National Vulvodynia Association

Improving women's lives through education, research, support and advocacy

NVA Research Update E- Newsletter
December 2018 – January – February 2019
www.nva.org

_____

Vulvodynia

Environmental Exposure History and Vulvodynia Risk: A Population-Based Study.
Reed BD, McKee KS, Plegue MA, Park SK, Haefner HK, Harlow SD.
J Womens Health (Larchmt). 2019 Jan;28(1):69-76. doi: 10.1089/jwh.2018.7188. Epub 2018 Oct 10.
https://www.ncbi.nlm.nih.gov/pubmed/30307787

BACKGROUND: Risk factors for vulvodynia continue to be elusive. We evaluated the association between past environmental exposures and the presence of vulvodynia. **MATERIALS AND METHODS:** The history of 28 lifetime environmental exposures was queried in the longitudinal population-based Woman-to-Woman Health Study on the 24-month follow-up survey. Relationships between these and vulvodynia case status were assessed using multinomial logistic regression. **RESULTS:** Overall, 1585 women completed the 24-month survey, the required covariate responses, and questions required for case status assessment. Screening positive as a vulvodynia case was associated with history of exposures to home-sprayed chemicals (insecticides, fungicides, herbicides-odds ratio [OR] 2.47, 95% confidence interval [CI] 1.71-3.58, $p < 0.0001$), home rodent poison and mothballs (OR 1.62, 95% CI 1.25-2.09, $p < 0.001$), working with solvents and paints (OR 2.49, 95% CI 1.68-3.70, $p < 0.0001$), working as a housekeeper/maid (OR 2.07, 95% CI 1.42-3.00, $p < 0.0001$), working as a manicurist/hairdresser (OR 2.00, 95% CI 1.14-3.53, $p < 0.05$), and working at a dry cleaning facility (OR 2.13, 95% CI 1.08-4.19, $p < 0.05$). When classified into nine individual environmental exposure categories and all included in the same model, significant associations remained for four categories (home-sprayed chemicals, home rodent poison or mothballs, paints and solvents, and working as a housekeeper). **CONCLUSIONS:** This preliminary evaluation suggests a positive association between vulvodynia and the reported history of exposures to a number of household and work-related environmental toxins. Further investigation of timing and dose of environmental exposures, relationship to clinical course, and treatment outcomes is warranted.

New models to study vulvodynia: Hyperinnervation and nociceptor sensitization in the female genital tract.
Barry CM, Huilgol KK, Haberberger RV.
Neural Regen Res. 2018 Dec;13(12):2096-2097. doi: 10.4103/1673-5374.241455.
https://www.ncbi.nlm.nih.gov/pubmed/30323133

Case report: Vulvodynia treated with Erbium:YAG laser.
Tamer Erel C.
Eur J Obstet Gynecol Reprod Biol. 2018 Dec;231:280-281. doi: 10.1016/j.ejogrb.2018.10.028. Epub 2018 Oct 12
https://www.ncbi.nlm.nih.gov/pubmed/30343932

Descriptors of Vulvodynia: A Multisocietal Definition Consensus (International Society for the Study of Vulvovaginal Disease, the International Society for the Study of Women Sexual Health, and the International Pelvic Pain Society).
Bornstein J, Preti M, Simon JA, As-Sanie S, Stockdale CK, Stein A, Parish SJ, Radici G, Vieira-Baptista P, Pukall C, Moyal-Barracco M, Goldstein A; International Society for the Study of Vulvovaginal Disease (ISSVD), the International Society for the Study of Women's Sexual Health (ISSWSH), and the International Pelvic Pain Society (IPPS).
J Low Genit Tract Dis. 2019 Feb 12. doi: 10.1097/LGT.0000000000000461.
https://www.ncbi.nlm.nih.gov/pubmed/30768446

OBJECTIVES: Three scientific societies, the International Society for the Study of Vulvovaginal Disease (ISSVD), the International Society for the Study of Women Sexual Health (ISSWSH), and the International Pelvic Pain Society (IPPS) developed the "2015 ISSVD, ISSWSH, and IPPS Consensus Terminology and Classification of Persistent Vulvar Pain and Vulvodynia" (referred to as the "2015 consensus terminology").The terminology included 11 descriptors of vulvodynia. However, the definitions of the descriptors were not included in the 2015 consensus terminology publications. The objective of this article was to provide these definitions. **MATERIALS AND METHODS:** The ISSVD led a discussion on the definitions for the 11 vulvodynia descriptors, with participation from the ISSWSH and IPPS. The definitions were created through a consensus process. **RESULTS:** The definitions are described and the rationale for their choice is elucidated. **CONCLUSIONS:** The definitions of vulvodynia descriptors were determined by a multistaged process of discussion among health care providers with expertise in the pathophysiology, evaluation, and treatment of vulvodynia. The definitions were approved by the ISSVD, ISSWSH, and IPPS. It is recommended that these definitions of vulvodynia descriptors as well as the 2015 consensus terminology be used for the classification of vulvodynia.

Differentiating overlapping symptoms of vulvodynia and pudendal neuralgia.
Ghizzani A, Carta S, Casoni A, Ferrata P, Luisi S, Fortina M.
Br J Pain. 2019 Feb;13(1):54-58. doi: 10.1177/2049463718776692. Epub 2018 May 15.
https://www.ncbi.nlm.nih.gov/pubmed/30671239

Context: Vulvodynia is defined as a chronic vulvar pain non-associated with infectious, inflammatory, neoplastic or hormonal disorders. **Objectives:** To present a case demonstrating the difficulty in assessing concomitant disease in vulvodynia. **Methods:** A 26-year-old woman, presented with persistent

vulvodynia. She received oral and topical medications and behavioural interventions to lessen sexual pain and restore sexuality. As sexual pain decreased, the patient reported symptoms previously not mentioned: continuous, intense periclitoral pain and numbness at the perineum when sitting for a long time. These new symptoms suggest the involvement of the peripheral neural system. The physical evaluation confirmed right-side pelvic distortion, and pathological increase in lumbar lordosis, which caused neuralgia radiating to the external genitalia and perineum, and overlapping with sexual pain. After diagnosing pudendal neuralgia according to the Nantes criteria, physical treatment and relaxation exercises to de-contract the spine were added to the vulvodynia regimen. **Results:** During treatment, vulvodynia was sometimes present but never unbearable, allowing satisfactory sex. With physical therapy, the symptoms of pudendal neuralgia decreased. **Conclusion:** Differentiating the presence of two conditions with overlapping symptoms is difficult because the vestibular pain had shadowed pudendal neuralgia symptoms at initial assessment. Syndromes of chronic pain tend to associate with each other and one syndrome may shadow symptoms of the concomitant condition affecting adjacent anatomical areas. Only the accurate identification of all the syndromes involved allows adopting the correct treatment.

Provoked Vestibulodynia

Altered Gray Matter Volume in Sensorimotor and Thalamic Regions associated with Pain in Localized Provoked Vulvodynia: A Voxel-based Morphometry Study.
Bhatt RR, Gupta A, Rapkin A, Kilpatrick LA, Hamadani K, Pazmany E, Van Oudenhove L, Stains J, Aerts L, Enzlin P, Tillisch K, Mayer EA, Labus JS.
Pain. 2019 Feb 25. doi: 10.1097/j.pain.0000000000001532.
https://www.ncbi.nlm.nih.gov/pubmed/30817440

Multimodal neuroimaging studies provide support for a role of alterations in sensory processing circuits and endogenous pain modulatory systems in provoked vestibulodynia (PVD). In this study we tested the hypotheses that PVD compared to healthy controls (HCs) would demonstrate gray matter volume (GMV) alterations in regions associated with sensorimotor, corticothalamic, and basal ganglia circuits. We also tested the replicability of previously reported gray matter increases in basal ganglia and hippocampal volumes in PVD versus HCs. Additionally, disease-specificity of GMV alterations were examined by comparing PVD to another chronic pain disorder. Finally we examine whether GMV alterations are correlated with symptom measures. Structural magnetic resonance imaging was obtained in 119 premenopausal women (45 PVD, 45 HCs, 29 irritable bowel syndrome (IBS)). A voxel-based morphometry analysis was applied to determine group differences in the hypothesized regions of interest. Compared to HCs, PVD women exhibited greater GMV in the basal ganglia, hippocampus, and sensorimotor cortices. Compared to IBS patients, women with PVD had greater GMV in the hippocampus, and sensorimotor network, but lower GMV in the thalamus and precentral gyrus. Regional gray matter volume alterations were associated with patient reports of pain during intercourse and muscles tenderness. The current findings provide further evidence that GMV is increased in PVD compared to HCs in several regions of the sensorimotor network and the hippocampus in PVD patients. In addition, GMV distinct alterations in the sensorimotor network were identified between two pelvic pain disorders, PVD compared to irritable bowel syndrome.

Botulinum toxin-treatment of localized provoked vulvodynia refractory to conventional treatment.
Hedebo Hansen T, Guldberg R, Meinert M.
Eur J Obstet Gynecol Reprod Biol. 2018 Dec 15;234:6-9. doi: 10.1016/j.ejogrb.2018.12.013.
https://www.ncbi.nlm.nih.gov/pubmed/30639955

INTRODUCTION: We wanted to evaluate the efficacy of botulinum toxin type A (botulinum toxin) treatment on vulvodynia refractory to conventional treatment. **MATERIAL AND METHODS:** A follow-up study on botulinum toxin treatment was conducted at Aarhus University Hospital (n = 109). Seventy-nine completed the follow-up. The women included had localized provoked vulvodynia, refractory to first line treatment and were treated with 100*I.E. botulinum toxin electromyography (EMG) guided in the musculus levator ani in the period from March 2012 to May 2015(1). The outcome measures were: Dyspareunia, Negative Interference in Quality of Life (NIQL) and cotton swab test all rated on the numerical rating scale (NRS) and active vitae sexualis. Follow-up was conducted at six months. **RESULTS:** The women experienced significant improvements on, dyspareunia, which decreased to 5.82 from 7.82 ($p < 0.01$), NIQL to 6.19 from 7.88 ($p < 0.01$) and the cotton swab test to 5.50 from 6.81 ($p < 0.01$). No significant effect on Active Vitae Sexualis was found ($p = 0.25$). **CONCLUSION:** Women injected with 100*I.E. botulinum toxin EMG guided, diagnosed with localized provoked vulvodynia refractory to conventional non invasive treatment, had a reduction in dyspareunia and improved quality of life. Injection of botulinum toxin had no significant effect on vitae sexualis. Randomized controlled trials are, however, much needed.

Reliability of vulvar blood perfusion in women with provoked vestibulodynia using laser Doppler perfusion imaging and laser speckle imaging.
Cyr MP, Pinard A, Dubois O, Morin M.
Microvasc Res. 2019 Jan;121:1-6. doi: 10.1016/j.mvr.2018.08.001. Epub 2018 Aug 16.
https://www.ncbi.nlm.nih.gov/pubmed/30121222

BACKGROUND: Microvascular assessment has become increasingly used in gynecology to better understand the pathophysiology of various vulvar conditions and to study sexual function. Alteration in blood perfusion of the vulvar area has been observed using laser technologies in women with provoked vestibulodynia (PVD), the leading cause of vulvar pain. However, no studies have thus far investigated the reliability of and agreement between lasers for evaluating vulvar blood perfusion. **OBJECTIVES:** The main objective was to investigate the between-session reliability of the laser Doppler perfusion imaging (LDPI) and laser speckle contrast imaging (LSCI) for assessing blood perfusion of the vulvar vestibule in women with PVD. Secondary aims were to evaluate the association and agreement between the two laser technologies. **METHODS:** Twenty-six women with PVD participated in the study. Blood perfusion of the vulvar vestibule was assessed with LDPI and LSCI during two sessions 2 to 4 weeks apart. Blood perfusion was analyzed in five specific areas of the vulvar vestibule: 1) 3 o'clock site, 2) 6 o'clock site, 3) 9 o'clock site, 4) central area (delimited by areas 1, 2 and 3), and 5) posterior fourchette. The reliability of the measurements of the two instruments was calculated with intraclass correlation coefficients (ICCs), standard errors of measurement (SEMs) and coefficients of variation (CVs). Paired t-tests were also computed to compare the CVs of each laser technology. The association and agreement between LDPI and LSCI measurements were evaluated by Pearson's correlation coefficients and Bland-Altman plots, respectively. **RESULTS:** Excellent reliability was found for LDPI (ICCs = 0.78-0.80, $p < 0.001$, SEMs = 16.1-47.9) and LSCI measurements (ICCs = 0.75-0.81, $p \leq 0.001$, SEMs = 17.0-52.2) for all vulvar vestibule areas. However, CVs were significantly higher using LDPI (CVs = 15.1-19.8) when compared to LSCI (CVs = 7.0-11.6) for all areas ($p \leq 0.031$), except for area 4 ($p = 0.079$). Significant correlations were

found between LDPI and LSCI for all areas (r = 0.58-0.89, p ≤ 0.003). Bland-Altman plots revealed a systematic difference between LDPI and LSCI measurements. **CONCLUSION:** Findings show that both LDPI and LSCI measurements are reliable for assessing blood perfusion of the vulvar vestibule in women with PVD. The LSCI appears to be a more reliable measurement as it presents less variation than LDPI. Finally, although LDPI and LSCI measurements are related, the systematic difference observed between them makes it impossible to compare absolute units.

What Do Different Measures of Pain Tell Us? A Comparison in Sexually Active Women With Provoked Vestibulodynia.

Wammen Rathenborg FL, Zdaniuk B, Brotto LA.

J Sex Med. 2019 Jan 14. pii: S1743-6095(18)31333-X. doi: 10.1016/j.jsxm.2018.12.001.

https://www.ncbi.nlm.nih.gov/pubmed/30655181

INTRODUCTION: Studies of pain measurement in women with provoked vestibulodynia (PVD) use various methods of capturing pain intensity. The degree to which these different measures of pain correspond with one another is not known. **AIM:** To compare 3 different measures of pain intensity in sexually active women with PVD participating in a clinical treatment study. **METHODS:** A total of 64 women (mean age 30.9 years) provided baseline measures of pain intensity using (i) a numeric rating scale that provided a self-report of pain during recalled vaginal penetration; (ii) the pain subscale of the female sexual function index; and (iii) pain elicited with a vulvalgesiometer, an objective method of eliciting pain. **MAIN OUTCOME MEASURE:** Correlations among these 3 measures of pain were moderate in size (range r = 0.39-0.61). Moreover, the numeric rating scale of pain was more likely to be associated with self-reported measures of pain catastrophizing and pain hypervigilance than were scores on the pain subscale of the female sexual function index or scores from the vulvalgesiometer. **CLINICAL IMPLICATIONS:** Overall, there was a moderate level of correlation between different often-used measures of pain in women with PVD. These findings suggest that, in addition to measuring a common dimension, these different measures tap into different aspects of women's experiences with vulvovaginal pain, and researchers should consider how the chosen measure addresses their primary research question when selecting pain measures in future PVD research. **STRENGTHS & LIMITATIONS:** A strength of this study was the large sample size (n = 64 sexually active women) who had received confirmed clinical diagnoses of PVD. 1 limitation of the findings is that our self-report outcome measures are based on retrospective ratings of pain over 4 weeks, and it is possible that other variables, such as mood, could have impacted scores on these measures. **CONCLUSION:** This study showed statistically significant and moderate correlations among 3 different pain measures widely used in PVD research and treatment. In addition, only 1 pain measure showed a significant independent association with emotion function measures. These findings provide a rationale for including multiple measures of pain and emotional function in treatment outcome studies of PVD. Wammen Rathenborg FL, Zdaniuk B, Brotto LA. What Do Different Measures of Pain Tell Us? A Comparison in Sexually Active Women With Provoked Vestibulodynia

Multidisciplinary Treatment for Provoked Vestibulodynia: Treatment Trajectories, Predictors, and Moderators of Sexual Distress and Pain.

Smith KB, Sadownik LA, Dargie E, Albert AYK, Brotto LA.

Clin J Pain. 2019 Jan 4. doi: 10.1097/AJP.0000000000000682.

https://www.ncbi.nlm.nih.gov/pubmed/30614827

OBJECTIVES: Multidisciplinary treatment programs for provoked vestibulodynia (PVD) are recommended, yet few have been evaluated. This study examined women's symptom trajectories over time, as well as baseline demographic, psychosocial and pain characteristics as predictors/ moderators of sexual pain and distress following treatment at a clinic using multidisciplinary concurrent methods. We also examined the impact of baseline variables on the probability of having low sexual distress scores following treatment. **METHODS:** Women attending a multidisciplinary treatment program for PVD were invited to complete questionnaires prior to, following, and at 6- and 18-months after program completion. Questionnaires included the Female Sexual Function Index (FSFI), Female Sexual Distress Scale (FSDS), State-Trait Anxiety Inventory (STAI), Pain Catastrophizing Scale (PCS), Painful Intercourse Self-Efficacy Scale (PISES), and Pain Vigilance and Awareness Questionnaire (PVAQ). Linear mixed-effects models evaluated the FSDS and FSFI pain subscale as criterion variables, and the other baseline variables as predictors and moderators. **RESULTS:** Significant improvements in sexual distress and pain were observed over time. No significant moderators were identified, but higher baseline levels of FSFI desire and arousal predicted greater improvements in sexual distress. Similarly, higher baseline levels of desire predicted greater improvements in pain. Among women distressed at baseline and with 6 month FSDS scores, 25% (n=35) were no longer sexually distressed at 6 months; higher baseline levels of desire were associated with greater probability of having low sexual distress at 6 months. **DISCUSSION:** Although global improvements were observed, women with poorer baseline sexual functioning were less likely to improve after multidisciplinary treatment.

Mindfulness-Based Group Cognitive Behavior Therapy for Provoked Localized Vulvodynia: A Randomized Controlled Trial.

Guillet AD, Cirino NH, Hart KD, Leclair CM.

J Low Genit Tract Dis. 2019 Jan 25. doi: 10.1097/LGT.0000000000000456.
https://www.ncbi.nlm.nih.gov/pubmed/30688760

OBJECTIVE: The aim of the study was to compare the effectiveness of mindfulness-based group cognitive behavior therapy (M-gCBT) versus education support group therapy for the pain and distress associated with provoked localized vulvodynia. **MATERIALS AND METHODS:** Participants were randomized to M-gCBT or education support group therapy. Mindfulness-based group cognitive behavior participants attended 8 weekly sessions. Education support group participants received 8 weeks of online education with 3 in-person group visits. Vaginal insertion pain (tampon test) was the primary outcome. Secondary outcomes (Generalized Anxiety Disorder 7, Beck's Depression Index, Female Sexual Distress Scale, Female Sexual Function Index, and Pain Catastrophizing) were administered before intervention and at the completion of the study period, 3 months, and 6 months. Sample size was based on the ideal number for group dynamics of 6 to 12 participants per group. **RESULTS:** Participants were enrolled from August 1, 2016, to January 30, 2017. Thirty-two participants were enrolled and 31 were randomized: 14 to M-gCBT and 17 to education support. Baseline characteristics did not differ significantly. Vaginal insertion pain decreased in both groups but was not statistically different between groups (difference of 1.23; 95% CI = -0.52 to 2.98). At 6 months, participants in the M-gCBT group showed statistically significant improvement in the Female Sexual Function Index, Generalized Anxiety Disorder 7, and Beck's Depression Index compared with the education support group. **CONCLUSIONS:** Mindfulness-based group cognitive behavior and education support group therapy are effective in reducing pain and distress. However, women in the M-gCBT program showed greater improvement in certain secondary outcomes, indicating that M-gCBT may offer some advantages in reducing distress associated with provoked localized vulvodynia

Co-morbid Disorders

Lower Urinary Tract Symptoms in a Chronic Pelvic Pain Population.
Sammarco AG, Kobernik EK, Haefner HK, Till SR, Berger MB.
Female Pelvic Med Reconstr Surg. 2019 Jan 8. doi: 10.1097/SPV.0000000000000689
https://www.ncbi.nlm.nih.gov/pubmed/30628949

OBJECTIVES: This study aimed to characterize the prevalence of lower urinary tract symptoms in a chronic pain population. **METHODS:** In this observational cohort study, patients referred to a female pelvic pain clinic completed several validated questionnaires assessing bladder symptoms, central sensitization, pain symptoms, depression, anxiety, and neuropathic pain. Patients diagnosed as having interstitial cystitis were excluded. Patient demographic characteristics and survey responses were compared across American Urological Association Symptom Index (AUA-SI) severity categories. Multivariable logistic regression was performed to identify independent predictors of moderate-to-severe AUA-SI scores. **RESULTS:** A total of 177 patients were included in the analysis. American Urological Association Symptom Index data showed that 48.8% of patients had mild, 31.2% had moderate, and 20.0% had severe symptoms. Patients reporting moderate or severe AUA-SI scores had higher mean Central Sensitization Inventory (CSI) scores (46.7 ± 16.0 vs 32.9 ± 13.8, P < 0.0001), McGill scores (median, 25 [interquartile range, 16-38] vs 13 [5-27]; P = 0.0003), Patient-Reported Outcomes Measurement Information System depression T-scores (median, 53.9 [interquartile range, 46.2-61.6] vs 51.2 [37.1-55.3]; P = 0.009), Pelvic Pain and Urgency/Frequency Symptoms Scale scores (18.4 ± 6.2 vs 12.5 ± 5.4, P < 0.0001), and Self-Administered Leeds Assessment of Neuropathic Symptoms and Signs scores (median, 10.5 [interquartile range, 3.0-16.5] vs 6.0 [1.0-12.0]; P = 0.02). The odds of moderate-to-severe AUA-SI symptoms were higher with a positive PUF and CSI score and were lower with a diagnosis of vestibular pain. **CONCLUSIONS:** There is a high prevalence of lower urinary tract symptoms among patients with chronic pelvic pain. Vestibulodynia was associated with lower odds of bladder symptoms. High PUF and CSI scores were significantly associated with moderate-to-severe bladder symptoms.

Sensory pudendal nerve stimulation increases bladder capacity through sympathetic mechanisms in cyclophosphamide-induced cystitis rats.
Gonzalez EJ, Grill WM
Neurourol Urodyn. 2019 Jan;38(1):135-143. doi: 10.1002/nau.23860. Epub 2018 Oct 23.
https://www.ncbi.nlm.nih.gov/pubmed/30350879

AIMS: Interstitial cystitis and bladder pain syndrome is a prevalent health concern with inadequate treatments. Neuromodulation has emerged as a therapeutic option to treat patients refractory to standard care. The objective of this study was to determine the efficacy and mechanism(s) of sensory pudendal nerve stimulation on bladder function in cystitis rats. **METHODS:** Female rats were administered saline (n = 8) or cyclophosphamide (CYP, 150 mg/kg IP, n = 16) and single-trial cystometry experiments were conducted under urethane anesthesia 48 h after injection. Electrical stimulation (0.02-0.22 mA, 10-20 Hz) was delivered to the sensory branch of the pudendal nerve and its effect on the bladder and external urethral sphincter were measured. Stimulation trials were also conducted following bilateral hypogastric nerve transection (HGNT) or pharmacological inhibition of beta-adrenergic receptors (propranolol, 1 mg/kg IV) to determine the mechanisms of bladder inhibition. **RESULTS:** CYP-induced cystitis decreased bladder capacity (P = 0.0352) and bladder compliance (P = 0.024) by up to 38% of control. Electrical stimulation of the sensory pudendal nerve increased

bladder capacity ($P < 0.0001$) in control and CYP rats by up to 51-52% of their respective baselines. HGNT did not influence bladder inhibition generated by sensory pudendal nerve stimulation in control rats, whereas HGNT and propranolol decreased the efficacy of electrical stimulation in CYP rats. **CONCLUSIONS:** Sympathetic reflex activity mediates sensory pudendal nerve stimulation in CYP treated but not control rats. These studies demonstrate an alternative approach to neuromodulation in cystitis and establish mechanistic changes during stimulation that may enable the development of novel therapeutics.

Genital Sensations in Persistent Genital Arousal Disorder: A Case for an Overarching Nosology of Genitopelvic Dysesthesias?
Pukall CF, Jackowich R, Mooney K, Chamberlain SM.
Sex Med Rev. 2019 Jan;7(1):2-12. doi: 10.1016/j.sxmr.2018.08.001. Epub 2018 Oct 6.
https://www.ncbi.nlm.nih.gov/pubmed/30301706

INTRODUCTION: Persistent genital arousal disorder (PGAD) is a highly distressing and poorly understood condition characterized by unwanted sensations of genital arousal in the absence of subjective sexual desire. Research has shown that some individuals with PGAD also report orgasm, urinary, and pain symptoms, with 1 recent study specifically comparing a "painful persistent genital arousal symptom" group to a "non-painful persistent genital arousal symptom" group on various indicators given the highly frequent report of comorbid genitopelvic pain in their sample. **AIM:** To review literature on PGAD focusing on the presence of pain symptoms. **METHODS:** A literature review through May 2018 was undertaken to identify articles that discuss pain characteristics in individuals with persistent sexual arousal syndrome, persistent genital arousal disorder, symptoms of persistent genital arousal, and restless genital syndrome. **MAIN OUTCOME MEASURE:** A review of pain/discomfort associated with persistent genital arousal, and the proposal of a new theoretical framework of genitopelvic dysesthesias. **RESULTS:** PGAD is a distressing condition that is associated with a significant, negative impacts on psychosocial and daily functioning. Although it is clear that unwanted and persistent genital arousal is the hallmark symptom of PGAD, symptoms of pain and discomfort are also frequently reported. Based on the results of this review, a model of genitopelvic dysesthesias is proposed, with subcategories of unpleasant sensations that are based on patients' primary complaint: arousal, arousal and pain, or pain (and other sensations). **CONCLUSION:** The proposed model can provide an important framework for conceptualizing conditions characterized by unpleasant genitopelvic sensations. A model such as this one can benefit highly misunderstood conditions that are questioned in terms of their legitimacy and severity-such as PGAD-by conceptualizing them as sensory disorders, which in turn can reduce stigma, unify research efforts, and potentially improve access to care.

Joint Hypermobility Among Female Patients Presenting with Chronic Myofascial Pelvic Pain.
Hastings J, Forster JE, Witzeman K.
PM R. 2019 Feb 6. doi: 10.1002/pmrj.12131.
https://www.ncbi.nlm.nih.gov/pubmed/30729750

BACKGROUND: Female chronic pelvic pain is estimated to affect up to 24% of adult women, many of whom have a component of myofascial pelvic pain. Although an association of joint hypermobility and pelvic pain has been hypothesized, limited data are available that estimate the prevalence of joint hypermobility in this population. **OBJECTIVE:** To estimate the prevalence of generalized hypermobility

spectrum disorder (G-HSD) among female patients with chronic myofascial pelvic pain and examine the association between G-HSD and other frequent pelvic pain-associated complaints. **STUDY DESIGN:** Retrospective case control. **SETTING:** Tertiary referral center within a university-affiliated public health system. **PATIENTS:** Adult women who were diagnosed with myofascial pelvic pain during a 1-year period. Ultimately, 318 patients were included in the study cohort. **METHODS:** Data was abstracted via chart review of patients meeting inclusion criteria and diagnosed with myofascial pelvic pain during the study period. **OUTCOMES:** The primary outcome of this study was to assess the prevalence of G-HSD among patients with persistent myofascial pelvic pain in our clinic population. The secondary outcome was to assess for associations in this population between G-HSD and dyspareunia, provoked vestibulodynia, stress urinary incontinence, irritable bowel syndrome, hip pain, low back pain, and fibromyalgia. **RESULTS:** Twenty-four percent (N=77; 95% CI: 19.6, 29.4) of myofascial pelvic pain patients also met criteria for G-HSD. After adjusting for confounders, the odds in favor of having G-HSD was 3.55 higher (95% CI: 1.50, 8.40) (p=.004) in females with dyspareunia; 7.46 higher (95% CI: 2.41, 23.1) (p=<.001) with low back pain; 3.76 higher (95% CI: 1.35, 10.5) (p=0.02) with SUI; 4.72 higher (95% CI: 2.00, 11.2) (p=<.001) with IBS; and 3.12 higher (95% CI: 1.36, 7.13) (p=.007) with hip pain. There was no significant association identified between PVD or fibromyalgia and G-HSD. **CONCLUSIONS:** The estimated prevalence of G-HSD is higher in chronic myofascial pelvic pain patients than in the general population with statistically significant associations with several co-morbid conditions. Characterizing these associations is the first step in developing effective, evidence-based screening recommendations.

Methodological approaches to botulinum toxin for the treatment of chronic pelvic pain, vaginismus, and vulvar pain disorders.

Karp BI, Tandon H, Vigil D, Stratton P.

Int Urogynecol J. 2019 Jan 7. doi: 10.1007/s00192-018-3831-z.
https://www.ncbi.nlm.nih.gov/pubmed/30617506

INTRODUCTION AND HYPOTHESIS: Botulinum toxin (BoNT) is increasingly used for pain, especially with muscle spasm. We describe our methodology for BoNT treatment of chronic pelvic pain (CPP) in women and place it in the context of the literature on techniques for this use. **METHODS:** Databases were searched using terms "botulinum toxin," "pelvic pain," and "vaginismus." Reports on vaginismus/vulvodynia/vestibulodynia (included if pelvic floor muscles were injected) were grouped as "vaginismus/vulvar pain disorders" (V/VPD). We analyzed the type of report, condition, toxin serotype/brand, dose/dilution, muscle selection, guidance technique, and anesthesia. Publications from the same authors without unique information were combined for specific analyses. **RESULTS:** Thirty-eight reports had analyzable information; many lacked complete information. Most were open-label prospective reports; there were four technical reports, one randomized comparison of doses and one placebo-controlled study of efficacy. Pelvic floor muscles were approached transvaginally, transperineally or transgluteally. BoNT brand/dose/dilution varied widely. Muscle localization techniques included anatomical landmarks only, electromyography, electrical stimulation with/without ultrasound, and fluoroscopy/CT scanning. Papers discussing analgesia utilized general anesthesia, conscious sedation with/without topical/local anesthesia, topical/local agent alone or pudendal block before or after injection. Cumulatively, 58-100% of patients with CPP and 71-100% of those with V/VPD improved. Serious adverse events (transient fecal incontinence/constipation, urinary incontinence/retention) were more frequent with higher doses. **CONCLUSIONS:** BoNT can be safely and tolerably injected into pelvic floor muscles in women as an out-patient procedure. This study identifies methodological factors to be considered in future studies and the critical need for high-quality clinical trials for this emerging treatment.

The Clinical Role of LASER for Vulvar and Vaginal Treatments in Gynecology and Female Urology: An ICS/ISSVD Best Practice Consensus Document.

Preti M, Vieira-Baptista P, Digesu GA, Bretschneider CE, Damaser M, Demirkesen O, Heller DS, Mangir N, Marchitelli C, Mourad S, Moyal-Barracco M, Perematеu S, Tailor V, Tarcan T, De EJB, Stockdale CK.
J Low Genit Tract Dis. 2019 Feb 15. doi: 10.1097/LGT.0000000000000462.
https://www.ncbi.nlm.nih.gov/pubmed/30789385

In this best practice document, we propose recommendations for the use of LASER for gynecologic and urologic conditions such as vulvovaginal atrophy, urinary incontinence, vulvodynia, and lichen sclerosus based on a thorough literature review. Most of the available studies are limited by their design; for example, they lack a control group, patients are not randomized, follow-up is short term, series are small, LASER is not compared with standard treatments, and most studies are industry sponsored. Because of these limitations, the level of evidence for the use of LASER in the treatment of these conditions remains low and does not allow for definitive recommendations for its use in routine clinical practice. Histological evidence is commonly reported as proof of tissue regeneration after LASER treatment. However, the histological changes noted can also be consistent with reparative changes after a thermal injury rather than necessarily representing regeneration or restoration of function. The use of LASER in women with vulvodynia or lichen sclerosus should not be recommended in routine clinical practice. There is no biological plausibility or safety data on its use on this population of women. The available clinical studies do not present convincing data regarding the efficacy of LASER for the treatment of vaginal atrophy or urinary incontinence. Also, although short-term complications seem to be uncommon, data concerning long-term outcomes are lacking. Therefore, at this point, LASER is not recommended for routine treatment of the aforementioned conditions unless part of well-designed clinical trials or with special arrangements for clinical governance, consent, and audit.

Recent advances in imaging and understanding interstitial cystitis.

Tyagi P, Moon CH, Janicki J, Kaufman J, Chancellor M, Yoshimura N, Chermansky C.
F1000Res. 2018 Nov 9;7. pii: F1000 Faculty Rev-1771. doi: 10.12688/f1000research.16096.1. eCollection 2018.
https://www.ncbi.nlm.nih.gov/pubmed/30473772

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a debilitating condition associated with intense pelvic pain and bladder storage symptoms. Since diagnosis is difficult, prevalence estimates vary with the methodology used. There is also a lack of proven imaging tools and biomarkers to assist in differentiation of IC/BPS from other urinary disorders (overactive bladder, vulvodynia, endometriosis, and prostatitis). Current uncertainty regarding the etiology and pathology of IC/BPS ultimately impacts its timely and successful treatment, as well as hampers future drug development. This review will cover recent developments in imaging methods, such as magnetic resonance imaging, that advance the understanding of IC/BPS and guide drug development.

Dorsal Root Ganglion Stimulation for Chronic Pelvic Pain: A Case Series and Technical Report on a Novel Lead Configuration.

Hunter CW, Yang A.
Neuromodulation. 2019 Jan;22(1):87-95. doi: 10.1111/ner.12801. Epub 2018 Aug 1.
https://www.ncbi.nlm.nih.gov/pubmed/30067887

INTRODUCTION: Chronic pelvic pain (CPP) is an elusive and complex neuropathic condition that is notoriously recalcitrant to treatment. The term "CPP" encompasses a number of treatment-resistant conditions like pudendal neuralgia, interstitial cystitis, coccygodynia, vulvodynia. CPP has been presented neuromodulators attempting to utilize conventional spinal cord stimulation (SCS), with constant frustration and high explant rates. Contrary to SCS, dorsal root ganglion stimulation (DRGS) delivers targeted target to focal areas, does not rely on paresthesias, and is able to reliably capture body parts like the pelvis making it an ideal modality for the treatment of CPP. We present seven patients with intractable CPP, resistant to conventional treatment methods, all successfully treated with DRGS. **METHODS:** The case series includes seven patients with severe, CPP who failed to respond to a variety interventional treatments, and in some cases SCS. All seven patients were successfully trialed with DRGS utilizing leads placed over the bilateral L1 and S2 DRG's-to our knowledge, no publications describing either this particular lead configuration, or utilizing DRG stimulation on CPP, exist. **RESULTS:** Following treatment, all seven patients experienced significant pain relief as well as reduction in opioid consumption and some cases improvement with sexual function and urination. Four of these patients have been implanted and continue to self-report sustained pain relief with high-satisfaction and functional improvement. To date no explants or instances of loss of efficacy have occurred (>1 year since implant). **CONCLUSION:** Like most neuropathic pain states, CPP is resilient, difficult to manage, and typically unresponsive to the traditional therapeutics and SCS. Our case series demonstrates no only that DRGS is potentially effective, long-term treatment modality for CPP, but that the L1/S2 lead placement is the configuration of choice despite distinct differences in etiologies of pain and location.

The Role of Physical Therapy in Sexual Health in Men and Women: Evaluation and Treatment.
Stein A, Sauder SK, Reale J.
Sex Med Rev. 2019 Jan;7(1):46-56. doi: 10.1016/j.sxmr.2018.09.003. Epub 2018 Nov 28.
https://www.ncbi.nlm.nih.gov/pubmed/30503726

INTRODUCTION: Many conditions of pelvic and sexual dysfunction can be addressed successfully through pelvic floor physical therapy (PFPT) through various manual therapy techniques, neuromuscular reeducation, and behavioral modifications. The field of pelvic rehabilitation, including sexual health, continues to advance to modify these techniques according to a biopsychosocial model. **AIM:** To provide an update on peer-reviewed literature on the role of PFPT in the evaluation and treatment of pelvic and sexual dysfunctions in men and women owing to the overactive and the underactive pelvic floor. **METHODS:** A literature review to provide an update on the advances of a neuromusculoskeletal approach to PFPT evaluation and treatment. **MAIN OUTCOME MEASURE:** The use and advancement of PFPT methods can help in successfully treating pelvic and sexual disorders. **RESULTS:** PFPT for pelvic muscle overactivity and underactivity has been proven to be a successful option for pelvic and sexual dysfunction. Understanding the role of the organs, nerves, fascia, and musculoskeletal system in the abdomino-pelvic and lumbo-sacro-hip region and how pelvic floor physical therapists can effectively evaluate and treat pelvic and sexual health. It is important for the treating practitioner to know when to refer to PFPT. **CONCLUSION:** Neuromusculoskeletal causes of pelvic floor disorders affect a substantial proportion of men, women, and children and PFPT is a successful and non-invasive option. Pelvic floor examination by healthcare practitioners is essential in identifying when to refer to PFPT. Use of a biopsychosocial model is important for the overall well-being of each patient. Further research is needed.

Dermatological Conditions

Evaluation of the effectiveness of treatment of vulvar lichen sclerosus et atrophicus. Analysis of own material and review of the literature.
Gajewska M, Jagodzinska A, Wielgos M.
Neuro Endocrinol Lett. 2018 Dec 22;39(5):417-421.
https://www.ncbi.nlm.nih.gov/pubmed/30664348

MATERIAL AND METHODS: The study group included eleven female patients aged 18-77 years with a diagnosis of lichen sclerosus. Basic therapy consisted in the application of clobetasol in the first month and then once a day for the following two months. Then, clobetasol was recommended once a week until full resolution of the symptoms. **RESULTS:** In nine patients with three-month basic therapy with clobetasol we observed a reduction of symptoms. Improvement of skin lesions was obtained in seven patients. After maintenance therapy lasting from four to twelve months the relapse of symptoms was observed in four women. Five women did not experience a relapse of the disease. The ointment with testosterone was applied in five women. Two women had poor tolerance of this drug. Two patients stopped the treatment after one month and after 11 months of using testosterone due to the relapse of the disease. One patient with good tolerance is currently continuing the therapy. **CONCLUSIONS:** Vulvar lichen sclerosus et atrophicus is a chronic condition requiring long-term treatment. Topical use of steroids as first-line drugs bring a good local control of lesions in most women, yet further search of other possible causes of LSA is necessary.

A Randomized Double-Blind Placebo Controlled Trial of Autologous Platelet Rich Plasma Intradermal Injections for the Treatment of Vulvar Lichen Sclerosus.
Goldstein AT, Mitchell L, Govind V, Heller D.
J Am Acad Dermatol. 2019 Jan 10. pii: S0190-9622(19)30066-0. doi: 10.1016/j.jaad.2018.12.060.
https://www.ncbi.nlm.nih.gov/pubmed/30639885

Recalcitrant Vulvar Lichen Sclerosus Treated With Erbium YAG Laser.
Hobson JG, Ibrahim SF, Mercurio MG.
JAMA Dermatol. 2018 Dec 12. doi: 10.1001/jamadermatol.2018.4461.
https://www.ncbi.nlm.nih.gov/pubmed/30540338

Paediatric vulval lichen sclerosus: a retrospective study.
Ismail D, Owen CM.
Clin Exp Dermatol. 2019 Jan 8. doi: 10.1111/ced.13894.
https://www.ncbi.nlm.nih.gov/pubmed/30623460

BACKGROUND: Lichen sclerosus (LS) is a chronic inflammatory dermatosis with a predilection for the anogenital region, which mainly affects prepubertal girls and postmenopausal women. The cause is unknown, but a number of potential aetiological factors have been identified. **AIM:** To examine a cohort of patients with prepubertal-onset vulval LS (VLS) and assess baseline characteristics, clinical presentation, potential precipitating and predisposing factors, and response to treatment. **METHODS:**

Data were collected from case notes on patients aged < 18 years diagnosed with prepubertal-onset VLS attending a specialist vulval dermatology service. Data included clinical presentation, comorbidities, family history, therapy and response to treatment. **RESULTS:** In total, 26 paediatric patients were identified. The median age at onset of symptoms was 5 years (range 2-8.5 years). Many previously identified potential aetiological factors for the development of VLS were identified, including family history, trauma, autoimmune disease and hormonal factors. A significant proportion of patients had a history of urinary tract symptoms, including incontinence and urinary tract infection. Most patients responded well to a standard course of induction topical therapy followed by maintenance therapy, but some, including three patients with ongoing urinary incontinence and three postpubertal patients, continued to have active disease. **CONCLUSION:** A detailed assessment is essential in patients with VLS so that potential predisposing factors and comorbidities can be identified and managed. Urinary incontinence may be implicated in the development of paediatric VLS and may prevent adequate disease control. Paediatric VLS can persist through puberty, thus long-term follow-up is advised.

Living with vulval lichen sclerosus: a systematic review.
Rees S, Kirby L, Simpson RC.
Br J Dermatol. 2019 Feb 21. doi: 10.1111/bjd.17790.
https://www.ncbi.nlm.nih.gov/pubmed/30791096

Lichen sclerosus (LS) is an under-researched disorder, particularly from the perspective of individuals who have the condition. A recent James Lind Alliance Priority Setting Partnership identified uncertainties in many aspects of the condition, including its impact on quality of life which was ranked within the 'Top 10' future research priorities.[1,2] We set out to systematically review the qualitative literature exploring the lived experience of vulval LS (for the full protocol see PROSPERO ID:CRD42018106947)