Background: My interest in understanding joint hypermobility started very early on in my career as I was working with many women during pregnancy who presented with increased joint laxity. When I joined Mayo Clinic in 2019 I immediately began seeing patients with hypermobility spectrum disorders. I am often the 1st person to diagnose them, usually because of CPP or POP. I just had two recent patients of women in their early 40s with full rectal prolapse. These patients have

• High prevalence of pelvic floor disorders in EDS (Nee 2019, cohort of 1804 EDS patients)
  • 75.3% had urinary and/or fecal incontinence
  • 93% complained of GI symptoms, especially incomplete emptying
• Prevalence of incontinence in members of Hypermobility Syndrome Association (HMSA) (Arunkalaivanan 2009, 148/343 survey responses to HMSA members)
  • Urinary incontinence 68% vs expected 30% prevalence in general population
  • Fecal incontinence 14.9% vs expected 2.2%
• 84% had urinary incontinence during physical testing (Chan 2019, n=116)
• Strong association between hypermobility and pelvic organ prolapse (POP); OR 2.37 (Veit-Rubin 2016 Systematic Review)

Mayo Clinic has developed an Ehlers-Danlos syndrome (EDS) clinic for diagnosis and multidisciplinary treatment of patients with EDS/hypermobility spectrum disorder. I wanted to review these two articles to increase awareness and spark some discussion on how we as pelvic PTs and front line providers, best identify and approach the care of these patients.


Introduction: Pelvic pain, especially chronic pelvic pain, is multifactorial and may involve multiple systems including not only gynecologic, but urologic, gastroenterologic, psychological, neurologic, and musculoskeletal. The significance of musculoskeletal, or myofascial, pain in chronic pelvic pain conditions is becoming increasingly established. An estimated 25%-40% of women undergoing diagnostic laparoscopic surgery for pelvic pain do not have an obvious structural diagnosis, suggesting their pain is not due to organ disease but may be due to myofascial dysfunction. Musculoskeletal problems are thought to be more prevalent in patients with joint hypermobility because of the increased ratio of type III to type I collagen leading to more stretchable tissues that may be more prone to generalized tissue damage. Joint hypermobility syndrome (JHS) is a heritable disorder of connective tissue mainly characterized by joint hypermobility, joint instability, and chronic pain. Joint hypermobility and Ehlers-Danlos syndrome (EDS) has been recently updated in 2017 to be termed hypermobility spectrum disorders (HSD), which encompass a spectrum of joint hypermobility associated disorders from peripheral joint hypermobility to hypermobile-type EDS (hEDS). There is a paucity of research applying the new HSD criteria in general, and specifically in the CPP population.

Study Design and Methods:
• 1-year retrospective case-control study based on the documentation from a hospital’s specialized integrative pelvic pain program within the Dept. Of OB-GYN.
• 617 patients with persistent pelvic pain were seen during the 1-year time period.

• Physical examination of the superficial and deep pelvic floor musculature was performed via single-digit examination as part of the standard initial persistent pelvic pain evaluation.

• If palpation of the pelvic floor musculature revealed trigger points or tenderness to palpation and reproduction of the patient’s typical pain, they were diagnosed with myofascial pelvic pain.

• Patients were also screened for joint hypermobility by using the 5-point joint hypermobility screening questionnaire followed by obtaining a Beighton score for those who screened positive.

• Examination and scoring were performed by either a physician or nurse practitioner

Five-part questionnaire for identifying joint hypermobility
(1) Can you now (or could you ever) place your hands flat on the floor without bending your knees?
(2) Can you now (or could you ever) bend your thumb to touch your forearm?
(3) As a child did you amuse your friends by contorting your body into strange shapes or could you do the splits?
(4) As a child or teenager did your shoulder or kneecap dislocate on more than one occasion?
(5) Do you consider yourself double-jointed?
Affirmative answer to 2 or more questions suggests hypermobility, with 80%-85% sensitivity and 80%-90% specificity.

Purpose: Null hypothesis there is no association between women with joint hypermobility and the frequency of pain associated gynecologic complaints.

The primary outcome of the study was to assess the prevalence of G-HSD among patients with persistent myofascial pelvic pain. The secondary outcome was to assess for associations between G-HST and dyspareunia, provoked vestibular denier, stress urinary incontinence, irritable bowel syndrome, hip pain, low back pain, and fibromyalgia

Statistical analysis: characteristics of the patients were compared between those with GHSD and a random sample of controls without GHSD using T test, Chi square test, fishers exact test. Prevalence of GHSD was calculated as a proportion. Logistical regression was used to calculate odds ratios.

Results: general characteristics are represented in table 1. 77 patients met criteria for both myofascial pelvic pain and GHSD which are referred to as "cases". 77 of the non-HSD patients were randomly selected to serve as controls for comparison. The main Beighton score in the cases was eight with a range of 5 to 9.

Primary Outcome: Point Prevalence estimate - 24.2% of patients with myofascial pelvic pain also met criteria for GHSD

Secondary outcomes: Odds ratios calculations An OR of 1 means that there is no greater odds of an outcome

Table 2. Before adjusting for potential confounding effects there were statistically significant associations between joint hypermobility and dyspareunia, low back pain, IBS, and hip pain
Adjusted associations. Table 3 After adjusting for potential cofounders associations remained between dyspareunia, low back pain, IBS, SUI, and hip pain.

**Discussion:** Estimates of the prevalence of chronic musculoskeletal pain due to joint hypermobility or joint hypermobility syndrome range widely from 3 to 20% of the general population. The prevalence in this study was even higher.

No association identified between GHSD and provoked vestibulodynia nor with fibromyalgia. Other studies have found a higher association between fibromyalgia and joint hypermobility syndrome. The authors speculate that because of the academic safety net institution population being medically underserved, there was a low prevalence of fibromyalgia in the sample 2 to lack of diagnosis of fibromyalgia because of low access to care.

Page 1197 "The study findings suggest that physicians should inquire about joint hypermobility when evaluating a chronic pelvic pain patient with a suspected myofascial component of their pain" "early diagnosis of HST may intern expedite the appropriate diagnosis and management of associated conditions of chronic pain and pelvic floor dysfunction including incontinence and prolapse: many of these patients would benefit from an individualized physical therapy treatment plan to focus on neuromuscular reeducation and joint stabilization. Likewise and awareness of the condition my o offer patients with pelvic pain who often suffer for quite some time before obtaining a diagnosis some reassurance as to the cause of their symptoms"

Strengths: first study to estimate the avalanche of joint hypermobility in the myofascial pelvic pain population. First study to explore the association applying the newly developed criteria. Strong detailed chart review.

Un-Stated strength: clinician employed a standardized examination procedure for both pelvic floor myofascial pain and examination of hyper mobility.

Limitations: retrospective study. Referral population" which may imply selection bias.

**Questions for Journal club discussion:**

**Why do you think HSD's increase the odds of dyspareunia, LBP, IBS, hip pain, and SUI?**

*Thoughts from the discussion on April 6:*
Overcompenstaion of stabilizers
Slow motility, laxity in propulsion
Abnormal breathing patterns
Right gait
Overactivity of PFM to stabilize
Enteric nervous system influence on motor system feedback to ANS< abberent GI system
Anxiety, disrupting parasympathetic system, gut brain neurotransmitter

**How does knowing the OR reported in this study influence your clinical practice?**

Dyspareunia - OR = 3.55
(An OR of 1 means that there is no greater odds of an outcome)
"The odds of a woman of having dyspareunia is 3.55 of a woman with pelvic pain who also has HSD compared to a woman without HSD) (ANSWER- This should immediately raise your index of suspicion of these associated conditions)

LBP = 7.46
SUI = 3.76
IBS = 4.72
Hip pain= 3.12

Currently, there are no treatment guidelines based on good research, rather they are based on speculation and expert opinion.

**How does knowing that a patient has HSD might change your approach to treatment of CPP?**

I’d like to hear from the experts on the call, since all we have is expert opinion. Isn’t it interesting that with CPP they’re often assumed to have endometriosis but it is often not confirmed?

**Additional References Cited in this Journal Club Review:**


*Beighton Scale instructions:*  


