Biology of the Sexual Response

Reading assignments:
1. Human Sexuality - Pgs 88-94
2. Gender Definitions
### Biology of the Sexual Response

#### Objectives:
1. Masters & Johnson model
2. Sexual stimuli (review of “Sex & the Brain” lecture)
3. Human Sex, Gender, Gender Identity, & Sexual Orientation

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**Sexual Response** = all physical & physiological changes that occur through stages of sexual arousal, activity, and resolution.

1st major scientific study published, which opened discussion and education in US was 1966 book “Human Sexual Response” by Masters and Johnson (psychologists).

- 694 volunteers interviewed, observed, and examined with sensors.
- Some participants heterosexual, homosexual, bisexual.
- Some participants couples, others single.
- Participants observed in sexual activity (intercourse & masturbation).

_Human Sexuality - Pgs 88-94_
Masters & Johnson described 4-phase model of sexual response:

1. Excitement phase
2. Plateau phase
3. Orgasm phase
4. Resolution phase

E.P.O.R.
1. Masters and Johnson Model of Sexual Response

1. **Excitement phase** = initial sexual arousal.

**Female:**
- Erection of clitoris (tumescence)
- ↑ vaginal lubrication
- Breasts swell (↑ 50%)
- Nipples erect
- Labia swell & darken w/blood
- Uterus “lifts up”
- “Sex flush” (50% of women)
- ↑ pelvic muscle tension

**Male:**
- Erection of penis (tumescence)
- Bulbourethral gland secretions
- Testes swell (↑ 50%)
- Nipples erect
- “Sex flush” (60-70% of men)
- ↑ pelvic muscle tension

**Question?**
What is the G-spot?
= inner, anterior wall of vagina (particularly sensitive to stim. Named after German (Dr. Grafenberg) who discovered it.

![Diagram of sexual response](image-url)
1. **Excitement phase** = initial sexual arousal.

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External Genitals & Sexual Response Cycle (F)

**Unaroused**
- Clitoral hood
- Labia minora
- Labia majora

**Orgasm phase**
- Clitoris remains retracted under hood
- Labia majora
- Labia minora

**Resolution phase**
- Clitoris slowly returns to unaroused size
- Labia majora return to unaroused size and position
- Labia minora slowly return to unaroused size and position

**Excitement phase**
- Clitoral hood
- Labia minora expand and extend outward
- Labia majora flatten out and spread away from vaginal opening

**Plateau phase**
- Clitoris retracts under hood
- Labia majora
- Labia minora turn bright red and increase in size
- Bartholin's glands secrete fluid

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1. **Excitement phase** = initial sexual arousal.
1. Masters and Johnson Model of Sexual Response

2. **Plateau phase** = Stable state of sexual arousal.

**Female:**
- Outer 1/3 wall vagina swells
- Upr vagina length.
- Clitoris darkens & retracts under hood.
- Uterine muscles contract (fibrillate)
- Sex flush spreads
- ↑ heart rate & blood pressure

**Male:**
- Few changes from arousal
- Head penis darkens (red/purple)
- Sex flush spreads
- ↑ heart rate & blood pressure

2. **Plateau phase** = Stable state of sexual arousal.
1. **Excitement phase** = initial sexual arousal.

2. **Plateau phase** = Stable state of sexual arousal.
1. Masters and Johnson Model of Sexual Response

3. **Orgasm phase** = Brief phase (seconds – min) where all thought suspended & focus on pleasurable sensations. [*Remember the amygdala in women?*

**Female:**
- Clitoral & possible vaginal orgasm (set of 3-15 muscular contractions @ frequency of 0.8 sec)
- Sex flush spreads
- Oxytocin release
- Female ejaculation?? (speculation about substance secreted from “skene gland”).

**Male:**
- Orgasm = moment of no return called “ejaculatory inevitability” (ejaculation of semen).
- Orgasms is set of 3-15 muscular contractions @ frequency of 0.8 sec.
- Oxytocin release

**Oxytocin release** = in sexual context this is the “cuddle” or bonding hormone.
1. **Excitement phase** = initial sexual arousal.

3. **Orgasm phase** = Brief phase (seconds – min) where all thought suspended & focus on pleasurable sensations. [Remember the amygdala in women?]
1. Masters and Johnson Model of Sexual Response

4. **Resolution phase** = Phase of relaxation where body returns to normal, unaroused state.

**BOTH Female & Male:**
- ↓ vasocongestion of genitals (loss of erectile state in penis & clitoris)
- Shrinkage of breasts & testes back to normal
- ↓ heart rate & blood pressure
- Men experience **refractory period** = period of time during which another erection cannot be achieved no matter the stimulation.
- Some women experience refractory period while others don’t & can be stimulated to achieve **multiple orgasms**.
Why did orgasms evolve?  Pg 92-93

- Not required for reproducing in many animals.

1. To make sex more pleasurable for repeat activity (ensure survival of species).

2. Pair-bonding of male & female (two parents better than one in protecting & raising offspring).

3. Muscular contractions in female reprod. tract helps draw sperm upwards towards fallopian tubes to meet egg.

4. Post-coital drowsiness / fatigue keeps females laying down (retain sperm in reprod. tract).

Human Sexuality Pgs 91-92
- hypotheses on why orgasm evolved (Stephen Jay Gould, Melvin Konner, Helen Fisher, Sarah Hrdy, Randy Thornhill & Steven W. Gangestad)
Sexual stimuli

- Sight
- Sound
- Taste (aphrodisiacs)
- Smell (pheromones)
- Touch
- Thoughts

**Human Sexuality Pgs 76 - 82**

### 2. Sexual Stimuli (review)

<table>
<thead>
<tr>
<th>Hormones that ↑ libido (Sex drive)</th>
<th>Hormones that ↓ libido</th>
</tr>
</thead>
<tbody>
<tr>
<td>testosterone</td>
<td>cortisol (stress hormone)</td>
</tr>
<tr>
<td>estrogen</td>
<td>progesterone</td>
</tr>
</tbody>
</table>
D) Human Sexual Orientation

**Heterosexual** = Sexual attraction to member of opposite sex.

**Homosexual** = Sexual attraction to member of the same sex.

**Bisexual** = Sexual attraction to members of both sexes.

**Asexual** = An absence of sexual desires for either sex.

**Pansexual** = Sexual attraction to members of both sexes and any gender.

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**Kinsey's Sexuality Scale**

= a heterosexual-homosexual rating scale

> Developed by Alfred Kinsey in 1948 to account for research findings that showed people did not fit into neat and exclusive heterosexual or homosexual categories. **VERY controversial at the time!**

0 - Exclusively heterosexual with no homosexuality
1 - Predominantly heterosexual, only incidentally homosexuality
2 - Predominantly heterosexual, but more than incidentally homosexuality
3 - Equally heterosexual and homosexual (Bisexual)
4 - Predominantly homosexual, but more than incidentally heterosexual
5 - Predominantly homosexual, only incidentally heterosexual
6 - Exclusively homosexual

4. Human Sexual Relationships

**Monogamy** = practice of having sex with only one spouse (partner) for long time (possibly entire life).

*serial monogamy* = practice of having sequences of monogamous sexual relationships – one after the other.

*Ethnographic Atlas* - ~186 societies monogamous.
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**Polygamy** = having multiple spouses (partners) at same time.

1. **Polygyny** = man having more than one wife.
   (Ex. Fundamentalist Mormons) – t.v. show “Big Love”
   *Ethnographic Atlas* - ~588 societies had polygyny.

2. **Polyandry** = woman having more than one husband.
   (Ex. In Nepal & parts of China, brothers married to same wife where resources are scarce. Enhances child survival)
   *Ethnographic Atlas* - ~43 societies had polyandry.
Review

1. Masters & Johnson model of sexual response:
   • What is happening in the female response during: excitement, plateau, orgasm, and resolution phases.
   • What is happening in the male response during: excitement, plateau, orgasm, and resolution phases.
   • What is the G-spot? What is the significance of oxytocin release? What is the refractory period?
   • What are the hypotheses for why orgasm evolved by Stephen Jay Gould, Melvin Konner, Helen Fisher, Sarah Hrdy, Randy Thornhill & Steven W. Gangestad in reading assignment: Human Sexuality Pgs 91-92

2. Sexual stimuli (review of “Sex & the Brain” lecture)
   • What are the hormones that can increase or decrease libido?

3. Human Sexuality Scale by Alfred Kinsey
   • Know the scale from 0 – 6

4. Human sexuality & relations vocabulary
   • Heterosexual, homosexual, bisexual, asexual, pansexual
   • Monogamy, Serial Monogamy, Polygamy (polygyny vs polyandry)