Women's Sexual Health
Epidemiology/Models/Classification/Pharmacology

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Disclosures

I have no disclosures.

Objectives

- **To review prevalence data of female sexual disorders**
- **To describe models of female sexual function**
- **To review DSM 5 classifications and management of female sexual disorders**
- **To discuss FSD Treatments and Pharmacology**

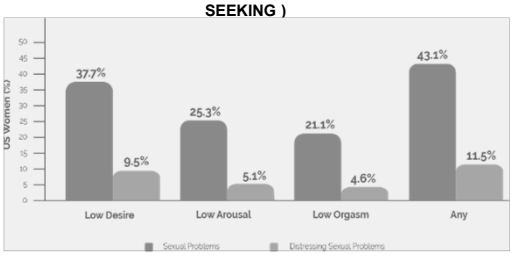
Female Sexual Dysfunction Prevalence

Sexual problems in women are common. Studies support a higher prevalence of SD in women vs males.

Scale	Women	Men
Nationally (Shifren, 2008)	43.1%	31%
Globally (Laumann, 2005) Middle Eastern pop.	40% 59.5%	32%
US Urological Pop.	63%	----
3 Man Urology Practice (Tojino, 2013)	60%	----

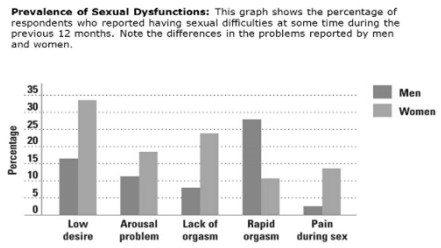
Prevalence of Female Sexual Dysfunction PRESIDE

(PREVALENCE OF FEMALE SEXUAL PROBLEMS ASSOCIATED WITH DISTRESS AND DETERMINANTS OF TREATMENT SEEKING)

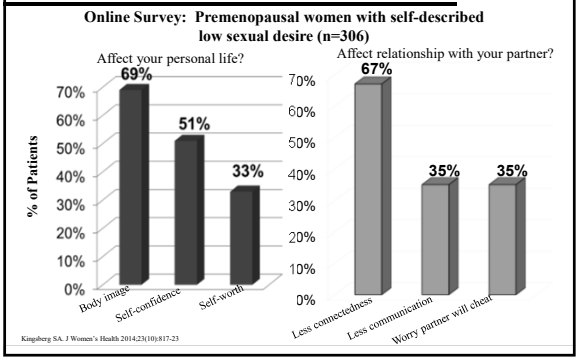


Shifren JL, Monz BU, Russo PA, Segreti A, Johannes CB., (2008). *Obstet Gynecol.112*(5):970-978.

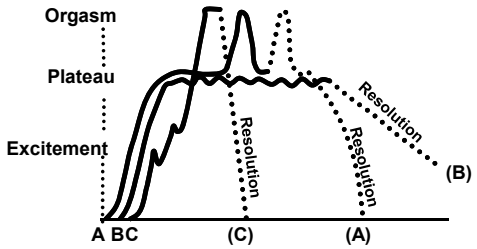
PREVALENCE OF SEXUAL DYSFUNCTION



Low sexual desire negatively affects self-image and partner relationships



Female Sexual Response Cycle EPOR Model



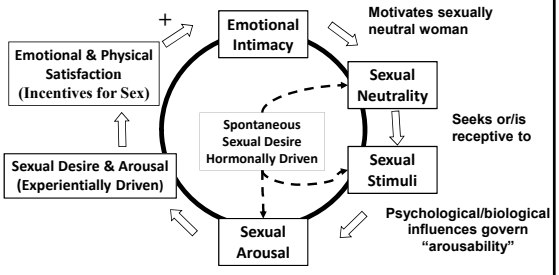
Adapted from Masters WH, Johnson VE. *Human Sexual Inadequacy*. Little Brown; 1970.

Linear Progression Model

- **Excitement** → **Divided** → **Desire** / **Arousal**
- **Plateau**
- **Orgasm**
- **Resolution**

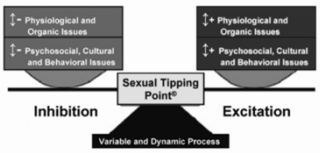
Masters WH, Johnson VE. *Human Sexual Response*. Boston, Mass: Little Brown;1966.
Kaplan HS. *The New Sex Therapy*. New York: Brunner/Mazel;1974.

Alternative Cycle of Female Sexual Response



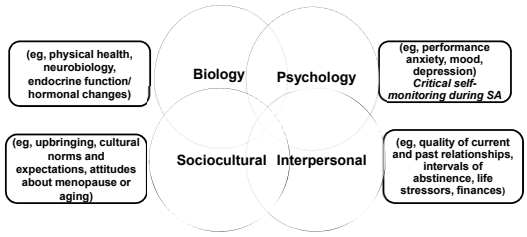
Basson. J Sex Martial Ther 2001.

Dual Control Model



after Perelman (2006) *J Sex Med.* 3, 1904-1912, based on the work of Bancroft & Janssen (2000) *Neurosci Biobehav Rev*, 24, 571-579, who based their model on the work of Jeffrey Gray for fear conditioning and Ivan Pavlov for cortical function.

Biopsychosocial Model of Female Sexual Response



- Rosen RC, Barsky JL. *Obstet Gynecol Clin North Am.* 2006;334:515-526.
- Althof SE, Leiblum SR, Chevret-Measson M, et al. *J Sex Med.* 2005;26:793-800.

Sexual Dysfunction: Definition & Diagnosis

1987 (DSM-III-R)

Frequency + Sexual Dysfunction
Persistently or recurrently deficient or absent sexual fantasies and desire for sexual activity

HSDD

2000 (DSM-IV-TR)

Frequency + Sexual Dysfunction + Distress
Persistently or recurrently deficient or absent sexual fantasies and desire for sexual activity **with marked distress or interpersonal difficulty; not otherwise accounted for by a general medical or psychiatric condition**

HSDD

?

2013 (DSM-5)

Sexual Dysfunction + Distress + Frequency + Duration
Lack of sexual interest/arousal as manifested by a preset number of indicators (**with/without a specified frequency**) with **clinically significant distress**, **and has persisted a minimum of 6 months**; not otherwise accounted for by a general medical or psychiatric condition

FSIAD

1. Latif EZ, Diamond MP. *Fertil Steril.* 2013;100:898-904.
2. Sungur MZ, Gunduz A. *J Sex Med.* 2014;11:364-373

FEMALE SEXUAL DYSFUNCTIONS: DSM Changes

DSM-IV-TR DIAGNOSIS	CHANGES IN DSM-5 Diagnosis
Female Hypoactive Desire Disorder	Merged into **Female Sexual Interest/Arousal Disorder**
Female Arousal Disorder	
Female Orgasmic Disorder	Unchanged
Dyspareunia	Merged into **Genito-Pelvic Pain/Penetration Disorder**
Vaginismus	

Ishak & Tobia: DSM-5 Changes in Diagnostic Criteria of Sexual Dysfuntions, Reprod Sys Sexual Disorders, 2013.

Hypoactive Sexual Desire Disorder (HSDD)

ISSWSH Nomenclature: ANY of the following for a minimum of 6 months.

- **Lack of motivation for sexual activity, manifested by either:**
  - » **Reduced or absent spontaneous desire (sexual thoughts or fantasies)**
  - » **Reduced or absent responsive desire to erotic cues and stimulation or inability to maintain desire or interest through sexual activity**
- **Loss of desire to initiate or participate in sexual activity, including behavioral responses such as avoidance of situations that could lead to sexual activity, not secondary to sexual pain disorders**
- **AND combined with clinically significant personal distress which includes frustration, grief, incompetence, loss, sadness, sorrow, or worry**

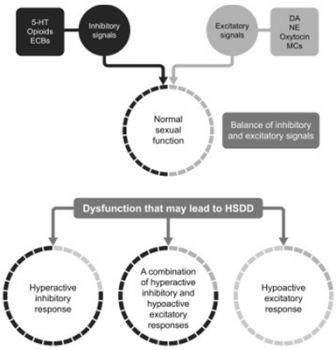
HSDD: Diagnostic Considerations

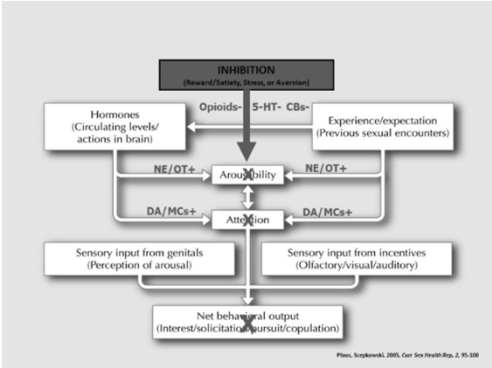
- **Diminished desire could be *acquired (was normal and now its not)* or *lifelong*(has been there all along) but should be *generalized* for consideration of pharmacotherapy.**
- **If the diminished desire is *situational*, & cause of desire disorder outside the woman, therefore not generalized HSDD**
  - **Ex: Physical and/or emotional abuse, dissatisfaction with partner, partner's sexual dysfunction, or intrusive life stressors that can be corrected by lifestyle changes**
- **HSDD should be self-rated as *mild, moderate, or severe***
- ***Definition of HSDD incorporates a bio-psycho-social context and can be used in both the somatic and psychiatric diagnostic systems***

Sexual Desire is regulated by Key Regions in Brain

- Prefrontal cortex (PFC)
- Locus coeruleus
- Medial preoptic area (mPOA)
- Paraventricular nucleus
- Reward and attention processing centers of the ventral tegmental area and nucleus accumbens

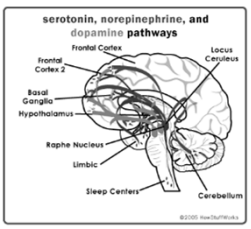
Kingsberg et al. CNS Drugs, 2015





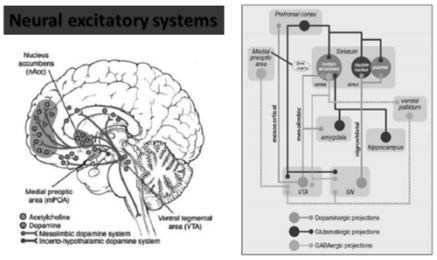
How Does This Translate Into Pharmacologic Treatment Options?

- HSDD is a maladaptation of the brain represented by **dysregulation** of DA, NE, and 5-HT in the PFC
- Correcting the imbalance is the foundation to correcting the maladaptation.
- Similar maladaptation in depression/anxiety (chronic stress alters architecture of neurons changing synaptic interaction)
  - differing in type and magnitude of dysregulation



mPOA D1 activation is critical for sexual desire and modulating sympathetic outflow

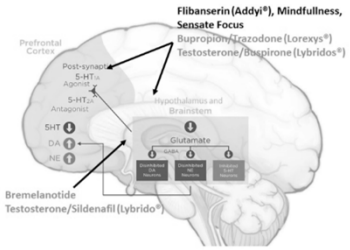
Neural excitatory systems



Graham et al. (2015). Eur J Neurosci, 42, 3138-3148

HSDD Treatment Options

Current treatment options



Melanocortins and Sex

- POMC peptides, including ACTH, and α-MSH, have pronounced effects on the sexual behavior of female and male rats
- α-MSH facilitates lordosis in estrogen-primed females and erection in gonadally-intact males
- α-MSH levels in anterior hypothalamus increased by estrogen, suggesting that it may be one of several intermediaries of estrogen action

Melanocortin Receptor Agonist

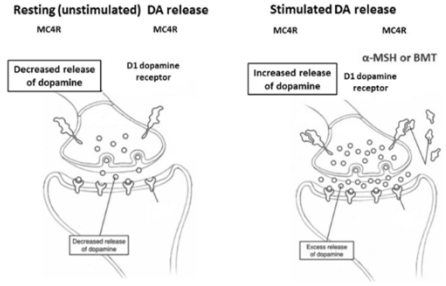
Bremelanotide:

(formerly PT-141) Ac-Nle-Asp-His-DPhe-Arg-Trp-Lys-OH

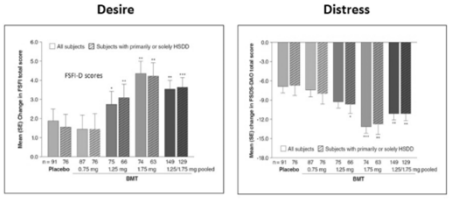
α-MSH: Ser Tyr Ser Met Glu His Phe Arg Trp Gly Lys Pro Val

- Binds to MC3R and MC4R in brain
- Induces erections in healthy men
- Induces erections in healthy rats
- Induces erections in men with mild-to-moderate erectile dysfunction and in men who do not respond well to PDE-5 inhibitors
- Rapid effect in rats (within 5 to 20 min)
- Facilitates solicitations selectively in female rats

Action of melanocortins in the mPOA



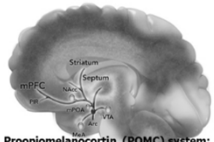
Effects of bremelanotide in female humans



Adapted from Clayton et al. (2016) Womens Health (Lond), 12, 325-337.

Inhibitory systems

Opioids



Proopiomelanocortin (POMC) system:

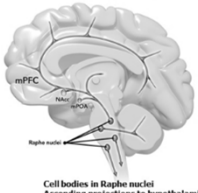
Cell bodies found in periarcuate regions of hypothalamus and brainstem. Source of β-endorphin.

Diffuse projections to hypothalamic, limbic, cortical, midbrain, and brainstem regions.

Inhibits DA in the mPOA; sensitizes OT and mesolimbic DA over time.

PLEASURE, REWARD

Serotonin (5-HT)

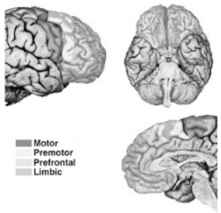


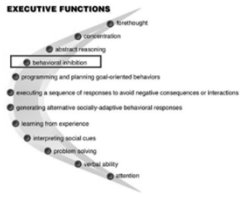
Cell bodies in Raphe nuclei
Ascending projections to hypothalamic, limbic, and cortical regions;
Descending projections to spinal cord

Inhibits action of mesocortical DA in prefrontal cortex.

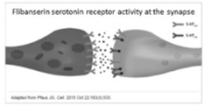
SATIETY

Prefrontal cortex controls "executive function"

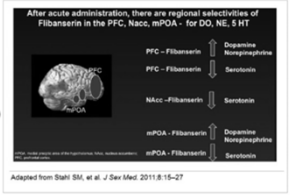




Putative mechanism of action of flibanserin



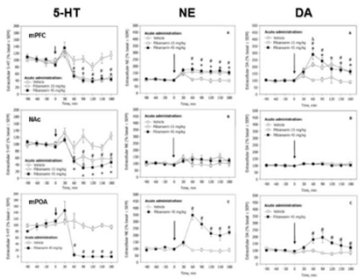
Agonist at 5-HT_{1A} autoreceptors (reduces serotonin release)
Antagonist at 5-HT_{2A} receptors (blocks serotonin action)



Adapted from Stahl SM, et al. *J Sex Med.* 2011;8:15–27

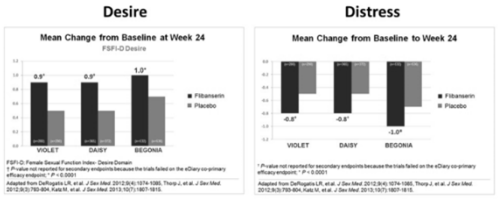
Reduction in serotonin disinhibits... leading to:

Increased sexual desire
Decreased sexual distress
Modest increase in sexually satisfying events



Ahlers et al. (2010) *J Sex Med*, 7, 1757-1767

Effects of flibanserin in female humans



Flibanserin 100mg PO qhs
Adverse Effects of Flibanserin

COMMON A/E's
- **CNS depression**
- **Somnolence**
- **Fatigue**
- **Dizziness**
- **Nausea**
- **Insomnia**
- **Xerostomia**

SEVERE A/E's
- **Hypotension**
- **Syncope**
- **Appendicitis**
- **Mammary tumors (animal studies)**

Prescribing Considerations

- **Provider Certification required to prescribe.**
- **Requires a Provider-Patient agreement prior to prescribing.**
- **Patient cannot consume ETOH while taking Flibanserin.**
- **If the Patient feels dizzy or faints, she should seek medical help.**
- **If the patient skips a dose, she does not double up the next day.**
- **Currently, prescribing only approved for Premenopausal females.**
- **Flibanserin is to only be taken at bedtime.**

High inhibition, low excitation sexual dysfunction

Dopamine Agonists
Buproprion 75mg-150mg/day
Cabergoline 0.5mg q M/TH
Ropinirole 0.25mg QD-TID

Oxytocin
Oxytocin Lozenge 250IU-One hr prior to sexual activity- may increase up to 3 at one time.

Norepinephrine Agonist
Yohimbine HCL 5.4mg-one hour before sexual activity-up to 3 at one time.

PDE5 INHIBITORS
Vardenafil– 2.5mg-5mg – ODT
Sildenafil – 12.5mg – 25mg 50mg
Tadalafil – 2.5mg – 5 mg – 10mg

Opioid Antagonists
Naltrexone 50mg/day

Serotonin Antagoists
Buspirone 10-15mg BID

INCRASE NEUROTRANSMISSION Drugs
Dalfampridine ER (10mg/day)

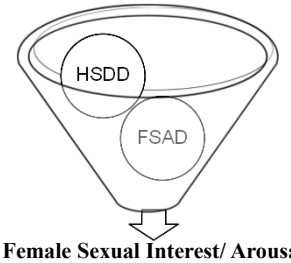
Female Genital Arousal Disorder (FGAD)

The physiological response of arousal is a <u>physical state</u> arising from both <u>physical & non-physical (*emotional*) stimuli</u> with increased activity in the central and peripheral (sympathetic) nervous systems resulting in genital (engorgement, lubrication, increased sensitivity) and non-genital (somatic) sexual responses.

FEMALE GENITAL AROUSAL DISORDER

- **FGAD: inability to develop or maintain genital arousal for a ≥ 6 months including:**
  - **Vulvovaginal lubrication**
  - **Engorgement of the genitalia**
  - **Sensitivity of the genitalia associated with sexual activity**
- **Disorder can be the result of:**
  - **Vascular &/or Neurological injury**
- **Usually generalized or acquired**
- **May or may not cause significant intra or interpersonal distress**

DSM-5 (2013) Changes to Nomenclature & Diagnosis



Female Sexual Interest/ Arousal Disorder

Female Sexual Interest/Arousal Disorder (DSM 5)

Lack of, or significantly reduced, sexual interest/arousal as manifested by 3 of the following:

Absent/reduced:

- interest in sexual activity
- sexual/erotic thoughts or fantasies
- initiation of sexual activity & unreceptive to partner's attempts to initiate
- sexual excitement/pleasure during sexual activity in **(75%-100%) all almost all or sexual encounters**
- sexual interest/arousal in response to any internal or external sexual/erotic cues (written, verbal, visual)
- genital or nongenital sensations during sexual activity **(75%-100%) in almost all or all sexual encounters**

41

FSAID

Evaluation

- Serum Laboratory Evaluation
- Medication Evaluation
- Vulvoscopy
- Biothesiometry
- Vaginal pH testing
- Vulvar Neuro neuro-evaluation

Treatment

Most Treatments are Off-Label for females.

- Mindfulness Meditation
- Partner coaching
- Sildenafil
- ART
- ERT

Testosterone Replacement Therapy

Recommendations:

- Androgens are important modulators in Female Sexual Function (FSF).
- Low T and CFT levels, androstenedione, & dehyroepiandrosterone (DHEA-s) are assoc. w/ low self-reported sexual desire.
- Consistent evidence that ART influences FSF & transdermal doses are effective for tx. of HSDD in postmenopausal females & women in late reproductive years.
- A trial of ART should be considered for treatment of FSAID, HSDD, & FSOD.

Disclaimer: Currently, ART is not approved by the FDA for use in women. It is an off-label medication.

Persistent Genital Arousal Disorder (PGAD)

- Characterized by persistent, recurrent, unwanted, or intrusive, distressing feelings of genital arousal, or being on the verge of orgasm (genital dysesthesia), not associated with sexual interest, thoughts, or fantasies for a $\geq$ 6 months (*expert opinion*)
- Based on case reports – considered rare, but difficult to estimate
- *May be associated with:*
  - Limited, no resolution, or aggravation of symptoms by SA with or without aversive and/or compromised orgasm
  - Genital symptoms may be aggravated by certain circumstances (ex: car ride, climbing ladders, or riding a bike)
  - Despair, emotional lability, catastrophization, and/or suicidality
  - Inconsistency of genital arousal during symptoms

Parish et al. J Sex. Med. In Press.

Female Orgasm Disorders

- **Female Orgasmic Disorder (FOD) is characterized by a persistent or recurrent, distressing compromise of orgasm frequency, intensity, timing, and/or pleasure, associated with sexual activity for ≥ 6 months.**
- ***Frequency*: orgasm occurs with reduced frequency(diminished frequency of orgasm) or is absent of orgasm - (anorgasmia).**
- ***Intensity:* orgasm occurs with reduced intensity (muted orgasm)**
- ***Timing:* orgasm occurs either too late (delayed orgasm) or too early (spontaneous or premature orgasm) than desired by the woman**
- ***Pleasure:* orgasm occurs with absent or reduced pleasure (anhedonic orgasm, pleasure dissociative orgasm disorder (PDOD – Orgasm without pleasure. *expert opinion*)**

Parish et al. J Sex. Med. In Press.

Diagnosis and Treatment of Orgasmic Disorders

Are there different kinds of Orgasm?

DSM-5:

FOD is considered a female sexual disorder with the presence of the following "ON ALL OR ALMOST ALL (75% - 100%) OCCASIONS OF SEXUAL ACTIVITY:
1. Marked delay in, marked infrequency of, or absence of orgasm &
2. Marked reduced intensity of orgasmic sensations."
Symptoms persist a ≥ 6 months

FOD not better explained by a nonsexual mental disorder or the consequence of severe relationship distress or other significant stressors

FOD not due to effects of substance or medication or other medical conditions.

Female Orgasm Disorder

Female Orgasmic Disorder is characterized by a persistent or recurrent, distressing compromise of orgasm frequency, intensity, timing, and/or pleasure, associated with sexual activity for a minimum of 6 months.

***Frequency*: orgasm occurs with reduced frequency (diminished or absence of orgasm (anorgasmia).**

***Intensity:* orgasm occurs with reduced intensity (muted orgasm).**

***Timing:* orgasm occurs either too late (delayed orgasm) or too early (spontaneous or premature orgasm) than desired by the woman.**

***Pleasure:* orgasm occurs with absent or reduced pleasure (anhedonic orgasm, pleasure dissociative orgasm disorder [PDOD]).**

Female Orgasm Disorder

Classified as: (lifelong or acquired) or (generalized or situational)

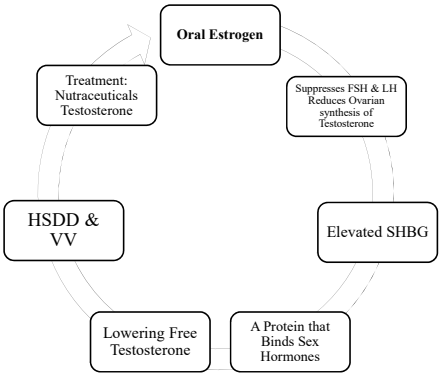
Women demonstrate a wide variability of type & intensity of stimulation needed to reach orgasm.

Many women require clitoral stimulation, and fewer women experience orgasm with vaginal penetration.
Study: 1055 women, ages 18 to 94
- **18.4% orgasm with vaginal penetration**
- **36.6% Needed clitoral stimulation to orgasm**
- **36% Did not need clitoral stim., but clitoral stim. w/penetration produced better orgasms.**

FOD should not be diagnosed if a woman can achieve a clitoral orgasm but not vaginal penetration orgasm or has had inadequate stimulation.

Medications Impacting FSOD

- **SSRIs**
- **Hypertension medications**
- **Antipsychotics**
- **Antianxiety**
- **Chemotherapy**
- **Birth Control Pill (increases gene expression of SHBG)**
- **Alpha-blockers**
- **Clonidine**
- **Methyldopa**
- **chlorpromazine, thioridazine)**
- **Risperidone**
- **Benzodiazepines**
- **Cimetidine**
- **Cyproterone acetate**
- **Disulfiram**
- **Finasteride (males w/PFS)**
- **Opioid painkillers (i.e. morphine)**
- **Spironolactone**
- **OTC Appetite Suppressants**



(Biggs, Clayton, Croft, Segraves, & Warnock, 2006)

(Abdallah & Simon, 2007).

Female Orgasmic Illness Syndrome

FOIS is characterized by peripheral and/or central aversive symptoms that occur before, during, or after orgasm not related to a compromise of orgasm quality

Central Aversive Symptoms	Peripheral Aversive Symptoms
• Disorientation	• Diarrhea
• Confusion	• Constipation
• Impaired judgment	• Muscle aches
• Decreased Verbal memory	• Abdominal pain
• Anxiety	• Diaphoresis
• Insomnia	• Chills
• Depression	• Hot flashes
• (Postcoital Tristesse)	• Fatigue
• Seizures(orgasmic epilepsy)	• Akathisia
• Headache (Coital Cephalalgia)	• Genital pain

Such orgasm-associated symptoms can last for minutes, hours, or days after orgasm and can vary widely among women.

Female Orgasmic Illness Syndrome (FOIS)

- **Characterized by peripheral and/or central aversive symptoms that occur prior to, during, or following orgasm not related, to a compromise of orgasm quality.**

Symptoms

- **Peripheral: diarrhea, constipation, muscle aches, abdominal pain, diaphoresis, chills, hot flashes, fatigue, akathisia, genital pain**
- **Central: disorientation, confusion, decreased verbal memory, anxiety, insomnia, depression (post-coital tristesse), seizures, headache (coital cephalalgia)**
- **Orgasm-associated symptoms may vary in length of duration lasting from hours - days.**

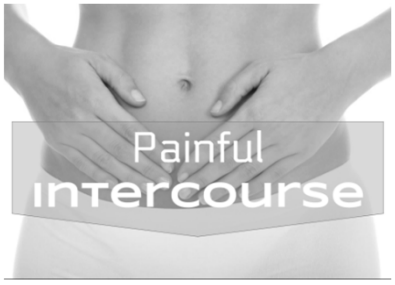
Farley SJ. Nature Reviews Urology. 2011;8:121. ; Waldinger MD, Schweitzer DHJ Sex Marital Ther. 2002;28:251–5.
Ashby J, Goldmeier D. J Sex Med. May 2010;7:1976–81.; Rasmussen BK, Olesen J. Neurology, Jun 1992;42:1225–31.

Testing Procedures: Neurologic, Hormonal, and Vascular

Nerve injuries cause Neurologic Sexual Dysfunction

Neurologic sexual dysfunction: hypothesized to result, in part, from abnormal (excess/reduced) sensory afferent/motor efferent information from various injuries to:

- **Peripheral Dorsal nerve**
- **Perineal nerve**
- **Pudendal nerve**
- **Pelvic nerve**
- **Hypogastric nerve**
- **&/or Sacral (S2, S3, S4) Spinal nerve root pathologies**



https://www.reneecottermd.com/blog/when-intercourse-is-painful

Causes of Vaginal Penetration Pain

Differentiate Pain….

• Initial Penetration

• Deep Penetration

Superficial Physical Conditions Associated With Chronic Vaginal Penetrative Pain

- **Vulvitis, vulvovaginitis**
- **Bartholinitis**
- **Condylamata (warts)**
- **Atrophy**
- **Dermatologic diseases**
- **Noninfectious inflammations**
- **Epithelial defects**
- **Large labia minora**
- **Vulvar Vestibulitis Syndrome**
- **Scarring**
- **Partner's penis size** ***(penile implants in the aging)***
- **Urethritis, cystitis**
- **Anatomic variations**
- **Hymenal remnants**
- **Episiotomy neuroma**

Heim L. *Am Fam Phys*. 2001;63:1535-1544.

Deep Physical Conditions Associated With Chronic Genito-Pelvic Pain Penetration Disorder

- **Estrogen deficiency**
- **Vaginitis**
- **Chronic Pelvic Inflammatory Disease (PID)**
- **Foreshortened vagina**
- **Scarification**
- **Endometriosis**
- **Vaginal septum**
- **Urethritis, cystitis**
- **Fixed inverted uterus**
- **Uterine Fibroid**
- **Ovarian tumor**
- **Ovarian remnant syndrome**
- **Chronic abdominal pain**
- **Abdominal wall pain**
- **Irritable bowel syndrome**
- **Hemorrhoids**

Heim L. *Am Fam Phys*. 2001;63:1535-1544.

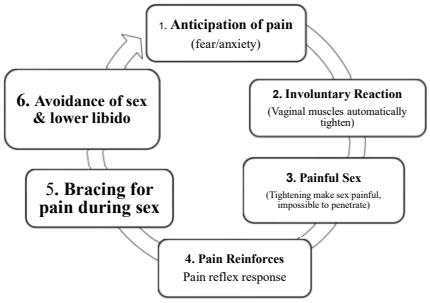
Vaginismus

Defined as:

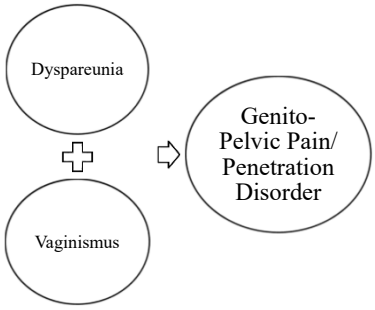
Persistent difficulty to allow vaginal entry of a penis, finger or any object despite the express wish to do so

- **Nor is it necessarily a "pain" disorder**
- **Prevalence rates range from 1%-6%**
- **Vaginismus may include:**
  - **Problems with muscle tension**
  - **Anticipatory fear of pain**
  - **Avoidance behavior**

CYCLE OF PAIN



2013 DSM-5 Changes to Nomenclature & Diagnosis



DSM-5 Genito-Pelvic Pain/Penetration Disorder

- **Persistent or recurrent difficulties with at least one of the following:**
  - **i. Vaginal penetration during intercourse**
  - **ii. Marked vulvovaginal pain or pelvic pain during intercourse or penetration**
  - **iii. Marked fear or anxiety about vulvovaginal or pelvic pain in anticipation of, during, or as a result of vaginal penetration**
  - **iv. Marked tensing or tightening of the pelvic floor muscles during attempted vaginal penetration**

American Psychiatric Association DSM 5, 2013

Vulvovaginal Atrophy (VVA)/Atropic Vaginitis
Genitourinary Syndrome of Menopause (GSM)

New nomenclature for VVA , Genitourinary syndrome of menopause (GSM)

- **Characterized by many symptoms including vaginal dryness, dyspareunia, irritation, dysuria, burning**
- **Affects up to 69% of postmenopausal women and has a deleterious effect on QoL & sexual function**
- **Most women do not seek medical treatment for their GSM symptoms**

1. Portman DJ, Gass ML. *Climacteric* 2014;17:557-563. **2.** Mac Bride MB, et al. *Mayo Clinic Proceed* 2010;85: 87-94.
3. Cumming GP, et al. *Menopause Int* 2007;13:79-83. **4.** Parish SJ, et al. *Int J Women's Health* 2013;5:437-447. **5.** Nappi RE, Kokot-Kierepa M. *Maturitas* 2010;67:233-238.

Genito-Urinary Syndrome of Menopause (GSM)

Symptomatology

- **pH > 5.0 Alkaline Vaginal environment**
- **Absence of Rugosity**
- **Color: Pallor/ friability**
- **Inelasticity: Introital Stenosis**
- **Urethra: telescoped/prolapsed**
- **Vestibule: erythema, dry**
- **Posterior fourchette bridging and possible mid-line fissures**
- **Clitoral Phimosis**
- **Labia Minora: Resorption**
- **Recurrent UTI's**

Treatment Options

- None Hormonal Treatment options:
  - Coconut oil
  - Olive oil
  - Alvocado oil
  - Lubricants
  - Vaginal Moisturizers
  - Vaginal Lasers
- Estrogen replacement therapy:
  - Vaginal estradiol
    - » Creams
    - » Pearls
    - » Rings
    - » Gels
    - » Tablets
  - DHEA
  - PRP

*Oral Estrogens cause a first pass effect in the liver causing an elevation in SHBG which can lead to a binding of sex hormones. SHBG has a hierarchial affinity for Dihydrotestosterone, Testosterone , and Estradiol.

Personal lubricants

- **Provides temporary lubrication**
- **Reduces friction during vaginal penetration**

Types:

-Water-based

-Silicone-based

-Oils

Water-based Lubricants

- **Most widely available**
- **Safe to use with latex condoms, sex toys**
- **Tend to dry up quickly**

-reactivate with water

- **Do not stain**
- **Rarely cause irritation**
- **Ingredients: deionized water, glycerin, prophylene glycol**
- **Available in glycerin-free options**
- **Glycerin may promote vaginal inflammation and yeast infection**

Silicone-based lubricants

- **Longer lasting than water-based lubricants**
- **Can be used in water**
- **Safe to use with latex condoms, diaphragms, non-silicone toys**
- **Available in glycerin-free options**
- **Can be used as a massage oil**
- **More expensive than water-based lubricants**
- **Harder to wash off sheets and clothing**

Oil-based lubricants

<u>Petroleum-based:</u>

- **Petroleum jelly, mineral oil, baby oil**
- **May promote vaginal inflammation/irritation**
- **Not for use with latex condoms**

-Can reduce both the effectiveness of latex items and prevention of STDs

<u>Natural oils:</u>

- **Coconut, Avocado, corn, olive, & peanut**
- **Non-irritating**
- **Should not be used with latex items**

Cutaneous lysate cream: Provoked vestibulodynia

Randomized crossover study

Cutaneous lysate cream vs placebo

N=30 women w/provoked vestibulodynia w/visible vulvar erythema

BID application for 12 weeks, 1 week washout, 12 week crossover

Result: tolerability same with placebo & cutaneous lysate; significant decrease in dyspareunia and erythema after 4 and 12 weeks with cutaneous lysate only;

Donders GG, Bellen G. Cream with cutaneous fibroblast lysate for the treatment of provoked vestibulodynia: a double-blind randomized placebo-controlled crossover study. J Low Genit. Tract is. 2012 Oct; 16(4): 427-36

Low Dose Vaginal Estradiol

- **Metabolized – liver; CYP450: 3A4 (partial) substrate**
- **Info: enterohepatically recirculated; converted to active estrogen metabolites including estrone.**
- **Excreted mainly in urine; Half-life 1-2hrs, 4-18h (estrone)**
- **Extended absorption may produce longer half-lives (transdermal, topical, or inj.)**
- **Mechanism of action: binds to E2 receptors,**

Take-home Messages

- **1. Sexual desire depends critically on the activation of neurochemical systems for sexual excitation by erotic cues (such as DA, NE, melanocortins, & oxytocin). These are set up by the actions of ovarian estradiol and testosterone.**
- **2. Sexual inhibition is a normal function of satiety states. This is driven by brain opioid, serotonin, and endocannabinoid systems.**
- **3. If sexual excitation is too weak, or sexual inhibition too strong. HSDD is likely to occur in response to appropriate and competent appetitive sexual cues.**
- **4. Lack of sexual desire is normal in response to incompetent sexual cues.**

However it can also occur as a physiological effect of hypoactive excitation or hyperactive inhibition, or as a neural systems adaptation to a chronic lack of sexual pleasure.

Summary

- Start the conversation.
- Sexual Health is a vital part of a woman's quality of life and well being.
- Don't be afraid to ask .
- If you do not feel confident in treating your patient's sexual dysfunction, refer!
- I can help!

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