

## Incorporating an Integrative and Holistic Approach for Chronic Pelvic Pain Patients

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### Introduction

Chronic pelvic pain (CPP) is one of the most common pain conditions suffered by women and can severely affect the quality of life, including physical functioning, psychological wellbeing, and interpersonal relationships. The estimated prevalence for women of reproductive ages is between 14% – 24%, and about 14% of women experience CPP during their life [1,2]. CPP syndrome in women is multi-faceted with interconnections between organ systems, musculature, fascia, and the peripheral and central nervous system. Standard treatments often have limited effectiveness. To date, there is a broad range of complementary and alternative medicine (CAM) techniques that have been studied for the treatment of CPP. Therefore, it is essential for providers to be familiar with a range of treatment options that draw from conventional medicine, as well as complementary and alternative modalities.

**List of abbreviations:** CPP: Chronic pelvic pain; CAM: complementary and alternative medicine; CBT: Cognitive Behavioral Therapy; PEA: palmitoylethanolamide

## Cognitive Behavioral Therapy and Mindfulness-Based Interventions

Before the 1960s, there were few, if any, unifying theories regarding why pain persists despite injury recovery or lack of identifiable tissue damage. Melzack and Wall's Gate Control Theory is a rich and integrated theory that seeks to explain not only the physiological factors that maintain pain, but the cognitive, emotional, behavioral, and social as well [3]. Cognitive Behavioral Therapy (CBT), in conjunction with appropriate medical intervention, is uniquely suited to address these factors that perpetuate CPP. CBT is a broad term for therapies that involve a focus on changing behaviors and thoughts in order to change affective states. CBT and mindfulness-based interventions have long been recognized as effective treatments for reducing chronic pain, and a recent meta-analysis suggests that there is no significant difference in outcome between either CBT or mindfulness-based interventions for these patients [4].

Cognitive Behavioral Therapy and mindfulness-based interventions address an individual's pelvic pain in a variety of ways. Behaviorally, participants are taught exercises such as diaphragmatic breathing and progressive muscle relaxation, to target muscle tension and accompanying anxiety [6]. Behavioral activation strategies help patients to interrupt the chronic pain cycle, and decrease associated depression. Patients are then taught to challenge catastrophic cognitions that they may experience in response to pain, which serve to increase negative emotional states. The goal of mindfulness-based interventions is not changing, but rather acceptance. Paradoxically, once patients learn to allow unpleasant sensations to come and go rather than fighting them, they often report decreases in pain.

Although there is limited data specific to CPP, one study found "reduced overall pain severity and pain during intercourse, increased sexual satisfaction, enhanced sexual function, and less exaggerated responses to pain", following a course of CBT [6]. A small pilot study found that women with CPP who participated in an 8-week mindfulness meditation program had improvement in daily pain scores, physical function, mental health, and social function [7]. One limitation of CBT and mindfulness are the time-intensive nature of the care. A 2019 study demonstrated the effectiveness of a short-term CBT intervention delivered in a primary care setting [5]. Having a psychotherapist who is trained to deliver these services alongside physicians providing necessary medical treatment to patients should move towards becoming the standard of care.

## The Role of Diet

Dietary modifications have long been recommended for the management of specific pelvic pain conditions such as irritable bowel syndrome (IBS) and interstitial cystitis/bladder pain syndrome (IC/BPS). For example, in IBS, dietary modifications include the elimination of gas-producing foods, lactose avoidance, and a diet low in fermentable oligo-, di-, and monosaccharides and polyols [8-11]. Similarly, modifying one's diet and avoiding "triggers" has long been recommended as part of first-line therapy for IC/BPS, despite limited high-quality evidence supporting its efficacy [12]. Several observational studies have identified consistent pain triggers, including caffeinated beverages, artificial sweeteners, spicy foods, and alcohol, amongst others [13-14]. One prospective trial of target dietary manipulation supported the benefit of adhering to an elimination diet for the management of IC/BPS [15].

Research into the role of dietary modifications and supplements for other pelvic pain conditions, such as endometriosis and dysmenorrhea, is ongoing. A recent study of 160 women with comorbid IBS and endometriosis reported a reduction in pain after following a low FODMAP diet for four weeks [16]. Other studies have had positive results when implementing a variety of dietary interventions in endometriosis patients, including the use of a gluten-free diet, the addition of dietary supplements including vitamins, mineral salts, lactic ferments, and fish oil, and other dietary supplements including alpha-lipoic acid, palmitoylethanolamide (PEA) and myrrh [17-19]. A large prospective cohort study of reproductive-aged women found that women who consumed more than 2 servings of red meat per day had a 56% higher risk of laparoscopically-confirmed endometriosis, compared to women who had 1 or fewer servings per week [20]. This study also found an association with heme iron intake and endometriosis. While this study did not evaluate the effect of eliminating red meat from one's diet as a way of reducing pain, it does suggest the role of diet as a modifiable factor in the development of endometriosis and endometriosis-associated pain.

Other studies have looked more generally at menstrual pain. A systematic review of dietary effects on menstrual pain suggested that diets high in fruits, vegetables, fish, and milk were associated with decreased pain [21]. Additionally, a Cochrane Review suggested that fish oil might improve menstrual pain [22]. Dietary therapy aimed at increasing antioxidants has been shown to improve nociceptive, inflammatory, and neuropathic pain associated with CPP [23]. Antioxidants such as omega-3 fatty acids have anti prostaglandin activity reducing dysmenor-

rhea and inflammation. It is likely that dietary modifications can benefit patients with chronic pelvic pain, however, the modifications should be tailored to the patient and their specific pain generators and symptoms.

## Yoga

Yoga has been shown to be beneficial for chronic pain conditions, including CPP and dysmenorrhea [24,25]. These benefits include improvement in pain, mood, sleep, and quality of life. Several randomized and non-randomized studies looking at the effect of yoga on dysmenorrhea have shown a significant reduction in menstrual pain for those practicing yoga [26,27]. A systematic review, which included 854 women from 12 studies, demonstrated that exercise, including yoga, significantly reduced dysmenorrhea [28]. Similar outcomes have been noted in patients with general CPP. In one small trial of 16 women initiating a yoga program aimed to reduce chronic pelvic pain, there was a significant decrease in pain scores and improvement in the quality of life scores following a 6-week yoga practice [29]. Similarly, in a randomized control trial of 60 women evaluating the effect of yoga on chronic pelvic pain, patients who were randomized to the experimental group reported improved pain and quality of life scores after completing an 8-week yoga program [30]. To date, there is a growing body of literature supporting the role yoga practice may play as a complementary treatment for CPP. Based on this data, the slow introduction of gentle yoga practice can be recommended to most patients experiencing CPP.

## Craniosacral Therapy

As compared to other CAM therapies, there is a paucity of data on craniosacral therapy (CST) for the management of CPP. Craniosacral therapy is derived from osteopathic manipulative treatments and uses non-invasive gentle palpation to release myofascial structures in the craniosacral system [31]. The exact mechanism of the therapy is not well understood. A single study of 123 pregnant women evaluated the role of CST in the management of pelvic pain [32]. This study demonstrated a mild improvement in pelvic pain and functional status. While this therapy has a favorable safety profile, further studies are needed to further elucidate the role of this therapy in the management of CPP.

## Posterior Tibial Nerve Stimulation

Posterior Tibial Nerve Stimulation (PTNS), a procedure where an acupuncture needle is placed behind the ankle

and electrical stimulation is administered to the posterior tibial nerve, was initially proposed for overactive bladder syndrome [33]. Treatments are generally administered as 30-minute sessions once a week for 12 weeks. While the mechanism of actions is not clearly understood, it has been studied for the management of CPP refractory to other treatments [34]. One small randomized-controlled trial looking at women with a general diagnosis of CPP demonstrated an improvement in both pain and quality of life scores after completing 12 weeks of PTNS [35]. Several observational studies of women with general CPP have demonstrated similar findings, with improvement in pain scores and quality of life scores in 40-100% of patients [36-38]. In contrast, one study of 14 patients with intractable interstitial cystitis/bladder pain syndrome (IC/BPS) demonstrated no benefit for PTNS [39]. Based on the available data, PTNS is a safe option for patients with CPP and can be considered in patients who do not respond to other treatments.

## Acupuncture

Traditional Chinese medicine holds that menstrual pain comes from the stagnation of blood or Qi around the uterus [40]. Conceptually, the theory behind acupuncture and CPP is that acupuncture can increase blood flow to organs and tissues, and ultimately this will help alleviate pain. One example of acupuncture helping with pelvic pain is an investigative study that found auricular acupuncture significantly reduced short-term pain in patients with severe dysmenorrhea due to endometriosis [41]. One systematic review showed that acupoint stimulation could have good short-term effects on primary dysmenorrhea [42]. Limited data exist on the use of acupuncture for the management of CPP, however current literature supports a benefit in the use of acupuncture for dysmenorrhea. More research is required to further explore both the short-term and long-term effects of acupuncture to help symptoms of pelvic pain.

## Homeopathic Medication for Pelvic Floor Trigger Point Injections and Peripheral Nerve Blocks

Traumeel is a fixed combination of diluted plant and mineral extracts, which aims to decrease inflammation and promote healing. Traumeel is currently used to treat pain and inflammation during acute musculoskeletal injuries [43]. It can be used in the form of tablets, drops, injection solution, ointment, and gel. One study looked at sixteen patients with biopsy-confirmed Endometriosis who underwent a series of ultrasound-guided

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pelvic floor trigger-point injections and peripheral nerve hydro dissection using the homeopathic medication traumeel in combination with lidocaine [44]. This study showed the trigger-point injections and peripheral nerve hydro dissection was effective at relieving pain associated with endometriosis and improving overall pelvic function, particularly in relation to intercourse, working, and sleeping. Given the small sample size, further research is necessary to study this unique protocol.

## **Conclusion**

The use of CAM continues to increase, especially among those with unmet medical needs [45]. Given the limitations in, both the efficacy and side effect profile in standard treatment options, CAM and integrative medicine options should be considered to help improve pain and function for women with CPP. More high-quality studies investigating the effectiveness of CAM therapies in the treatment of CPP are needed to help guide

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