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Feature Article

Pelvic pain and mode of delivery.

Blomquist JL(1), McDermott K(2), Handa VL(3).

Am J Obstet Gynecol. 2014 May;210(5):423.e1-6. doi: 10.1016/j.ajog.2014.01.032.

<http://www.ncbi.nlm.nih.gov/pubmed/24487004>

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OBJECTIVE: We sought to determine the long-term effect of mode of delivery on the prevalence and severity of pelvic pain. **STUDY DESIGN:** Six to eleven years after a first delivery, pelvic pain (dysmenorrhea, dyspareunia, and pelvic pain not related to menses or intercourse) was measured using the Oxfordshire Women's Health Study Questionnaire. Obstetrical exposures were assessed by review of the hospital delivery record. The prevalence of moderate to severe pelvic pain was compared between the 577 women who delivered via cesarean for all births and the 538 who delivered at least 1 child vaginally. Other obstetrical exposures were also studied. **RESULTS:** Prevalence of pelvic pain was similar between women who delivered vaginally and by cesarean. Among women who delivered vaginally, those who experienced at least 1 forceps delivery and women who delivered at least 1 baby ≥ 4 kg vaginally reported a higher rate of dyspareunia. Perineal trauma was not associated with dyspareunia. **CONCLUSION:** Forceps delivery and a vaginal delivery of a baby ≥ 4 kg are associated with dyspareunia 6-11 years after vaginal birth. Vaginal birth is not associated with a higher rate of pelvic pain when compared to cesarean delivery.

Vulvodynia/Vulvovaginal Pain

2013 Vulvodynia Guideline update.

Stockdale CK, Lawson HW.

Low Genit Tract Dis. 2014 Apr;18(2):93-100. doi: 10.1097/LGT.0000000000000021.

<http://www.ncbi.nlm.nih.gov/pubmed/24633161>

Vulvodynia is a complex disorder that can be difficult to treat. Most patients describe it as burning, stinging, irritation, or rawness. Vulvodynia is a costly disease both economically and on its negative impact on patient quality of life. Although many treatment options are available, no one treatment is effective for all patients, thus the need to individualize management. Measures such as gentle vulvar care, medication, biofeedback training, physical therapy, sexual counseling and surgery, as well as complementary and alternative therapies are available to treat the condition with varying success.

Vulvodynia and proctodynia treated with topical baclofen 5 % and palmitoylethanolamide.

Keppel Hesselink JM, Kopsky DJ, Sajben NL.

Arch Gynecol Obstet. 2014 Apr 2. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24691823>

BACKGROUND: The prevalence of idiopathic vulvodynia and proctodynia is high. Pain management with anti-depressants and anti-epileptics may induce undesirable side effects. Therefore, topical baclofen cream and palmitoylethanolamide might be new therapeutic options. **CASE:** A 33-year-old woman with intractable chronic vulvar and anal pain had to abstain from sexual intercourse and could neither cycle nor sit for more than 5 min. The patient did not respond to standard treatments. We prescribed a combination of topical baclofen 5 % and palmitoylethanolamide 400 mg, three times daily. After 3 months her symptoms decreased more than 50 % and sexual intercourse was possible again without pain. **CONCLUSION:** Topical baclofen and palmitoylethanolamide can be a viable treatment option in chronic vulvodynia and proctodynia.

Non-surgical interventions for the management of chronic pelvic pain.

Cheong YC, Smotra G, Williams AC.

Cochrane Database Syst Rev. 2014 Mar 5;3:CD008797. doi:

1002/14651858.CD008797.pub2.

<http://www.ncbi.nlm.nih.gov/pubmed/24595586>

BACKGROUND: Chronic pelvic pain is a common and debilitating condition; its aetiology is multifactorial, involving social, psychological and biological factors. The management of chronic pelvic pain is challenging, as despite interventions involving surgery, many women remain in pain without a firm gynaecological diagnosis.

OBJECTIVES: To assess the effectiveness and safety of non-surgical interventions for women with chronic pelvic pain. **SEARCH METHODS:** We searched the Menstrual Disorders and Subfertility Group Specialised Register. We also searched

(from inception to 5 February 2014) AMED, CENTRAL, MEDLINE, EMBASE, PsycINFO, CINAHL and LILACS. We handsearched sources such as citation lists, trial registers and conference proceedings. SELECTION CRITERIA: Randomised controlled trials (RCTs) on non-surgical management of chronic pelvic pain were eligible for inclusion. We included studies of women with a diagnosis of pelvic congestion syndrome or adhesions but excluded those with pain known to be caused by endometriosis, primary dysmenorrhoea (period pain), active chronic pelvic inflammatory disease or irritable bowel syndrome. We considered studies of any non-surgical intervention, including lifestyle, physical, medical and psychological treatments. DATA COLLECTION AND ANALYSIS: Study selection, quality assessment and data extraction were performed independently by two review authors. Meta-analysis was performed using the Peto odds ratio (Peto OR) for dichotomous outcomes and the mean difference (MD) for continuous outcomes, with 95% confidence intervals (CIs). The primary outcome measure was pain relief, and secondary outcome measures were psychological outcomes, quality of life, requirement for analgesia and adverse effects. The quality of the evidence was assessed by using GRADE methods. MAIN RESULTS: Twenty-one RCTs were identified that involved non-surgical management of chronic pelvic pain: 13 trials were included in the review, and eight were excluded. The studies included a total of 750 women-406 women in the intervention groups and 344 in the control groups. Included studies had high attrition rates, and investigators often did not blind adequately or did not clearly describe randomisation procedures. Medical treatment versus placebo Progestogen (medroxyprogesterone acetate (MPA)) was more effective than placebo at the end of treatment in terms of the number of women achieving a greater than 50% reduction in visual analogue scale (VAS) pain score immediately after treatment (Peto OR 3.00, 95% CI 1.70 to 5.31, two studies, n = 204, I(2) = 22%, moderate-quality evidence). Evidence of benefit was maintained up to nine months after treatment (Peto OR 2.09, 95% CI 1.18 to 3.71, two studies, n = 204, I(2) = 0%, moderate-quality evidence). Women treated with progestogen reported more adverse effects (e.g. weight gain, bloatedness) than those given placebo (high-quality evidence). The estimated effect of lofexidine on pain outcomes when compared with placebo was compatible with benefit and harm (Peto OR 0.42, 95% CI 0.11 to 1.61, one study, 39 women, low-quality evidence). Women in the lofexidine group reported more adverse effects (including drowsiness and dry mouth) than women given placebo (moderate-quality evidence). Head-to-head comparisons of medical treatments Head-to-head comparisons showed that women taking goserelin had greater improvement in pelvic pain score (MD 3, 95% CI 2.08 to 3.92, one study, n = 47, moderate-quality evidence) at one year than those taking progestogen. Women taking gabapentin had a lower VAS pain score than those taking amitriptyline (MD -1.50, 95% CI -2.06 to -0.94, n = 40, low-quality evidence). Study authors reported that no statistically significant difference was observed in the rate of adverse effects among women taking gabapentin compared with women given amitriptyline. The study comparing goserelin versus progestogen did not report on adverse effects. Psychological treatment Women who underwent reassurance ultrasound scans and received counselling were more likely to report improved pain than those treated with a standard 'wait and see' policy (Peto OR 6.77, 95% CI 2.83 to 16.19, n = 90, low-quality evidence). Significantly more women who had writing therapy as a disclosure reported improvement in pain than those in the non-disclosure group (Peto OR 4.47, 95% CI 1.41 to 14.13, n = 48, very low-

quality evidence). No difference between groups in pain outcomes was noted when other psychological therapies were compared with standard care or placebo (quality of evidence ranged from very low to low). Studies did not report on adverse effects. Complementary therapy Distension of painful pelvic structures was more effective for pain when compared with counselling (MD 35.8, 95% CI 23.08 to 48.52 on a zero to 100 scale, one study, n = 48, moderate-quality evidence). No difference in pain levels was observed when magnetic therapy was compared with use of a control magnet (very low-quality evidence). Studies did not report on adverse effects. The results of studies examining psychological and complementary therapies could not be combined to yield meaningful results. **AUTHORS' CONCLUSIONS:** Evidence of moderate quality supports progestogen as an option for chronic pelvic pain, with efficacy reported during treatment. In practice, this option may be most acceptable among women unconcerned about progestogenic adverse effects (e.g. weight gain, bloatedness-the most common adverse effects). Although some evidence suggests possible benefit of goserelin when compared with progestogen, gabapentin as compared with amitriptyline, ultrasound versus 'wait and see' and writing therapy versus non-disclosure, the quality of evidence is generally low, and evidence is drawn from single studies. Given the prevalence and healthcare costs associated with chronic pelvic pain in women, RCTs of other medical, lifestyle and psychological interventions are urgently required.

Sexual function, relationship adjustment, and the relational impact of pain in male partners of women with provoked vulvar pain.

Smith KB, Pukall CF.

J Sex Med. 2014 May;11(5):1283-93. doi: 10.1111/jsm.12484.

<http://www.ncbi.nlm.nih.gov/pubmed/24612656>

INTRODUCTION: Despite the impact of provoked vulvar pain on women's sexuality and the partnered sexual context in which the pain typically occurs, partners have not been included widely in research. **AIMS:** To examine sexual and relationship functioning of male partners of women with provoked vulvar pain symptoms using a controlled design and to assess the impact of the pain on their relationship. **METHODS:** Fifty male pain partners and 56 male controls completed questionnaires to assess sexual communication, sexual functioning/satisfaction, sexual esteem, relationship adjustment, and psychological health. Participants also completed numeric rating scales to assess the importance of sex to them and the extent to which they felt their relationship matched a satisfying relationship. To assess the relational impact of vulvar pain, pain partners were asked to indicate whether the pain had impacted their relationship, and, if yes, rated this impact. **MAIN OUTCOME MEASURES:** Main outcome measures included the Dyadic Sexual Communication Scale, the International Index of Erectile Function, the Sexuality Scale, the Dyadic Adjustment Scale, the 12-Item Short-Form Health Survey, and numeric rating scales. **RESULTS:** Pain partners reported significantly poorer sexual communication and erectile function and less sexual satisfaction compared with controls. They also reported significantly less affectional expression within their relationships and were more likely than controls to report a discrepancy between their relationship and their idea of a satisfying relationship. Almost 73% (n = 32/44) of pain partners reported a negative relational impact of vulvar pain. No significant differences in sexual desire,

orgasmic function, sexual esteem, relationship satisfaction and consensus, psychological health, or importance of sex were found between groups. CONCLUSIONS: Provoked vulvar pain partners appear negatively impacted with regard to some sexual and physical aspects of their relationship. As one of the few controlled studies to investigate partner functioning in the context of provoked vulvar pain, this study has future research implications and supports the involvement of partners in treatment. Smith KB and Pukall CF. Sexual function, relationship adjustment, and the relational impact of pain in male partners of women with provoked vulvar pain.

Persistent genital arousal in women with pelvic and genital pain.

Pink L, Rancourt V, Gordon A.

J Obstet Gynaecol Can. 2014 Apr;36(4):324-30.

<http://www.ncbi.nlm.nih.gov/pubmed/24798670>

Objective: Persistent genital arousal disorder (PGAD) has been identified as a condition of often unprovoked genital arousal associated with a significant level of distress. PGAD is not well understood, and no definitive cause has been determined. The aim of this study was to gain a better understanding of the disorder and to seek commonalities between cases of PGAD encountered in a chronic pain management clinic. Method: We reviewed a cohort of 15 women with PGAD who presented to a chronic non-cancer pain clinic in a large urban tertiary teaching hospital that provides pelvic and genital pain management. We conducted a series of interviews to examine medical history, history of presenting illness, and management. Descriptive statistics were used to examine the data. Results: Findings were largely consistent with previous research on PGAD regarding symptomatology and aggravating and alleviating factors. Symptoms of genital pain, depression, and interstitial cystitis were found in over one half of the patients in this cohort. Previous antidepressant use, restless legs syndrome, and pudendal neuralgia were found in a number of cases. Pelvic varices and Tarlov cysts have been previously identified as possible contributors to PGAD, but these were not a common finding in our cohort. Conclusion: Further research is needed to build on the current understanding of PGAD. Patients should be asked about persistent arousal as part of a sexual and reproductive history, especially in the case of common comorbidities.

Relationship satisfaction moderates the associations between male partner responses and depression in women with vulvodynia: A dyadic daily experience study.

Rosen NO, Bergeron S, Sadikaj G, Glowacka M, Baxter ML, Delisle I.

Pain. 2014 Apr 23. pii: S0304-3959(14)00196-1. doi: 10.1016/j.pain.2014.04.017.

[Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24769137>

Vulvodynia is a prevalent vulvovaginal pain condition that interferes with women's psychological health. Given the central role of sexuality and relationships in vulvodynia, relationship satisfaction may be an important moderator of daily partner responses to this pain and associated negative sequelae, such as depression. Sixty-nine women (M age=28.12years, SD=6.68) with vulvodynia and their cohabiting partners (M age=29.67years, SD=8.10) reported their daily relationship satisfaction, and male partner responses on sexual intercourse days (M=3.74, SD=2.47) over 8weeks. Women also reported their depressive symptoms. Relationship satisfaction on the preceding day moderated the associations between partner responses and women's depressive symptoms in several significant ways: (1) On days after women reported higher relationship satisfaction than usual, their perception of greater facilitative male partner responses was associated with their decreased depression; (2) on days after women reported lower relationship satisfaction than usual, their perception of greater negative male partner responses was associated with their increased depression; (3) on days after men reported higher relationship satisfaction than usual, their self-reported higher negative responses were associated with decreased women's depression, and higher solicitous responses were associated with increased women's depression, whereas (4) on days after men reported lower relationship satisfaction than usual, their self-reported higher negative responses were related to increased women's depression, and higher solicitous responses were associated with decreased women's depression. Targeting partner responses and relationship satisfaction may enhance the quality of interventions aimed at reducing depression in women with vulvodynia.

Vaginal hypersensitivity and hypothalamic-pituitary-adrenal axis dysfunction as a result of neonatal maternal separation in female mice.

Pierce AN, Ryals JM, Wang R, Christianson JA.

Neuroscience. 2014 Mar 28;263:216-30. doi: 10.1016/j.neuroscience.2014.01.022.

<http://www.ncbi.nlm.nih.gov/pubmed/24462609>

Early life stress can permanently alter functioning of the hypothalamic-pituitary-adrenal (HPA) axis, which regulates the stress response and influences the perception of pain. Chronic pelvic pain patients commonly report having experienced childhood neglect or abuse, which increases the likelihood of presenting with comorbid chronic pain and/or mood disorders. Animal models of neonatal stress commonly display enhanced anxiety-like behaviors, colorectal hypersensitivity, and disruption of proper neuro-immune interactions in adulthood. Here, we tested the hypothesis that early life stress impacts vaginal sensitivity by exposing mice to neonatal maternal separation (NMS) for 3h/day during the first two (NMS14) or three (NMS21) postnatal weeks. As adults, female mice underwent vaginal balloon

distension (VBD), which was also considered an acute stress. Before or after VBD, mice were assessed for anxiety-like behavior, hindpaw sensitivity, and changes in gene and protein expression related to HPA axis function and regulation. NMS21 mice displayed significantly increased vaginal sensitivity compared to naïve mice, as well as significantly reduced anxiety-like behavior at baseline, which was heightened following VBD. NMS21 mice exhibited significant thermal and mechanical hindpaw hypersensitivity at baseline and following VBD. NMS14 mice displayed no change in anxiety-like behavior and only exhibited significantly increased hindpaw mechanical and thermal sensitivity following VBD. Centrally, a significant decrease in negative regulation of the HPA axis was observed in the hypothalamus and hippocampus of NMS21 mice. Peripherally, NMS and VBD affected the expression of inflammatory mediators in the vagina and bladder. Corticotropin-releasing factor (CRF) receptor and transient receptor potential (TRP) channel protein expression was also significantly, and differentially, affected in vagina, bladder, and colon by both NMS and VBD. Together these data indicate that NMS affects both central and peripheral aspects of the HPA axis, which may drive changes in vaginal sensitivity and the development of comorbid chronic pain and mood disorders.

Gynecological disorders in bladder pain syndrome/interstitial cystitis patients.

Cervigni M, Natale F.

Int J Urol. 2014 Apr;21 Suppl 1:85-8. doi: 10.1111/iju.12379.

<http://www.ncbi.nlm.nih.gov/pubmed/24807511>

OBJECTIVES: Bladder pain syndrome/interstitial cystitis, a chronic inflammatory condition of the bladder, is the source of pain in over 30% of female patients with chronic pelvic pain. The aim of the present study was to evaluate the most frequent associations between bladder pain syndrome/interstitial cystitis and gynecological disorders. **METHODS:** A literature review of the previous 10 years was carried out to evaluate the incidence of gynecological diseases in patients with bladder pain syndrome/interstitial cystitis. **RESULTS:** Hypertonic pelvic floor dysfunction with associated voiding dysfunction can be present in bladder pain syndrome/interstitial cystitis patients. It has been estimated that the prevalence ranges from 50% to 87%. Endometriosis affects 1-7% of the general population and up to 70% of women with endometriosis have some type of pain symptoms, a recent systematic review estimated the prevalence of bladder pain syndrome to be 61%, of endometriosis to be 70%, and coexisting bladder pain syndrome and endometriosis to be 48%. Vulvodynia is represented by pain, or an unpleasant altered sensation, in the vulva. Women with Vestibulodynia are likely to have other additional pain conditions, such as fibromyalgia, irritable bowel syndrome or chronic fatigue syndrome. Recent data reported that vestibulodynia affects 25% of women with bladder pain syndrome/interstitial cystitis. **CONCLUSIONS:** Bladder pain syndrome/interstitial cystitis is a complex pathology often associated with vulvodynia, endometriosis and pelvic floor dysfunctions. Therefore, it is of utmost importance to obtain an accurate evaluation ruling out confusable disease, such as pudendal neuropathy. The optimal approach is a combined treatment oriented not only to treat the bladder, but also the other components responsible for the pain disorder.

Localized provoked vestibulodynia: outcomes after modified vestibulectomy.

Swanson CL, Rueter JA, Olson JE, Weaver AL, Stanhope CR.

J Reprod Med. 2014 Mar-Apr;59(3-4):121-6.

<http://www.ncbi.nlm.nih.gov/pubmed/24724219>

OBJECTIVE: To describe and estimate both short-term and long-term effectiveness of a large cohort of women treated with modified vestibulectomy in a single surgical service. **STUDY DESIGN:** A total of 202 patients who were treated with modified vestibulectomy for localized provoked vestibulodynia at Mayo Clinic in Rochester, Minnesota, were mailed a questionnaire to document severity of vulvar pain or discomfort before and after the surgery. **RESULTS:** In total, 115 patients returned the questionnaire. Of the 71 patients who before surgery reported pain when inserting a tampon, 52 reported attempting to insert a tampon after surgery. Of these 52 patients, 47 (90.4%) noticed moderate to substantial improvement. Pain with sexual intercourse occurred in 97.3% (107/ 110) of patients before surgery. After surgery, 90 (84.1%) of those 107 patients noted moderate to substantial improvement in their pain with intercourse. **CONCLUSION:** Modified vestibulectomy was a successful treatment for patients with localized provoked vestibulodynia and resulted in strong patient satisfaction, long-term effectiveness, minimal scarring, and few postoperative complications.

Provoked vestibulodynia: Inflammatory, neuropathic or dysfunctional pain? A neurobiological perspective.

Micheletti L, Radici G, Lynch PJ.

J Obstet Gynaecol. 2014 May;34(4):285-8. doi: 10.3109/01443615.2014.894004.

<http://www.ncbi.nlm.nih.gov/pubmed/24649846>

Abstract This paper aims to clarify the nature of the pain in provoked vestibulodynia (PV). It reviews published data about the nature of the pain in PV, employing a recent pain classification, which divides pain from a neurobiological perspective, into nociceptive, inflammatory and pathological pain, with the latter subdivided into neuropathic and dysfunctional pain. Nociceptive pain is high-threshold pain provoked by noxious stimuli; inflammatory pain is adaptive, low-threshold pain associated with peripheral tissue inflammation; pathological pain is maladaptive, low-threshold pain caused by structural damage to the nervous system (neuropathic) or by its abnormal function (dysfunctional). Most of the published data show that in PV, there is no active peripheral tissue inflammation. Similarly, no neural damage has been demonstrated. It is reasonable to consider PV as dysfunctional pain induced by exposure to acute physical or psychological precipitating events in the presence of an individual predisposition to produce or maintain abnormal central sensitisation.

CD4-positive T-cell recruitment in primary-provoked localized vulvodynia: potential insights into disease triggers.

Leclair CM, Leeborg NJ, Jacobson-Dunlop E, Goetsch MF, Morgan TK.

J Low Genit Tract Dis. 2014 Apr;18(2):195-201. doi:

10.1097/LGT.0b013e3182a55591.

<http://www.ncbi.nlm.nih.gov/pubmed/24633162>

OBJECTIVE: To better understand the potential disease triggers of neurogenic inflammation in provoked localized vulvodynia (PLV), our objective was to determine whether the types of infiltrating lymphocytes were different in vestibular biopsies from women with primary PLV, secondary PLV, and unaffected controls. **METHODS:** Secondary retrospective analysis of archived vestibular biopsies from a series of adult premenopausal women with primary PLV (n = 10), secondary PLV (n = 10), and unaffected controls (n = 4) was performed. All study patients had severe entry dyspareunia for more than 1 year. Subjects were excluded if pregnant, or they had a known infection, or history of generalized vulvodynia. Biopsies were performed during the midfollicular phase. Lymphocyte subtypes were highlighted in histologic sections using antibodies against CD3, CD4, and CD8 and scored as the mean number of T-cell subtypes per high-power field. Flow cytometry was also used to test fresh biopsies from a de novo prospective series of primary PLV (n = 4) and unaffected controls (n = 2). **RESULTS:** Unaffected control biopsies showed more CD8-positive than CD4-positive T cells, similar to previous reports of the gynecologic tract. In contrast, biopsies from women with primary PLV showed significantly more CD4-positive T cells than those from women with secondary PLV and unaffected controls (p = .003). This observation was further supported by flow cytometry. **CONCLUSIONS:** CD4-positive T cells are more numerous in vestibular biopsies from premenopausal women with primary PLV. This may be important because subtypes of CD4-positive T cells are specifically recruited by infectious, allergic, or autoimmune triggers. Future studies distinguishing these subtypes may lead to new insights into this common disease.

The value of histology in predicting the effectiveness of vulvar vestibulectomy in provoked vestibulodynia.

Brokenshire C, Pagano R, Scurry J.

J Low Genit Tract Dis. 2014 Apr;18(2):109-14. doi:10.1097/LGT.0b013e31829fae32.

<http://www.ncbi.nlm.nih.gov/pubmed/24402355>

OBJECTIVE: This study aimed to determine whether histology can predict response to vestibulectomy in the management of provoked vestibulodynia. **MATERIALS AND METHODS:** Inflammatory cell, mast cell, and nerve fiber counts were determined in prospectively collected vulvar vestibulectomy specimens from 30 women treated surgically for provoked vestibulodynia. **RESULTS:** Twenty-three subjects (77%) had a complete early response to surgery. At 3 years of follow-up, this had increased to 28 (93%), with a 29th showing some improvement. No subject had gotten worse after surgery or in the 3 years of follow-up. When comparing patients with an early complete response with those patients who still had symptoms, no difference in lymphocyte counts (27.6 vs. 37.8 per mm), mast cell counts (110.4 vs. 97.8 per mm), or stromal nerve fiber counts (16.4 vs. 16.4 per mm) was found. **CONCLUSIONS:**

Vestibulectomy is a very effective treatment option in women with provoked vestibulodynia who have had failed conservative treatment. Histology is unable to predict which patients will respond to surgery.

Clinical recommendation: pediatric lichen sclerosis.

Bercaw-Pratt JL, Boardman LA, Simms-Cendan JS.

J Pediatr Adolesc Gynecol. 2014 Apr;27(2):111-6. doi: 10.1016/j.jpag.2013.11.004.
<http://www.ncbi.nlm.nih.gov/pubmed/24602304>

Lichen sclerosis is a chronic inflammatory condition affecting the anogenital region that may present in the prepubertal or adolescent patient. Clinical presentations include significant pruritus, labial adhesions, and loss of pigmentation. Treatment includes topical anti-inflammatory agents and long-term follow-up as there is a high risk of recurrence and an increased risk of vulvar cancer in adult women with history of lichen sclerosis. These recommendations are intended for pediatricians, gynecologists, nurse practitioners and others who care for pediatric/adolescent girls in order to facilitate diagnosis and treatment.

Non-infectious inflammatory genital lesions.

Andreassi L, Bilenchi R.

Clin Dermatol. 2014 Mar-Apr;32(2):307-14. doi:10.1016/j.clindermatol.2013.08.015.
<http://www.ncbi.nlm.nih.gov/pubmed/24559568>

The genitalia may be the site of non-infectious inflammatory lesions that are generally manifested as balanoposthitis and vulvovaginitis. In men, these forms constitute 50% of all balanoposthitis forms, and in women, vulvovaginitis frequency is even higher. They consist of genital locations of general skin diseases, such as psoriasis, lichen planus, lichen sclerosis, and other clinical entities with their own physiognomy, such as Zoon's balanitis-vulvitis. Diagnosis of genital non-infectious inflammatory lesions is usually made on clinical criteria. A biopsy is only necessary for the identification of clinical conditions that may simulate inflammatory form but are actually premalignant processes.

Anatomy

Pudendal Nerve 3-Dimensional Illustration Gives Insight Into Surgical Approaches.

Furtmüller GJ, McKenna CA, Ebmer J, Dellon AL.

Ann Plast Surg. 2014 Mar 24. [Epub ahead of print]
<http://www.ncbi.nlm.nih.gov/pubmed/24667877>

The pudendal nerve is located topographically in areas in which plastic surgeon reconstruct the penis, the vagina, the perineum, and the rectum. This nerve is at risk for either compression or direct injury with neuroma formation from obstetrical, urogynecologic, and rectal surgery as well as pelvic fracture and blunt trauma. The purpose of this study was to create a 3-dimensional representation based on

magnetic resonance imaging of the pelvis supplemented with new anatomic dissections in men and women to delineate the location of the pudendal nerve and its branches, providing educational information both for surgical intervention and patient education. The results of this study demonstrated that most often there are at least 2, not 1, "pudendal nerves trunks" as they leave the pelvis to transverse the sacrotuberous ligament, and that there are most often 2, not 1, exit(s) from Alcock canal, one for the dorsal branch and one for the perineal branch of the pudendal nerve.

Comparative pilot study of implantation techniques for pudendal neuromodulation: technical and clinical outcome in first 20 patients with chronic pelvic pain.

Heinze K, Hoermann R, Fritsch H, Dermietzel R, van Ophoven A.

World J Urol. 2014 Apr 29. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24777254>

PURPOSE: Neurostimulation of the pudendal nerve (PN) is considered for patients who have failed sacral neuromodulation. Previous techniques for PN localization are described to be uncomplicated and promise to achieve accuracy in electrode placement. However, in clinical use, they appear challenging. We developed a puncture technique using fixed anatomical landmarks for a fast and reproducible localization of the PN. **METHODS:** Full-body cadavers and dissected anatomical preparations were studied for the course of the PN. Fluoroscopically controlled fixed anatomical landmarks locating the pudendal trunk were defined. Lead placement following established techniques was performed, and the topographic relationship to the PN was documented by dissection. In a pilot series of 20 patients with chronic pelvic pain, pudendal neuromodulation (PNM) was performed uni- and bilateral using the different approaches. Technical and clinical outcomes of the various techniques were compared. **RESULTS:** Fixed anatomical landmarks such as ischial spine, ischial tuberosity, acetabulum and anal rim resulted in a right-angled triangle with a new start and target point for puncture. Initials of the landmarks add up to the teaching acronym STAR. STAR technique including a puncture angle of 60° and a gluteal lead exit places 3-4 electrode poles at the nerve. In clinical trial, mean operation time for bilateral PNM in STAR was 85 min with mean puncture attempts of 3.5 to reach the nerve. Pain decreased statistically significant only in bilateral PNM. **CONCLUSIONS:** The STAR approach appears to achieve technical standardisation and optimized reproducibility in pudendal lead placement resulting into an increased feasibility of PNM.

Pelvic floor muscle dysfunctions are prevalent in female chronic pelvic pain: A cross-sectional population-based study.

Loving S, Thomsen T, Jaszczak P, Nordling J.

Eur J Pain. 2014 Apr 3. doi: 10.1002/j.1532-2149.2014.485.x. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24700500>

BACKGROUND: No current standardized set of pelvic floor muscle (PFM) outcome measures have been specifically tested for their applicability in a general female chronic pelvic pain (CPP) population. We aimed to compare PFM function between a randomly selected population-based sample of women with CPP and age-matched pain-free controls using multiple standardized intravaginal examination measures recommended by the International Continence Society. **METHODS:** This was a cross-sectional, population-based and controlled study with randomly selected participants among women in Denmark. We reported blinded findings from a set of standardized vaginal PFM examination manoeuvres in 50 female participants (24 with CPP, 26 pain free). A preliminary pilot study ensured the intra- and intertester reliability of the test procedure. PFM outcomes were resting tone, relaxation capacity, strength, surface electromyographic activity and mechanosensitivity. Statistical analyses included unpaired t-tests, Fisher's exact tests and Mann-Whitney tests. **RESULTS:** The examination protocol was a reliable and predictable clinical measurement of associated PFM dysfunction in female CPP. Women with CPP had higher PFM resting tone and decreased maximal PFM strength and relaxation capacity compared with pain-free controls. Enhanced PFM pressure-pain sensitivity measured by palpometry during examination was also associated to CPP. **CONCLUSION:** This controlled, single-blinded study with randomly selected participants provides new population-based information regarding associated PFM dysfunction in women with CPP using multiple intravaginal examination methods. However, to identify women with CPP who will benefit from a physiotherapeutic specialized intervention, future prospective randomized controlled trials using these reliable and predictive outcomes are needed.

Morphometry of the pelvic floor muscles in women with and without provoked vestibulodynia using 4D ultrasound.

Morin M, Bergeron S, Khalifé S, Mayrand MH, Binik YM.

J Sex Med. 2014 Mar;11(3):776-85. doi: 10.1111/jsm.12367.

<http://www.ncbi.nlm.nih.gov/pubmed/24344835>

INTRODUCTION: It has been suggested that pelvic floor muscles (PFMs) play an important role in provoked vestibulodynia (PVD) pathophysiology. Controversy in determining their exact contribution may be explained by methodological limitations related to the PFM assessment tools, specifically the pain elicited by the measurement itself, which may trigger a PFM reaction and introduce a strong bias. **AIM:** The aim of this study was to compare PFM morphometry in women suffering from PVD to asymptomatic healthy control women using a pain-free methodology, transperineal four-dimensional (4D) ultrasound. **METHODS:** Fifty-one asymptomatic women and 49 women suffering from PVD were recruited. Diagnosis of PVD was confirmed by a gynecologist following a standardized examination. All the

participants were nulliparous and had no other urogynecological conditions. The women were evaluated in a supine position at rest and during PFM maximal contraction. MAIN OUTCOME MEASURES: Transperineal 4D ultrasound, which consists of a probe applied on the surface of the perineum without any vaginal insertion, was used to assess PFM morphometry. Different parameters were assessed in sagittal and axial planes: anorectal angle, levator plate angle, displacement of the bladder neck, and levator hiatus area. The investigator analyzing the data was blinded to the clinical data. RESULTS: Women with PVD showed a significantly smaller levator hiatus area, a smaller anorectal angle, and a larger levator plate angle at rest compared with asymptomatic women, suggesting an increase in PFM tone. During PFM maximal contraction, smaller changes in levator hiatus area narrowing, displacement of the bladder neck, and changes of the anorectal and of the levator plate angles were found in women with PVD compared with controls, which may indicate poorer PFM strength and control. CONCLUSION: Using a reliable and pain-free methodology, this research provides sound evidence that women with PVD display differences in PFM morphometry suggesting increased tone and reduced strength.

Pelvic floor failure: MR imaging evaluation of anatomic and functional abnormalities.

Bitti GT, Argiolas GM, Ballicu N, Caddeo E, Cecconi M, Demurtas G, Matta G, Peltz MT, Secci S, Siotto P.

Radiographics. 2014 Mar-Apr;34(2):429-48. doi: 10.1148/rg.342125050.

<http://www.ncbi.nlm.nih.gov/pubmed/24617690>

Pelvic floor failure is a common disorder that can seriously jeopardize a woman's quality of life by causing urinary and fecal incontinence, difficult defecation, and pelvic pain. Multiple congenital and acquired risk factors are associated with pelvic floor failure, including altered collagen metabolism, female sex, vaginal delivery, menopause, and advanced age. A complex variety of fascial and muscular lesions that range from stretching, insertion detachment, denervation atrophy, and combinations of pelvic floor relaxation to pelvic organ prolapse may manifest in a single patient. Thorough preoperative assessment of pelvic floor failure is necessary to reduce the rate of relapse, which is reported to be as high as 30%. Magnetic resonance (MR) imaging of the pelvic floor is a two-step process that includes analysis of anatomic damage on axial fast spin-echo (FSE) T2-weighted images and functional evaluation using sagittal dynamic single-shot T2-weighted sequences during straining and defecation. This article presents high-resolution FSE T2-weighted MR images that permit detailed assessment of anatomic lesions and briefly describes pelvic floor pathophysiology, associated clinical symptoms, and patterns of dysfunction seen with dynamic MR imaging sequences. MR imaging is a powerful tool that enables radiologists to comprehensively evaluate pelvic anatomic and functional abnormalities, thus helping surgeons provide appropriate treatment and avoid repeat operations.

US of the pediatric female pelvis.

Paltiel HJ, Phelps A.

Radiology. 2014 Mar;270(3):644-57. doi: 10.1148/radiol.13121724.

<http://www.ncbi.nlm.nih.gov/pubmed/24568702>

This review presents the normal and pathologic development of the gonads and genitourinary tract and addresses the role of ultrasonography in the diagnosis and management of gynecologic disorders of the pediatric pelvis, including ambiguous genitalia, prepubertal bleeding, primary amenorrhea, pelvic mass, and pelvic pain.

Pain Science

Pain sensitivity is inversely related to regional grey matter density in the brain.

Emerson NM, Zeidan F, Lobanov OV, Hadsel MS, Martucci KT, Quevedo AS, Starr CJ, Nahman-Averbuch H, Weissman-Fogel I, Granovsky Y, Yarnitsky D, Coghill RC.

Pain. 2014 Mar;155(3):566-73. doi: 10.1016/j.pain.2013.12.004.

<http://www.ncbi.nlm.nih.gov/pubmed/24333778>

Pain is a highly personal experience that varies substantially among individuals. In search of an anatomical correlate of pain sensitivity, we used voxel-based morphometry to investigate the relationship between grey matter density across the whole brain and interindividual differences in pain sensitivity in 116 healthy volunteers (62 women, 54 men). Structural magnetic resonance imaging (MRI) and psychophysical data from 10 previous functional MRI studies were used. Age, sex, unpleasantness ratings, scanner sequence, and sensory testing location were added to the model as covariates. Regression analysis of grey matter density across the whole brain and thermal pain intensity ratings at 49°C revealed a significant inverse relationship between pain sensitivity and grey matter density in bilateral regions of the posterior cingulate cortex, precuneus, intraparietal sulcus, and inferior parietal lobule. Unilateral regions of the left primary somatosensory cortex also exhibited this inverse relationship. No regions showed a positive relationship to pain sensitivity. These structural variations occurred in areas associated with the default mode network, attentional direction and shifting, as well as somatosensory processing. These findings underscore the potential importance of processes related to default mode thought and attention in shaping individual differences in pain sensitivity and indicate that pain sensitivity can potentially be predicted on the basis of brain structure.

The TRPM8 channel forms a complex with the 5-HT(1B) receptor and phospholipase D that amplifies its reversal of pain hypersensitivity.

Vinuela-Fernandez I, Sun L, Jerina H, Curtis J, Allchorne A, Gooding H, Rosie R, Holland P, Tas B, Mitchell R, Fleetwood-Walker S.

Neuropharmacology. 2014 Apr;79:136-51. doi: 10.1016/j.neuropharm.2013.11.006.
<http://www.ncbi.nlm.nih.gov/pubmed/24269608>

Effective relief from chronic hypersensitive pain states remains an unmet need. Here we report the discovery that the TRPM8 ion channel, co-operating with the 5-HT(1B) receptor (5-HT(1B)R) in a subset of sensory afferents, exerts an influence at the spinal cord level to suppress central hypersensitivity in pain processing throughout the central nervous system. Using cell line models, ex vivo rat neural tissue and in vivo pain models, we assessed functional Ca(2+) fluorometric responses, protein:protein interactions, immuno-localisation and reflex pain behaviours, with pharmacological and molecular interventions. We report 5-HT(1B)R expression in many TRPM8-containing afferents and direct interaction of these proteins in a novel multi-protein signalling complex, which includes phospholipase D1 (PLD1). We provide evidence that the 5-HT(1B)R activates PLD1 to subsequently activate PIP 5-kinase and generate PIP2, an allosteric enhancer of TRPM8, achieving a several-fold increase in potency of TRPM8 activation. The enhanced activation responses of synaptoneurosomes prepared from spinal cord and cortical regions of animals with a chronic inflammatory pain state are inhibited by TRPM8 activators that were applied in vivo topically to the skin, an effect potentiated by co-administered 5-HT(1B)R agonists and attenuated by 5-HT(1B)R antagonists, while 5-HT(1B)R agents alone had no detectable effect. Corresponding results are seen when assessing reflex behaviours in inflammatory and neuropathic pain models. Control experiments with alternative receptor/TRP channel combinations reveal no such synergy. Identification of this novel receptor/effector/channel complex and its impact on nociceptive processing give new insights into possible strategies for enhanced analgesia in chronic pain.

Targeting the Affective Component of Chronic Pain: A Case Series of Deep Brain Stimulation of the Anterior Cingulate Cortex.

Boccard SG, Fitzgerald JJ, Pereira EA, Moir L, Van Hartevelt TJ, Kringelbach ML, Green AL, Aziz TZ.

Neurosurgery. 2014 Apr 15. [Epub ahead of print]
<http://www.ncbi.nlm.nih.gov/pubmed/24739362>

BACKGROUND: Deep brain stimulation (DBS) has shown considerable promise for relieving nociceptive and neuropathic symptoms of refractory chronic pain. Nevertheless, for some patients, standard DBS for pain remains poorly efficacious. Pain is a multi-dimensional experience with an affective component: the unpleasantness. The anterior cingulate cortex (ACC) is a structure involved in this affective component and targeting it may relieve patients. **OBJECTIVE:** To describe the first case series of ACC DBS to relieve the affective component of chronic neuropathic pain. **METHODS:** 16 patients (13 males and 3 females) with neuropathic pain underwent bilateral ACC DBS. Mean age at surgery was 48.7 [33-63] years. Patient reported outcome measures were collected before and after surgery, using a

Visual Analogue Scale (VAS), Short Form 36 quality of life survey (SF-36), McGill pain questionnaire (MPQ) and EuroQol-5D questionnaires (EQ-5D; Health state). RESULTS: 15 patients (93.3 %) transitioned from externalized to fully internalized systems. 11 patients had data to be analyzed with a mean follow-up of 13.2 months. Post-surgery, VAS dropped below 4 for 5 of the patients, with one patient freed from pain. Highly significant improvement of EQ-5D was observed (mean +20.3%, range +0% to +83%, $p=0.008$). Moreover, statistically significant improvements were observed for the PF (physical functioning) and BP (bodily pain) domains of the SF-36 quality of life survey: mean +64.7% (range -8.9% to +276%, $p=0.015$) and mean +39.0% (range -33.8% to +159%, $p=0.050$), respectively. CONCLUSION: Affective ACC DBS can relieve chronic neuropathic pain refractory to pharmacotherapy and restore quality of life.

Normative values of skin temperature and thermal sensory thresholds in the pudendal nerve territory.

Beco J, Seidel L, Albert A.

Neurourol Urodyn. 2014 Apr 30. doi: 10.1002/nau.22614. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24782126>

AIMS: The aim of this study was to define normative values of skin temperature and thermal sensory threshold in the pudendal nerve territory. METHODS: Warm and cold detection thresholds (using the method of limits) and skin temperature were measured in a group of 41 presumably healthy female volunteers aged 41 years (range: 23-66 years) at left thenar eminence and in the pudendal nerve territory. Outlying data were discarded and 95% normative values were derived assuming Normal distributions. RESULTS: Room temperature averaged $24.3 \pm 1.1^\circ$. Skin temperature and cold detection threshold value were greater anteriorly (clitoris, labia) than posteriorly (para-anal). Para-anal skin temperature and cold detection threshold value were also significantly lower on the right side than on the left side. The warm detection threshold was significantly lower at the clitoris level than at left and right labia. A significant positive effect of skin temperature on cold and warm detection thresholds values was noted especially at thenar and para-anal levels. Age had no effect on skin temperature but warm detection thresholds at clitoris were higher in older subjects. The only qualitative abnormalities observed were after-sensation (4.9%) and habituation (2.8%). Allodynia, dysesthesia, radiation, and dyslocalization were not observed. Two-sided normative values were determined for skin temperature, vertical, and horizontal differences, while one-sided values were derived for cold and warm detection thresholds as well as for their difference. CONCLUSIONS: Normative values for perineal skin temperature and thermal detection thresholds can be used as an alternative non-invasive way to evaluate pudendal neuropathy.

Assessing severity of pain in women with focal provoked vulvodynia: are von Frey filaments suitable devices?

Donders GG, Bellen G.

J Reprod Med. 2014 Mar-Apr;59(3-4):134-8.

<http://www.ncbi.nlm.nih.gov/pubmed/24724221>

OBJECTIVE: To determine whether von Frey filaments are effective in the standardized assessment of the severity of focal provoked vulvodynia (FPV) syndrome. **STUDY DESIGN:** The data of 30 women with FPV attending monthly at our vulvovaginal disease clinic, for a collective total of 141 visits over 6 months, were analyzed. At each visit sensitivity tests at the vulvar vestibule were performed at the 5 and 7 o'clock area, totaling 282 measurements. A questionnaire, blinded to the examining physician, and a visual analogue score (VAS) of pain ranging from 1 (no pain) to 10 (maximal pain) was obtained of the discomfort felt when attempting sexual intercourse. **RESULTS:** The VAS, the investigator assessment of redness, and the 1 to 10 score result of the cotton swab touch test at 5 and 7 o'clock were superior diagnostic tools for assessing the severity of the pain when compared to the use of von Frey filaments. **CONCLUSION:** Although elegant because of the promise of objective, semiquantitative measurements, von Frey filaments are less suitable devices to assess severity of disease and response to treatment than are cotton swab 1 to 10 pain scores and clinical parameters like subjective pain (VAS) and objective focal redness.

Ability of the Central Sensitization Inventory to Identify Central Sensitivity Syndromes in an Outpatient Chronic Pain Sample.

Neblett R, Hartzell MM, Cohen H, Mayer TG, Williams M, Choi Y, Gatchel RJ.

Clin J Pain. 2014 May 6. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24806467>

OBJECTIVES: To determine the ability of the Central Sensitization Inventory (CSI), a new screening instrument, to assist clinicians in identifying patients with Central Sensitivity Syndromes (CSSs). **METHODS:** Patients from a psychiatric medical practice (N=161), which specialized in the assessment and treatment of complex pain and psychophysiological disorders, were assessed for the presence of a CSS. CSI scores, using a previously determined cutoff of "40" out of "100," were compared between the CSS patient group (n=99) and the non-CSS patient group (n=62). Information on false positives, false negatives, true positives, and true negatives were analyzed, and sensitivity and specificity analyses were conducted. Additionally, CSS-relevant variables such as depression, abuse, and substance abuse were examined. **RESULTS:** A large percentage of CSS patients had comorbid major depressive disorder (80%) and abuse history (43%), which was higher than rates for the patients without a CSS (55% and 24%, respectively). The CSI correctly identified 82.8% (n=82) of CSS patients as having a CSS (i.e., sensitivity) and 54.8% (n=28) of non-CSS patients as not having a CSS (i.e., specificity). False-positive patients (not diagnosed with a CSS, but scoring greater than 40 on the CSI) reported more severe pain, interference in daily functioning, and abuse history, compared to the non-CSS patients who scored below 40 (i.e., true negatives). **CONCLUSIONS:** The CSI is a useful and valid instrument for screening patients for the possibility of a

CSS, although the chances of false-positives are relatively high when evaluating patients with complex pain and psychophysiological disorders.

Management of pudendal neuralgia.

Pérez-López FR, Hita-Contreras F.

1Climacteric. 2014 Apr 9. [Epub ahead of print]

<http://www.ncbi.nlm.nih.gov/pubmed/24716710>

ABSTRACT Pelvic pain is a frequent complaint in women during both reproductive and post-reproductive years. Vulvodynia includes different manifestations of chronic vulvar pain with no known cause. Many women do not receive a diagnosis and appropriate treatment. Pudendal neuralgia is a painful condition caused by inflammation, compression or entrapment of the pudendal nerve; it may be related to or be secondary to childbirth, pelvic surgery, intense cycling, sacroiliac skeletal abnormalities or age-related changes. Clinical characteristics include pelvic pain with sitting which increases throughout the day and decreases with standing or lying down, sexual dysfunction and difficult with urination and/or defecation. To confirm pudendal neuralgia, the Nantes criteria are recommended. Treatment includes behavioral modifications, physiotherapy, analgesics and nerve block, surgical pudendal nerve decompression, radiofrequency and spinal cord stimulation.

Sex Differences

Improving care of chronic conditions for women veterans: identifying opportunities for comparative effectiveness research.

Bielawski MP, Goldstein KM, Mattocks KM, Bean-Mayberry B, Yano EM, Bastian LA.

J Comp Eff Res. 2014 Mar;3(2):155-66. doi: 10.2217/ce.14.4.

<http://www.ncbi.nlm.nih.gov/pubmed/24645689>

This article aims to critically analyze research focused on the findings for five chronic conditions: chronic pain, diabetes, cardiovascular disease, HIV and cancer among women veterans to identify opportunities for comparative effectiveness research. We provide a descriptive analysis from the relevant articles in prior systematic reviews. In order to identify potential gaps in research for these specific conditions, we also conducted a literature search to highlight studies focusing on women veterans published since the last systematic review. While the scientific knowledge base has grown for these chronic conditions among women veterans, the vast majority of the published literature remains descriptive and/or observational, with only a few studies examining gender differences and even fewer clinical trials. There is a need to conduct comparative effectiveness research on chronic conditions among women veterans to improve health and healthcare.

The influence of patient sex, provider sex, and sexist attitudes on pain treatment decisions.

Hirsh AT, Hollingshead NA, Matthias MS, Bair MJ, Kroenke K.
J Pain. 2014 May;15(5):551-9. doi: 10.1016/j.jpain.2014.02.003.
<http://www.ncbi.nlm.nih.gov/pubmed/24576430>

Research suggests that patient sex, provider sex, and providers' sexist attitudes interact to influence pain care; however, few empirical studies have examined these influences. We investigated sex (patient and provider) differences in pain treatment and the extent to which providers' sexist attitudes were associated with these differences. Ninety-eight health care providers (52% female) completed the Ambivalent Sexism Inventory and made treatment ratings for 16 computer-simulated patients with low back pain. Patient sex was balanced across vignettes. Results indicated that female patients received significantly higher antidepressant ($F[1, 96] = 4.51, P < .05, \eta^2(2) = .05$) and mental health referral ($F[1, 96] = 3.89, P = .05, \eta^2(2) = .04$) ratings than male patients, which is consistent with our hypotheses; however, these differences were significant only among female providers. Controlling for providers' sexism scores did not substantially alter these results, which is counter to our hypotheses. These results suggest that female providers are more likely to recommend psychosocial treatments for female than for male pain patients, and providers' sexist attitudes do not account for these differences. Research is needed to elucidate the contributors to sex/gender differences in treatment in order to reduce pain disparities. PERSPECTIVE: The results of this study suggest that patient and provider sex, but not providers' sexist attitudes, influence pain care. These findings may inform efforts to raise awareness of sex/gender differences in pain care and reduce disparities.

Sex differences in experimental pain among healthy children: A systematic review and meta-analysis.

Boerner KE, Birnie KA, Caes L, Schinkel M, Chambers CT.
Pain. 2014 May;155(5):983-93. doi: 10.1016/j.pain.2014.01.031.
<http://www.ncbi.nlm.nih.gov/pubmed/24508752>

Sex differences in response to experimental pain are commonly reported in systematic reviews in the adult literature. The objective of the present research was to conduct a systematic review and meta-analysis of sex differences in healthy children's responses to experimental pain (eg, cold pressor, heat pain, pressure pain) and, where possible, to conduct analyses separately for children and adolescents. A search was conducted of electronic databases for published papers in English of empirical research using experimental pain tasks to examine pain-related outcomes in healthy boys and girls between 0 and 18 years of age. Eighty articles were eligible for inclusion and were coded to extract information relevant to sex differences. The systematic review indicated that, across different experimental pain tasks, the majority of studies reported no significant differences between boys and girls on pain-related outcomes. However, the meta-analysis of available combined data found that girls reported significantly higher cold pressor pain intensity compared to boys in studies where the mean age of participants was greater than 12 years. Additionally, a meta-analysis of heat pain found that boys had

significantly higher tolerance than girls overall, and boys had significantly higher heat pain threshold than girls in studies where the mean age of participants was 12 years or younger. These findings suggest that developmental stage may be relevant for understanding sex differences in pain.

Pelvic pain: a pathway for care developed for both men and women by the British Pain Society.

Baranowski AP, Lee J, Price C, Hughes J.

Br J Anaesth. 2014 Mar;112(3):452-9. doi: 10.1093/bja/aet421.

<http://www.ncbi.nlm.nih.gov/pubmed/24394942>

This paper aims to explain the key points and highlight some of the controversies in the development of the British Pain Society's pelvic pain patient pathway map. Many clinicians lack experience and confidence with this group of patients, and this issue is highlighted. Additionally, the difficulties of classification and definitions in this area are discussed in detail. These are historical causes of disagreement among specialists which can lead to confused clinical care. This group of patients have multiple issues that cross many professional boundaries; they are best managed by the co-ordinated involvement of multiple teams. Patients suffer from significant distress and disability that often needs specialist assessment and intervention (interdisciplinary). This suggests that an integrated approach is required across the historic boundaries of primary and secondary care. A variety of interventions, including opioids and neuromodulation are recommended in the pathway and the controversies surrounding these inclusions are aired in detail.

The Canadian STOP-PAIN Project: The Burden of Chronic Pain-Does Sex Really Matter?

Racine M, Dion D, Dupuis G, Guerriere DN, Zagorski B, Choinière M, Banner R, Barton PM, Boulanger A, Clark AJ, Gordon A, Guertin MC, Intrater HM, Lefort SM, Lynch ME, Moulin DE, Ong-Lam M, Peng P, Rashiq S, Shir Y, Taenzer P, Ware M; *Clin J Pain.* 2014 May;30(5):443-52. doi: 10.1097/AJP.0b013e3182a0de5e.

<http://www.ncbi.nlm.nih.gov/pubmed/23887346>

OBJECTIVES: The Canadian STOP-PAIN Project assessed the human and economic burden of chronic pain (CP) in individuals on waitlists of Canadian multidisciplinary pain treatment facilities. This article focuses on sex differences. Objectives were to (1) determine the pain characteristics and related biopsychosocial factors that best differentiated women and men with CP; and (2) examine whether public and private costs associated with CP differed according to sex. **MATERIALS AND METHODS:** Sample consisted of 441 women and 287 men who were evaluated using self-administered questionnaires and a structured interview protocol. A subsample (233 women and 137 men) recorded all pain-related expenditures in a comprehensive diary over 3 months. **RESULTS:** Results revealed that the burden of illness associated with CP was comparable in both sexes for average and worst pain intensity, pain impact on daily living, quality of life, and psychological well-being. The same was true for pain-related costs. The results of a hierarchical logistic regression analysis, in which sex was treated as the dependent

variable, showed that factors that differentiated men and women were: work status, certain circumstances surrounding pain onset, present pain intensity, intake of particular types of pain medication, use of certain pain management strategies, pain beliefs, and utilization of particular health care resources. DISCUSSION: This study suggests that women and men who are referred to multidisciplinary pain treatment facilities do not differ significantly in terms of their pain-related experience. However, the aspects that differ may warrant further clinical attention when assessing and managing pain.