What Doctors Don't tell you About Tubal Ligation and Post Tubal Ligation Syndrome (PTLS)* by Susan Bucher)

Understanding the feminine cycle:

Period → Follicular phase → Ovulatory phase → Luteal phase → Period or Pregnancy

Follicular Phase: Approximately 10 follicles develop on one ovary

Ovulatory Phase: Hormones trigger release of one or two eggs, the rest atrophy.

-Women's senses are at peak—good time for projects

-Women are sexually arousable, dress to impress, behave more flirtatiously and may be unfaithful if the MHC match is not proper. (*New Scientist*, January 13, 2007)

-Women are sexually conditionable—shown an erotic movie during the ovulatory phase, women will have an erotic response. Other women during other phases had a consistent response to the erotic movie “dumb, dirty movie.” The women who had the erotic response, will now have an erotic response during other phases as well. Anthropologists warn that if a woman has sex at this time, she may become conditioned to Mr. Wrong.

-Woman's scent changes signaling to males that she is fertile and he responds with elevated testosterone.

Luteal Phase: The follicle that released the egg becomes a major chemical factory, called the corpus luteum, keeping ovum alive and supporting the developing embryo during fertilization, and implantation (until baby builds the placenta). If pregnancy does not occur, corpus luteum stops functioning and period happens.

Male anatomy

Role of SrY gene on Y chromosome in producing males.

Testicles: begin formation up around kidney early in pregnancy and descend into scrotal sack.

Contain 400 compartments that produce sperm and testosterone
Sperm: take 72 days to form, in about 4 segments of about 16 days each.

Three types: Egg-getters, Blockers and Killers
(Book: *Sperm Wars* by Robin Baker)

Y: *The Descent of Men* by Steve Jones)

Seminal fluid—rich substance absorbed by female, decreasing depression in non-contracepting females.

-Contains 30 substances including minerals, sugars, vitamins and other chemical compounds. Additionally, it contains 13 prostoglandins, Follicle stimulating hormone, lutenizing hormone, dopamine, tyrosine, testosterone, oxytocin, estrogens and vasopressin.

(Research of Gordon Gallup and Sandor Gardos)

Sperm: laden with antigens that cause immune reaction in women and immune reaction in the male if there is injury or vasectomy. Immune system disorders may develop.

(Book: *Is Vasectomy Worth the Risk? A Physician's Case Against Vasectomy* by H. J. Roberts, M.D.

If It Works, Don't Fix It! What Every Man should Know BEFORE having a Vasectomy by Kevin Hauber)

Capacitation: Occurs in uterus and oviducts after ejaculation, when the chemistry of the female genital tract cause observable changes in the sperm. It takes 5 to 7 hours and enhances the ability of the sperm to penetrate the egg, changes the mitochondria in the sperm and changes the movement of the sperm. They become "fertilization competent".

Chemistry of Falling in Love

Infatuation—Amphetamine-based chemistry (PEA), which lasts only 8 months to 4 years.

Media only shows infatuation phase of relationships.

Brain state related to Obsessive Compulsive Disorder

Unable to see partner clearly and objectively in this state.

Deeper bonding—As the infatuation phase fades, the relationship may move to an opiate-based chemistry, which is calmer but more additive.

Some may be incapable of moving to second phase and become "love junkies".

Hooking up: Every time sexual intimacy occurs, the chemistry of bonding is set off in the brain and the body of both men and women. It is impossible to engage in sexual intimacy and not be changed by it.

Oxytocin

Vasopressin

Sexual Intercourse:

In women, every time she is exposed to sperm/seminal fluid, her body launches an immune system response because the sperm are laden with antigens.

-Takes 6 months of exposure for her immune system to come to recognize that this male is her mate.

-Multiple partners will increase immune system reaction. If intercourse happens in a short period of time, the killer sperm of both males will attack each other leaving additional dead sperm in her body.

Microchimerism—mothers carry cells from every child they ever conceive. Cells found 37 to 40 years later so they appear to be replacing themselves.

-Children also get some cells from their mothers and siblings who were conceived before them.

-Women who conceive children with several partners may have a more taxed immune system because of genetic material from several partners and this may

predispose them to immune system disorders. Pregnancies do not need to be completed for the effect to happen.

-If the MHC match is complementary, the off-spring cells may help to heal the woman's body.

(Research of Diana Bianchi, MD Tufts University)

-If the MHC match is too similar, it may also lead to immune system diseases such as Scleroderma.

(Research of J. Lee Nelson, MD Hutchinson Cancer Institute)

(*Scientific American*, February 2008 January, 2008 on line **Your Cells Are My Cells**)

Male Response to Pregnancy

Couvade: 60 to 90% of males develop symptoms of pregnancy with their partner.

- 20% may be so bad as to seek a doctor's care.

-Long recognized in primitive cultures

-Those experiencing couvade seem to be more responsive to cry of their young.

(Magazine: *Psychology Today*: "The Making of a Modern Dad")

Hard-wired for fatherhood

About 6 weeks before birth hormonal changes are recorded.

-*Testosterone* drops decreasing aggression and sexual interest,

-*Estrogen* rises feminizing the male, making him more gentle

-*Cortisol* rises putting him on the alert to protect mother and baby

-*Vasopressin* increases which is a bonding hormone to keep him home

-*Prolactin* appears near birth and makes him helpful and smiling

-*Brain cells:* primate literature indicates that males get new cells in the pre-frontal cortex during pregnancy that last until the young become independent.

After birth, testosterone never returns to its pre-fatherhood level

Contraceptive information

Chemical contraceptives:

-Change pheromone preference in women to male who has similar MHC—possibly contributing to sexual dissatisfaction later or reduced fertility factors

(Book: *Beyond Choice* by Alexander Sanger)

-Change preference in women when shown photos of males to the high testosterone, one night stand kind of guy.

-Change the scent of the female, eliminating ovulatory scent signals as well as ovulatory peak senses. May reduce male fertility with regard to their partner.

-Prevents menstrual cycling with other women.

-Presence of estrogen from chemical contraceptive is becoming a waste water management issue. May be contributing to significant drop in male fertility in past 50 years.

(Book: *The Estrogen Effect* by Deborah Cadbury)

-Early and prolonged chemical contraceptive usage linked to breast cancer.

-May be a contributing factor to depression in women

-May reduce libido in women (Contraceptive label) Researcher: Dr Claudia Panzer

-Depo-Provera (The Shot) demineralizes bones of adolescent women.

-Morning After Pill if used often may cause Fallopian Tube motility failure resulting in ectopic pregnancies.

-Chemical contraceptives change characteristics of cervical mucous, and may predispose women to contracting STDs

(Book: *Unprotected* by Anonymous, M.D.)

(Additional books: *No More Periods* by Susan Rako, MD

Women's Moods: What Every Woman Must Know about Hormones, the Brain, and Emotional Health by Deborah Sichel and Jeanne Watson Driscoll

The Greatest Experiment Every Performed on Women: Exploding the Estrogen Myth by Barbara Seaman)

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