The Pelvic Floor as an Emotional Organ

"The Mirror of the Soul"

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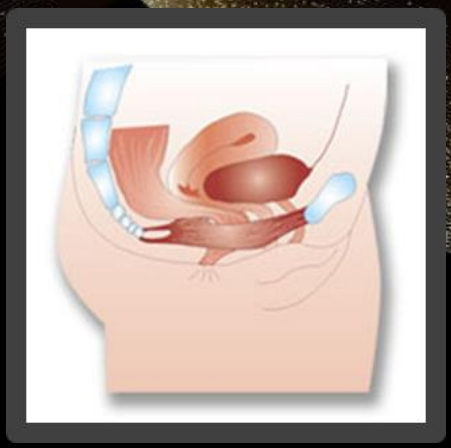
What is the pelvic floor (PF)

a. Group of Muscles
b. Region of the body
c. Organ

a, b and c are right



What do Ob/gyn and urological textbooks say about the pelvic floor?

The pelvic floor has 3 important functions:

1. The pelvic floor **supports** the bladder, intestines and uterus and helps to control the pee and the stool.
2. The pelvic floor, as **part of the sphincters** of anus and urethra, is essential for continence.
3. The pelvic floor of women is important in the **birth process** because of the resistance in the birth canal that is essential for the spindle rotation.

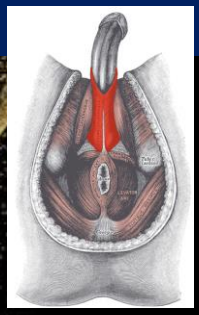
- Support
- Passage

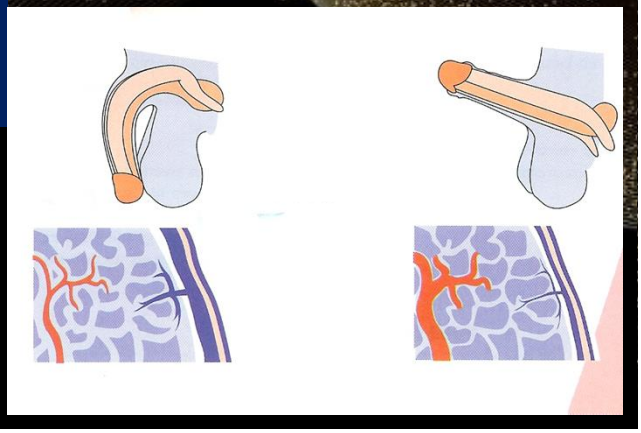
Functions of PF

- **Support**
- **Mobility / Stability**
- **Passage (in & out)**
- **Sex**
- **Emotion**

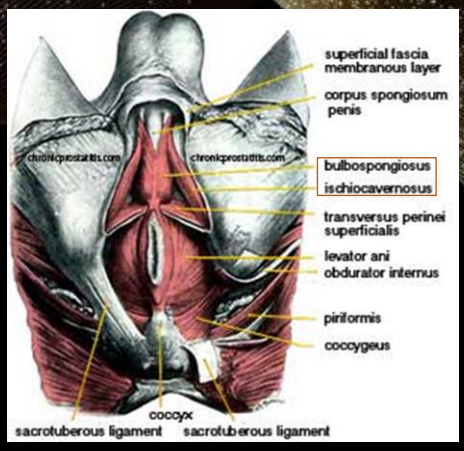
Involvement of Pelvic Floor in **Sex**

- Enhancement of blood flow
  - ischiocavernous muscle facilitates erection
  - bulbocavernous maintaining the erection (pressing deep dorsal vein)



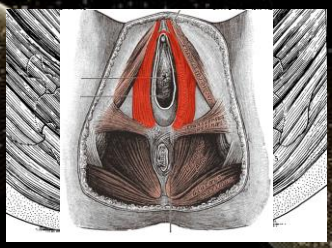


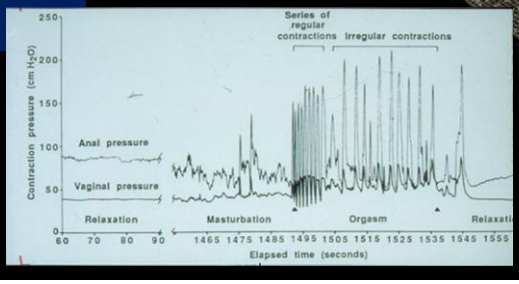
- Inhibit ejaculation
  - relaxation of the bulbocavernous and ischiocavernous muscles



Involvement of Pelvic Floor in Sex

- Adequate genital arousal & orgasm
  - ischiocavernous muscle attached to the clitoris
- Arousal & orgasem
  - contraction of the levator ani involved

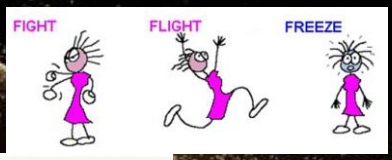




Graber G, J Clin Psychiatry 1979;40:348–51.
Shafik A. J Pelvic Floor Dysfunct 2000;11:361–76.
Bo K, Acta Obstet Gynecol Scand 2000;79:598–603.

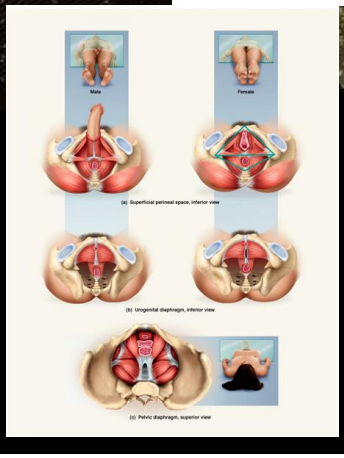
The Pelvic Floor as **Emotional Organ**

FFF (FIGHT, FLIGHT or FREEZE)

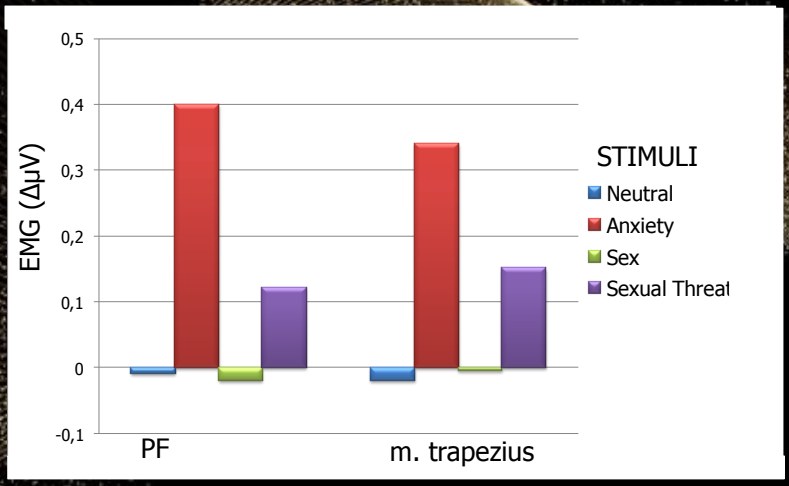


Anxiety provoking startles of reflexogenic contraction of pelvic- and shoulder musculature

(van der Velde, Laan & Everaerd, 2001)

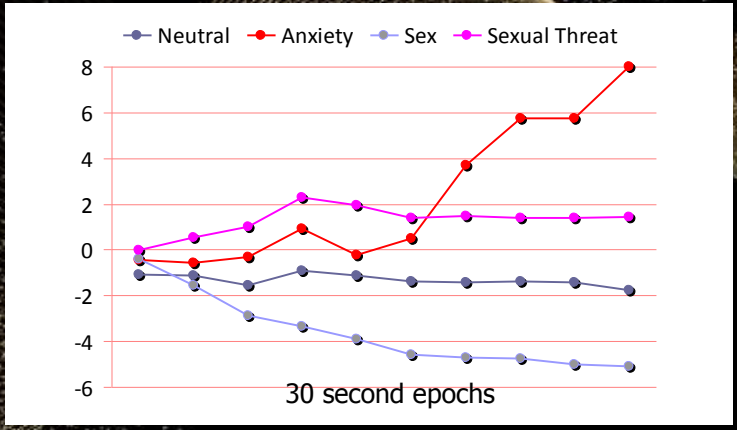


Defence Mechanism

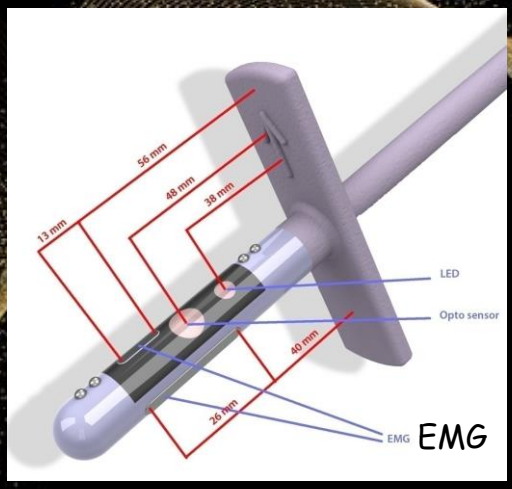


van der Velde, Laan & Everaerd, 2001

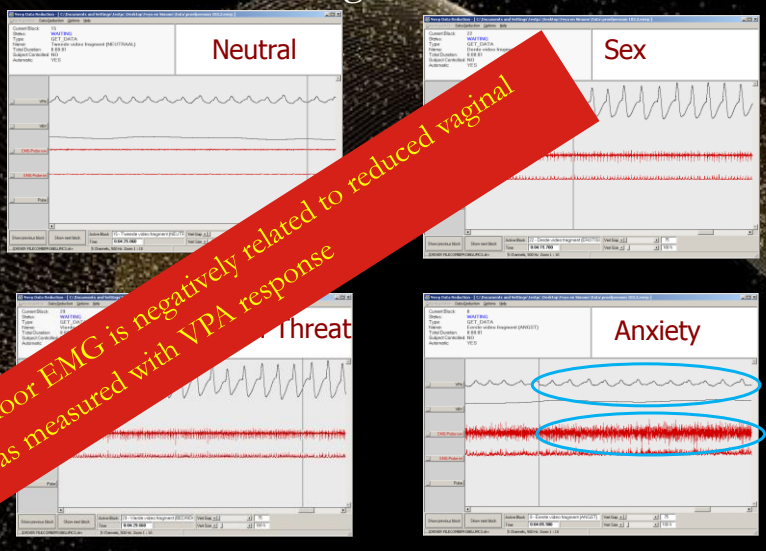
Involuntary pelvic floor EMG in asymptomatic women (N=36)



Measuring pelvic floor EMG and vaginal vasocongestion



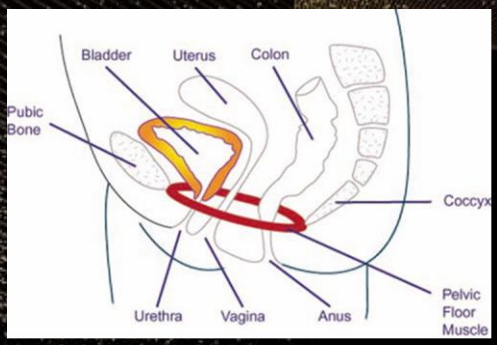
Simultaneous measuring PF EMG and vaginal vasocongestion

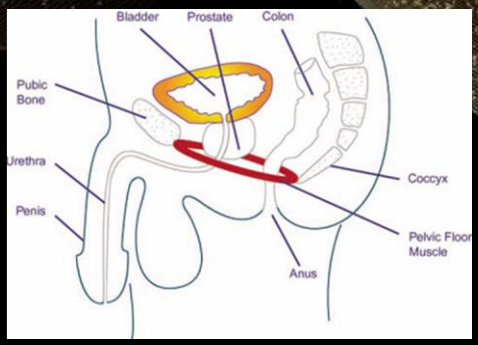


High pelvic floor EMG is negatively related to reduced vaginal blood flow as measured with VPA response

What happens if the BB is permanently tightened?

Comorbidities on three outputs





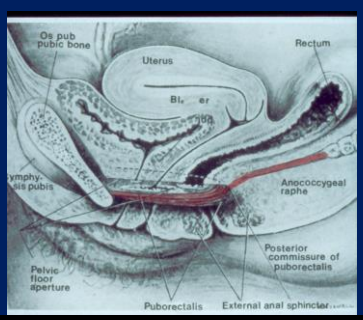
- Irritable bowel syndrome (IBS)
- Dyspareunia, Vulvodynia, Erectile Dysfunction, Ejaculatory Dysfunction
- Overactive bladder (OAB)
- Bladder Pain Syndrome (BPS)
- Low Urinary Tract Symptoms (LUTS)
- Pelvic & Back pain

- **Dyspareunia**
- Pain with vaginal penetration
- Pain is superficial or deep (abdominal pain)
- Primary or secondary

- **Vulvodynia:**
- Pain in the vulva
- Burning, cutting, stinging, throbbing
- Local or generalized
- Provoked or chronic
- Primary or secondary

Pelvic floor hyperactivity – PF Syndrome

- > 3 symptoms of the uro-intenstinal-sexual functions
- Clinical evidence of hypertonia
- Co-morbidity in 3 systems



van Lunsen RHW, Ramakers MJ. Acta Endoscopica (2002)

PF overactivity; possible symptoms a.o.:

- Dyspareunia
- CPP
- Obstructive miction & overactive bladder
- Recurrent UWI
- Alternating constipation and diarrhea (IBS)
- Abdominal cramps, bloating
- Genital pain (vulvodynia, orchialgia, prostatodynia, radiating pain penis)
- Annoying vaginal discharge (in waves)
- Arousal disorder (lubrication, ED)
- Orgasmic pain, obstructive ejaculation (also PE, RE)
- A non-disappearing swollen feeling in the genitals (PGAD)
- Peri-anal / perineal pain
- Hemorrhoids
- Fissura ani
- Coccygodynia
- Low back pain, gnash teeth, headache, neck / shoulder pain, etc.

each of these symptoms has also other causes;
Keyword = Co-morbidity

Co-morbiditeit

CPP (chronic pelvic pain)

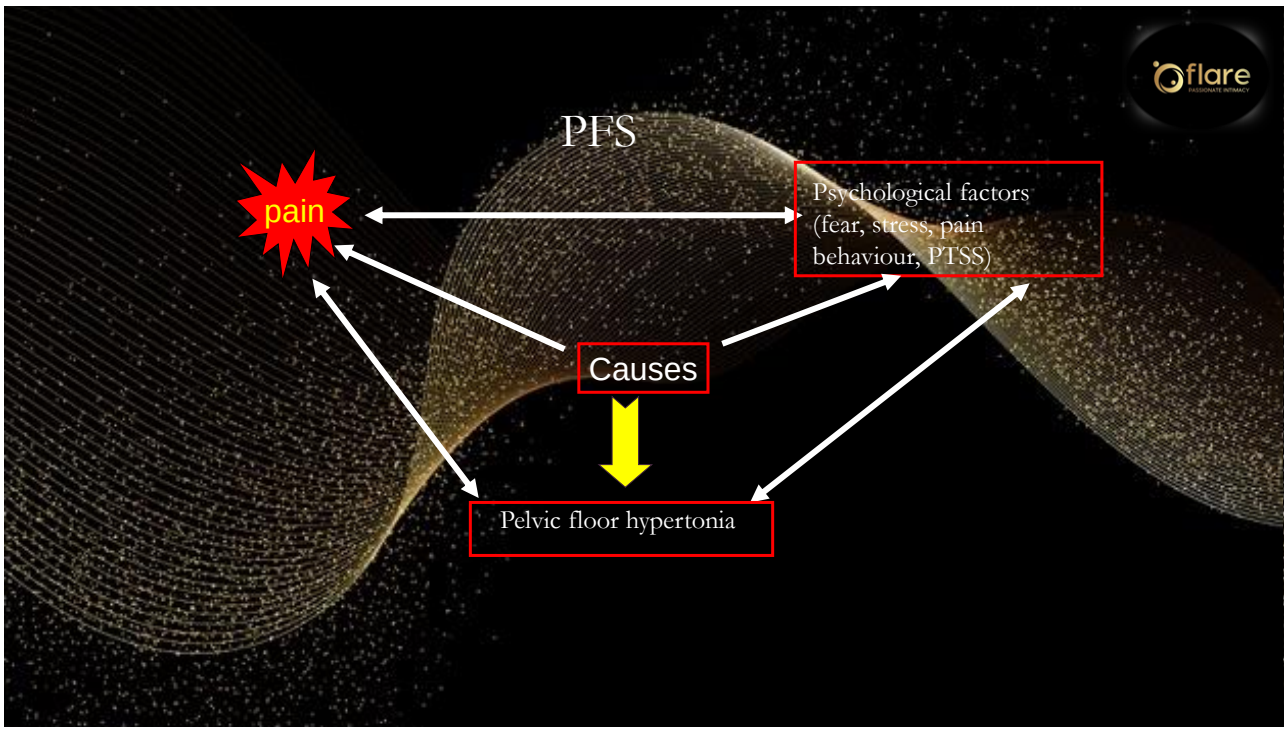
•IBS	50%
•Dyspareunia	60%
•Urethra syndrome	45%
•Sexual abuse	30 - 60%

(Peters, 1989; Walker & Gelfand et. al, 1996; etc)

Co-morbidity

Irritable Bowel Syndrome(IBS)

• life time depression	74%
• Anxiety	50%
• Dyspareunia	42%
• Hysterectomy < 40 yr	41%
• CPP	35%
• Sexual trauma	50%



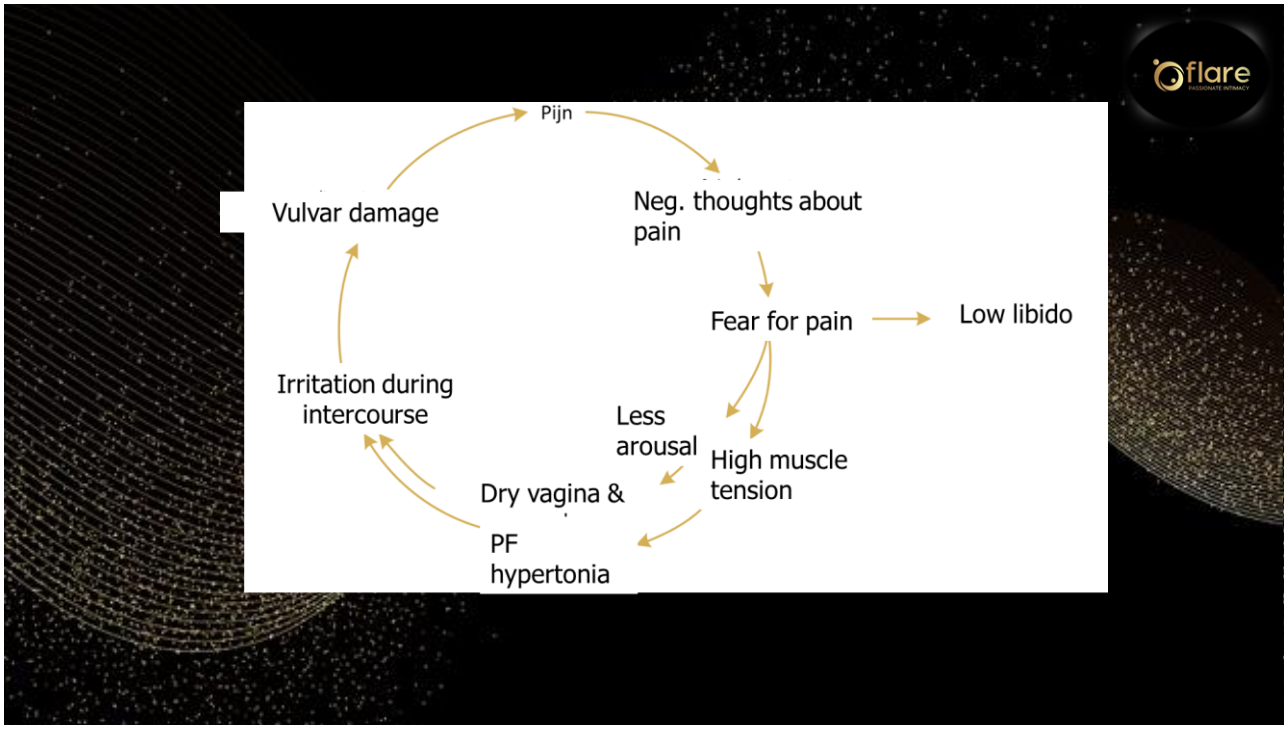
Pain

Is not only a stimulus-response reaction to tissue damage but also a complex interaction of physiological, affective, behavioral, cognitive and socio-cultural variables.

If a patient reports pain, she/he has pain !

International Association for the Study of Pain (IASP)

- Pain is an unpleasant experience
- Pain is always subjective
- Pain is an emotional experience resulting in a subjective manifestation.
- If a patient reports pain, she/he has pain !



Ability to be genital excited is not disturbed in women with dyspareunia

Pain expectation does inhibit sexual arousal

'PF a reflection of an anxious emotional state'

Brauer, ter Kuile, Janssen, Laan, 2007

Pain (dyspareunia):
Do not forget to exclude somatic factors !!!!!

Infection
Lichen sclerosis
Endometriosis
Atrophy
Hormonal state

Effect of Chronic Pain

- Change in self esteem
- Change in relationships
- Change in ability to enjoy (sexual expression requires physical abilities)
- Hinder ability to move freely

Maruta T, Osbourne D, Swanson DW, Hallwig JM. Chronic pain patients and spouses. Marital and sexual adjustment. Mayo Clin Proc 1981;56:307–10.
Flor H, Turk DC, Scholtz OB. Impact of chronic pain on the spouse: Marital, emotional and physical consequences. J Psychosom Res 1987;31:63–71.

Possible causes of PFS

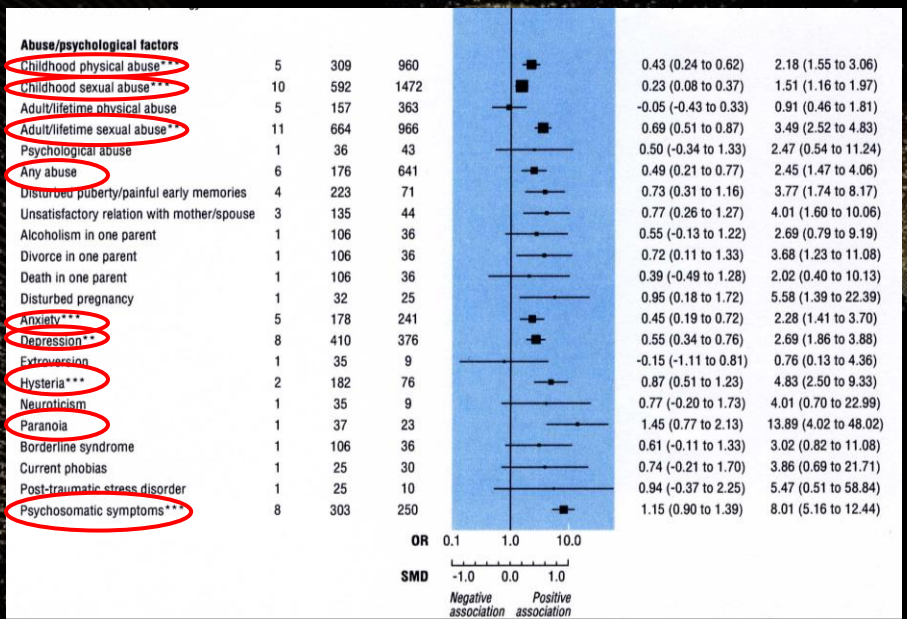
May your coffee, pelvic floor, intuition and self-appreciation be strong

- Secondary to dyspareunia (or other painful condition)
- Sexual / physical / psycho-**trauma** (60-80% in our population of patients with complaints on "3 outlets")
- Secondary to **Preexistent disorder** that leads to tightening BB: pain, diarrhea, incontinence)
- **Psychological "make-up"** (lack of autonomy, perfectionism, fear of failure, fear of rejection, external locus of control, catastrophe)
- Toilet training
- **Pelvic floor overload** (overtraining after partum; secondary to motor problems; too much fitness, ballet, gymnastics, [horse riding] etc - without BB cooling-down)

Meta-analysis of risk factors associaated with non-cyclic CPP

Factor	No of trials	No of women: Cases	No of women: Controls	(Cases:Controls)	SMD (99% CI)	OR (99% CI)
Demographic factors						
Length of education	1	25	30		0.60 (-0.09 to 1.30)	3.00 (0.85 to 10.63)
Employment***	4	163	158		-0.11 (-0.43 to 0.22)	0.83 (0.46 to 1.49)
Marriage	6	215	166		-0.26 (-0.56 to 0.05)	0.63 (0.36 to 1.09)
Environmental factors						
Lifetime drug/alcohol abuse	1	25	30		0.84 (0.05 to 1.63)	4.61 (1.09 to 19.38)
Obstetric/gynaecological factors						
Age at menarche	1	106	96		-0.10 (-0.46 to 0.26)	0.83 (0.43 to 1.61)
Greater parity	3	151	161		0.20 (-0.15 to 0.55)	1.43 (0.76 to 2.70)
Induced abortion	1	106	92		-0.19 (-0.65 to 0.27)	0.71 (0.31 to 1.63)
Miscarriage	1	106	92		0.61 (0.13 to 1.08)	3.00 (1.27 to 7.09)
Infertility	1	106	92		0.30 (-0.30 to 0.90)	1.73 (0.58 to 5.10)
Length of menstrual cycle	1	106	92		0.08 (-0.29 to 0.44)	1.15 (0.59 to 2.23)
Duration of menstrual flow	1	106	96		0.63 (0.27 to 0.99)	3.13 (1.62 to 6.05)
Endometriosis*	3	338	200		0.36 (0.07 to 0.65)	1.93 (1.14 to 3.27)
Sterilisation	2	165	861		0.15 (-0.10 to 0.40)	1.32 (0.84 to 2.06)
Previous pelvic inflammatory disease	2	127	424		1.02 (0.54 to 1.50)	6.35 (2.66 to 15.16)
Pelvic varices	2	248	188		0.33 (-0.15 to 0.80)	1.81 (0.76 to 4.28)
Previous caesarean section	2	1116	1083		0.64 (0.36 to 0.92)	3.18 (1.91 to 5.30)
Pelvic adhesions/other pathology**	3	338	200		0.49 (0.15 to 0.84)	2.45 (1.30 to 4.61)

Factors predisposing women to chronic pelvic pain:systematic review.Latthe P, Mignini L, Gray R, Hill R, Khan K. BMJ 2006; 332; 749 – 755.



Abuse/psychological factors					
Childhood physical abuse***	5	309	960	0.43 (0.24 to 0.62)	2.18 (1.55 to 3.06)
Childhood sexual abuse***	10	592	1472	0.23 (0.08 to 0.37)	1.51 (1.16 to 1.97)
Adult/lifetime physical abuse	5	157	363	-0.05 (-0.43 to 0.33)	0.91 (0.46 to 1.81)
Adult/lifetime sexual abuse***	11	664	966	0.69 (0.51 to 0.87)	3.49 (2.52 to 4.83)
Psychological abuse	1	36	43	0.50 (-0.34 to 1.33)	2.47 (0.54 to 11.24)
Any abuse	6	176	641	0.49 (0.21 to 0.77)	2.45 (1.47 to 4.06)
Disturbed puberty/painful early memories	4	223	71	0.73 (0.31 to 1.16)	3.77 (1.74 to 8.17)
Unsatisfactory relation with mother/spouse	3	135	44	0.77 (0.26 to 1.27)	4.01 (1.60 to 10.06)
Alcoholism in one parent	1	106	36	0.55 (-0.13 to 1.22)	2.69 (0.79 to 9.19)
Divorce in one parent	1	106	36	0.72 (0.11 to 1.33)	3.68 (1.23 to 11.08)
Death in one parent	1	106	36	0.39 (-0.49 to 1.28)	2.02 (0.40 to 10.13)
Disturbed pregnancy	1	32	25	0.95 (0.18 to 1.72)	5.58 (1.39 to 22.39)
Anxiety***	5	178	241	0.45 (0.19 to 0.72)	2.28 (1.41 to 3.70)
Depression**	8	410	376	0.55 (0.34 to 0.76)	2.69 (1.86 to 3.88)
Extroversion	1	35	9	-0.15 (-1.11 to 0.81)	0.76 (0.13 to 4.36)
Hysteria***	2	182	76	0.87 (0.51 to 1.23)	4.83 (2.50 to 9.33)
Neuroticism	1	35	9	0.77 (-0.20 to 1.73)	4.01 (0.70 to 22.99)
Paranoia	1	37	23	1.45 (0.77 to 2.13)	13.89 (4.02 to 48.02)
Borderline syndrome	1	106	36	0.61 (-0.11 to 1.33)	3.02 (0.82 to 11.08)
Current phobias	1	25	30	0.74 (-0.21 to 1.70)	3.86 (0.69 to 21.71)
Post-traumatic stress disorder	1	25	10	0.94 (-0.37 to 2.25)	5.47 (0.51 to 58.84)
Psychosomatic symptoms***	8	303	250	1.15 (0.90 to 1.39)	8.01 (5.16 to 12.44)

OR 0.1 1.0 10.0

SMD -1.0 0.0 1.0

Negative association Positive association

The Relationship Between Sexual Abuse and Interstitial Cystitis/Painful Bladder Syndrome

Brian E. Mayson, MD, and Joel M. H. Teichman, MD, FRCS(C)

Curr Urol Rep. 2009 Nov;10(6):441-7.

Childhood sexual abuse and physical traumatization are associated with subsequent lifelong risks of chronic pain syndromes.
IC/PBS patients have increased rates of sexual abuse or physical traumatization histories compared with controls.

PF and Sexual Abuse

- **Multiple Pelvic Floor Complaints Are Correlated with Sexual Abuse History** (Beck, Elzevier, Pelger, Putter & Voorham-van der Zalm, 2008)

Prevalence of sexual abuse in women with pelvic floor problems:

- 23% of women with pelvic floor problems are sexually abused
- Complaints in different domains

Table 2 Frequency and percentage of reported sexual abuse

Type of abuse	N	%
Incest	11	26.2
Sexual intimidation	4	9.5
Rape	3	7.2
Marital rape	9	21.4
Sexual harassment	5	11.9
Unknown	10	23.8
Total	42	100.0

Table 1 Specification of complaints in the three domains of the questionnaire

Urological domain	Gastrointestinal domain	Sexual domain
Urgency/frequency	Frequency	Dyspareunia
Hesitation	Blood loss	
Weak urinary stream	Inappropriate emptying	
Intermittent urinary stream	Defecation in tempi	
Straining when urinating	Straining	
Residual awareness	Perianal skin complaints	
Urinary tract infections	Soiling	
Painful voiding	Incontinence of stool or flatus	
	Perianal pruritus	
	Painful emptying	

PF and Sexual Abuse

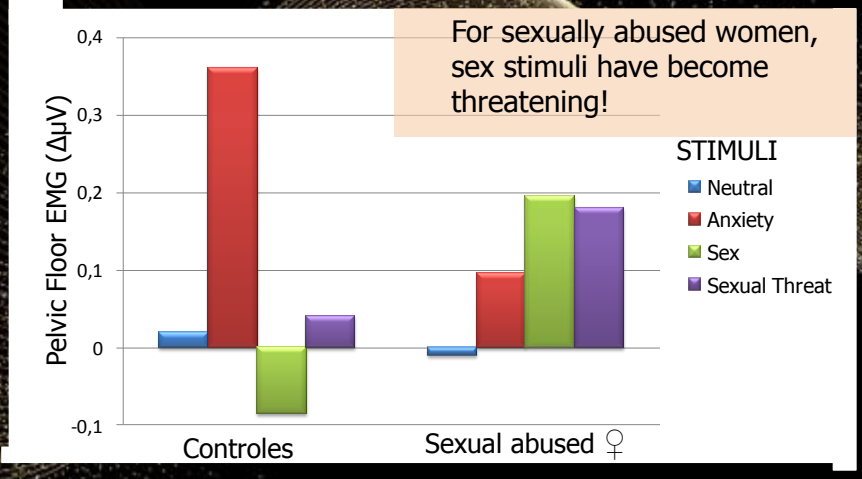
- **Pelvic Floor Muscle Problems Mediate Sexual Problems in Young Adult Rape Victims** (Postma, Bicanic, van der Vaart & Laan, 2013)

Young adults who are sexually abused in adolescence (without sexual, physical and emotional abuse in childhood) report (3 years after PTSS treatment):

- more sexual problems (2.4 times more often)
- more pelvic floor problems (2.7 times more often)

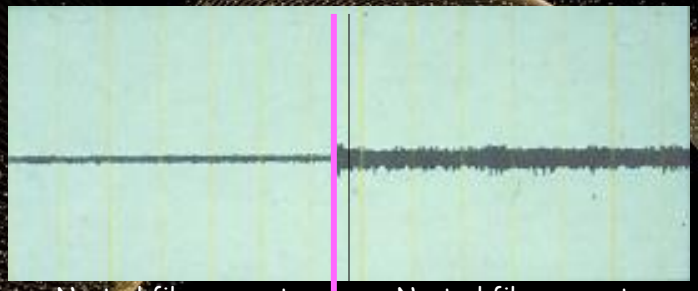
These pelvic floor problems partly mediate the relationship between sexual abuse and sexual problems

PF-EMG and Sexual Abuse



van der Velde & Everaerd, 2001

PF of patient with childhood sexual trauma and comorbidity of sexual, genital, bowel and urinary complaints



Startle (sexually threatening film fragment 10 sec)

PFS after PTSS

- PF overactivity as a defense mechanism - has become chronic - lead to complaints
- Sexual problems persist even after PTSS treatment
- If maintenance factors are not treated in a multidisciplinary manner, pelvic floor physiotherapy alone will not help

Laan E J Sex Med 2018

SD in PFS

- Male:
  - Premature Ejaculation
  - Erectile Dysfunction
  - Decreased libido
- Women:
  - Decreased libido
  - Dyspareunia
  - Vulvodynia
  - Anorgasmia

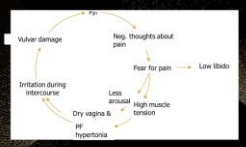
Relation between PFS and Vulvodynia

- Definition based on location and provocation:
  - Localized: pain limited to part of the vulva – provoked/unprovoked
  - Generalized: more diffuse pain in the entire vulva – provoked/unprovoked

Pukall et all 2004

Possible pathways:

- Vulvodynia secondary to PF dysfunction with co-morbidities
- PF dysfunction and Vulvodynia secondary to painful unaroused intercourse



Due to pain and tension of the PF muscle, reduces blood flow during sexual arousal. The vagina stays dry.
This leads to more pain and a vicious circle is created. The vagina can also be so cramped that intercourse is impossible.

Relation between PFS and Vulvodynia

Etiology of vulvodynia:

- Inflammation (markers), contraction of PF, Mast cells, reduced pain threshold
- Innervation: increased number of c-fibers, increased pain sensitivity
- Personality: vulnerable, low self esteem
- Mood: mild depression, anxiety
- Trauma

Unaroused painful intercourse:

- **Women relatively unaware of the physiological aroused state**
- Accept pain because of guilt, fear
- Not guarding their boundaries

Treatment of vulvodynia/VVS

Only a handful of RCT's are done

- Drug (fluconazole/cromolyn) vs placebo: no effect (Bornstein et al., 2000; Nyirjesy et al, 2000)
- EMG biofeedback vs lidocaine: both 11% cured (Danielsson et al., 2006)
- Vestibulectomy vs biofeedback vs (group)CBT: 68%-35%-39% succes rates at 6 months, at 2 year FU no differences in pain during intercourse between vestibulectomy and CBT (Bergeron et al, 2008)
- CBT versus surgery: no difference (Weijmar Schultz 1996)

Prerequisites for painless and satisfying sex

- Adequate sexual stimulation (the right stimulus and context)
- Sufficient sexual arousal and lubrication
- Moderate tone of pelvic floor
- Incentive motivation (expected sexual outcome positive)
  - Sex is about pleasure
  - Pain is forbidden
  - Saying 'no' is doing 'no'

- Focus on hyperactive pelvic floor and not only on vulvodynia
- Try to understand the organic and functional components in the individual patient
- Provide insight in interaction between psychological and physical factors
- Work together in a multidisciplinary team to provide a bio-psychosocial sexological approach

CPP in men

- Men who report having experienced sexual, physical, or emotional abuse have increased odds (1.7–3.3) for symptoms suggestive of CPP
- Comorbity of PFS and SD 30-60%
- "Chronic abacterial Prostatitis" is a form of otherwise unexplained pelvic pain

Factors contributing for SD in CPPS

- Comorbidity with depression
- Use of medication (antidepressant, pain killers)
- Relationship issues
- Increase rates of past sexual abuse
- CPPS involve areas directly connected to sexuality
- Negative body-image

Ambler N, Clin J Pain 2001;17:138–45.; Averill PM, Pain 1996;65:93–100.
Philipp M, Int J Psychiatry Clin Pract 1999;3:257–64.; Ferguson JM. J Clin Psychiatry 2001;62:22–34.
Coates R, Sex Marital Ther 1991;6:65–9.; Lampe A, Obstet Gynecol 2000;96:929–33.
Rellini A, Urodinamica 2004;14:80–3.; Heinberg LJ, Pain 2004;108:88–94.
Smith KB, J Sex Med 2007;4:734–44.;

PFS prevalence

- Chronic abdominal pain 24%
- Of these 24%: Dyspareunia 40%

- Prevalence of PFS about 5-7%

Zondervan et al. Br J Gen Practice (2001)

Diagnostic Work-up

- Profound history taking
  - Urine tract
  - Intestinal
  - Pain
  - Sexuality (ED, Lubrication, Ejaculation, Orgasm)
- Past experience and trauma
- Physical examination
  - Take your time
  - Explain
  - Mirror
  - Inspection first
- Consultation

Diagnostic approach

Medical history Accompanying symptoms	Clinical invest. Pelvic exam. Specimen Ultrasound	Relational and Sexual history	Psychological history
Pain history "Lifelong" "Acquired" When/ where	"Pain map" Pelvic floor Hormonal profile Inflammation	Past negative (sexual) experiences	Past or current Depression PTSS Dissociation
		Sexual expectations	Coping mechanism

Absence of Warning Symptoms

- Weight loss
- Anemia
- Rectal bleeding
- Fever
- Onset after age 50
- Abrupt change in symptoms
- Family history of colon cancer

Multidisciplinary Integrated Approach to PFS

- Education and information – relation between symptoms and PF (address impact on sexuality)
- Etiological treatment whenever possible
- Symptomatic (diet, medication, warmth)
  Analgesics
  Anxiolytics and SSRI
  Gabapentin
- Physical therapy (biofeedback)
- Behavioural therapy, coping strategy, lifestyle change
- Relation therapy
- EMDR
- Urologist; Gynaecologist; Gastro-Enterologists; Sexologist; Psychologist; Physical therapist

Implication for clinical practice

Knowledge of pain mechanism is needed

Investigation of specific disease assessment should be

Assessment of functional, emotional, behavioral, sexual

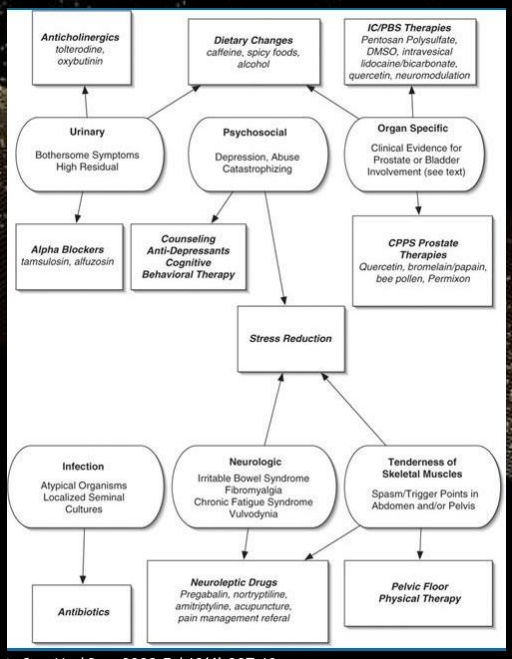
Multispecialty and multidisciplinary involvement and management

Clinical Phenotyping of Treatment

The UPOINTS classification:

- **U**rinary
- **P**sychosocial
- **O**rgan-specific
- **I**nfection
- **N**eurologic/systemic
- **T**enderness

- SEX !!!



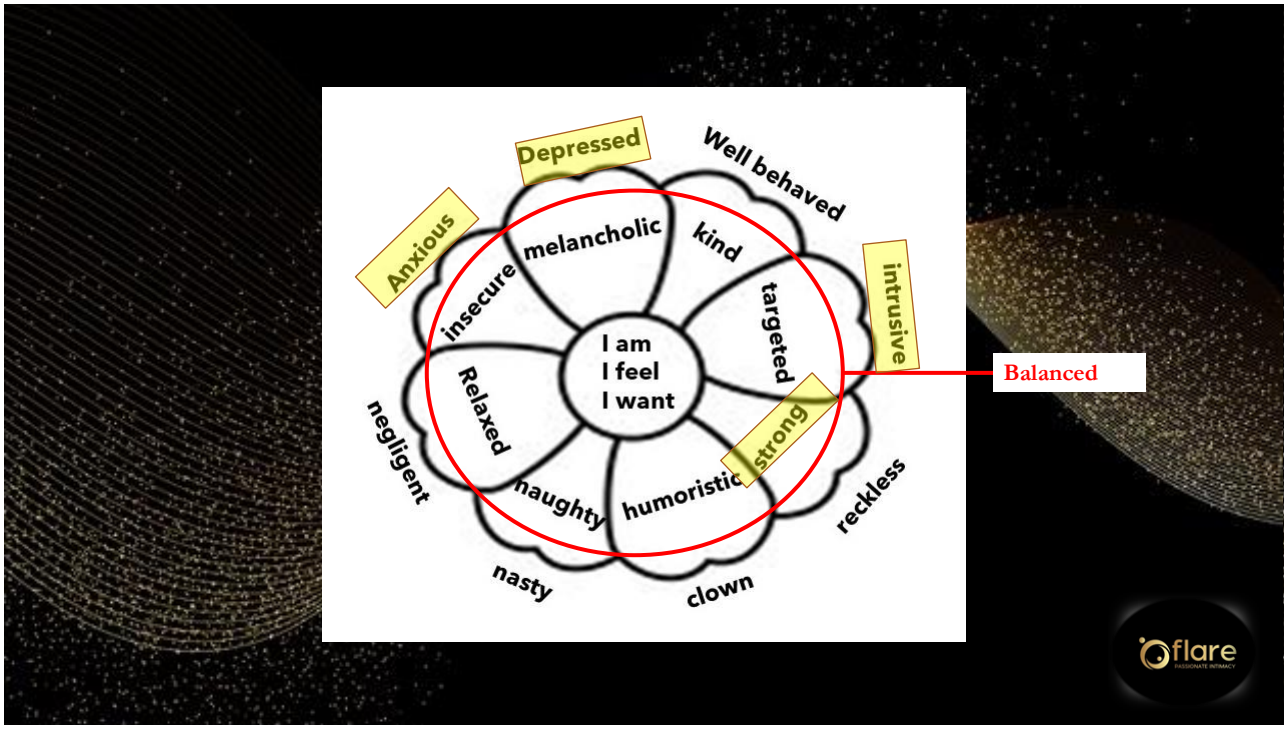
Nickel JC, Shoskes DA. Curr Urol Rep. 2009 Jul;10(4):307-12.
Diagram adapted from Prostate Cancer Prostatic Disease 2009

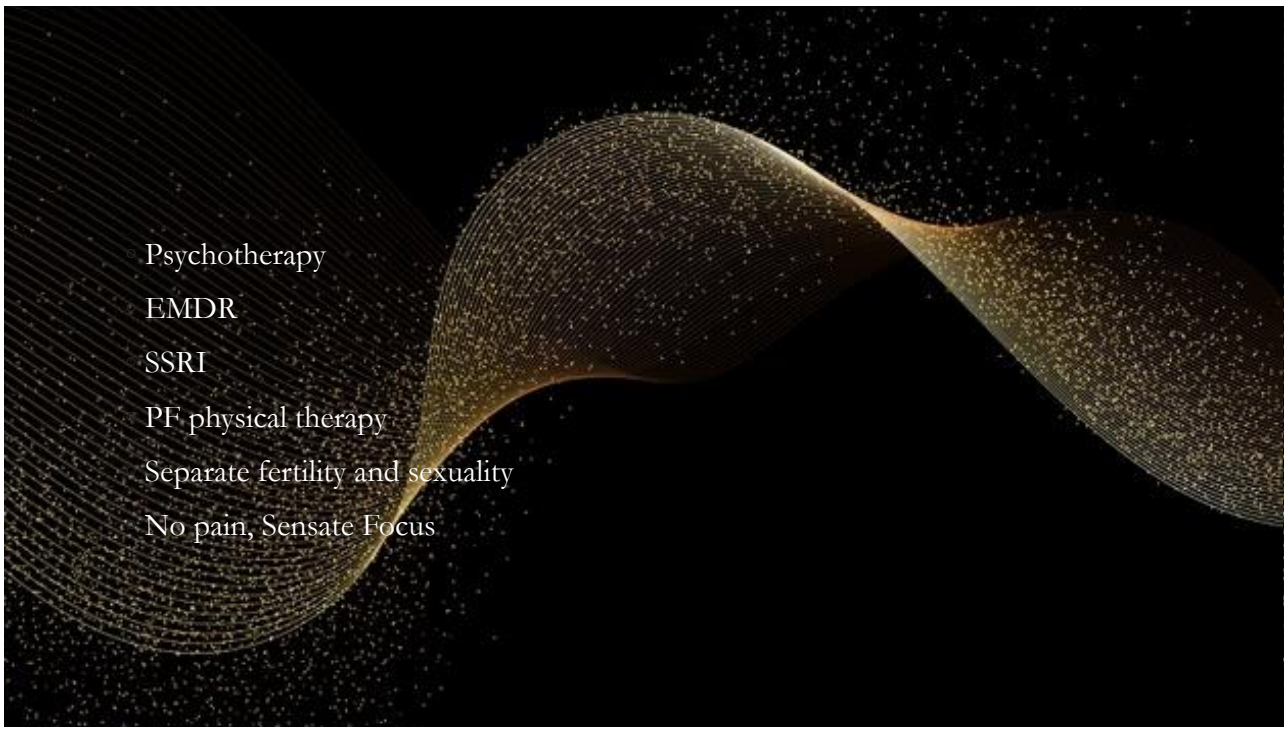
Case: ♀ 30 yrs old

- Admitted through ER because of abdominal pain
- 4x diagnostic laparoscopy in the past
- IBS, appendectomy (sana), neurological evaluation – unexplained motoric complains
- Reel, cooperative, open and supported by partner

- From her 6 to 16 yr sexual abuse
- At the age of 22; TS
- Forced intercourse because of child wish as trigger

- Diagnoses:
  - PTSS
  - Mood disorder
  - Dyspareunia
  - PFS
  - Somatization


Depressed
Well behaved
Anxious
melancholic
kind
intrusive
insecure
targeted
I am
I feel
I want
Relaxed
Balanced
negligent
strong
haughty
humoristic
reckless
nasty
clown
flare


Psychotherapy
EMDR
SSRI
PF physical therapy
Separate fertility and sexuality
No pain, Sensate Focus

Fluids – adequate fluid intake and avoidance of alcohol, fizzy drinks and caffeine reduce the risk of bladder irritation, which can exacerbate urinary symptoms

Diet – some men find certain foods – for example, citrus fruits and spicy foods – can trigger symptoms, and should be advised to recognise and avoid them

Posture – sitting for long periods can increase pain: patients should be advised to avoid this and/or use a soft or inflatable cushion; they should also avoid activities that put pressure on the perineum, such as cycling

Temperature – cold seems to aggravate symptoms, while often heat brings relief (Hedelin and Jonsson, 2007); warm baths, for example, can provide temporary relief

Bowel care – defaecation requires relaxation and coordination of the pelvic floor muscles and anal sphincters, so CPPS can cause pain and difficulty, leading to constipation; men experiencing pain or discomfort when defecating should take measures to avoid constipation

Exercise – brisk walking, jogging, running, playing sports or yoga may increase wellbeing and reduce symptoms

Stress relief – stress can exacerbate symptoms, so patients should try to avoid stressful situations and learn to manage stress; anecdotal reports to Prostate Cancer UK indicate that relaxation techniques can be helpful

WHY?

Always one for keeping fit, Jill did her regular pelvic floor exercises.

Summary

- Establish a relationship of trust
  - Let you patient know that you believe them!
- Perform diagnostic work-up to identify an underlying cause or to categorise
  - Education
  - Behavioural modification
- Offer therapeutic intervention and support
  - Tailor multi-modal therapy to individual needs
  - May require skills of urologist, psychologist, psychotherapist and physiotherapist