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Vulvodynia

Vestibulodynia presentation is differentiated by the presence of additional chronic primary pain conditions

Chloe Shudt, Shad Smith, et al.
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Vestibulodynia (VBD) is a common chronic primary pain condition (CPPC) defined by the presence of recurrent vulvovaginal pain with no obvious root cause. As many as 3 in 4 women with VBD may have co-occurring CPPCs, such as episodic migraine, fibromyalgia, irritable bowel syndrome, and temporomandibular disorder. The purpose of the present study was to compare pain and pain-related factors in women with VBD alone and those with VBD and co-occurring CPPCs (VBD+). We enrolled 45 women with VBD, 106 with VBD+, and 198 pain-free controls, who underwent a highly specific gynecological examination, quantitative sensory testing at remote body sites, and completed an extensive array of questionnaires assessing various physical and psychological experiences. Blood samples were also collected for genome-wide association study (GWAS). Results demonstrated that women with VBD+ had distinct patterns of heightened local vulvovaginal pain intensity and increased pain sensitivity at remote body site compared to those with VBD. Further women with VBD+ reported taking more medications indicated for pain and greater adverse mood states, somatic and psychological symptoms, and pain catastrophizing. Finally, case-control GWAS analysis identified distinct genetic variants associated with VBD and VBD+ subtypes. Variants associated with VBD were located in genes that regulate reproductive and nervous system development, while those associated with VBD+ were located in genes implicated in synaptic transmission and related CPPC pathophysiology. Together, these findings emphasize the critical need for accounting for CPPC status in VBD diagnostic, mechanistic, and therapeutic methodologies. Perspective This study identifies co-occurring chronic primary pain conditions as a differentiating factor in vestibulodynia presentation, highlighting the need for precise diagnostic criteria and personalized treatment approaches to address heightened symptom burden and complexity.

Mindfulness-based body scan training in multimodal physiotherapy for vulvodynia - a randomized controlled feasibility study

Heidi Halbedl, Daniela Melitta Pfabigan, et al.

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https://pubmed.ncbi.nlm.nih.gov/40653877/

This randomized controlled trial explored the feasibility and preliminary effectiveness of integrating mindfulness-based body scan (MBBS) interventions into multimodal pelvic floor physiotherapy for vulvodynia treatment. Participants received ten sessions of standardized physiotherapy. The mindfulness intervention group was instructed to additionally perform home-based audio-file guided MBBS five times a week. The primary study endpoint was feasibility. The effect on pain intensity, pain characteristics and sexuality were assessed with Numeric Rating scales (NRS), the McGill-Melzack Pain Questionnaire (MPQ), the Female Sexual Distress Scale (FSDS) and Female Sexual Function Index (FSFI) and digital assessment of pelvic floor. Thirty-three women were randomized and completed the end-of-treatment assessments and 26 (79%) attended the follow-up. 15 of 17 participants of the intervention group (88%) performed the body scans more than ten times and the feasibility criteria were achieved. The intervention group showed significantly better improvements in NRS of average pain, MPQ subscales and FSDS total score. Pelvic floor assessment showed a significant improvement of myofascial pressure points over time with no difference between study groups. Integration of MBBS trainings into multimodal pelvic floor physiotherapy for vulvodynia is feasible and well accepted and may improve pain reduction and sexual function.

A Morpho-Functional Assessment of the Vulvar Vestibule in Patients With Vestibulodynia: A Case-Control Study

Filippo Murina, Cecilia Fochesato, et al.

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https://pubmed.ncbi.nlm.nih.gov/40548483/

Objective: The aim of the study was to investigate the morpho-functional characteristics of the vulvar vestibule in women with provoked vestibulodynia (PVD), comparing clinical, structural, and sensory parameters with healthy controls. **Results:** PVD patients compared to healthy controls showed higher vestibular trophism health score (6.5 vs 3.0, $p < .001$), lower epithelial thickness (987.0 vs 1159.0 µm, $p < .001$), more frequently hypertonia of pelvic floor muscle ($p < .001$), and lower thresholds at neurosensitization at all three frequencies. A linear negative correlation emerged between vestibular trophism health score and current perception threshold at 5 Hz ($r = -0.53$, $p = .003$) and 250 Hz ($r = -0.45$, $p = .013$) in PVD cases. No significant correlation emerged for controls and for both groups for current perception threshold at 2000 Hz. **Conclusions:** This study identified substantial organic differences between PVD patients and healthy controls in critical parameters, such as vestibular trophism, epithelial thickness, pelvic floor muscle hypertonia, and neurosensitization. These findings enhance understanding of the complex and multifactorial mechanisms underlying PVD and highlight potential therapeutic targets for intervention

Features of Vulvodynia Associated With Ehlers-Danlos Syndrome
Lisa M Bird, Veronica R Olaker, Rachel J Pope
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https://pubmed.ncbi.nlm.nih.gov/40627862/

Objectives: To identify factors with uniquely high prevalence in vulvodynia-Ehlers-Danlos syndrome comorbid patients in order to identify patients who may need referral and to better understand management of this population. **Results:** Five hundred seventy vulvodynia-Ehlers-Danlos patients and 49,457 vulvodynia non-Ehlers-Danlos patients were identified with a mean age of 39 and 48 ($p < .0001$), respectively. Vulvodynia-Ehlers-Danlos comorbid patients had more frequent chronic pain, musculoskeletal, neurologic, gynecologic, immune, and psychiatric conditions. Vulvodynia-Ehlers-Danlos patients had higher rates of most nonsurgical interventions but similar vaginal estrogen ($p = .0412$) and vulvar surgery rates ($p = .4249$). Vulvodynia-Ehlers-Danlos patients had signs of more frequent medical contact with more post-op visits, vaccines, and inpatient admissions ($p < .0001$). Study limitations are those inherent to the TriNetX database, with ability to see associations but not causation. **Conclusions:** Clinicians treating genital pain have a role in the treatment of vulvodynia-Ehlers-Danlos patients given the array of prevalent pelvic conditions. Clinicians should keep the high rate of muscular, neurologic, and immune conditions in mind when evaluating the vulvodynia etiology in this population, as well as the higher rate of gynecologic comorbidities, which could result in hormone-mediated etiology from chronic estrogen use. With a higher rate of mood disorders, mental health inquiry is also important.

Novel insights of vulvodynia pathophysiology from reliable and comprehensive pelvic floor muscle surface electromyography characterization: can it help predict response to botulinum toxin treatment?
Monica Albaladejo-Belmonte, Paula Villa-Muñoz, et al.
J Sex Med. 2025 Jul 20:qdaf171. doi: 10.1093/jsxmed/qdaf171.
https://pubmed.ncbi.nlm.nih.gov/40684257/

Background: Findings on vulvodynia-associated alterations in the pelvic floor muscles' (PFMs') myoelectrical activity are contradictory, and no study has yet assessed whether they influence treatment outcomes. **Aim:** To characterize vulvodynia-associated alterations in PFM activity and assess its potential to predict the response to botulinum toxin type A (BoNT/A) treatment. **Outcomes:** sEMG signals' root mean square (RMS), median frequency (MDF), sample entropy (SampEn), intramuscular and intermuscular magnitude-squared coherence (mscoh) and imaginary part of their coherency (iCOH), and clinical outcomes (sociodemographic, obstetric, gynecological, urological, and other general clinical characteristics; painful comorbidities; pelvic and vulvar pain sensitivity; Patient's Global Impression of Improvement). **Results:** Vulvodynia patients exhibited significantly lower intensity during contractions (<RMS, $P = .003$) and altered intramuscular coupling (>mscoh) during contractions ($P = .004$) and rest ($P = .006$) in the myoelectrical activity of their left superficial PFM (sEMG from external electrodes) and altered intermuscular coupling during contractions (>mscoh, $P = .004$) in their deep PFM (sEMG from intravaginal probe) than healthy women. Furthermore, intramuscular coupling at rest was significantly associated with response to treatment ($P < .01$) and predicted it accurately when combined with clinical information (AUC = 0.95). **Clinical implications:** PFM sEMG can provide valuable insights into vulvodynia pathophysiology and help optimize treatment selection, potentially reducing the economic and psychological impact of ineffective treatment. **Strengths and limitations:** This study provides a reliable and comprehensive description of PFM myoelectrical activity alterations in vulvodynia conditions,

demonstrating for the first time that sEMG information can improve the prediction of treatment response. It is limited by a small sample size of intravaginal probe recordings due to pain elicited by probes during their insertion and signal quality. **Conclusion:** Vulvodynia is associated with decreased activity intensity in the superficial PFM and altered electrical coupling, as shown by sEMG, which can enhance the precision of BoNT/A treatment response prediction and thus reduce the economic and psychological burden of ineffective treatment.

Dysregulation of Arachidonic Acid Metabolism Drives Inflammatory Lipid Production in Localized Provoked Vulvodynia

Sarah A Fischer, Oluwademilade Oladele, et al.

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Background/Objectives: Localized provoked vulvodynia (LPV) is characterized by chronic vulvar pain upon light touch to the vestibule, a specialized ring of tissue immediately surrounding the vaginal opening. LPV affects about 14 million people in the US, yet the etiopathology of the disease is unknown. In LPV, the vestibule expresses elevated levels of the pro-nociceptive pro-inflammatory mediators prostaglandin E_2 (PGE2) and interleukin-6 (IL-6), which corresponds to lower pain thresholds. Previous studies have shown reduced amounts of arachidonic acid (AA)-derived pro-resolving lipid mediators in tissue biopsies from LPV patients that might impede the resolution of inflammation. AA is obtained from dietary linoleic acid, pointing to a defect in the metabolism of dietary polyunsaturated fatty acids in LPV. We aimed to further explore the involvement of AA metabolism in LPV, which appears dysregulated in the vestibule of LPV patients and culminates in chronic inflammation and chronic pain. **Results**: Tissue and fibroblasts from LPV patients exhibited altered expression of COX/LOX enzymes and production of AA-derived lipid mediators compared to non-LPV patients. **Conclusions**: Lipid profiles of tissue and vestibular fibroblasts from LPV patients differed from non-LPV patients, and this difference was attributed to differential COX/LOX expression and activity, which metabolizes AA derived from dietary linoleic acid. This dysregulation fosters chronic inflammation and reduced resolution capacity in LPV patients, causing chronic pain. While further work is needed, these findings suggest that dietary modifications could impact the LPV mechanism.

Oral contraceptive use and prevalence of vulvodynia: are genital-specific side effects of OC use early signs of risk?

Jeff Kiesner, Celeste Bittoni

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Background: Past research suggests that oral contraceptive (OC) use increases the risk for vulvodynia/vestibulodynia, although results are often mixed or inconsistent.
Aim: To test whether OC use is associated with having a diagnosis of vulvodynia/vestibulodynia, whether the observed association varies across the type of OC, and whether side effects associated with OC use (ie, genital specific, negative affect, non-genital physical symptoms) are associated with having a diagnosis of vulvodynia/vestibulodynia. **Outcome:** Self-report of having received a diagnosis of vulvodynia or vestibulodynia. **Results:** Results showed that all types of OCs were significantly associated with having a diagnosis, and that genital-specific side effects (vulvar/genital pain and vaginal dryness), but not affective or non-genital physical side effects, were associated with having a diagnosis of

vulvodynia/vestibulodynia, with the strongest and most consistent effect being for vulvar/genital pain. Specifically, participants who reported vulvar/genital pain as a side effect of OC use were 3-5 times more likely than those without this side effect to have a diagnosis of vulvodynia/vestibulodynia. Analyses also controlled for 23 potential comorbid diagnoses with no or very little change to the associations between vulvodynia/vestibulodynia and the OC-use variables. **Clinical implications:** Early recognition and identification of genital-specific side effects of OC use may provide an opportunity for preventing genital pain from becoming chronic and difficult to manage. **Strengths and limitations:** This study uses a large sample, assesses unique associations with combined and progestin-only OCs, and for the first time addresses diverse OC-related side effects as potential risk indicators of vulvodynia. Limitations are the lack of prospective data, reliance on self-report measures, recruitment through social media outlets that may result in overestimating the effect sizes, and a lack of information on specific OCs used. **Conclusions:** The present study provides evidence that OC use and genital-specific side effects of OC use are associated with having a diagnosis of vulvodynia/vestibulodynia and provides important information for managing potential OC-related risk for vulvodynia/vestibulodynia.

Psychometric properties for instruments used to measure core outcomes for provoked vestibulodynia: a systematic review

Caroline Pukall, Christel Hellberg, et al.

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https://pubmed.ncbi.nlm.nih.gov/40444585/

Background: The inconsistency in outcome measures used in clinical trials for provoked vestibulodynia (PVD) makes it difficult to compare the effects of different interventions. In a previous study, we developed a core outcome set (COS) for PVD intervention studies, which determined what to measure. **Aim:** To establish how to measure the COS, this systematic review presents the evidence base regarding the measurement properties of instruments for the COS. **Results:** No instrument showed high quality evidence for all measurement properties. Most development studies for the instruments were insufficient due to lack of patient involvement, and content validity was only investigated in the PVD population for one of the instruments assessed. Content validity was therefore largely based on expert opinion. No studies presented results for the structural validity or responsiveness of any of the instruments. For other measurement properties, aspects of construct validity (hypothesis testing) and reliability (including internal consistency) were the most studied. **Clinical implications:** We established how to measure the COS for PVD, which will be useful for clinical trials. **Strengths and limitations:** Strengths included the multidisciplinary team and the rigorous methodology. Limitations included overall lack of evidence of content validity for the instruments. **Conclusion:** Based on limited evidence and expert opinion, the following instruments are the most promising for the PVD COS: Insertional pain (sexual), 11-point numerical rating scale (NRS) with specific question/anchors, Insertional pain (non-sexual), Tampon test, and 11-point NRS; Provoked pain by pressure/contact, Vulvalgesiometer; Pain related interference on one's life, the Activity Engagement subscale of the Chronic Pain Acceptance Questionnaire; Pain related interference on sexual life, the Sexual Function Interference subscale of the Vulvar Pain Assessment Questionnaire; Sexual function, Female Sexual Function Index, excluding pain subscale; Pain anxiety, Pain Anxiety Symptom Scale, or the Pain Catastrophizing Scale. No recommendations can be made for Pelvic floor function at this time. Future research is needed to establish strong measurement properties of instruments for the COS.

A scoping review of vulvodynia research: Diagnosis, treatment, and care experiences
Athina Zoi Lountzi, Purva Abhyankar, Hannah Durand
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Background: Vulvodynia is a significant genital pain condition, affecting an estimated 10% to 28% of individuals worldwide. Its multifactorial etiology, diagnostic challenges, and limited treatment options contribute to its substantial personal and socioeconomic burden. Despite its prevalence, vulvodynia remains under-recognized and under-researched, necessitating a comprehensive review of existing evidence to inform future research strategies. **Objective:** This scoping review examines the extent and nature of clinical and psychosocial research on vulvodynia, with a focus on diagnosis, treatment, healthcare access, and its impact on quality of life, psychological well-being, and intimate relationships. **Eligibility criteria:** Eligible studies included primary research using quantitative, qualitative, or mixed methods designs, as well as systematic, scoping, and topical reviews. Studies were included if they examined clinical or psychosocial aspects of vulvodynia. Research on other types of vulvar pain, animal studies, neurobiological research, and studies from non-high-income countries were excluded.Sources of Evidence and Methods:A systematic search of Medline, PubMed, CINAHL, PsycINFO, and Cochrane was conducted in March 2024 using predefined search terms related to vulvodynia, diagnosis, treatment, and patient experiences. Review findings, limitations, and recommendations were extracted to provide an overview of existing research, mapping methodologies, measures, and key findings of primary studies on vulvodynia. **Results:** A total of 144 articles were included, comprising 21 reviews and 123 primary studies. Clinical research primarily addressed diagnosis, risk factors, and comorbidities, while treatment studies evaluated pharmacological therapies, psychological therapies, laser therapy, physiotherapy, acupuncture, and multidisciplinary approaches. Psychosocial research focused on patient experiences, psychosocial factors, and barriers to care. However, methodological limitations, inconsistent measurement tools, limited patient involvement, and study heterogeneity challenge the generalizability of findings. **Conclusions:** This review highlights critical gaps in vulvodynia research. Despite considerable research efforts, vulvodynia remains poorly understood. Addressing methodological weaknesses and involving patients more robustly in research design are essential to advance knowledge and improve care outcomes in vulvodynia.

A systematic review on the efficacy of CBT on pain and sexual function of vulvodynia
Garifalia Bitzi, Ioulia Kokka, Iraklis Mourikis
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Vulvodynia is an underdiagnosed pain syndrome with persistent duration, usually without an identifiable organic cause. It negatively affects the quality of life, mental health and romantic relationships and sexual function of women. This review aimed to systematically appraise the available data on the effectiveness of Cognitive Behavioral Therapy on perceived pain and sexual functioning of women with vulvodynia from randomized clinical trials irrespective of their time of publication. The review was performed following the PRISMA guidelines. The literature search was conducted based on specific eligibility criteria in the PubMed, PsycInfo, and Scopus databases using appropriate keywords. The methodological quality of the included studies was assessed with the Jadad Scale. The search resulted in 10 randomized clinical trials that compared the effectiveness of Cognitive Behavioral Therapy compared to other psychotherapeutic approaches and clinical, pharmaceutical, and surgical interventions on 835

women with vulvodynia. The results, which were synthesized narratively based on intervention type and outcomes assessed, revealed the superiority of Cognitive Behavioral Therapy compared to topical treatments with significant improvements in sexual function and pain management, particularly evident at follow-up assessments. Comparisons with other psychotherapeutic approaches (mindfulness-based cognitive therapy, supportive psychotherapy) resulted in similar results. Compared to physiotherapeutic and surgical protocols, Cognitive Behavioral Therapy resulted in more favorable findings, although the improvement regarding sexual function was significant mostly at the 6-month follow-up measurements. Cognitive Behavioral Therapy appeared to help by restructuring dysfunctional beliefs, reducing pain catastrophizing, and developing alternative pain coping strategies. Despite the encouraging evidence, variations with respect to the cognitive-behavioral interventions, comparison groups, and assessment tools used to assess the variables under investigation, direct comparison of the findings was challenging. The results highlighted Cognitive Behavioral Therapy as a promising, non-pharmacological approach to the management of vulvodynia. Education of psychotherapists and clinicians, particularly gynecologists, would contribute to early diagnosis and effective treatment of vulvodynia.

Chronic Pelvic Pain

Is Pelvic Floor Muscle Resting Activity Associated with Pelvic and Genital Pain, Dyspareunia, and Pelvic Floor Muscle Contraction? A Cross-Sectional Study of Women with Endometriosis
Rakel Gabrielsen, Kari Bø, et al.
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Introduction and hypothesis: A link between pelvic and genital pain, dyspareunia, and increased pelvic floor muscle (PFM) tone is an area of controversy. Additionally, it has been postulated that increased PFM tone can limit the ability to further activate the PFM. We aimed to investigate the association between PFM resting activity and pelvic and genital pain and dyspareunia, and whether there is an association between PFM resting activity and activation during attempts at PFM maximal voluntary contractions (MVCs) in women with endometriosis. **Methods:** This cross-sectional study included 80 women with endometriosis and pelvic and genital pain. An electronic questionnaire included background information, pelvic and genital pain (numeric rating scale 0-10) and questions about location and concerns of dyspareunia. Associations between variables were analyzed using multiple linear regression. PFM resting activity was registered as the mean microvolt (μV) during rest before and between five voluntary MVCs of the PFM. **Results:** Mean age was 29 years (SD 6.2), and 9 (11%) were parous. No significant association between resting activity, pelvic and genital pain or location and concerns of dyspareunia was found. A significant positive association between PFM resting activity and activation during attempts at MVCs of the PFM (β = 0.130, p = 0.009, 95% CI = 0.034-0.229) was found. **Conclusion:** No association was found between PFM resting activity and pelvic and genital pain or location and concerns of dyspareunia. Contrary to the hypothesis, higher PFM resting activity resulted in more activation of the PFM during attempts at MVCs.

Pelvic floor examination in vulvodynia: VAMP protocol validation in correlation with central sensitization
Ewa Baszak-Radomańska, Jadwiga Wańczyk-Baszak, Tomasz Paszkowski
Womens Health (Lond). 2025 Jan-Dec:21:17455057251338410. doi: 10.1177/17455057251338410. Epub 2025 Jul 1.
https://pubmed.ncbi.nlm.nih.gov/40590401/

Background: Overactive pelvic floor muscles (PFMs) are a source of pain in patients with vulvodynia. Peripheral sensitization may also lead to central sensitization (CS). **Objectives:** This study aimed to validate the Vulva, Anus, Muscle, and Paraurethra (VAMP) protocol as a diagnostic tool for assessing PFM overactivity in vulvodynia in correlation with the Central Sensitization Inventory (CSI). **Design:** This research was the secondary outcome of an ongoing randomized clinical trial reported in accordance with the CONSORT guidelines. Inclusion criteria and research goals were established using the Population Intervention Comparison Outcome model for clinical questions. **Results:** Of the 152 premenopausal participants, 91.6% suffered from provoked/mixed vulvodynia versus 8.4% spontaneous, and 61.3% had localized versus 38.7% generalized subtypes. Mean VAMP scores were: V = 6.49; A = 0.2; M = 6.57; P = 3.63. The VAMP protocol showed a high degree of internal consistency and test-retest reliability for the V, M, P domains (Spearman's correlation coefficient = 0.916-0.646; $p < 0.05$) and 98.7% of participants fulfilled the VAMP criteria (V, M, P score $\geqslant 3$) for PFM overactivity. The swab test was negative in 3.9%, a CSI score > 40 was found in 53.7% of participants with a significant correlation for M (Spearman's correlation coefficient = 0.210; $p < 0.05$) and P (Spearman's correlation coefficient = 0.209; $p < 0.05$) in VAMP. **Conclusions:** The VAMP confirmed the presence of a painful vestibule, PFM, and paraurethra under pressure. The VAMP protocol was successfully cross-validated and effective in discriminating women with PFM overactivity, confirmed in almost all patients with vulvodynia. Half of the participants met the criteria for CS. The correlation between CSI and PFM pain on pressure suggests a central pain mechanism. The VAMP is a simple, rapid quantitative diagnostic tool.

Corticomotor excitability of the pelvic floor muscles in females: Characteristics of motor evoked potentials and test-retest reliability
Flávia Ignácio Antônio, Marina Petter Rodrigues, et al.
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https://pubmed.ncbi.nlm.nih.gov/40554990/

Objectives: To (1) design an efficient TMS protocol to elicit motor evoked potentials (MEPs) from female pelvic floor muscles (PFMs), (2) describe the characteristics of PFM MEPs and silent periods (SPs), (3) compare PFM MEP characteristics with nearby muscles and (4) determine the test-retest reliability of PFM MEP characteristics and SP duration. **Results:** Nearly all participants (n = 40/41) exhibited measurable SPs in the pubovisceralis and at least one other PFM. PFM MEPs exhibited shorter onset latencies than those of ADD and LAW. ICCs ranged from good to excellent, except for peak latency, which was poor. Yet all measures displayed high between-participant variance. **Conclusion:** Investigating reliable TMS-induced motor responses in the PFMs of females is achievable using our protocol. **Significance:** Our findings highlight the possibility of extending TMS applications to investigate changes in corticomotor excitability that may contribute to conditions that are associated with high PFM tone, such as vulvovaginal pain.

Diagnostic gaps in vulvar diseases from referral to final diagnosis in a specialized center: analysis of pathways and recommendations for enhancing future diagnostic accuracy
Cornelia Betschart, Tharani Thillainathan, et al.
BMC Womens Health. 2025 Jul 4;25(1):309. doi: 10.1186/s12905-025-03855-4.
https://pubmed.ncbi.nlm.nih.gov/40616011/

Background: Vulvar diseases have a serious impact on women's quality of life and can be challenging to diagnose. Correct diagnosis is, however, mandatory for appropriate treatment. Therefore, the aim of this study was to evaluate diagnostic quality regarding the classification of disease symptoms, the suspected diagnosis of referring doctors, the agreement of suspected diagnosis with final diagnosis and the latencies from onset of symptoms to final diagnosis, thereby identifying potential resources for improvement. **Results:** Referral diagnoses were inconsistent with final diagnoses in 96 (43.8%) cases. The time between symptom onset and final diagnosis ranged from 15.9 ± 10.6 to 71.1 ± 92.9 months, depending on the vulvar pathology. In cases of dysplasia, eczema, lichen sclerosus and lichen planus, diagnosis at referral and final diagnosis matched best, while other inflammatory diseases, vulvodynia, and chronic infectious diseases (bacterial/fungal/viral) represented the greatest diagnostic challenges. Suspected diagnosis from gynecologists matched in 36.1% of cases, compared to 83.3% for dermatologists. No standardized pattern for the use of any specific diagnostic technique by referring physicians could be identified. **Conclusion:** There is significant diagnostic latency and variability in accuracy across vulvar disorders and referring specialists. A systematic diagnostic approach, including symptom evaluation, clinical inspection and appropriate diagnostic testing, is lacking. Standardized methods for symptom documentation, clinical assessment, diagnostic testing, and collaboration with specialized vulvar centers are essential to streamline the precision and efficiency of diagnosis as a basis for optimized treatment strategies.

Onabotulinumtoxin A Injections for patients with pelvic floor dysfunction

Gabrielle T Whitmore, Jenny Tam, Megan Orlando

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Objective: To review the current literature surrounding onabotulinum toxin A injections for patients with pelvic floor dysfunction and to demonstrate how to perform these injections. **Setting:** Academic tertiary care hospital PARTICIPANTS: It is estimated that about 50-90% of patients with chronic pelvic pain have pain that originates from myofascial sources, including the pelvic floor muscles. In patients with pelvic floor dysfunction, management consists of pelvic floor physical therapy with the addition of pelvic floor trigger point injections with a local anesthetic as needed. We offer onabotulinum toxin A to individuals who require long-term repeat trigger point injections, have barriers to accessing monthly injections, or show no durable improvement. **Intervention:** We demonstrate a comprehensive pelvic floor exam and techniques for administration of onabotulinum toxin A into pelvic floor muscles in individuals with pelvic floor dysfunction, as well as a demonstration on a live patient. We perform an exam while the patient is awake, either in clinic or at the time of the procedure, and examine the pubococcygeus, iliococcygeus, and obturator internus muscles to assess for hypertonicity and tenderness to palpation. Once sedation is initiated, 200 units of onabotulinum toxin A is then reconstituted with 20 mL of normal saline. The pudendal nerve kit allows for 1cm depth of penetration with the needle. Approximately 1-2 mL of onabotulinumtoxin A are injected sequentially in multiple locations along the above-mentioned pelvic floor muscles. Medication effects may last up to 3-6 months, with a reduction in pain scores starting at 6 weeks and lasting through 12 weeks based on published literature. Adverse effects may include constipation, urinary incontinence, urinary tract infections, fecal incontinence, or urinary retention. **Conclusions:** Onabotulinumtoxin A may be helpful in patients with refractory pelvic floor dysfunction. We demonstrate how to perform these injections with a safe and reproducible technique.

A Scoping Review of Interdisciplinary Care Programs for Women With Persistent Pelvic Pain
Catherine Andrews, Marie-Louise Bird, et al.
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Background and objective: Persistent pelvic pain affects one in four women, with international guidelines recommending interdisciplinary care. However, much of the literature describing treatments for pelvic pain focus on the perspective of individual professions. This narrative scoping review aimed to increase understanding of interdisciplinary pelvic pain care in terms of the professions and treatment components included, coordination of care and the inclusion of people with lived experience (PWLE) in program development. **Databases and data treatment:** Guided by PRISMA guidelines for scoping reviews, systematic database searches were conducted in CINAHL, Scopus, Medline and PsychINFO to identify interdisciplinary programs for women with persistent pelvic pain, including pelvic pain diagnoses such as endometriosis, vulvodynia and painful bladder syndrome. Data were charted on number and type of professions (disciplines) included, treatment components, care organisation and coordination, and PWLE involvement. **Results:** The search yielded 1068 records; 69 full-text articles were reviewed, and 16 studies were eligible for inclusion. Commonly included professions were physiotherapy, psychology and gynaecology. Treatment components included assessment, education and pain management strategies. Information pertaining to the coordination of care between professions and the engagement of PWLE in program development was limited. **Conclusion:** This review found significant variation in the structure and components of interdisciplinary pelvic pain care programs, emphasising the need for greater consistency in their development and implementation. Further empirical research is needed to evaluate the effectiveness of specific program components. Enhanced coordination among professions and increased involvement of PWLE in program design are also recommended. **Significance statement:** This scoping review found wide variability in the processes of interdisciplinary pelvic pain care for women. Professions most frequently included were pelvic physiotherapy, psychology and gynaecology, and components most consistently included were assessment, education and pain management strategies. Coordination of care was poorly described, and people with lived experience (PWLE) were rarely involved in program development. Findings highlight the need for greater inclusion of PWLE in program design, and greater standardisation of interdisciplinary care so that outcomes can be evaluated.

Female Sexual Function and Pelvic Floor Muscle Training: A Narrative Review
Dimitrios Stamos, Vaia Sapouna, et al.
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https://pubmed.ncbi.nlm.nih.gov/40656351/

Female sexual dysfunction (FSD) is a multifactorial condition affecting desire, arousal, orgasm, and satisfaction, with wide-ranging implications for women's physical and emotional well-being. Although prevalent, especially among postmenopausal and postpartum populations, FSD remains under-recognized and undertreated. Pelvic floor muscle training (PFMT) has emerged as a promising, non-invasive therapeutic approach for managing FSD, particularly when associated with pelvic floor disorders such as urinary incontinence, pelvic organ prolapse, and overactive bladder. This narrative review synthesizes anatomical, physiological, clinical, and therapeutic insights into the relationship between pelvic floor function and female sexual health. The pelvic floor's structural complexity-comprising muscular, connective, and neurovascular elements-plays a crucial role in sexual response. Dysfunction of this system can contribute to sexual pain, reduced arousal, and orgasmic disorders. PFMT, involving

voluntary muscle contractions, biofeedback, or electrical stimulation, has demonstrated benefits across diverse female populations. Variables such as frequency, intensity, supervision, and duration of PFMT significantly influence its effectiveness. Evidence suggests that PFMT improves sexual function in general populations and is particularly beneficial for postpartum, postmenopausal women, and those with neurological or gynecological issues. Improvements are seen in sexual desire, arousal, lubrication, orgasm, and pain reduction. The mechanisms underlying these effects include enhanced muscle strength, increased genital blood flow, and psychological improvements such as body awareness and reduced anxiety. Despite strong supportive evidence, implementation challenges persist, including adherence difficulties, a lack of standardized protocols, and insufficient professional training. Barriers to adherence include misconceptions, discomfort, lack of motivation, and poor understanding of proper technique. Facilitators include clear guidance, customized approaches, technological tools, and professional supervision. Mobile health applications and patient empowerment strategies show promise in enhancing engagement and outcomes. Future research should focus on long-term efficacy, standard intervention protocols, and the integration of PFMT with other therapies, such as pharmacological treatments. Overall, PFMT represents a low-risk, cost-effective intervention capable of significantly improving quality of life and sexual function in women across the lifespan.

Nonimplantable Peripheral Electrical Stimulation for Management of Chronic Pelvic Pain: An Umbrella Review

Fateme Tahmasbi, Alireza Rahimi-Mamaghani, et al.

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https://pubmed.ncbi.nlm.nih.gov/40626937/

Background: Chronic pelvic pain (CPP) is a complex and debilitating condition that significantly affects quality of life. Peripheral electrical stimulation (PES) has gained attention as a noninvasive or minimally invasive therapeutic and rehabilitative approach. However, its overall efficacy remains uncertain. **Objectives:** This study aimed to synthesize current evidence on the effectiveness and safety of PES modalities for CPP management. **Results:** A total of 15 systematic reviews were included, covering a range of PES modalities for CPP conditions such as vulvodynia, chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS), bladder pain syndrome, interstitial cystitis, and endometriosis-associated pelvic pain. Among the interventions, TENS and PTNS showed the most consistent evidence of pain reduction, particularly in CP/CPPS. IVES indicated potential benefits for dyspareunia and pelvic floor dysfunction, whereas the evidence for pudendal nerve stimulation remained limited. Most PES modalities were well-tolerated, with tolerable adverse events. However, the quality of evidence was generally low, with only two high-quality systematic reviews identified. **Conclusions:** PES, particularly TENS and PTNS, appears to be a promising treatment for CPP, offering noninvasive pain relief with minimal adverse effects. However, the heterogeneity in study populations, treatment protocols, and outcome measures limits the certainty of conclusions. Future research should prioritize high-quality randomized controlled trials, standardized treatment protocols, and comparative effectiveness studies to refine clinical recommendations.

Vulvar Health, Disease, and Sexual Function: A Comprehensive Review for the Minimally Invasive Gynecologist

Helen Y Zhang, Alexis A Dieter

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https://pubmed.ncbi.nlm.nih.gov/40789465/

This narrative review aims to address the spectrum of vulvar health and disease, focusing on conditions such as vulvodynia and a variety of dermatologic and inflammatory issues with resources for providers and patients at the end of this review.

Factors involved in vulvar pain during sexual activity and persistence in sexual activity amidst pain
Carlotta Oesterling, Amelie Harder, et al.
PLoS One. 2025 May 29;20(5):e0306086. doi: 10.1371/journal.pone.0306086. eCollection 2025.
https://pubmed.ncbi.nlm.nih.gov/40440636/

Evidence suggests that women often endure pain during sexual activity, continue engaging in such activity despite experiencing pain, and tend to avoid communicating these painful experiences to their partners. The present study aims to shed light on psychosocial factors that may contribute to vulvar pain and the engagement in sexual activity despite pain, with a specific focus on the relevance of sexual self-esteem, the definition of sex (limited to penile-vaginal intercourse or inclusive of other intimate behaviours), sexual agency, and sexual motivation. A sample of N = 277 female students of a Dutch University was included. Participants were between 18 and 33 years old. The primary outcome measures were female sexual distress, sexual function, and vulvar pain. Engagement in sexual activity despite pain, pain communication, sexual agency, and relationship satisfaction were included as mediators. The majority of participants (80.0%) reported to experience pain at least sometimes, and 15.0% reported to experience pain more than half of the time. Engaging in penile-vaginal intercourse despite experiencing pain was common, with 42.0% of participants indicating to do so always or most of the time and 65.0% at least sometimes when experiencing pain. Of the affected women, 41.0% did not communicate pain to their partners. Low sexual self-esteem, a restrictive definition of sex, limited sexual agency, and low autonomous sexual motivation were all significantly related to at least one of the primary outcome variables. These associations were partly mediated by engagement in PVI despite pain, (no) pain communication, and (low) relationship satisfaction.

Genitourinary Syndrome of Menopause/Vulvovaginal Atrophy

Sexual Quality of Life in Postmenopausal Women: A Comparative Randomized Controlled Trial of Intravaginal PRP Therapy Versus Local Hormonal Treatments
Geanina Sacarin, Ahmed Abu-Awwad, et al.
Medicina (Kaunas). 2025 Jun 25;61(7):1140. doi: 10.3390/medicina61071140.
https://pubmed.ncbi.nlm.nih.gov/40731770/

Background and Objectives: Genitourinary syndrome of menopause (GSM) is a prevalent and distressing condition in postmenopausal women, often leading to sexual dysfunction characterized by vaginal dryness, pain, and reduced libido. While local estrogen therapy remains the standard treatment, due to safety concerns and contraindications, there is growing interest in the exploration of alternative interventions. This study aimed to compare the effectiveness and safety of intravaginal platelet-rich plasma (PRP) therapy versus local hormonal treatment in improving sexual function and vaginal health in postmenopausal women. **Results:** Both of the treatment groups demonstrated significant improvements in FSFI and VHI scores at 12 weeks, with the PRP group showing a slightly higher, though not statistically significant, mean increase in the total FSFI (+10.1 vs. +9.3 points). Clinical gains were also observed in lubrication, elasticity, and dyspareunia. Patient satisfaction was high in both groups (93.3% PRP vs. 88.9% hormonal), and there were no reports of serious adverse events during the study period.

The PRP group exhibited fewer side effects, without systemic symptoms, supporting its favorable safety profile. **Conclusions:** PRP therapy is a well-tolerated, hormone-free treatment that offers clinically meaningful improvements in sexual function and vaginal health, comparable to estrogen therapy. It may be particularly beneficial for women with contraindications to hormones or in advanced postmenopause. Further long-term studies are needed to confirm these findings and optimize treatment protocols.

Hyaluronic acid injection to treat symptoms of vulvovaginal atrophy and improve sexual function in postmenopausal women: A 52-week long-term follow-up
Hichem Bensmail, Fabienne Marchand Lamiraud, et al.
Maturitas. 2025 Aug 5:201:108687. doi: 10.1016/j.maturitas.2025.108687.
https://pubmed.ncbi.nlm.nih.gov/40773978/

Objectives: To evaluate the long-term efficacy and safety of a single injection session of cross-linked hyaluronic acid for postmenopausal vulvovaginal atrophy. **Study design:** 12-week, randomised, placebo-controlled, single-blind phase followed by 40-week open-label phase. At study start, patients received hyaluronic acid or placebo injection. At 12 weeks, patients who initially received placebo received hyaluronic acid. **Main outcome measures:** Mean change from baseline in the severity score of the most bothersome symptom, scores for vulvovaginal atrophy individual symptoms, score on the Female Sexual Function Index and vaginal pH after hyaluronic acid injection. Patients receiving hyaluronic acid were followed to 36 weeks or 52 weeks if treated at study start. **Results:** 115 patients receiving hyaluronic acid were analysed. The mean score for most bothersome symptom and all individual symptom scores were significantly reduced from baseline at all time points ($p < 0.001$). The initial decrease in most bothersome symptom was observed at 4 weeks, with a mean (SD) decrease of -1.05 (1.05) to 1.69 (1.11), and maintained up to 52 weeks. Mean full-scale score on the Female Sexual Function Index was significantly increased from baseline at all time points ($p < 0.001$). The initial increase was observed at 4 weeks, with a mean increase of 4.50 (6.51) to 20.54 (8.60), and maintained up to 52 weeks. Improvement was observed across all domains of the Female Sexual Function Index. There was a general trend for improvement in vaginal pH. **Conclusions:** A single injection session of hyaluronic acid is effective in reducing vulvovaginal symptomatology and in improving sexual function for up to 52 weeks, making it a suitable management option for moderate to severe vulvovaginal atrophy symptoms.

The Prevalence and Predictive Factors of Genitourinary Syndrome of Menopause in Postmenopausal Women: A Cross-sectional Study
Azamsadat Mahmoudian, Zohre Zamani, et al.
Int J Community Based Nurs Midwifery. 2025 Jul 1;13(3):213-224.doi: 10.30476/ijcbnm.2025.103010.2529. eCollection 2025 Jul.
https://pubmed.ncbi.nlm.nih.gov/40755868/

Background: Genitourinary Syndrome of Menopause (GSM) refers to signs and symptoms caused by estrogen deficiency in the genitourinary system. Given the importance of GSM in women's health during menopause, the present study was designed to determine its prevalence and predict factors for postmenopausal women in Gonabad City. **Results:** Of the 455 participants, 238 (52.3%) had GSM. The most common complaints among the participants were urinary incontinence, which was present in 179 (39.34%) participants, and dyspareunia, which was present in 94 (20.66%) participants. Women in the GSM group reported a higher prevalence of dysuria, urinary frequency, urgency, and incontinence, as

well as dyspareunia, postcoital bleeding, vaginal dryness, vulvar irritation, and vulvar burning or itching compared to the non-GSM group (P<0.001). Age (P=0.025), gravida (P=0.018), and urinary problems (P<0.001) were predictive factors for GSM. **Conclusions:** The prevalence of GSM was remarkable in postmenopausal women in Gonabad. Identifying age, gravida, and urinary problems as key predictors of GSM highlights the importance of early screening and tailored management strategies for at-risk populations.

Sexual function after menopause: the role of vaginal estrogens
Laura Cucinella, Chiara Cassani, et al
Maturitas. 2025 Jul 26:200:108681. doi: 10.1016/j.maturitas.2025.108681.
https://pubmed.ncbi.nlm.nih.gov/40743861/

Sexual health and well-being are challenged by the biopsychosocial changes associated with menopause. Local estrogen therapy (LET) represents the mainstay of managing genitourinary syndrome of menopause (GSM). However, most studies have investigated the role of LET on signs and symptoms of vulvovaginal atrophy (VVA) without fully capturing the sexual cluster of symptoms that makes women vulnerable to sexual dysfunction. The present review summarizes studies that have reported the impact of LET on sexual function and its domains (desire, arousal, lubrication, orgasm, pain, and satisfaction). Different formulations (tablet, soft gel inserts, vaginal ring, cream and gel) of estradiol and conjugated equine estrogens at low or ultra-low doses have been investigated. Most evidence supports a positive effect of LET on dyspareunia, while there is less information on the overall sexual experience in healthy postmenopausal women and in those with breast cancer. Importantly, LET has been considered as a class of drugs, with few studies addressing effects of different products on specific symptoms of the GSM constellation to provide evidence for a tailored treatment choice. It appears that GSM management at menopause is a priority to maintain sexual longevity. LET is part of the multifaceted approach to address women's needs and expectations. An evidence-based standard of care is warranted for the use of LET in the management of sexual dysfunction associated with menopause.

Persistent Genital Arousal Disorder

Persistent genital arousal disorder (PGAD) characterized by recurrent and spontaneous orgasmic experience: a case report
Jing Yan, Dafang Ouyang
AME Case Rep. 2025 Jul 10:9:89. doi: 10.21037/acr-24-286. eCollection 2025.
https://pubmed.ncbi.nlm.nih.gov/40761217/

Background: Persistent genital arousal disorder (PGAD) is characterized by symptoms of persistent, spontaneous and unwanted genital arousal without sexual interest or thoughts which can cause significant impairment in psychosocial well-being and daily functioning. PGAD is still an under-recognized clinical entity. There are not yet clear evidence-based treatment recommendations. **Case description:** This case describes a 20-year-old woman who has experienced persistent genital arousal symptoms for approximately 5 years. The patient's symptoms are consistent with the general characteristics of PGAD, but the sexual arousal symptoms are characterized by recurrent and spontaneous orgasmic experiences. In addition, the patient developed psychotic symptoms, such as delusion, secondary to sexual arousal symptoms. These experiences cause distress and severely affect the patient's daily life and social functioning. Although the patient had a history of epilepsy, we finally excluded the possibility of epileptic seizures after thorough investigation. After systematic antipsychotic

treatment, the patient's symptoms were fully controlled, and the medication remained effective during the maintenance phase of treatment. **Conclusions:** Our case suggests that the dopamine system may play an important role in pathological processes involving sensory abnormalities, particularly those involving the central nervous system. And the treatment with antipsychotic drugs may be one of the therapeutic directions for PGAD.

Persistent genital arousal disorder following urinary tract infection: a case report
Meltem H Şimşek, MD, Ulaş Korkmaz, MD
The Journal of Sexual Medicine, Volume 22, Issue 7, July 2025, Pages 1296–1297
https://academic.oup.com/jsm/article-abstract/22/7/1296/8141124?redirectedFrom=fulltext
https://pubmed.ncbi.nlm.nih.gov/40405388/

Diagnostic criteria for persistent genital arousal disorder (PGAD) have been developed, including long-standing spontaneous genital arousal, persistent arousal that cannot be resolved by orgasm, arousal that is not accompanied by sexual desire, unwanted arousal, and symptoms causing significant distress. PGAD is infrequently diagnosed and can be associated with guilt, social isolation, and suicidal ideation. Although the exact frequency of PGAD is unknown, it may be more common than previously thought. The etiopathogenesis of PGAD is not clear, but it is thought that psychological factors such as depression and anxiety, organic pathologies such as Tarlov cysts, and drug-substance effects may play a role in the etiology.1Based on expert opinions and evidence from case reports, a new algorithm was generated to better identify triggers that may cause intense activation in one or more of five regions in patients with PGAD. These are end-organ, pelvis/perineum, cauda equina, spinal cord, and brain. Psychosocial factors may also affect organic factors in the five regions, leading to PGAD.2Since the etiopathogenesis of PGAD is not clear, there is no consensus on treatment.

Pudendal Neuralgia

Safety and efficacy of pulsed radiofrequency versus pulse dose mode radiofrequency targeting the pudendal nerve in patients with pudendal neuralgia: a prospective randomized controlled clinical trial
Saeid Elsawy, Ahmed Fergani, et al.
Minerva Anestesiol. 2025 May;91(5):413-421. doi: 10.23736/S0375-9393.25.18678-1.
https://pubmed.ncbi.nlm.nih.gov/40501061/

Background: Pudendal neuralgia is a painful, neuropathic condition involving the pudendal nerve dermatome. It is a difficult-to-treat chronic pain disorder that affects both men and women equally. The aim of this study was to detect the efficacy and safety of two distinctive therapeutic types of radiofrequency: pulsed radiofrequency and pulse dose radiofrequency, as treatment modalities for cases of pudendal neuralgia, assessed by changes in the Visual Analogue Scale between the two groups. **Results:** The two studied groups were matched for the basic demographic data. However, the difference in the mean VAS score was present over time within each group ($P<0.05$) but it was insignificant between the two groups at one hour, 48 hours, two weeks, one, three, and six months ($P>0.05$), PDRF Group showed a non-significant reduction in visual analogue score, compared to PRF Group. Additionally, there was a statistically significant reduction in patient health questionnaire-9 within each group over time, $P<0.05$. while between both groups at one, three, and six months, there was insignificant reduction among both groups ($P>0.05$) and more reduction in the PDRF group. **Conclusions:** Both pulsed radiofrequency and pulse dose radiofrequency were equally effective and safe

as a treatment method for managing pudendal neuralgia cases. Considering both modalities in cases with proven pudendal neuralgia is valuable.

Advancing the diagnosis and management of pudendal nerve entrapment: The role of neurophysiological studies and imaging-guided infiltrations
Cláudia Fernandes, Vanessa Viegas, et al.
Neuroradiology. 2025 May 19. doi: 10.1007/s00234-025-03645-7.
https://pubmed.ncbi.nlm.nih.gov/40387915/

Purpose: Pudendal nerve entrapment (PNE) diagnosis is not standardized. This leads to diagnosis delays, impacting quality of life and therapeutic outcomes. The main goal is to find the role of neurophysiological study (NFS) and Imaging-guided pudendal nerve infiltration (ImPNI) in PNE diagnosis and patient selection for surgery. **Results:** 88 patients were diagnosed with PNE. All had NFS, and ImPNI was performed in 69 (78.4%), with 60 (68.2%) showing symptom improvement. Among the 40 patients (85%) who underwent pudendal nerve decompression surgery, 75% improved after surgery, and 20% did not. The combination of NFS and ImPNI showed a sensitivity of 79% and a specificity of 85.7%, with a Positive Predictive Value (PPV) of 98% and a Negative Predictive Value (NPV) of 30%. NFS and ImPNI were significant predictors of surgical success with p-values of 0.013 [95% CI: -23.6-19.9] and 0.003 [95% CI: -20.6 -18.5], respectively. Primary limitations: retrospective design and the absence of a control group. **Conclusions:** NFS and ImPNI are essential and highly reliable tools for diagnosing PNE. ImPNI is a valuable predictor of surgical outcomes. These findings enable precise patient selection for surgery, ensuring optimal surgical outcomes.

Imaging Diagnosis of Pelvic Nerve Syndromes
Ana Isabel Garcia-Diez, Lara Quintas Marques, et al.
Magn Reson Imaging Clin N Am. 2025 Aug;33(3):515-527. doi: 10.1016/j.mric.2025.03.008. Epub 2025 Apr 30.
https://pubmed.ncbi.nlm.nih.gov/40610162/

Pelvic pain syndromes are common and often neuropathic, with pudendal neuralgia being the most recognized. However, other nerves from the sacral and lumbar plexus-including the iliohypogastric, ilioinguinal, genitofemoral, and posterior femoral cutaneous branches-may also contribute to pelvic and genital neuropathic pain. Diagnosis is challenging due to complex pelvic neuroanatomy and overlapping etiologies. MR neurography plays a key role in evaluating affected nerves and musculoskeletal structures, with advanced sequences improving vascular suppression and nerve conspicuity. While ultrasound and CT mainly guide interventions, MR-ultrasound fusion imaging and MR neurography-guided perineural injections provide more accurate, image-guided treatment strategies.

Dermatological Conditions

Clinical and Histopathological Investigation of Stromal Vascular Fraction and Nanofat in Vulvar Lichen Sclerosus
Patricia Gutierrez-Ontalvilla, Agustina Gomez Rojas, et al.
Aesthet Surg J. 2025 Jul 24:sjaf148. doi: 10.1093/asj/sjaf148.
https://pubmed.ncbi.nlm.nih.gov/40702658/

Background: Vulvar lichen sclerosus (VLS) is a chronic inflammatory dermatosis that impairs quality of life through symptoms like itching, pain, and atrophy, and has limited response to conventional corticosteroid therapy. **Objectives:** To evaluate the safety and efficacy of the Lichen-SVF protocol, a regenerative treatment combining nanofat and mechanically isolated stromal vascular fraction (SVF) for moderate to severe VLS. **Results:** Statistically significant reductions in CSS Symptoms (from 20.12 to 4.71, p = 0.0025), CSS Signs (from 5.79 to 2.00, p = 0.0014), and Itching 5D (from 6.82 to 2.35, p = 0.0136) were observed at 12 months. Quality of life improved (Skindex-29: from 42.88 to 24.82, p = 0.0313). FSFI scores showed non-significant improvement. Histologically, a marked reduction in stromal hyalinization (p = 0.0036) and CD3+ T-cell infiltration (p = 0.0068), along with increased microvascular density (p = 0.0121), confirmed regenerative effects. No serious adverse events occurred. **Conclusions:** The Lichen-SVF protocol offers a safe and effective regenerative option for women with VLS who do not respond to standard treatments. As low-dose corticosteroids were maintained throughout follow-up, the protocol should be viewed as a complementary approach that enhances, rather than replaces, conventional therapy.

The comparison of fractional CO_2 laser and focused ultrasound for vulvar lichen sclerosus: a retrospective study

Maoyu Liu, Xuerui Zhang, et al.

Int J Hyperthermia. 2025 Dec;42(1):2507958. doi: 10.1080/02656736.2025.2507958. Epub 2025 May 25.

https://pubmed.ncbi.nlm.nih.gov/40415409/

Objectives: To compare the efficacy of fractional carbon dioxide laser ($FxCO_2$) and focused ultrasound (FUS) in treating vulvar lichen sclerosus (VLS). **Results:** At the 3-month follow-up, the total effective rates were similar between $FxCO_2$ (91.18%, 31/34) and FUS (88.57%, 31/35) ($p > 0.05$). At the 6-month follow-up, the total effective rates for $FxCO_2$ decreased to 85.29% (29/34), while FUS remained at 88.57% (31/35) ($p > 0.05$). Recurrence rates were 14.7% (5/34) for $FxCO_2$ and 11.4% (4/35) for FUS ($p > 0.05$) at the 6-month follow-up. Although there was no significant difference in total CSS scores and clinician-administered sign scores between $FxCO_2$ and FUS at both follow-ups ($p > 0.05$), $FxCO_2$ suggested superior patient-administered symptom improvement at 3-month (median: $FxCO_2$ 3 vs. FUS 5, $p < 0.05$) and 6-month follow-ups (median: $FxCO_2$ 3 vs. FUS 5, $p < 0.01$). **Conclusions:** $FxCO_2$ and FUS show similar efficacy in treating VLS, with $FxCO_2$ suggesting a trend toward greater symptom relief. Further studies are needed to validate these preliminary observations.

Treatment of refractory lichen sclerosus in women with mycophenolate mofetil: A Mayo retrospective study

Tung S. Tran, MD, Trang M. Nguyen, MD, et al.

https://www.jaad.org/article/S0190-9622(25)00712-1/abstract

https://pubmed.ncbi.nlm.nih.gov/40345542/

Lichen sclerosus (LS) is an immune-mediated inflammatory disease mainly affecting the anogenital area and is more frequently seen in women. Untreated vulvar LS carries an increased risk of developing vulvar squamous cell carcinoma (SCC), with the reported risk up to 7%.[1] Initial treatment typically involves potent topical steroids, with systemic therapies such as methotrexate and acitretin reserved for refractory cases.[2] There is a dearth of knowledge of the efficacy of mycophenolate mofetil (MMF) in recalcitrant vulvar LS, limited to small case reports.[3] Therefore, we conducted a retrospective study on 51 women with anogenital LS given MMF treatment from January 2018, to December 2023 at Mayo

Clinic. This study was approved by institutional review board (IRB24-00361). The demographic and clinical presentation are detailed in Table I. Itching and burning pain were the most common clinical presentation, with the majority being postmenopausal women. There was a frequent association with other autoimmune diseases, whereas depression/anxiety was present in nearly half of the patients. There were a variety of systemic agents (methotrexate, hydroxychloroquine, and acitretin), which were trialed before the initiation of MMF. End point of treatment was categorized into response (R: an improvement in at least one among symptoms or clinical manifestations of LS with no new lesions during the whole period of follow-up) and no response (NR: persistence or worsening of manifestations). Total 27 of 51 (53%) patients received MMF for the treatment of LS, whereas the remaining had for other conditions (Table II). In the MMF for LS arm, 19 of 27 (70.4%) patients improved with MMF after a mean period of 2.22 months. Among responders, 2 had vulvar SCC before MMF treatment and sustained their improvement with MMF. The improvement maintained up to 127 months while on treatment. Also 7 of 27 (25.9%) did not respond to MMF, and these patients also previously failed at least 1 systemic agent. In the arm of MMF for other conditions, the response rate was 11 of 15 (73.3%) in the MMF post-LS diagnosis, whereas 9 of 9 (100%) patients receiving MMF before LS diagnosis sustained the control of disease with solitary topical steroid. Of note, MMF for other indications had a lower dose compared with LS (Table II). Among these patients, one nonresponder progressed to vulvar SCC while using MMF for sarcoidosis. There was no significant difference in the response rate among these groups (P = .46). Most patients in this cohort continued topical steroid along with MMF. According to current publications, 14 of 17 (82.4%) patients achieved improvement after MMF treatment.[3,4] In our study, 13 of 51 (25.5%) reported side effects, with 5 requiring discontinuation of therapy (Table II).

Characterization and therapeutic strategies for refractory vulvar lichen sclerosus: an 8-year single-center retrospective study and current evidence synthesis
Lin Liu, Jun Cui, et al.
J Dermatolog Treat. 2025 Dec;36(1):2531140. doi: 10.1080/09546634.2025.2531140. Epub 2025 Jul 15.
https://pubmed.ncbi.nlm.nih.gov/40662512/

Objective: Untreated vulvar lichen sclerosus (VLS) can lead to irreversible anatomical changes and increase malignancy risk. Some patients show poor response to standard treatments, resulting in refractory cases (RVLS). **Results:** A total of 457 patients were included, of whom 36 were diagnosed with RVLS (7.9%). A multivariable logistic regression model identified comorbid autoimmune thyroid diseases (OR 2.45; 95%CI 1.09-5.34), perianal region involvement (OR 3.20; 95%CI 1.19-8.09), and presence of erosion/fissures (OR 3.13; 95%CI 1.44-7.29) as independent predictors for RVLS. Furthermore, the treatment approaches for 281 patients with RVLS across 20 studies included Janus kinase inhibitors (JAK), adalimumab, methotrexate, cyclosporine, photodynamic therapy (PDT), and laser therapy, with assessments of efficacy, side effects, and recurrence. **Conclusions:** Our study identified three predictive factors for RVLS, which may help in treatment decisions and reduce ineffective therapy. And therapies such as JAK and PDT show promise as optimized options, although larger studies are needed.

Impact of vulvar lichen sclerosus and lichen planus on quality of life, mobility, bicycling, physical activity, and health
Renée J Dietz, Nick J van de Berg, et al.
Maturitas. 2025 Aug:199:108651. doi: 10.1016/j.maturitas.2025.108651. Epub 2025 Jun 26.
https://pubmed.ncbi.nlm.nih.gov/40592218/

Objective: To assess perceived quality of life, physical activity, and the impact of vulvar symptoms on daily function in women with lichen sclerosus or lichen planus. **Study design:** A cross-sectional questionnaire study was conducted among 603 women (mean age 59 ± 12 years) from one university medical centre, two regional hospitals, and two patient advocacy groups in the Netherlands. Participants completed three questionnaires: EQ-5D-5L for quality of life, SQUASH for physical activity, GO-Bicycling2 for bicycling experiences. **Main outcome measures:** Quality of life and health index scores, reported bicycling difficulties, and adherence to national physical activity guidelines. **Results:** Participants had significantly lower quality of life (0.814 ± 0.147 vs. 0.907 ± 0.112, $p < 0.001$) and health index scores (74.8 ± 16.4 vs. 81.1 ± 22.1, $p < 0.001$) compared with reference population values for similarly aged women. Nevertheless, 57.2 % met national physical activity guidelines, and 57.4 % reported exercising weekly, with fitness training being most common (40.2 %). Weekly bicycling was reported by 71.9 % of participants, yet 75.7 % experienced bicycling impediments attributed to their vulvar condition. Symptoms included moderate to severe irritation (54.5 %) or pain (47.0 %) of the vulvar skin, itching (26.6 %), or numbness (24.6 %). **Conclusions:** Women with vulvar lichen sclerosus or lichen planus report lower quality of life and greater mobility challenges than their peers. Participants showed a high rate of compliance with national physical activity guidelines, and bicycling was an often-reported activity. However, bicycling was associated with high rates of pain and discomfort. Targeted solutions are needed to address mobility challenges in women with lichen sclerosus or lichen planus and support healthy aging and sustained physical activity across the life course.

Diagnostic gaps in vulvar diseases from referral to final diagnosis in a specialized center: analysis of pathways and recommendations for enhancing future diagnostic accuracy

Cornelia Betschart, Tharani Thillainathan, et al.

BMC Womens Health. 2025 Jul 4;25(1):309. doi: 10.1186/s12905-025-03855-4.
https://pubmed.ncbi.nlm.nih.gov/40616011/

Background: Vulvar diseases have a serious impact on women's quality of life and can be challenging to diagnose. Correct diagnosis is, however, mandatory for appropriate treatment. Therefore, the aim of this study was to evaluate diagnostic quality regarding the classification of disease symptoms, the suspected diagnosis of referring doctors, the agreement of suspected diagnosis with final diagnosis and the latencies from onset of symptoms to final diagnosis, thereby identifying potential resources for improvement. **Results:** Referral diagnoses were inconsistent with final diagnoses in 96 (43.8%) cases. The time between symptom onset and final diagnosis ranged from 15.9 ± 10.6 to 71.1 ± 92.9 months, depending on the vulvar pathology. In cases of dysplasia, eczema, lichen sclerosus and lichen planus, diagnosis at referral and final diagnosis matched best, while other inflammatory diseases, vulvodynia, and chronic infectious diseases (bacterial/fungal/viral) represented the greatest diagnostic challenges. Suspected diagnosis from gynecologists matched in 36.1% of cases, compared to 83.3% for dermatologists. No standardized pattern for the use of any specific diagnostic technique by referring physicians could be identified. **Conclusion:** There is significant diagnostic latency and variability in accuracy across vulvar disorders and referring specialists. A systematic diagnostic approach, including symptom evaluation, clinical inspection and appropriate diagnostic testing, is lacking. Standardized methods for symptom documentation, clinical assessment, diagnostic testing, and collaboration with specialized vulvar centers are essential to streamline the precision and efficiency of diagnosis as a basis for optimized treatment strategies.

Trends and Developments in Vulvar Lichen Sclerosus Research
Fan-Rong He, Yan-Rui Lin, et al.
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Background: Despite the prevalence of vulvar lichen sclerosus (VLS) as a chronic skin disease in clinical settings, there is a notable absence of a comprehensive bibliometric analysis summarizing the existing literature on this topic. The aim of this study is to offer clinicians, researchers, and other interested parties an up-to-date overview of the research status and emerging trends in VLS through the use of bibliometric analysis. **Results:** The current research encompassed a total of 1,698 articles pertaining to VLS. The analysis of citation bursts and co-citation patterns has revealed a high level of confidence in the effectiveness and safety of topical corticosteroids for the treatment of VLS, establishing them as the preferred primary treatment for this condition. Since 2018, there has been a significant increase in VLS publications, with the United States and United Kingdom emerging as leading contributors. Research has moved from examining past pathological changes like "epidermal atrophy" to focusing on "long-term treatment management," and improving "quality of life". The exact mechanism of VLS remains unclear, but it is linked to cytokine immune regulation, oxidative stress, and potential epigenetic changes or genetic mutations in susceptible individuals. It could also develop into vulvar squamous cell carcinoma. **Conclusions:** Institutions are expected to allocate more resources for VLS prevention and long-term management.

Cutaneous dysbiosis in girls with vulvar lichen sclerosus
Liying Sun, Huihui Gao, et al.
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Vulvar lichen sclerosus (VLS) is a chronic skin condition affecting the vulva, causing significant discomfort, but its etiology in prepubertal girls remains poorly understood. VLS presents with itching, irritation, and pain. Recent studies suggest that cutaneous dysbiosis might play a role in VLS. Our study aims to investigate differences in the vulvar skin microbiota among prepubertal girls with VLS, those with labial adhesions, and healthy controls, and to explore potential microbial links to VLS. We performed a comparative analysis of 16S ribosomal RNA (rRNA) sequences from vulvar skin samples of 18 girls with VLS, 15 girls with labial adhesions, and 11 healthy girls. Microbial diversity was assessed using α diversity, β diversity, and LEfSe, and functional microbial pathways were predicted. No differences were observed in α diversity among groups. However, β diversity analysis revealed significant differences in microbial composition (Jaccard, $P = 0.001$; unweighted UniFrac, $P = 0.01$). VLS patients had increased levels of *Parvimonas* and *Fastidiosipila* and differed from controls and labial adhesion cases in specific taxa. The NAD salvage pathway was notably associated with VLS. These findings suggest that cutaneous dysbiosis may contribute to VLS pathogenesis, providing insights into the microbial changes associated with the disease. Identifying microbial dysbiosis in VLS patients offers new perspectives on its pathogenesis and potential treatment strategies. **Importance:** Cutaneous dysbiosis in vulvar lichen sclerosus (VLS) may play a key role in disease pathogenesis, especially when specific microbial imbalances persist in affected patients. However, most clinical evaluations focus on symptoms rather than microbial composition, risking missed opportunities for microbiome-targeted interventions. Thus, this study highlights the importance of microbiota surveillance as a potential tool for improving the diagnosis and treatment of VLS.

High-Intensity Focused Ultrasound (HIFU) Treatment of Vulvar Lichen Sclerosus

Jacek Calik, Bartosz Woźniak, et al.

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Vulvar lichen sclerosus (VLS) is a chronic, recurrent dermatosis predominantly affecting postmenopausal women. It is characterized by atrophic and sclerotic changes in the vulvar skin, often causing severe discomfort and functional impairment. Although potent topical corticosteroids remain the primary treatment, high-intensity focused ultrasound (HIFU) emerges as a promising alternative in recurrence cases. This study reports the case of a 73-year-old woman with VLS treated using HIFU, aiming to assess the safety and efficacy of this novel therapeutic approach. The patient presented with significant discomfort due to VLS and had a history of limited response to previous treatments. HIFU therapy was applied using the System ONE-M device operating at 20 MHz, targeting specific lesions. The dermoscopic evaluation was performed pre- and post-treatment to assess the treatment response. Immediate post-procedural whitening of tissues was observed, followed by gradual healing over five months. The patient experienced significant symptom relief, including reduced pain and itching, with minimal adverse effects. The treated areas displayed nearly normal skin color, texture, and improved function within five months post-treatment. This case illustrates the potential of HIFU as an effective and precise non-invasive treatment for VLS, offering significant symptom relief while sparing healthy tissue. Further research is needed to refine treatment parameters and explore the broader clinical applicability of HIFU for VLS management.