

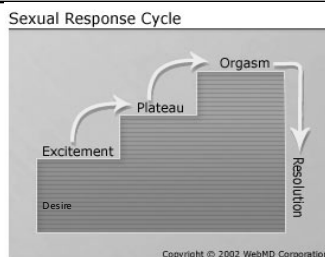
MEDICATIONS THAT IMPACT SEXUALITY

Shelagh Larson, RNC, WHNP NCMP

OBJECTIVES

- To understand the stages of sexuality.
- To understand the mechanism of drugs that impact sexuality.
- To know alternative drugs/treatment that do not effect sexuality

MASTERS & JOHNSON'S LINEAR MODEL



SEXUAL RESPONSE CYCLE

- **Desire (libido)** – desire to have sexual activity, including sexual thoughts, images, and wishes
- **Arousal (excitement)** – subjective sense of sexual pleasure accompanied by physiologic changes, including genital vasocongestion and increases in heart rate, blood pressure, and respiratory rate
- **Orgasm** – peaking of sexual pleasure and release of sexual tension, with rhythmic contractions of the perineal muscles and reproductive organs
- **Resolution** – muscular relaxation and a sense of general well-being following sexual activity

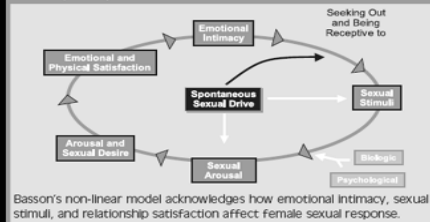
*for many women, the phases may vary in sequence, overlap, repeat, or be absent during all or some sexual encounters. It is helpful to know where in the sexual response cycle a problem occurs

PROBLEMS WITH MASTERS AND JOHNSON'S

- It assumes that men and women have similar sexual responses, and in so doing may pathologize normal behavior in women
- women may not even experience all of the phases
- has been criticized because it does not take into account non-biologic experiences such as pleasure and satisfaction or place sexuality in the context of the relationship

NON LINEAR FEMALE MODEL, 2000

FIGURE 3. Non-linear Model of Female Sexual Response
Developed by Basson⁶



NON LINEAR FEMALE MODEL

- Female sexual functioning proceeds in a more complex and circular manner
- dramatically and significantly affected by numerous psychosocial issues (e.g., satisfaction with the relationship, self-image, previous negative sexual experiences)
- most women in long-term relationships do not frequently think of sex or experience spontaneous hunger for sexual activity.
- desire for increased emotional closeness and intimacy from a partner may predispose a woman to participate in sexual activity
- Once she is aroused, sexual desire emerges and motivates her to continue the activity
- the goal of sexual activity for women is **not necessarily orgasm but rather personal satisfaction**, which can manifest as physical satisfaction (orgasm) and/or emotional satisfaction (a feeling of intimacy and connection with a partner)

FEMALE SEXUAL DYSFUNCTIONS

- one or more phases of the sexual response cycle
- must be recurrent or persistent and cause personal distress or interpersonal difficulty.
- strongly affected by relationship and sociocultural factors
- Depression and anxiety are strongly associated with female sexual dysfunction.
- Cancer, urinary incontinence, vaginal atrophy, end stage renal disease, alcohol or other substance abuse, anemia, thyroid disorders and diabetes are also associated
- Spontaneous desire is unusual in women, except in new relationships,
- Desire in women typically is responsive, commonly triggered by emotional factors, exposure to erotic images, or physical proximity
- before making a Dx: note that not only is a problem present, but also that it is associated with personal distress or interpersonal difficulty.

DISTRACTIONS

- the relationship with the partner is a principal determinant of sexual satisfaction
- Men tend to get distracted during sex by worries about performance
- women are distracted by concerns about appearance, produce anxiety and guilt, and diminish sexual arousal and pleasure
- The principle of mindfulness holds that it's better to tend fully to what is actually going on—the rich details of the event as it happens—without jumping forward in time to labeling, judgment, and worry, or backward to comparisons, remorse, or guilt.

TAKE-HOME MESSAGES FOR WOMEN

- Sexual pleasure and satisfaction **aren't** reliant on orgasm though orgasm may be a nice bonus.
- Sexual desire doesn't always have to come before sexual activity or arousal...sometimes getting physical and experiencing arousal will elicit desire.
- External factors such as relationship dynamics, intimacy, and weighing rewards and costs of sexual experience may play an important role in sexual response.
- Only 25% of women reliably experience orgasm during intercourse no matter: how long it lasts, what size the man's penis, or how the woman feels about the man or the relationship
- Men have sex to relax, women need to be relaxed to want sex.

PRESIDE STUDY

- Prevalence of Female Sexual Problems Associated with Distress and Determinants of Treatment Seeking
- 1) Low desire 39%, Low arousal 26% and orgasm difficulties 21%
 - 2) 5 % reported both low desire and another sexual problem;
 - 3) 2 % reported all three problems
- presence of any serious medical condition is likely to impair sexual function.
 - physical health was more strongly associated with sexual problems than age alone

CHILD BIRTH/MENOPAUSE

- 83 % reported sexual problems at three months postpartum and 64 % at six months
- After childbirth, physical recovery and breastfeeding, as well as fatigue and the demands of parenting, often decrease sexual desire. Low estrogen levels after delivery and local injury to the genital area at delivery may result in pain with sexual activity.
- parous women were not more likely to have sexual dysfunction than those who were nulliparous
- It is estimated as many as 1 in 3 postmenopausal women experience painful sex due to estrogen levels decline dramatically.

RISK FACTORS FOR SEXUAL PROBLEMS

- **Personal well-being** — A woman's sense of personal well being is important to sexual interest and activity. A woman who does not feel her best physically or emotionally may experience a decrease in sexual interest or response.
- **Relationship issues** — An emotionally healthy relationship with **current and past sexual partners** is the most important factor in sexual satisfaction. Stress or conflict between a woman and her partner, and current or past emotional, physical, or sexual abuse often influence a woman's sexual desire and response. In addition, even good relationships can become less exciting sexually over time.
- **Male sexual problems** — For women with a male sexual partner, sexual dysfunction in the partner can affect her sexual response. Male sexual problems, (erectile dysfunction, diminished libido, or abnormal ejaculation), can occur at any time, but become more common with advancing age. In addition, women tend to live longer than men, resulting in a shortage of healthy, sexually functional partners for older women.

MEDICATIONS

BLOOD PRESSURE MEDICATION

- In women, it can lead to vaginal dryness, a decrease in desire, and difficulties achieving orgasm.
- Some diuretics, not only interfere with blood flow to the sex organs but increase the body's excretion of zinc, which is needed to produce testosterone.
- And beta-blockers can sabotage a satisfying sex life at least three ways — by making you feel sedated and depressed, by interfering with nerve impulses associated with arousal and by reducing testosterone levels.
- A benzodiazepine calcium channel blocker is often the best choice, and drugs in this class have been shown to cause fewer adverse sexual effects.

HYPERTENSIVES: MEN

- In men, the decreased blood flow can reduce desire and interfere with erections and ejaculation
- In an international survey, 20% of men using beta blockers (beta adrenoceptor antagonists) for hypertension had erectile dysfunction.
- Centrally acting alpha agonists (clonidine) and diuretics have also been implicated in impairing sexual function.
- The aldosterone receptor blocker spironolactone also blocks the androgen receptor and is associated with erectile dysfunction and gynecomastia.

HYPERTENSIVES: WOMEN

- Sexual dysfunction more common in women with hypertension (before treatment) compared to normotensive women (42% vs 19%).
- poorly studied in women, these drugs may have similar adverse effects on the arousal phase as in men, leading to failure of swelling and lubrication.
- Decreased sexual desire (41% of women) and sexual pleasure (34%) have been reported
- Alpha adrenergic drugs such as (clonidine and prazosin) also **reduce desire and arousal**.
- The angiotensin II receptor antagonist, **valsartan**, was associated with **improved sexual desire and fantasies** when **compared** with the beta blocker **atenolol** in women with hypertension

CARDIOVASCULAR DRUGS

Decreased Desire

- clonidine
- digoxin
- hydrochlorothiazide
- methyldopa
- spironolactone

Decreased Arousal

- beta blockers
- clonidine
- digoxin
- hydrochlorothiazide
- methyldopa
- perhexilene
- spironolactone

ALTERNATIVES

- Lozol (indapamide) appears to be less of a problem than some of the other common water pills
- Capoten (captopril)
- calcium channel blockers such as
 - Cardene (nicardipine),
 - Cardizem (diltiazem) or
 - Plendil (felodipine)

THE ANSWER....

- Alpha blockers, ACE inhibitors and calcium channel blockers are **not** considered to **cause erectile dysfunction**
- studies have suggested that angiotensin II receptor antagonists may even improve sexual function.

STATINS

- that by limiting the availability of cholesterol, a building block of hormones, these drugs likely interfere with the production of testosterone, estrogen and other sex hormones.
- may cause erectile dysfunction (ED).
- men and women taking statins reported increased difficulty achieving orgasm.
- In one study, people's levels of sexual pleasure dropped along with their levels of LDL cholesterol.

ALTERNATIVE TO STATINS

- slightly elevated cholesterol with a combination of sublingual (under-the-tongue) vitamin B₁₂ (1000mcg daily), folic acid (800mcg daily) and vitamin B₆ (200mg daily).

ANTIPSYCHOTIC

- blocking the action of three brain chemicals that relay signals between nerve cells: acetylcholine, serotonin and norepinephrine
- antipsychotic drugs block dopamine, a brain chemical that helps regulate emotional responses and control the brain's reward and pleasure centers. They also increase levels of the hormone prolactin, which can lead to ED, reduced libido and difficulties achieving orgasm.
- the incidence of sexual dysfunction associated with antipsychotic drugs ranges in different studies from 45 percent to as high as 90 percent.

ANTIPSYCHOTICS

- Men: report erectile dysfunction, decreased orgasmic quality with delayed, inhibited or retrograde ejaculation, and diminished interest in sex.
- Women experience decreased desire, difficulty achieving orgasm, changes in orgasmic quality and anorgasmia.
- Dyspareunia, secondary to estrogen deficiency, can result in vaginal atrophy and dryness.
- Galactorrhea is experienced in both sexes

ANTIEPILEPTIC'S

- these drugs can lower testosterone levels, which can depress desire and interfere with arousal (erection problems for men, lubrication problems for women). They also can impair the ability to have orgasms

ANTIEPILEPTIC'S

- Sexual dysfunction is common in patients on antiepileptic drugs.
- Gabapentin and topiramate have been associated with orgasmic dysfunction in both men and women, and reduced libido in women

PSYCHIATRIC AND NEUROLOGIC DISEASE

- Depression present in 17 to 26 % of women who complain of low sexual desire
- (SSRIs) can cause low desire and difficulty with orgasm in women.
- Antipsychotic's inhibit dopamine, which may serve as a central neuromodulator of sexual function. It is also possible that a resultant increase in prolactin, causing gonadal suppression, affects sexual function

BENZODIAZEPINES

- thought to lessen sexual interest, excitement and sensation.
- may also interfere with the production of testosterone, important for sexual desire in women as well as men.
- The sexual problems most frequently associated with benzodiazepines are diminished orgasms, pain during intercourse, ED and ejaculation problems.

ANTIDEPRESSANTS

- Up to 70% of patients with depression have sexual dysfunction, which can affect any phase of sexual activity
- it may be difficult to distinguish the effects of the illness on sexual function from the effects of the drugs used for treatment.
- SSRI and SNRI inhibit desire, cause erectile dysfunction and decrease vaginal lubrication.
- They also impair orgasm in 5–71% of patients
- Tricyclic antidepressants inhibit sexual desire and orgasm

ANTIDEPRESSANTS

Decreased Desire

- amitriptyline
- clomipramine
- fluoxetine
- imipramine
- paroxetine
- phenelzine
- sertraline

Decreased Arousal

- amitriptyline
- citalopram
- clomipramine
- doxepin
- fluoxetine
- imipramine
- nortriptyline
- paroxetine
- phenelzine
- sertraline
- tranylcypromine

Orgasm/ejaculatory Difficulties

- citalopram
- clomipramine
- doxepin
- escitalopram
- fluoxetine*
- fluvoxamine
- imipramine
- nortriptyline
- paroxetine*
- sertraline*
- tranylcypromine
- venlafaxine

THE RELATIVE IMPACT OF ANTIPSYCHOTIC DRUGS ON SEXUAL FUNCTION

• Effect on sexual function

Least



Most

Antipsychotic

- aripiprazole
- quetiapine
- clozapine
- olanzapine
- haloperidol
- risperidone

ANTIDEPRESSANT MEDICATION WITH NO/LESS SIDE EFFECTS

- bupropion (Wellbutrin),
- mirtazapine (Remeron),
- duloxetine (Cymbalta)

serotonin modulators

- nefazodone (Serzone), treat major depression and pms
- vilazodone (Viibryd) treat major depression
- (Trazadone) treat major depression, functional dyspepsia & as a hypnotic for insomnia

H₂ BLOCKERS

- H₂ blockers can cause impotence (as well as breast enlargement in men) when taken at high doses for a long period of time.
- Cimetidine (Tagamet) is associated with decreased libido, reduced sperm count and ED than other H₂ blockers, including ranitidine (Zantac), famotidine (Pepcid) and nizatidine (Axid).

ALTERNATIVES TO H₂

• Some of my patients have reported success with the home remedy of apple cider vinegar and honey (one tablespoon of each in a glass of water), taken throughout the day, along with melatonin at bedtime.

OTHER MEDICATIONS

Decreased desire	Decreased Arousal	Orgasm or Ejaculatory Difficulties
• Cimetidine	• Antihistamines • cimetidine • cyproterone • disulfiram • gonadotrophin-releasing • hormone agonists • propantheline • pseudoephedrine	naproxen

NSAIDS AND MUSCLE RELAXANTS

- Naproxen (Anaprox, Naprelan, Naprosyn)
- Indomethacin (Indocin)
- Cyclobenzaprine (Flexeril)
- Orphenadrine (Norflex)

ANTI-HISTAMINES

- **Dimehydrinate** (Dramamine)
- Diphenhydramine** (Benadryl)
- Hydroxyzine (Vistaril)
- Meclizine (Antivert)
- Promethazine (Phenergan)

PARKINSON'S DISEASE MEDICATIONS

- **Biperiden** (Akineton)
- Benzotropine (Cogentin)
- Trihexyphenidyl (Artane)
- Procyclidine (Kemadrin)
- Bromocriptine (Parlodel)
- Levodopa (Sinemet)

CANCER

- long-acting gonadotrophin-releasing hormone agonists used for prostate and breast cancer result in hypogonadism, with subsequent reduction in sexual desire, erectile dysfunction in men,
- vaginal atrophy and dyspareunia in women as well as orgasmic dysfunction
- Prostate cancer
- **Flutamide** (Eulexin)
- Leuprolide (Lupron)
- Chemotherapy
- **Busulfan** (Myleran)
- Cyclophosphamide (Cytoxan)

BIRTH CONTROL PILLS

- All birth control pills lower estrogen (and testosterone) in the body by suppressing the ovaries' and therefore may also affect libido.
- Since birth control pills can increase the amount of SHBG, more testosterone will bind to it, which means less is left in the active form.
- According to Hormones and Behavior, Canadian researchers report that women with higher levels of testosterone climax more often than those with lower hormone levels
- The adrenaline rush of a budding relationship can also override the effects of low testosterone.

HORMONE ALTERNATIVES

- In women, estrogen cream can alleviate local symptoms such as atrophic vaginitis and dyspareunia.
- If a woman complains of sexual dysfunction while on an injectable progestogen, another form of contraceptive can be considered
- ospemifene (Osphena), makes vaginal tissue thicker and less fragile

FLIBANSERIN (ADDYI)

- Originally developed as an antidepressant
- approved by the FDA as a treatment for low sexual desire in premenopausal women.
- A daily pill, may boost sex drive in women who experience low sexual desire and who find the experience distressing.
- 0.5-1 more satisfying sexual experience /month
- Potentially serious side effects include low blood pressure, sleepiness, nausea, fatigue, dizziness and fainting, particularly if the drug is mixed with alcohol.
- Experts recommend that you stop taking the drug if you don't notice an improvement in your sex drive after eight weeks.

FLIBANSERIN (ADDYI) CONS

- Oral contraceptives also may increase the risk of low blood pressure and fainting.
- Antidepressants may also increase the risk of side effects.
- In a two year study of rodents, there was an increase in cancerous mammary (breast) tumors in female animals but not male.
- you can not take a Diflucan within two days of starting the drug and within two weeks of finishing it
- When taken on the same day as the equivalent of 2 glasses of wine 4 of 23 people needed medical attention because they had such a profound drop in blood pressure or fainted.
- It's \$780 for a one months supply

STRATEGIES TO MANAGE SEXUAL DYSFUNCTION

- Taking a phosphodiesterase type 5 inhibitor in anticipation of intercourse has become the standard of care for men. It improves erections in about 70% of men with hypertension.
- However, phosphodiesterase type 5 inhibitors are contraindicated in men using nitrates
- In women, sildenafil has shown promise for reversing the inadequate lubrication and delayed orgasm induced by SSRI
