DISRUPT

PELVICON 2026

ATLANTA, GA | SEPT 25-26, 2026

OUR PELVICON STORY



PELVICONNERS DON'T JUST LEARN. WE LEAD.

What started as a bold idea in a small room has become a global movement. Every year, we raise the bar and push the field forward.



WHAT WE BELIEVE

- **BY and FOR pelvic rehab.** Magic happens when we gather passionate providers together. The first conference specifically for pelvic PTs and OTs, PelviCon highlights the entire breadth of our specialty.
- **Practical Takeaways.** Not just a bunch of research and statistics, but practical takeaways you can use the next day in the treatment room.
- **Learn From the Best.** Who you learn from matters! We bring the leading minds in pelvic health together from all over the world to share their knowledge and experience.
- **Connection.** We're better together. A single track of incredible programming so we all learn the same thing. Breakfast and happy hours included in every ticket to foster conversations. Taking over an entire hotel. If you're at PelviCon, you've found your people - this is where colleagues become friends.

2022
PELVICON 2022
"THE FIRST ONE."

SOLD OUT!

Feeling isolated and siloed during Covid, we began planning a different type of conference. One that emphasized connection and practice-changing topics. One just for us. We wondered who would share the vision.

In-person tickets sold out in 3 minutes. The energy in the room was electric. PelviCon wasn't just a conference. It was the start of a movement.

2023
PELVICON 2023
"IT STARTS WITH US."

SOLD OUT!

Year Two. Bigger hotel. Incredible new lineup. Same result: Sold Out.

We told attendees "It Starts With Us." Because changing pelvic health starts with those willing to push it forward.

2024
PELVICON 2024
"IGNITE"

SOLD OUT!

Our theme was "Ignite." We brought in speakers spanning the globe.

And that room caught fire.

We left with new ideas for our patients. New techniques turned into better care. And colleagues became friends.

"IT'S PELVIC REHAB'S SUPER BOWL! BEST CONFERENCE I'VE EVER BEEN TO."
— KATHRYN N.

2025
PELVICON 2025
"ELEVATE"

SOLD OUT!

In Year 4, together we Elevated pelvic health.

Our skills. Our confidence. Our voices. Our impact. We left inspired to raise the bar for our patients and our profession.

We realized there's always another level where we can grow.

Since the first PelviCon in 2022, we've helped more than 3,600 pelvic health providers elevate their practice - either live in Atlanta or virtually. They've come from 50 states, 21 countries, and 6 different continents.

The energy in this room is electric. The movement is real. You are a PelviConner — and part of the change that will carry this field forward for years to come.



"THIS CONFERENCE CAN AND WILL CHANGE YOUR LIFE. IT WILL INSPIRE, CHALLENGE AND CONNECT YOU WITH LIKE-MINDED CLINICIANS THAT LOVE BEING PELVIC THERAPISTS!!! "
— SANDRA S.

2026 "DISRUPT"

EDUCATION WITHOUT ACTION CHANGES NOTHING

You're Here to Disrupt. Every PelviConner joins us because there's something they are ready to change.

Maybe it's the way you practice. You're ready to expand your knowledge, challenge your assumptions, and become a better clinician for your patients by learning from the best.

Maybe it's your career. You might be feeling burned out, stuck in a rut or uninspired. You're ready to find new energy and keep growing into the provider - and leader - you know you can become.

Maybe it's the isolation. Pelvic health can be lonely. You're ready to be surrounded by 'your people'. Those unapologetically passionate about our specialty. Who can understand, support, commiserate and inspire.

Whatever brought you here, don't let it be just another weekend of continuing education.
Let it disrupt the status quo.

BRING THE NOISE AND ENERGY! WE HOPE YOU LEAVE THIS WEEKEND WITH NEW FRIENDS, NEW INSPIRATION AND NEW IDEAS TO DISRUPT YOUR PRACTICE.



THE FOUNDERS



JESSICA REALE, PT, DPT, WCS

Jessica is the Founder of Southern Pelvic Health in Atlanta, GA, a multi-clinician, multi-site practice.

Jessica has a deep passion for the pelvic health rehabilitation field and loves supporting other clinicians in being the best they can for their patients.

Through the Pelvic Pro Collective, Jessica runs the Clinical Rockstar Membership, giving rehab providers access to clinical mentorship. She and her husband Andrew also provide business mentorship support for business owners.

@jessrealept

NICOLE COZEAN, PT, DPT, WCS

Dedicated to changing the way we do pelvic health, Nicole founded PelvicSanity to provide exceptional care for complex pelvic patients.

Through Pelvic PT Rising, Nicole has mentored 1,000+ pelvic rehab business owners as they grow, scale and provide great care.

Her clinical courses challenge practitioners to 'be better.' Her courses and Masterclasses have trained almost 4,000 pelvic PTs and OTs from around the world.

She's the creator of the Pelvic PT Rising podcast (1.2M+ downloads!) for providers and authored the bestselling *IC Solution* for patients.

@NicoleCozeanDPT



PELVICON AGENDA

THURSDAY SEPT 24, 2026

12pm - 4pm **Pre-Con - Beyond the Pelvic Floor: The Clues We've Been Missing Vulvovaginal & Clitoral Exam Skills for Pelvic Therapists***
Rachel Rubin, MD

4pm - 6pm **Early Registration & Happy Hour**

FRIDAY SEPT 25, 2026

6:45am **Registration, Breakfast**

7:45am **Welcome & Conference Kick-Off**
Nicole Cozean, PT, DPT, WCS
Jessica Reale, PT, DPT, WCS

8:05am **Beyond Cancer Treatment: The Essential Role of Pelvic Health Rehabilitation**
Michelle Lyons, PT, MISCP

Should 'Possible Levator Avulsion' Change Our Early Postpartum Approach?
Taryn Hallam, PT

Break

Disrupting Medicine With Low-Hanging Fruit
Rachel Rubin, MD

Disrupt Your Evaluation
Jessica Reale, PT, DPT, WCS

12:00pm **Lunch - Vendor Hall Open!**

1:30pm **Beyond the Squeeze: Ultrasound and Precision in Male Pelvic Floor Care**
Paul Hodges, PhD, MedDr. DSc, Drhc, BPhty(Hons)

What the Compression? The Science of Pelvic Floor Support Garments
Gráinne Donnelly, MSc, BSc(Hons), PGcert

Break

Scarred for Life? Not On Our Watch!
Katherine Sylvester, PT, DPT

Endometriosis Decoded (Pt 1): What's New, What's Changing & What Matters Most
Amy Stein, DPT, BCB-PMD, IF

5:30pm ***Adjourn & Happy Hour!***

**Add-Ons*

PELVICON AGENDA

SATURDAY SEPT 26, 2026

6:45am	**Breakfast**
7:45am	**Distilling Diastasis: Separating Fact From Fiction With Current Evidence** Gráinne Donnelly, MSc, BSc(Hons), PGcert
	Maternal Mortality Will Die With the Use of Data Katherine Sylvester, PT, DPT
	Break
	Spirit in Session: Towards Whole Person Pelvic Healthcare Sinéad Dufour, PT, PhD Panelists: Yeni Abraham, Shelly Prosko, Lynn Schulte
	Ask Me Anything Panel Discussion *Featuring All PelviCon 2026 Speakers*
11:45am	**Lunch - Vendor Hall Open!**
1:15pm	**Disrupt Your Treatment** Nicole Cozean, PT, DPT, WCS
	Rethinking Women's Back Pain: Why Pelvic Health Matters Michelle Lyons, PT, MISCP
	Same Symptoms, Different Pain: Phenotyping Pelvic Pain in Clinical Practice Paul Hodges, PhD, MedDr, DSc, Drhc, BPhty(Hons)
	Break
	Endometriosis Decoded (Pt 2): Rehab After Excision Surgery Amy Stein, DPT, BCB-PMD, IF
	Coital Incontinence and Female Ejaculation: Separating Fact From Fiction Taryn Hallam, PT
5:30pm	**Closing** Nicole Cozean, PT, DPT, WCS & Jessica Reale, PT, DPT, WCS
5:45pm	***Happy Hour!***
8:00pm	**PelviCon After Hours: 5-Year Celebration***

SUNDAY SEPT 27, 2026

8am - 12pm	**Post-Con: Pain Phenotyping Interactive Workshop*** Paul Hodges, PhD, MedDr, DSc, Drhc, BPhty(Hons)

**Add-Ons*

PELVICON LOGISTICS

EVENT LOCATIONS

Conference Hotel	Crowne Plaza Atlanta Perimeter at Ravinia 4355 Ashford Dunwoody Rd NE, Atlanta, GA
Main Conference	Ravinia Ballroom
Evening Happy Hours	Pre-function space outside the Ravinia Ballroom
Vendor Hall	Dunwoody AB near main ballroom
Feeding & Family Room	Room directly adjacent to main ballroom
After Hours Celebration - Saturday	Ravinia Ballroom *(Pre-purchased tickets only)*
Post-Con - Sunday	Ravinia Ballroom *(Pre-purchased tickets only)*
Parkwoods (Hotel Restaurant)	Thurs 6:30 - 11am; 4:00 - 11:00pm Fri & Sat 6:30 - 11am; 4:00 - 12:00am

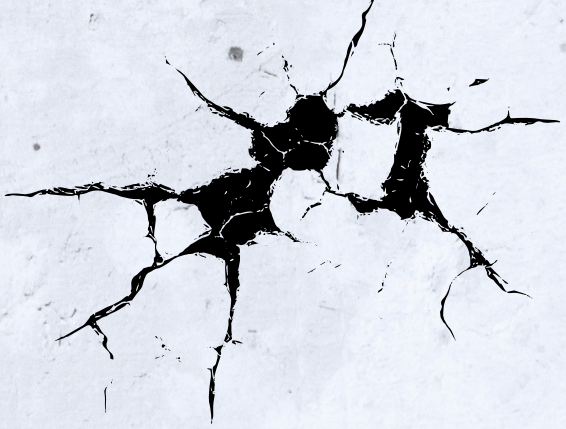
PLACES TO EAT (WALKING DISTANCE)

Newk's Eatery	1181 Hammond Dr # 1000
Chick-fil-A	4350 Ashford Dunwoody Rd NE
Starbucks	4441 Ashford Dunwoody Rd
Shake Shack	4400 Ashford Dunwoody Rd Space 3025
Maggiano's	4400 Ashford Dunwoody
Eclipse Di Luna (Tapas)	4505 Ashford Dunwoody

PELVICON APP

Use the app to connect with fellow attendees, ask questions during presentations or coordinate meet-ups and ride sharing!

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ÜBERLUBE
The Ultimate Companion for Pleasure

REIA HEALTH
A Pessary for Every Stage of Prolapse

MICHELLE LYONS

5-TIME PELVICON SPEAKER

@CELEBRATEMULIEBRITY

- Global educator and activist for women's health
- Founder of Celebrate Muliebrity and the Celebrate Muliebrity Podcast
- Presented at CSM, ICS, IPPS, the British Pelvic Floor Society and more, and an expert in the FIFA Women's Health Project



DISRUPTING IDEAS

BEYOND CANCER TREATMENT: THE ESSENTIAL ROLE OF PELVIC HEALTH REHABILITATION

1

Please have conversations with your medical/surgical colleagues! They might not know what you do (or what the evidence says!)

2

Develop a varied toolbox, not only manual, movement, mindfulness & modalities, but more importantly, including the knowledge of what questions may be relevant.

3

If you don't ask... who will?

DISRUPT
PELVICON 2026

BEYOND CANCER Rx: THE ESSENTIAL ROLE OF PELVIC REHAB

MICHELLE LYONS



MICHELLE LYONS

About Me:

- Founder of CelebrateMuliebrity.com, Online Courses for Women's Health
- Creator of Global Pelvic Physio
- Passionate about knowledge translation - Creator/host of the CelebrateMuliebrity podcast
- Educator, Student, Reader, Writer, Gardener, Cook
- Powered by Oestrogen, Coffee and Bookshopping

Information & Disclosures

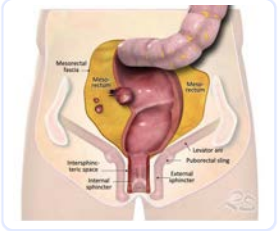
- EVERYONE DESERVES GREAT PELVIC HEALTH….AND MY PASSION IS MULTIMODAL WOMEN'S HEALTH
- My collaborations/affiliations include FIFA, ESGO, Sport Ireland, Pelvic Health Solutions, Embodia, Medbridge, Pelvic Floor University, Bayer Pharmaceutical and Thrive Speakers Network
- As well as my Physiotherapy degree (UCD) I have postgrauate qualifications in Health Coaching & Nutrition (University of Galway), Lic Acupuncture & TCM (British School of Acupuncture), Herbal Medicine (University of Arizona) Innovation & Enterprise (Trinity Dublin) Mindfulness, Yoga & Pilates Teacher Trainings (multiple) Stress Management & Resilience (Harvard Medical School) and vegetarian cooking (Le Cordon Bleu Paris)

'Much has been written about the pleasures of sexual intercourse – as for me, give me a good solid movement of the bowel!'

Samuel Johnson 1749

Ferlay et al 2019

- Colorectal cancer is the second most common cancer in women and the third most common cancer in men
- Nearly 40% of these tumours are located in the rectum



WHAT ABOUT PELVIC REHAB?

Colorectal Disease

Original article

Functional disorders after rectal cancer resection: does a rehabilitation programme improve anal continence and quality of life?

A. Laforest, F. Bretagnol, A. S. Mouazan, L. Maggiori, M. Ferron, Y. Panis

First published: 23 January 2012 | https://doi.org/10.1111/j.1463-1318.2012.02956.x | Citations: 54

LAFOREST ET AL

- The mean stool frequency per day was **significantly lower after sphincter training** (2.6 in the training group vs 4.0 in the control group)
- Following rehabilitation, patients **complained significantly less about dyschezia** (22 vs 63%)
- **Both groups had similar continence** (Wexner score 8.3 after training vs 9.9 in controls).
- **Quality of life was significantly improved by sphincter training** as measured by the vitality and mental functioning subscales on the SF-36 Health Status questionnaire and by the depression and self-perception categories of the Faecal Incontinence Quality of Life score.

KALKDIJK DIJKSTRA ET AL

Pelvic floor rehabilitation to improve functional outcome and quality of life after surgery for rectal cancer: study protocol for a randomized controlled tr (FORCE trial)

A.J. Kalkdijk-Dijkstra, J.A.G. van der Heijden, H.L. van Westreenen, P.M.A. Broens, M. Trzpis, J.P.E.N. P B.R. Klarenbeek & FORCE Trial Group

Trials **21**, Article number: 112 (2020) | Cite this article

5045 Accesses | **8** Citations | **3** Altmetric | Metrics

KALKDIJK DIJKSTRA ET AL

- **'After low anterior resection (LAR), up to 90% of patients develop anorectal dysfunction… fecal incontinence has a major impact on the physical, psychological, social, and emotional functioning of the patient'**
- **No standardized treatment is available to help these patients. Common treatment nowadays is focused on symptom relief, consisting of lifestyle advices and pharmacotherapy with bulking agents or antidiarrheal medication.**
- **Another possibility is pelvic floor rehabilitation (PFR), which is one of the most important treatments for fecal incontinence in general, with success rates of 50–80%.**

Low Anterior Resection Syndrome (LARS)

About 60%-90% of patients experience a wide range of bowel symptoms after Low Anterior Resection (LAR): incontinence for flatus or faeces, frequent bowel movements, urgency and clustering of defecation.

The current management of bowel symptoms after LAR for rectal cancer (ie, usual care) includes antidiarrheal medication, dietary instructions *or a rather negligible advice to wait for improvement*

Randomized Controlled Trial > Ann Surg. 2022 Nov 1;276(5):761-768.
doi: 10.1097/SLA.0000000000005632. Epub 2022 Jul 27.

The Role of Pelvic Floor Muscle Training on Low Anterior Resection Syndrome: A Multicenter Randomized Controlled Trial

Anne Asnong [1], André D'Hoore [2], Marijke Van Kampen [1], Albert Wolthuis [2], Yves Van Molhem [3], Bart Van Geluwe [4], Nele Devoogdt [1,5], An De Groef [1,6,7], Ipek Guler Caamano Fajardo [8], Inge Geraerts [1]

Affiliations + expand

PMID: 35894434 PMCID: PMC9534049 DOI: 10.1097/SLA.0000000000005632

ASNONG ET AL 2022

- The intervention group received 12 weeks of PFMT, consisting of 9 individual treatments: during the first 6 weeks once a week and 3 sessions over the last 6 weeks.
- Each session was provided by a specialized physiotherapist trained in pelvic re-education and with several years of experience in training these patients.
- The sessions started with an assessment and evaluation of bowel symptoms with a stool diary, combined with **patient education, pelvic floor muscle exercises (focused on strength, endurance, relaxation, proprioception, and coordination), electromyographic-biofeedback/electrical stimulation, and rectal balloon training** (improvement of rectal sensation of filling and proper expelling). (The control group did not receive any PFMT)

ASNONG ET AL 2022

- Results: The proportion of participants with an improvement in LARS category was statistically higher after PFMT compared with controls at 4 months and 6 but no longer at 12 months
- Following secondary outcomes were significantly lower at 4 months: LARS scores ,ColoRectal Functioning Outcome scores and frequency of bowel movements, solid stool and the number of clusters derived from the stool diary.
- Conclusions: PFMT for bowel symptoms after TME resulted in lower proportions and faster recovery of bowel symptoms up to 6 months after surgery/stoma closure, justifying PFMT as an early, first-line treatment option for bowel symptoms after RC.

GAO ET AL 2020

- Results: Compared with usual care or usual lifestyle, exercise intervention increased VO2peak reduced fasting insulin levels and insulin resistance
- Conclusions: Our results revealed that exercise could be a feasible and effective option for improving cardiopulmonary fitness, metabolism, and tumour-related biomarkers in post-treatment colorectal cancer survivors.

- Implications for Cancer Survivors: Given the benefits of exercise for colorectal cancer survivors, they should be encouraged to become more physically active

BUT

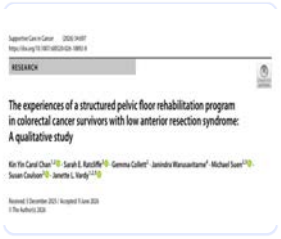
CHAN ET AL 2026

- ***WHAT DO PATIENTS ACTUALLY DESCRIBE?***
- ***WHAT DO THEY WANT?***

- Living with unpredictable bowel function that affects every aspect of daily life
- Feeling unprepared for the long term consequences of cancer treatment
- Wanting better information, realistic expectations, and timely support – not months after surgery, <u>but when they need it most</u>
- Regaining <u>confidence, control and hope</u> through a structured rehab programme, that combined education, PF training, biofeedback and individualized support

CHAN ET AL 2026

- Patients don't just want solutions, they want someone to help them understand what is happening to their bodies and how to manage it


RESEARCH

The experiences of a structured pelvic floor rehabilitation program in colorectal cancer survivors with low anterior resection syndrome: A qualitative study



What do we mean by sexual health? *(not just tolerance)*

The World Health Organization (WHO)

defines sexual health as a state of physical, emotional, mental, and social wellbeing related to sexuality, and is not merely the absence of disease, dysfunction or infirmity. Therefore, sexual health has to be evaluated holistically due to the complex interactions between biological, psychological, interpersonal and social/cultural factors, as all these factors may affect sexual function and wellbeing

Barriers to Sexual Health after Cancer

Psychosocial – body image, stress vs desire

Pelvic health (GSM, Vaginal Stenosis, Managing ostomies, Urinary/Bowel)

Mobility restrictions (musculoskeletal, scar restrictions eg abdomino-pelvic after hysterectomy/cystectomy, post-radiation fibrosis)

Fatigue/ Stress/ Pain

Lack of inquiry by healthcare providers
Don't ask 'do you have questions about sex
Ask 'what sexual questions do you have?'

But we do need to consider:

- Vaginal length
- Neurovascular/ Clitoral damage
- Pain
- Lubrication/GSM
- PROGRESSIVE Radiation Issues
- And…ergonomic issues 2' Musculoskeletal Syndrome of Menopause

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Do we talk (enough) about sex?

BMC Urol. 2020 Jun 3;20(1):64. doi: 10.1186/s12894-020-00634-1.

Unmet needs in sexual health in bladder cancer patients: a systematic review of the evidence

Agustina Bessa [1], Rebecca Martin [2], Christel Häggström [3 4 5], Deborah Enting [3 6], Suzanne Amery [7], Muhammad Shamim Khan [7], Fidelma Cahill [3], Harriet Wylie [3], Samantha Broadhead [7], Kathryn Chatterton [7], Sachin Malde [7], Rajesh Nair [7], Ramesh Thurairaja [7], Pardeep Kumar [2], Anna Haire [3], Saran Green [3], Margaret Northover [7], Karen Briggs [7], Mieke Van Hemelrijck [3]

Affiliations + expand

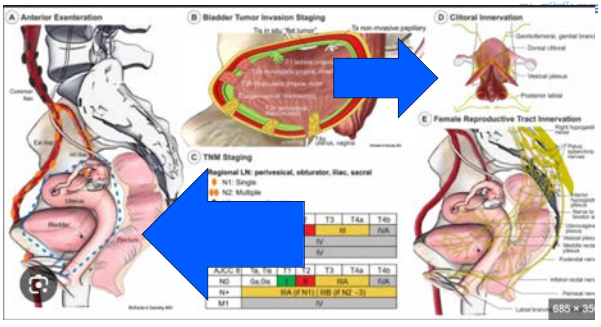
PMID: 32493286 PMCID: PMC7268732 DOI: 10.1186/s12894-020-00634-1

Free PMC article

ORJI ET AL 2023

'Female sexual function evaluation and intraoperative vaginal reconstruction in bladder cancer'

- RC significantly negatively impacts sexual function (SF) in both men and women.
- ***While significant research resources have been allocated to examine the deleterious effects of post prostatectomy erectile dysfunction, little attention has been directed towards female sexual function and organ preservation post cystectomy.***
- These academic shortcomings often result in poor provider awareness and inadequate preoperative assessment…



CEASER ET AL 2025

"I think my vagina is still there?": Women's perspectives on sexual function and dysfunction following radical cystectomy for bladder cancer, a qualitative study'

- Women reported receiving little to no information from providers about female sexual dysfunction prior to or after radical cystectomy. **Women wished they had been provided more information about female sexual dysfunction from their clinicians, including strategies for postoperative self-pleasure and nonintercourse methods of sexual pleasure with partners.**
- Women shared that they were not sexually active following surgery due to physical and mental barriers.
- Some women found that physical therapy helped them to physically and mentally recover their strength to engage in sexual activity again.

CARTER ET AL

Home › Journal of Cancer Survivorship › Article

Vaginal and sexual health treatment strategies within a female sexual medicine program for cancer patients and survivors

Published: 21 November 2016

Volume 11, pages 274–283, (2017) Cite this article

SIMPLE STRATEGIES FOR BETTER SEX

- **Mean number of visits was 3.43. Mean age was 55.4 years; 92 % were in menopause.**
- **Treatment strategies included rationale and instruction for use of vaginal moisturizers, lubricants, pelvic floor exercises, and dilator therapy, in addition to psychosexual education regarding sexual changes (response, anatomy, and function) associated with cancer treatment and support.**
- **At last assessment, 89 % had complied with the clinical recommendations**
- **Vaginal pH scores >6.5 declined over time. VAS scores improved by last assessment. Sexual function scores significantly improved, confidence about future sexual activity increased, and sexual/vaginal health concerns decreased**



Do we talk enough about solo vs partnered sexual activity?

- MAUTZ ET AL 2023 '**Pleasure despite pain: Associations between experiences of vulvar pleasure, vulvar pain, and sexual function in patients with chronic vulvar pain conditions**
- When compared with patients who had not experienced vulvar pleasure since the onset of their vulvar pain, **patients experiencing both pain and pleasure** scored lower on the Pain Anxiety Symptoms Scale-20 total and fear subscale, lower on the Pain Catastrophizing Scale , and higher on the Female Sexual Function Index
- **Clinical implications:** Incorporating strategies for cultivating vulvar pleasure in patients with chronic vulvar pain may be useful in comprehensive management approaches.



- **UNDERSTAND & BE COMFORTABLE DISCUSSING THE SEXUAL HEALTH ISSUES THAT CANCER CAN CAUSE - FROM GSM TO MOBILITY ISSUES TO BODY IMAGE TO SCARS /FIBROSIS and STRESS vs DESIRE to...**
- **UNDERSTAND THE EVIDENCE BASE TO SUPPORT OUR TOOLBOX:**
- **EDUCATION, MANUAL THERAPY, SCARWORK, DILATORS/VIBRATORS, EXERCISE/MOBILITY MINDFULNESS, ERGONOMICS/MSK**

What does that mean for us?

The evidence is there, the awareness is not



Effectiveness of nonpharmacological conservative therapies for chronic pelvic pain in women: a systematic review and meta-analysis

Effectiveness of Pelvic Floor Muscle and Education-Based Therapies on Bladder, Bowel, Vaginal, Sexual, Psychological Function, Quality of Life, and Pelvic Floor Muscle Function in Females Treated for Gynecological Cancer: A Systematic Review.

Improvements following multimodal pelvic floor physical therapy in gynecological cancer survivors suffering from pain during sexual intercourse: Results from a one-year follow-up mixed-method study.

Randomized Controlled Trial

> Am J Obstet Gynecol. 2026 Apr;234(4):1103-1111. doi: 10.1016/j.ajog.2025.11.037. Epub 2025 Dec 2.

Intimacy and empowerment in urogynecology: a qualitative exploration of vibrator use

Karissa A Leong [1], Caitlin E Carlton [2], Erin C Deverdis [2], Cara L Grimes [2], Bradley E Jacobs [2], Rebecca G Rogers [2], Brittany L Roberts [2]

Not. Good. Enough.

> J Cancer Surviv. 2024 Mar 22. doi: 10.1007/s11764-024-01565-8. Online ahead of print.

Figure it out on your own: a mixed-method study on pelvic health survivorship care after gynecologic cancer treatments

Stéphanie Bernard [1 2], Ericka Wiebe [3 4], Alexandra Waters [5], Sabrina Selmani [5], Jill Turner [4], Sinéad Dufour [6], Puneeta Tandon [7], Donna Pepin [8], Margaret L McNeely [9 4]

Affiliations + expand

PMID: 38517579 DOI: 10.1007/s11764-024-01565-8

We're Still Here:

Home > Supportive Care in Cancer > Article

Sexual distress in patients after radical cystectomy for bladder cancer: a qualitative study

Research | Open access | Published: 02 February 2026

Volume 34, article number 151 (2026) Cite this article

But Also:

Home > International Urogynecology Journal > Article

Effectiveness of Pelvic Floor Physiotherap Techniques in Women with Sequels of Gynecologic Cancer: A Systematic Review

Review Article | Published: 11 May 2026

(2026) Cite this article

Toth et al 2026

- Sexual rehabilitation after gynecologic cancer remains predominantly focused on anatomical restoration and vaginal morbidity.
- Vaginal morbidity correlates inconsistently with lived sexual experience, underscoring limitations of anatomy-centered survivorship models.
- Survivor-informed sexual rehabilitation should integrate pleasure, agency, relational dynamics, and individualized sexual goals.
- Vibrators may serve as rehabilitative tools that combine maintenance of vaginal patency with arousal and sexual well-being.
- Sexual health in survivorship extends beyond penetrative capacity and requires multidisciplinary, patient-centered approaches

SEXUAL HEALTH GUIDELINES WORKING GROUP

COMING SOON

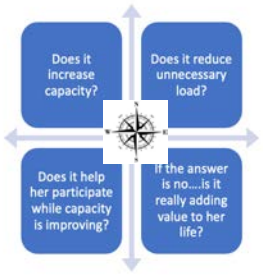
ESGO
European Society of Gynaecological Oncology

The People Who Walk Through Our Doors Are Navigating Some Really Significant Things

Building Capacity

- Movement
- Support
- Optimisation
- Empowerment

- Our job isn't simply to reduce symptoms but to either:
- Increase capacity
- Reduce unnecessary loads
- Provide temporary support whilst capacity is being rebuilt



3 Takeaways

Takeaway 1

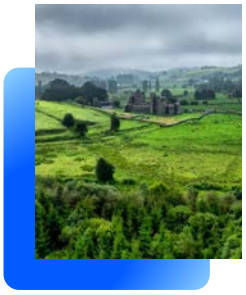
- Please have the conversations with your medical/ surgical colleagues – they might not know about you, or what they don't know (or what the evidence says)

Takeaway 2

- Develop a varied toolbox, not only manual, movement, mindfulness & modalities, but more importantly, including the knowledge of what questions may be relevant, time to listen and a selection of solutions to offer

Takeaway 3

- ***If you don't ask, who will?***



Thank You!

- **Instagram: @michellelyons_muliebrity**
- **Website: CelebrateMuliebrity.com**
- **Podcast: CelebrateMuliebrity with Michelle Lyons (Apple & Spotify)**
- **'MULIEBRITY IS THE ART & STATE OF BEING A WOMAN – AND I THINK THAT SHOULD BE CELEBRATED!**

TARYN HALLAM

4-TIME PELVICON SPEAKER

@WHTAEDUCATION

- Founder of WHTA (Women's Health Training Associates)
- One of Australia's leading pelvic health experts
- Passionate about bringing research to clinicians in a meaningful way with her annual Research Updates



DISRUPTING IDEAS

SHOULD POSSIBLE LEVATOR AVULSION CHANGE OUR EARLY POSTPARTUM APPROACH?

1

There is a chance that the early postpartum window (0-3 mo) is very unique. The PFM may react differently during this phase.

2

Research is too early to know for certain in women with avulsion whether PFMT can impact recovery in early postpartum.

3

In women who are high-risk for avulsion, a more gentle approach may be better early postpartum.

DISRUPT
PELVICON 2026

Should possible LEVATOR ANI AVULSION change our early postpartum approach?

Taryn Hallam



Taryn Hallam

About Me … 'Taryn'

- Born and lives in **Sydney, Australia**
- **Physiotherapist** in Women's Health / Pelvic Floor Dysfunction for over 25 years….
- Writer of **Australian Physiotherapy Association** education pathway in Women's Pelvic Health
- Director of "**Women's Health Training Associates**" (education provider in Australia)

and finally…

- mother of two grown boys…. Ethan & Joshua
- partner to a wonderful man…. Lionel
- when not putting on my stage persona - **'Penny'**…
  ….**naturally an extreme introvert**

NO DISCLOSURES

Introduction

It was in **2023** that I was **first** given the honour of standing **here** on this **Pelvicon Stage**….

2023: 1ST TALK (Friday) **2023: 2nd TALK (Saturday)**



Ok, I want to get an ACCURATE idea of how many of you were here in 2023.

So in a moment, on the [redacted] I am going to ask you all to…

Introduction

It was in **2023** that I was **first** given the honour of standing **here** on this **Pelvicon Stage**….

2023: 1ST TALK (Friday)



Ok, so I am now going to admit to you all…

I was actually a little nervous walking onto this stage that first year.



Introduction

It was in **2023** that I was **first** given the honour of standing **here** on this **Pelvicon Stage**….

2023: 1ST TALK (Friday)



Ok, so I am now going to admit to you all…

I was actually a little nervous walking onto this stage that first year.

NOT BECAUSE I DIDN'T BELIEVE IN WHAT I WAS SAYING….

But because you were an audience where most of you had never seen me speak before….

So I didn't know how you would all react with how BRUTALLY HONEST I CAN BE WITH OUR PROFESSION!

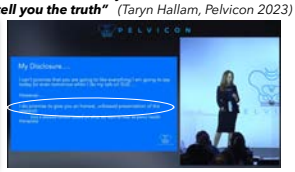
Introduction

It was in **2023** that I was **first** given the honour of standing **here** on this **Pelvicon Stage**….

2023: 1ST TALK (Friday)

"I am not here for you to like me, I am here to tell you the truth" *(Taryn Hallam, Pelvicon 2023)*





"We do not improve by only talking about what we are already doing right,..
...we create the possibility for improvement, when we are prepared to entertain the idea that we might be doing some things wrong"

Introduction

2026 DISCLAIMER

Yes, I was a little nervous about being ***'too controversial'*** in 2023

(it didn't stop me.... I'm just admitting I was a little nervous)

But this year...



Introduction

THEY HAVE LITERALLY GIVEN ME **PERMISSION** TO...



DISRUPT PELVICON 2026



Is everyone ready??

Should possible LEVATOR ANI AVULSION change our early postpartum approach?

Taryn Hallam

Note: 3 parts to the rest of the presentation

PART 1	PART 2	PART 3
REVIEW OF	QUICK REVIEW OF	DEEP DIVE INTO
LEVATOR ANI AVULSION (15min)	**BASIC BIOSTATISTICS (7min)**	**RESEARCH ON EARLY PP-PFMT FOR POP (15min)**
anatomy of avulsion	relative risk (RR)	starting PFMT at 6wks
it's functional significance	statistical significance	does avulsion change things
chance of natural healing	power calculations	implication for clinical practice

Levator Ani Avulsion



Generally defined as

'traumatic detachment of the puborectalis muscle *from its insertion on the inferior pubic rami'* [1p1637]
(at the time of birth)

Estimated to occur in anywhere from **14-36%** of ♀ during *vaginal birth*[1]
→ rate varies depending on age of cohort, fetal size, use of forceps etc

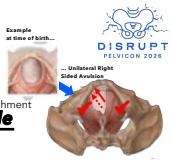
May occur:
- unilaterally
  or
- bilaterally



Levator Ani Avulsion

Generally defined as

'traumatic detachment of the puborectalis muscle
from its insertion on the inferior pubic rami' [1p1637]
(at the time of birth)



NOT usually avulsed along the whole length of the levator attachment

Little note

- **trauma is usually confined to PR ± *PC fibres?***
- *rarely* (<10% of avulsion), is the trauma found to extend into *iliococcygeus attachment* [2]

WHY???
→ *significantly greater deformation of PUBORECTALIS at time of crowning than iliococcygeus, combined with unforgiving bony attachment vs tendinous attachment* [3]

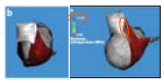


Figure from Ashton-Miller and DeLancey 2009[3]

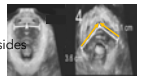


Levator Ani Avulsion

WHY IS THIS IMPORTANT TO THINK ABOUT??

Because not all avulsions are the same size:
- → some avulsions only extend 0.5inches across the origin on one/both sides
- → some avulsions extend >1.5 inches across the origin on both sides

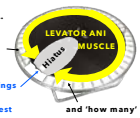
Note: the distance the avulsion extends is known as the **Levator Urethra Gap (LUG)**[4]



AN ANALOGY I OFTEN USE TO HELP PATIENTS UNDERSTAND LUG

In avulsion we ask...

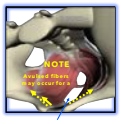
But 'how many' springs have been lost on the RIGHT



Everyone has a few springs missing at the front, The springs keep the rest of the mat very well supported

and 'how many' springs have been lost on the LEFT

IMPORTANT THINKPOINT
Why is the LUG on each side relevant functionally?



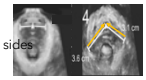
Levator ani is not attached directly in the midline in anyone

Levator Ani Avulsion

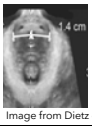
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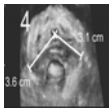
if detachment zone is <0.5inches long



→ probably **minimal increase in levator hiatus**

Image from Dietz et al 2024[4]

if the detachment > 1.5 inches on both sides,..



→ probably **significant increase in levator hiatus**

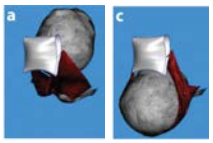
Image from Dietz et al 2024[4]

Why is this so important?



Let's Think: Levator Hiatal Area (LHA)

Note: during vaginal birth LHA needs to increase to ~60cm² to allow passage of the fetal head[3]



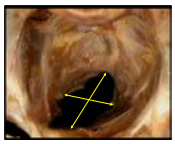
But it should then recoil back to ~20-22cm² post-birth

In reality, the recoil that occurs in **'Levator Hiatal (LH) Area** can vary significantly post birth

Normal Recoil
back to ~20cm² LHA



Persistent Enlarged LH Area
> 25cm² LHA



this is known as
'Hiatal Ballooning'

Let's Think: Levator Hiatal Area (LHA)

IN LEVATOR AVULSION

generally speaking, the AVULSION increases the chance of having PERSISTENTY ENLARGED LHA



Example: Handa et al 2020[5]
Performed 3D-TLUS on n = 494 parous women
→ avulsion identified in n = 66 (15%) of participants

Levator Hiatus cm²	at rest	max valsalva	p-value
Intact Levator Ani n = 387	19.0cm²	25.1cm²	<0.001
Levator Ani Avulsion n = 66	**25.2cm²**	**34.6cm²**	<0.001

!! IMPORTANT NOTE FOR LATER !!

It is not just *'having an avulsion'* that is the problem!!!
It is HOW BIG the levator hiatus becomes because of the avulsion

Let's Think: Levator Hiatal Area (LHA)

BEFORE WE CONTINUE



Example: Handa et al 2020[5]
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It is not just *'having an avulsion'* that is the problem!!!
It is HOW BIG the levator hiatus becomes because of the avulsion

↑ Levator Hiatal Area → Prolapse

We now have good evidence that **increased hiatal area** is strongly correlated with pelvic organ prolapse…

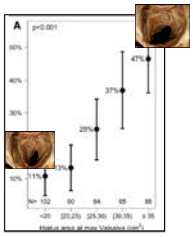
Example 1: Handa et al 2019[6]
Reviewed n = 1,528 ♀ 5-10 years after first delivery

→ every **5cm² increase** in levator hiatal area on Valsalva was associated with a **50% increased** rate of POP

Example 2 : Siakhal et al 2021 - SYSTEMATIC REVIEW[7]
Performed a literature review of all eligible papers published between 1998 and 2019 (n = 2660 identified → n = 21 included)

→ found that Levator Hiatus Area is SIGNIFICANTLY LARGER in women with Pelvic Organ Prolapse

average **29.8cm² vs 22.7cm²**; p <0.00001

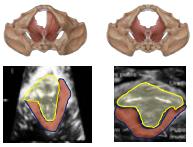


From Fig 2E[41,45]
% ♀ of with POP based on LHarea

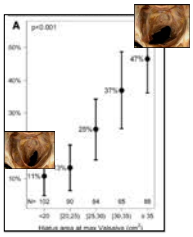
↑ Levator Hiatal Area → Prolapse

CLINICAL APPLICATION POINT

The larger the levator hiatal area becomes because of the avulsion…



→ the bigger the risk of prolapse[1]

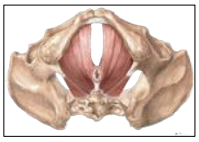


From Fig 2E[41,45]
% ♀ of with POP based on LHarea

LET'S PAUSE AND THINK ….

Levator Ani Avulsion at time of birth…. **is an *Acute Trauma* Injury**

It has even been associated with *acute* ***haematoma*** *formation at the rupture site* early post-birth[8]





The final thing I want to talk about before we look at PFMT in the early PP period is

Is there any possibility of natural healing of avulsion in the acute post-injury phase?

LET'S PAUSE AND THINK ….

Levator Ani Avulsion at time of birth…**is an *Acute Trauma* Injury**

It has even been associated with *acute haematoma formation at the rupture site* early post-birth[8]

Kreft et al 2022[8]

Assessed n = 224 women with 3D TL-US at 1-4 days post-partum
→ n = 213 returned at 6-10 wks postpartum (n = 11 lost to FU)

Initial LAM STATUS n = 224	1-4 days PP n = 224
Intact Bilaterally	151
Avulsion	39
Haematoma	34 ??

Later LAM STATUS n = 213	6-10 weeks PP n = 213
Intact Bilaterally	162 (↑11)
Avulsion	51 (↑12)
Haematoma	0 / 23
- lost to follow up	11

There are often a lot of haematomas at 0 - 6 weeks that could be *masking an avulsion*

So 6/52PP is probably the earliest time to accurately find all avulsions

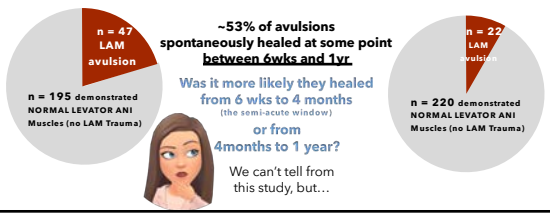
NOTE: **This is why it is now deemed inaccurate to US for avulsion in the *first few weeks***

Levator Trauma: healing??

Halle et al 2020[9]

Assessed n = 242 women with 4D trans-labial ultrasound at 6 weeks and 1year PP

6 weeks PP → **1 year PP**



~53% of avulsions spontaneously healed at some point between 6wks and 1yr

Was it more likely they healed from 6 wks to 4 months (the semi-acute window) **or from 4months to 1 year?**

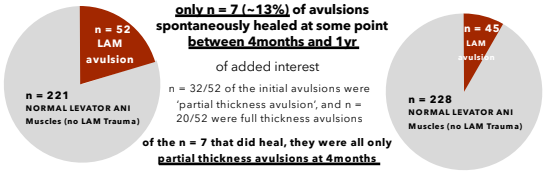
We can't tell from this study, but…

Levator Trauma: healing??

Dietz et al 2024[10]

Assessed n = 273 women with 4D trans-labial ultrasound at 4months and 3 years PP

4 months PP → **3 years PP**



only n = 7 (~13%) of avulsions spontaneously healed at some point between 4months and 1yr

of added interest

n = 32/52 of the initial avulsions were 'partial thickness avulsion', and n = 20/52 were full thickness avulsions

of the n = 7 that did heal, they were all only partial thickness avulsions at 4months

of the n = 20/52 full thickness avulsions that were present at 4months, none demonstrated any healing between 4months and 1 year

SUMMARY: Levator Avulsion Healing

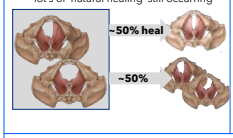
0 - 6weeks
very acute inflammatory reaction to facilitate natural healing



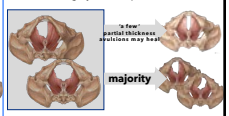
Birth related trauma to the attachment site of levator ani may result in <u>acute haematoma formation</u>

as the body starts its inflammatory <u>healing phase</u>

1 → 4 months
lot's of 'natural healing' still occurring



4months → 3 years
largely 'stable' phase



These <u>THREE WINDOWS</u> actually seem quite different

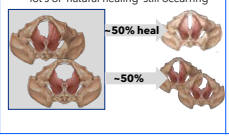


SUMMARY: Levator Avulsion Healing

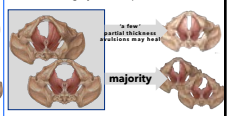
0 - 6weeks
very acute inflammatory reaction to facilitate natural healing



1 → 4 months
lot's of 'natural healing' still occurring



4months → 3 years
largely 'stable' phase



What impact might this have on the effect of Pelvic Floor Muscle Training in the early post-partum period?



IMPORTANT NOTE

We only have **TWO studies** that have ever been performed looking at:
The effect of EARLY PP Pelvic Floor Muscle Training (PFMT) on **<u>PROLAPSE</u>**, that also **INCLUDED A CONTROL GROUP**



PLEASE NOTE....

There is **no point looking at any study in the early post-partum period** that **does not include a control group**, because <u>it is a period of natural healing!!</u>

We need a control group to see whether the PFMT ....
1. <u>added benefit over and above natural healing</u>
2. <u>made no difference to natural healing</u>
3. <u>hindered natural healing!</u>

We are going to do a quick review of

UNDERSTANDING BIOSTATISTICS

RELATIVE RISK (RR)

STATISTICAL SIGNIF (p-value)

POWER CALCULATIONS (n)

so you can understand the papers we will look at in a minute



They often just get taught really badly!

please trust me... **STATISTICS CAN BE FUN!**

Relative Risk – RR *(and also sort of Odds Ratios)*

Relative risk (RR) is simply a statistical calculation that tells you **how likely it is that an event is going to happen in <u>one group compared to another.</u>**

<u>IMPORTANT NOTE #1</u>

The main thing you look for with RR is whether it is '**greater than one**' or '**less than 1**'

<u>if RR is > 1</u>: the 'research group of interest' is at **an <u>'ed risk</u>** compared to the reference gp

<u>if RR is < 1</u>: the 'research group of interest' is at **a <u>led risk</u>** compared to the reference gp



eg 1 *'<u>RR of avulsion</u>'*: for ♀ giving birth at age 40 compared to ♀ giving birth at age 20: **RR = 2.3**
→ a 40yo ♀ is **2.3 times more likely to have an avulsion** than a 20yo ♀

eg 2 *'<u>RR of developing gestational diabetes</u>'*:
for ♀ who exercise in pregnancy compared to ♀ who don't exercise through pregnancy: **RR = 0.43**
→ means the exercising ♀'s chance of GDM is 43% of that of a ♀ who doesn't exercise
→ in other words, exercising throughout pregnancy **reduces the risk of GDM by 57%**

Relative Risk – RR *(and also sort of Odds Ratios)*

Relative risk (RR) is simply a statistical calculation that tells you **how likely it is that an event is going to happen in one group compared to another.**

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The main thing you look for with RR is whether it is '**greater than one**' or '**less than 1**'

<u>IMPORTANT NOTE #2</u>

You must however then look at the **95% Confidence Interval** (95% CI)

<u>The 95% CI</u>
= the range within which we are
95% Confident that the true risk lies

<u>Example: Risk of Avulsion if giving birth at 40yo vs 20yo</u>

RR = 2.3

The *estimated* risk of avulsion when giving birth at age 40 **is 2.3x** that of giving birth at age 20

95% CI 1.6 - 3.3

But the **Relative Risk** could actually sit anywhere between **1.6x and 3.3x** the risk of a 20yo

Either way, the risk is increased so we can truly say that a 40yo DOES have an INCREASE RISK



Relative Risk – RR *(and also sort of Odds Ratios)*

DISRUPT PELVICON 2026

Relative risk (RR) is simply a statistical calculation that tells you **how likely it is that an event is going to happen in one group compared to another.**

IMPORTANT NOTE #1

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IMPORTANT NOTE #2

You must however then look at the **95% Confidence Interval** (95% CI)

IMPORTANT NOTE #3

However sometimes the difference in risk is **'not statistically significant'**

This will be stated by the authors when the **95% CI crosses 1** (from <1 to >1)

Example: Risk of Avulsion if giving birth at 25yo vs 20yo

RR = 1.1

the RR suggests a 10% increased risk

95% CI 0.85 - 1.25

But it is acknowledged that the true risk comparison could be anything from 15% ↓ed to 25% ↑ed risk

95% CI crossing 1 = no effect / no difference



'Statistical Significance'

and why Power Calculations matter

DISRUPT PELVICON 2026

STATISTICAL SIGNIFICANCE: p-value (the statistic that I think most clinicians are used to looking for!)

Note: the "p" in '**p-value**' basically just stands for "**probability**" (ie p-value = probability value)

What people often don't realise is that it actually refers to the probability there was **no difference** b/w gps

Little tip: the p-value is given as a decimal but is often more easily understood converted to a %

	Example p-values	Changed to a percentage	So what does this mean? Is the data convincing the Rx had an effect?
Rx Gp response	p = 0.05	5%	?Possibly, there's only a 5% chance of no real difference
is compared to →	p = 0.64	64%	No: 64% chance of no real difference
	p <0.001	< 0.1%	Definitely Yes: < 0.1% chance of no real difference
Control Gp response	p = 0.02	2%	Still Yes: only a 2% chance of no real diff.

Note: we like the p-value to be **less than 0.05 (5%),** but that is hard to achieve with small trial numbers

→ this is where **PRE-TRIAL POWER CALCULATIONS** come in

'Statistical Significance'

and why Power Calculations matter

DISRUPT PELVICON 2026

So finally....POWER CALCULATIONS

A power calculation is a calculation researchers are expected to do when *designing a study* to ensure they are enrolling sufficient numbers to demonstrate statistical significance if there is a difference

They look at the number of people who usually have the condition, the number they hope to change, and the degree of change

The power calculation then tells the researcher

how many people they need to enrol for the statistics to result in a p-value <0.05 if the treatment works!

Let's look at an example...

'Statistical Significance'

and why Power Calculations matter

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So finally....POWER CALCULATIONS

EXAMPLE

Let's pretend a pharmaceutical company wants to trial a drug to prevent miscarriage

They do a '**pilot**' trial

STUDY #1: **n = 8** women who have had 4 miscarriages in a row

Rx Drug	**Placebo**
n = 4	**n = 4**
SUCCESSFUL PREGNANCY	
n = 3	**n = 1**
75%	25%

p = 0.38

STUDY #2: **n = 800** women who have had 4 miscarriages in a row

Rx Drug	**Placebo**
n = 400	**n = 400**
SUCCESSFUL PREGNANCY	
n = 300	**n = 100**
75%	25%

p = 0.02

'Statistical Significance'

and why Power Calculations matter

DISRUPT PELVICON 2026

So finally....POWER CALCULATIONS

EXAMPLE

Let's pretend a pharmaceutical company wants to trial a drug to prevent miscarriage

They do a '**pilot**' trial

STUDY #1: **n = 8** women who have had 4 miscarriages in a row

Rx Drug	**Placebo**
n = 4	**n = 4**
SUCCESSFUL PREGNANCY	
n = 3	**n = 1**
75%	25%

p = 0.38

!!!!! THINKPOINT !!!!!!

Should we have ignored this result because it didn't reach statistical significance???

NO!!

It should trigger our interest and stimulate us to do a larger trial

'Statistical Significance'

and why Power Calculations matter

DISRUPT PELVICON 2026

So finally....POWER CALCULATIONS

EXAMPLE

Let's pretend a pharmaceutical company wants to trial a drug to prevent miscarriage

They do a '**pilot**' trial

STUDY #1: **n = 8** women who have had 4 miscarriages in a row

Rx Drug	**Placebo**
n = 4	**n = 4**
SUCCESSFUL PREGNANCY	
n = 3	**n = 1**
75%	25%

p = 0.38

!!!!! IMPORTANT NOTE #2 !!!!!!

Pilot studies are not bad nor worthless!!

In fact, they are extremely vital in early research to test if it is worthwhile to go to the expense of doing a larger RCT.

BUT NOTE... **we don't expect *statistical significance in a pilot trial* because the numbers are too small**

but... we also have to be open to the idea that the results may change

'Statistical Significance'
and why Power Calculations matter

FINAL NOTE: WHEN STUDY NUMBERS ARE TOO LOW

Sometimes you will see a small study where the raw data looks like the treatment worked but the p-value comes out as >0.05 because the small numbers mean there is a high chance it could have been a fluke result.

Inevitably the authors write something like....

"the intervention group improved more than the control group, but the result did not reach statistical significance. This could be due to the study being underpowered. It is now recommended to repeat the trial with a larger cohort to confirm the result"

Does all this make sense for everyone??

Because there is no point us looking at the next slides if it doesn't

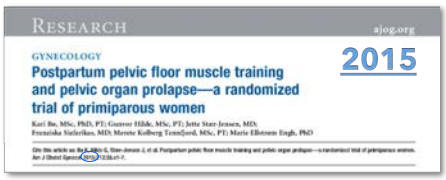
So let's now get back to the point of the talk...

Note: 3 parts to the rest of the presentation

PART 1	PART 2	PART 3
REVIEW OF	QUICK REVIEW OF	DEEP DIVE INTO
LEVATOR ANI AVULSION (15min)	**BASIC BIOSTATISTICS (7min)**	**RESEARCH ON EARLY PP-PFMT FOR POP (15min)**
anatomy of avulsion	relative risk (RR)	starting PFMT at 6wks
it's functional significance	statistical significance	does avulsion change things
chance of natural healing	power calculations	implication for clinical practice

PFMT ... starting before 3months PP

The first study I would like to look at is....


RESEARCH ajog.org

GYNECOLOGY

Postpartum pelvic floor muscle training and pelvic organ prolapse—a randomized trial of primiparous women

2015

But still probably one of the **highest quality RCTs** we have on **PFMT for prolapse** specifically in the **early postpartum period**

PFMT ... starting before 3months PP

STUDY #1: Bo et al 2015[11]

SUMMARY OF TRIAL'S PURPOSE
Is there a benefit of starting 4months of intensive PFMT at 6-8 wks PP to reduce POP at 6months PP?

AIM OF STUDY

To determine whether early pelvic floor muscle training ***commenced at 6-8 weeks postpartum*** can effectively prevent / reduce signs and symptoms of pelvic organ prolapse at 6months post-partum

METHODS

n = 175 primiparous women…
- all given birth to a singleton infant after 32weeks
- mean age 29.8yrs (SD 4.1)

Randomly allocated by computer generated random numbers (stored in opaque-sealed envelopes) to either:

TREATMENT GROUP n = 87
4mo of PFMT starting at 6-8weeks PP
incl 1 / week supervised group PFMT class
+ daily home exercise program (3/day)

CONTROL GROUP n = 88
no active instruction of PFMT

OUTCOME MEASURES

Both at baseline and at 6 months PP women in both groups were assessed by an independent gynaecologist who was blinded to treatment group allocation.
Primary outcome was % of ♀ with ≥ Stage II prolapse as assessed by POP-Q (Stage 0/1 = normal)

PFMT ... starting before 3months PP

STUDY #1: Bo et al 2015[11]

SUMMARY OF TRIAL'S PURPOSE
Is there a benefit of starting 4months of intensive PFMT at 6-8 wks PP to reduce POP at 6months PP?

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TREATMENT GROUP n = 87
4mo of PFMT starting at 6-8weeks PP
incl 1 / week supervised group PFMT class
+ daily home exercise program (3/day)

CONTROL GROUP n = 88
no active instruction of PFMT

A LITTLE ACKNOWLEDGEMENT FIRST...

For all intents and purposes, this was a VERY WELL DESIGNED RANDOMISED CONTROLLED TRIAL! ☺
→ participants did NOT know group allocation at recruitment, randomisation was by computer generated numbers in concealed envelopes; POP Ax at baseline & 6months was performed by an independent gynaecologist separate to treating physio who was blinded to treatment group allocation, PFMT program followed best practice (superv + HEP).

PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

AIM OF STUDY

SUMMARY OF TRIAL'S PURPOSE:
Is there a benefit of starting 4months of intensive PFMT at 6-8 wks PP to reduce POP at 6months PP?

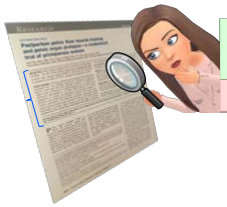
To determine whether early pelvic floor muscle training ***commenced at 6-8 weeks postpartum*** can effectively prevent / reduce signs and symptoms of pelvic organ prolapse at **6months post-partum**

NOTE

At first, I am just going to quote you the **results** and **conclusion** as you would read them if you read the **ABSTRACT**

But let's be honest, most people only read the abstract anyway

(because the full text are all blocked by paywalls! ☹)



TREATMENT GROUP **n = 87**
4mo of PFMT starting at 6-8weeks PP
incl 1 / week supervised group PFMT class
+ daily home exercise program (3/day)

CONTROL GROUP **n = 88**
no active instruction of PFMT

PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

RESULTS #1 (abstract only) - ADHERENCE TO PFMT IN RX GROUP

Some good news: ***'96% of the intervention group adhered to ≥ 80% of the group and home pelvic floor muscle training sessions'***



The women in the treatment group DID do the exercises!

TARYN'S NOTE
We not have to worry the results might come out 'not-effective' simply because the women didn't do the exercises

So did it change the rate of POP at 6months PP?

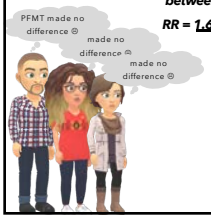
PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

RESULTS #2 (abstract only) - ANATOMICAL PROLAPSE

'at post-intervention (6months), there was no significant risk difference in POP between the PFMT group and the control group'

RR = 1.62 ***95%CI 0.55 - 4.75*** ***p = 0.381***



the 95% CI **crossed '1'** suggesting that early PFMT could result in anything from a **reduced risk** to an **increased risk** of POP at 6months post-partum

Meaning that the p-value came out as **'NOT statistically significant'**

AUTHOR CONLUSION (abstract)

'No effect was found of postpartum PFMT on POP in primiparous women'

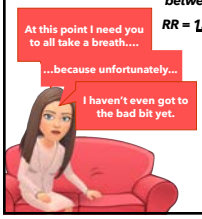
PFMT … starting before 3months PP

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STUDY #1: Bo et al 2015[11]

RESULTS #2 (**abstract only**) - ANATOMICAL PROLAPSE

'at post-intervention (6months), there was no significant risk difference in POP between the PFMT group and the control group'

RR = 1.62 **95%CI 0.55 - 4.75** **p = 0.381**

How did they get these numbers?

and what do they really mean?

Let's look at some more detailed results from the **full text**

(that were not given in the abstract)

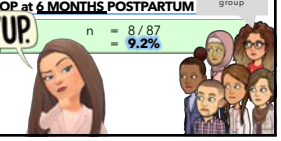
PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

RESULTS #2 - ANATOMICAL PROLAPSE (from full text)

CONTROL GROUP n = 88 no active instruction of PFMT	TREATMENT GROUP n = 87 PFMT starting at 6-8weeks PP
AFTER 4 MONTHS of either No Treatment or PFMT	
ASSESSED % of WOMEN WITH POP at 6 MONTHS POSTPARTUM	
n = 5 / 88 **= 5.7%**	n = 8 / 87 **= 9.2%**

This looks HIGHER in the PFMT group



PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

RESULTS #2 – ANATOMICAL PROLAPSE (from full text)

CONTROL GROUP n = 88 no active instruction of PFMT	TREATMENT GROUP n = 87 PFMT starting at 6-8weeks PP
AFTER 4 MONTHS of either No Treatment or PFMT	
ASSESSED % of WOMEN WITH POP at 6 MONTHS POSTPARTUM	
n = 5 / 88 = **5.7%**	n = 8 / 87 = **9.2%**

in fact their calculation
5.7% x 1.62 = 9.2%

RR = 1.62
ie the Rx group had 1.62x as many people with POP!
95%CI = 0.55 - 4.75
p = 0.381

But a note… because the **percentages** in **both** groups were ultimately **small**

PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

RESULTS #2 – ANATOMICAL PROLAPSE (from full text)

CONTROL GROUP n = 88 no active instruction of PFMT	TREATMENT GROUP n = 87 PFMT starting at 6-8weeks PP
WARNING **This is about to get a lot worse**	
ASSESSED % of WOMEN WITH POP at 6 MONTHS POSTPARTUM	
n = 5 / 88 = **5.7%**	n = 8 / 87 = **9.2%**

in fact their calculation
5.7% x 1.62 = 9.2%

RR = 1.62
ie the Rx group had 1.62x as many people with POP!
95%CI = 0.55 - 4.75
p = 0.381

Which is what enabled the authors to write in their conclusion
'No sig effect was found of PP PFMT on POP in primiparous women'

PFMT … starting before 3months PP

STUDY #1: Bo et al 2015[11]

RESULTS #2 – ANATOMICAL PROLAPSE (from full text)

CONTROL GROUP n = 88 no active instruction of PFMT	TREATMENT GROUP n = 87 4mo of PFMT starting at 6-8weeks PP
WOMEN WITH POP at END: 6 MONTHS POSTPARTUM	
n = 5 / 88 = **5.7%**	n = 8 / 87 = **9.2%**

calculation
5.7% x 1.62 = 9.2%

The authors only used a comparison of the **PERCENTAGE OF WOMEN AT THE END** to do their calculation

NOTE: REMEMBER FROM THE METHODS (that I showed you earlier)

Yes, the authors recruited n = 175 ♀ …
- **all had given birth after 32weeks**
- **mean age 29.8yrs (SD 4.1)**

And then randomly allocated all of them to either:

CONTROL GROUP n = 88 no active instruction of PFMT	TREATMENT GROUP n = 87 4mo of PFMT starting at 6-8weeks PP
But … what were the raw numbers of how many had prolapse at the start?	
WOMEN WITH POP at END: 6 MONTHS POSTPARTUM	
n = **5** / 88	n = **8** / 87

I want to look at the raw numbers for a minute…



NOTE: REMEMBER FROM THE METHODS (that I showed you earlier)

Yes, the authors recruited n = 175 ♀ …
- **all had given birth after 32weeks**
- **mean age 29.8yrs (SD 4.1)**

BUT: there is no mention in **"THE INCLUSION CRITERIA"** that the women had to have prolapse at the start

And then randomly allocated all of them to either:

Did you assume that ALL these women had PROLAPSE at the start??

CONTROL GROUP n = 88 ⬅ no active instruction of PFMT	TREATMENT GROUP n = 87 ⬅ 4mo of PFMT starting at 6-8weeks PP
And that all of these got better?	
WOMEN WITH POP at END: 6 MONTHS POSTPARTUM	
n = **5** / 88	n = **8** / 87

I want to look at the raw numbers for a minute…



NOTE: REMEMBER FROM THE METHODS (that I showed you earlier)

Yes, the authors recruited n = 175 ♀ …
- **all had given birth after 32weeks**
- **mean age 29.8yrs (SD 4.1)**

BUT: there is no mention in **"THE INCLUSION CRITERIA"** that the women had to have prolapse at the start

And then randomly allocated all of them to either:

Did you assume that ALL these women had PROLAPSE at the start??

MOST WOMEN DON'T HAVE PROLAPSE

As pelvic health therapists we just see the ones that do

CONTROL GROUP n = 88 ⬅ no active instruction of PFMT	TREATMENT GROUP n = 87 ⬅ 4mo of PFMT starting at 6-8weeks PP
So how many actually had prolapse at the start?	
WOMEN WITH POP at END: 6 MONTHS POSTPARTUM	
n = **5** / 88	n = **8** / 87

I want to look at the raw numbers for a minute…



NOTE: REMEMBER FROM THE METHODS (that I showed you earlier)

Yes, the authors recruited n = 175♀ ...
- **all had given birth after 32weeks**
- **mean age 29.8yrs (SD 4.1)**

BUT: there is no mention in **"THE INCLUSION CRITERIA"** that the women had to have prolapse at the start

DISRUPT PELVICON 2026

And then randomly allocated all of them to either:

women with POP early PP

WOMEN WITH POP at BASELINE: 6-8 WEEKS POSTPARTUM

CONTROL: n = 13 / 88 n = 75 normal | PFMT: n = 10 / 87 n = 77 normal

WOMEN WITH POP at END: 6 MONTHS POSTPARTUM

n = 5 / 88 | n = 8 / 87



This is the TRUE TRIAL NUMBERS for the RCT of

'Did early PP-PFMT improve POP in women with POP at 6-8/52PP'

It is really a PILOT STUDY (but they didn't analyse the stat sig of this)

NOTE: REMEMBER FROM THE METHODS (that I showed you earlier)

Yes, the authors recruited n = 175♀ ...
- **all had given birth after 32weeks**
- **mean age 29.8yrs (SD 4.1)**

BUT: note that there is no mention in **"THE INCLUSION CRITERIA"** that the women had to have prolapse at the start

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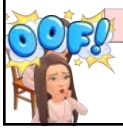
And then randomly allocated all of them to either:

women with POP early PP

WOMEN WITH POP at BASELINE: 6-8 WEEKS POSTPARTUM

CONTROL: n = 13 / 88 | PFMT: n = 10 / 87

n = 5 / 88 | n = 8 / 87



8 got better out of 13 = **61.5% resolved in CONTROL group**

Did early PFMT impede natural healing?

2 got better out of 10 = **20% resolved in PFMT group**

Acute Achilles Avulsion Fracture



→ prompt immobilisation in plantarflexion to reduce tension on insertion site

→ definitely don't start strength training

But should we ignore this??

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IMPORTANT NOTE
This is only ONE STUDY
and these are VERY SMALL NUMBERS....
So we can't make a definite conclusion from this.

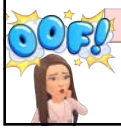
women with POP early PP

WOMEN WITH POP at BASELINE: 6-8 WEEKS POSTPARTUM

CONTROL: n = 13 / 88 | PFMT: n = 10 / 87

Maybe we shouldn't be doing PFMT when the body is trying to heal naturally?

n = 5 / 88 | n = 8 / 87



8 got better out of 13 = **61.5% resolved in CONTROL group**

Did early PFMT impede natural healing?

2 got better out of 10 = **20% resolved in PFMT group**

So there is something else to show you...

DISRUPT PELVICON 2026

The authors did do a **sub-analysis** on women who did / did not have **major levator ani avulsion** at the start of the program:



FIRST REMEMBER: n = 175 primiparous women total were recruited at baseline

n = 120 ♀ DID NOT HAVE AVULSION at BASELINE: 6-8 WKS PP

of those, **n = 13 (10.8%) also had POP**

Control: n = 6 w POP | PFMT: n = 7 w POP

after 4months No Treatment | after 4months PEMT

Control: n = 4 w POP | PFMT: n = 4 w POP

= **33%** POP resolved | = **42%** POP resolved

IMPORTANT → in ♀ **WITHOUT** avulsion PFMT had similar results to control (PFMT gp slightly better but prob not stat sig)

n = 55 ♀ DID HAVE AVULSION at BASELINE: 6-8 WKS PP

of those, **n = 10 (18.2%) also had POP**

Control: n = 7 w POP | PFMT: n = 3 w POP

after 4months No Treatment | after 4months PEMT

Control: n = 1 w POP | PFMT: n = 4 w POP

= **86%!!** POP resolved | = **0% resolved!!** and an extra POP case occurred!

So there is something else to show you...

DISRUPT PELVICON 2026

The authors did do a **sub-analysis** on women who did / did not have **major levator ani avulsion** at the start of the program:



IMPORTANT NOTE
THESE ARE TINY NUMBERS!!!

This is in no way certain evidence that PFMT is definitely bad in women with avulsion.

This could be a fluke / co-incidental finding that has occurred in a first early paper, that we then find gets disproven in the future!



But this is literally the point of doing new studies...

... **to identify things we should research further**

n = 55 ♀ DID HAVE AVULSION at BASELINE: 6-8 WKS PP

of those, **n = 10 (18.2%) also had POP**

Control: n = 7 w POP | PFMT: n = 3 w POP

after 4months No Treatment | after 4months PEMT

Control: n = 1 w POP | PFMT: n = 4 w POP

= **86%!!** POP resolved | = **0% resolved!!** and an extra POP case occurred!

BETTER TO BE IN CONTROL GROUP!

So there is something else to show you...

DISRUPT PELVICON 2026

The authors did do a **sub-analysis** on women who did / did not have **major levator ani avulsion** at the start of the program:



LITTLE NOTE: Remember this is the data published in **Bo et al 2015**

A major question would be though...

n = 55 ♀ DID HAVE AVULSION at BASELINE: 6-8 WKS PP

of those, **n = 10 (18.2%) also had POP**

Control: n = 7 w POP | PFMT: n = 3 w POP

Control: n = 1 w POP | PFMT: n = 4 w POP

= **86%!!** POP resolved | = **0% resolved!!** and an extra POP case occurred!

If this is true.... WHY??

So there is something else to show you…

DISRUPT PELVICON 2026

The authors did do a **sub-analysis** on women who did / did not have **major levator ani avulsion** at the start of the program:



A number of years later, the authors re-looked at all the data they collected back during the original trial and then published another paper with further data

PAPER #2: Hilde et al 2023[12]



SECONDARY ANALYSIS

Presenting data on the effect the early PP PFMT program had at 6/12 postpartum on

- **Levator Ani Avulsion Status** (rather than the effect on POP)
- **LH Area at Rest and Valsalva**

LITTLE NOTE: Remember this is the data published in

Bo et al 2015



n = 55 ♀ DID HAVE AVULSION at BASELINE: 6-8 WKS PP

of those, **n = 10 (18.2%) also had POP**

Control: n = 7 w POP (n = 28)	PFMT: n = 3 w POP (n = 27)
↓	↓
Control: n = 1 w POP	PFMT: n = 4 w POP
= 86%!! POP resolved	= 0% resolved!! and an extra POP case occurred!

So there is something else to show you…

DISRUPT PELVICON 2026

Hilde et al 2023 – SECONDARY ANALYSIS[12]

RESULT #1: HEALING OF AVULSION

Result 1.1: - there were **no NEW cases of avulsion** at 6/12 (PFMT did not cause an avulsion!)

and… - amongst the **n = 55 women** identified as having an avulsion at the start of the study

Control group w Avulsion: n = 28	PFMT group w Avulsion – POP: n = 27
after 4months No Treatment	after 4months PFMT
Control group w Avulsion: n = 17	PFMT group w Avulsion – POP: n = 15
in n = 11/28 (39%) avulsion healed	**in n = 12/27 (44%) avulsion healed**

statistical analysis demonstrated **no statistically significant difference in resolution of avulsion** based on whether the women performed early PFMT or not

ie early PFMT in women with avulsion did NOT impede or enhance **avulsion recovery**

So there is something else to show you…

DISRUPT PELVICON 2026

Hilde et al 2023 – SECONDARY ANALYSIS[12]

RESULT #2: CHANGE IN LEVATOR HIATUS AREA 6/52 – 6/12

First, in **n = 120 ♀ WITHOUT avulsion** at 6-8 weeks PP

LH on Valsalva	CONTROL GROUP n = 60	PFMT GROUP n = 60
@ 6 weeks PP	22.47cm²	21.97cm²
@ 6 months PP	19.87cm²	18.68cm²
Average Change	**↓ 2.6cm²** BOTH SIG REDUCED	**↓ 3.3cm²**
95% confidence	↓ 1.66cm² to ↓ 3.55cm²	↓ 2.0cm² to ↓ 4.59cm²
ANCOVA analysis	between group difference **p-value = 0.335**	

The author's stated that in their statistical analysis…..

*"both groups [without avulsion] **showed a statistically significant reduction in levator hiatus size, …. with no statistically significant difference between groups**."*

Interestingly, this seems to link with original POP results in ♀ WITHOUT AVULSTION

Bo et al 2015

at BASELINE 6/52 **♀ W'OUT AVULSION n = 120**

of those **n = 13/120 had POP**

C – POP: n = 6	PFMT – POP: n = 7
No Rx	PFMT

at 6 MONTH FOLLOW UP

C- POP: n = 4	PFMT – POP: n = 4
= in 33% POP resolved	= in 42% POP resolved

SIMILAR REDUCTION IN POP for C vs PFMT in ♀ WITHOUT AVULSION

So there is something else to show you…

DISRUPT PELVICON 2026

Hilde et al 2023 – SECONDARY ANALYSIS[12]

RESULT #2: CHANGE IN LEVATOR HIATUS AREA

Now let's look at the in **n = 55 ♀ WITH avulsion at the start**

LH on Valsalva ♀ with avulsion	CONTROL GROUP n = 28	PFMT GROUP n = 27
@ 6 weeks PP	24.99cm²	22.92cm²
@ 6 months PP	21.50cm²	21.65cm²
Average Change	**↓ 3.49cm²** BUT!!!	**↓1.27cm²**
95% confidence	↓ 1.35cm² to ↓ 5.62cm²	↓ 3.7cm² to ↑ 1.16cm²
ANCOVA analysis	**SIGNIFICANT ↓**	**NOT SIGNIFICANT**

The authors then said on page 421:

'It might be that our intervention was not monitored closely enough to reach the specificity and overload we were aiming for, especially for participating women with LA avulsion'



TARYN'S COMMENT #1

Out of **4 groups** (C without Avulsion, PFMT without avulsion, C with Avulsion and PFMT with Avulsion) the only group whose LH **didn't** significantly **reduce** up to 6/12 PP was the **PFMT with Avulsion group**

Now this is where it gets interesting. Whilst they didn't write this in the abstract, they did write in the **full text** ….

"overall, there was a significant reduction in LH area (absolute measures) from 6 weeks to 6 months….."

EXCEPT for levator hiatus on Valsalva in the PFMT group with LA Avulsion" *p418-9*

TARYN'S COMMENT #2

How could this be the reason? The women with AVULSION in the CONTROL GROUP didn't do ANY PFMT and got a significant reduction in levator hiatus from natural improvement

So there is something else to show you…

DISRUPT PELVICON 2026

Hilde et al 2023 – SECONDARY ANALYSIS[12]

RESULT #2: CHANGE IN LEVATOR HIATUS AREA

Now let's look at the in **n = 55 ♀ WITH avulsion at the start**

LH on Valsalva ♀ with avulsion	CONTROL GROUP n = 28	PFMT GROUP n = 27
@ 6 weeks PP	24.99cm²	22.92cm²
@ 6 months PP	21.50cm²	21.65cm²
Average Change	**↓ 3.49cm²**	**↓1.27cm²**
95% confidence	↓ 1.35cm² to ↓ 5.62cm²	↓ 3.7cm² to ↑ 1.16cm²
ANCOVA analysis	**SIGNIFICANT ↓**	**NOT SIGNIFICANT**

This looks consistent??

ALSO OF INTEREST….

Bo et al 2015

at BASELINE 6/52 **♀ WITH AVULSION n = 55**

of those **n = 10/55 had POP**

C – POP: n = 7	PFMT – POP: n = 3
No Rx	PFMT

at 6 MONTH FOLLOW UP

C- POP: n = 1	PFMT – POP: n = 4
= in 86% POP resolved	None resolved and an extra POP case occurred!

So there is something else to show you…

DISRUPT PELVICON 2026

Hilde et al 2023 – SECONDARY ANALYSIS[12]

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ANCOVA analysis	**SIGNIFICANT ↓**	**NOT SIGNIFICANT**

Interestingly, two other comments you will find in the full text (not abstract):

"During the acute healing phase for these women, we need better insight into whether certain activities should be scaled down or scaled up" *p421*

"After the acute healing phase, these women should be offered interventions that can enable them to perform correct PFM contractions to build on the potential capacity by non-injured muscle fibers" *p421*

ALSO OF INTEREST….

Bo et al 2015

at BASELINE 6/52 **♀ WITH AVULSION n = 55**

of those **n = 10/55 had POP**

C – POP: n = 7	PFMT – POP: n = 3
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at 6 MONTH FOLLOW UP

C- POP: n = 1	PFMT – POP: n = 4
= in 86% POP resolved	None resolved and an extra POP case occurred!

LET'S PAUSE FOR A MINUTE...

All of this data is coming from just ONE original trial with n = 175♀ → 2 papers:

PUBLISHED PAPER #1: Bo et al 2015[11]



AVULSION SUB-ANALYSIS (in full text):
n = 23 women with POP at baseline

1. in women w POP **without avulsion;**
   → similar ↓ in POP with PFMT or control
2. in women w POP **with avulsion;**
   → ↓ in POP in the control group
   → an ↑ in POP in PFMT group

But the authors did not calculate statistical significance of **% *change*** in these sub-groups (as the number were too small?)

PUBLISHED PAPER #2: Hilde et al 2023[12]



AVULSION SUB-ANALYSIS (in full text):
n = 175♀ → change in LH Area from 6/52 - 6/12

1. in women **without avulsion** (n = 120):
   → similar ↓in hiatal area with PFMT vs control
2. in women **with avulsion** (n = 55):
   → **↓in LH area** only seen in the **control gp**
   → **no sig ↓ in LH area in PFMT group**

The authors stating that the **only sub-group** that did **NOT improve** their levator hiatus were the **women with avulsion who DID PFMT early**

LET'S PAUSE FOR A MINUTE...

All of this data is coming from just ONE original trial with n = 175♀ → 2 papers:

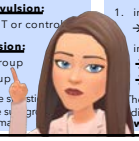
PUBLISHED PAPER #1: Bo et al 2015[11]



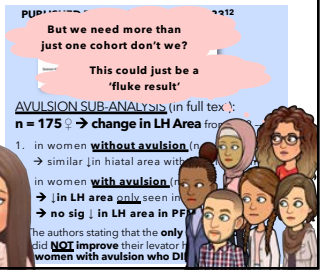
AVULSION SUB-ANALYSIS (in full text):
n = 23 women with POP at baseline

1. in women w POP **without avulsion;**
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PUBLISHED PAPER #2: Hilde et al 2023[12]



AVULSION SUB-ANALYSIS (in full text):
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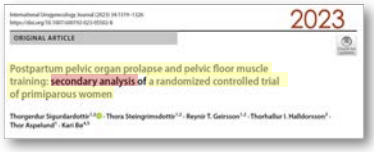
1. in women **without avulsion** (n
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   → **↓in LH area** only seen in
   → **no sig ↓ in LH area in PFM**

The authors stating that the **only** did **NOT improve** their levator h
women with avulsion who DI

PFMT .... staring before 3months PP

A **DIFFERENT** STUDY COHORT....

Note:
But...



Let me explain...

PFMT .... staring before 3months PP

Sigurdardottir et al 2023[13]

AIM OF STUDY

To evaluate the effects of an individualized, postpartum physiotherapist-guided PFMT program on the rate of symptomatic POP and perceived bother in primiparous women early after childbirth.

METHODS

Primiparous women with one live newborn, who gave birth after 32 weeks, were approached before discharge from the maternity ward (early postpartum) about recruitment to the study

→ women were then sent a questionnaire **at 6-10 weeks post-partum** to identify if they were experiencing **urinary incontinence**
   → any woman identified as experiencing urinary incontinence was invited to participate in the RCT comparing the effects of PFMT vs Control in the early PP period.

EXPLANATION re 'SECONDARY ANALYSIS'
This trial was originally designed and then published in 2020, to assess whether early PP PFMT resulted in a change in URINARY INCONTINENCE.
The POWER CALCULATION was done to RECRUIT ENOUGH ♀ to SHOW A CHANGE IN UI.
But this paper is the impact of EARLY PFMT on POP (which is only a sub-group of ♀)

PFMT .... staring before 3months PP

Sigurdardottir et al 2023[13]

METHODS continued...

n = 84 primiparous women with UI randomized at an average of **9 weeks post-partum** to either:

TREATMENT GROUP n = 41	CONTROL GROUP n = 43
12weeks of PFMT incl 1 / week EMG-BF assisted PFMT + daily home exercise program (3/day)	**no active instruction of PFMT**

Baseline Assessment was initially performed at an average of **2months post-partum**

n = 17 had 'any' POP Symptoms	n = 15 had 'any' POP Symptoms
n = 5 had 'bothersome' POP Symptoms	n = 9 had 'bothersome' POP Symptoms
3months PFMT	3months no treatment

Final Assessment performed 1month after end of program (**approx 6months PP**).

But Note The assessments they performed to assess POP at 6months were much more basic, so we will be doing the results a lot more quickly

PFMT .... staring before 3months PP

Sigurdardottir et al 2023

ASSESSMENT / OUTCOME MEASURES

Utilized the Icelandic translation of the prolapse questions within the Australia Pelvic Floor questionnaire to assess two main outcomes:

OUTCOME #1: Presence of ANY Prolapse Symptoms

Evaluated by the questions:
- *Do you have a sensation of tissue protrusion or lump or bulging in your vagina?*
- *Do you experience vaginal pressure, or heaviness, or a dragging sensation?*

→ women were considered to 'not have symptoms' if they answered NEVER to both

OUTCOME #2: Presence of BOTHERSOME Prolapse Symptoms

Evaluated by the single question:
- *How much does your prolapse problem bother you?*

→ answers of "not at all" were deemed "not bothersome" , whereas any answers of 'slightly', 'moderately' or 'greatly' were deemed bothersome

PFMT .... staring before 3months PP

Sigurdardottir et al 2023

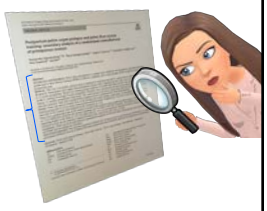
ASSESSMENT / OUTCOME MEASURES

Utilized the Icelandic translation of the prolapse questions within the Australia Pelvic Floor questionnaire to assess two main outcomes:

NOTE

Like I did with the Bo et al 2015 study, I am just going to **first quote you** the **results** and **conclusion** as you would read them if you only read the **ABSTRACT**

(then I will show you what you would see if you read the full text)



PFMT .... staring before 3months PP

Sigurdardottir et al 2023

ABSTRACT RESULTS (direct quotes)

All the abstract says is that there was….

- a gradual decrease in the number of ♀ with prolapse symptoms over time [all women], but…
- **no significant difference** b/w gps in the rate of ♀ with '***any'*** prolapse symptoms at 6mo (p = 0.08)
- **no significant difference** b/w gps in '***bothersome prolapse symptoms'*** at 6months (p = 0.08).
- **no significant effect** of the intervention (PFMT) over time (p > 0.05)

ABSTRACT CONCLUSION

There was an overall decrease in postpartum symptoms of POP and bother during the first year.
Physiotherapist led PFMT did not change the outcomes.

PFMT .... staring before 3months PP

Sigurdardottir et al 2023[13]

ABSTRACT RESULTS (direct quotes)

There was….

- a gradual decrease in the number of ♀ with prolapse symptor
- **no significant difference** b/w gps in the rate of ♀ with '***any'*** p
- **no significant difference** b/w gps in '***bothersome prolapse symptoms***' at 6months (p = 0.08).
- **no significant effect of the intervention** (PFMT) over time (**p > 0.05**)

So PFMT basically just made no difference??

(not better, not worse)

ABSTRACT CONCLUSION

There was an overall decrease in postpartum symptoms
Physiotherapist led PFMT did not change the outcomes.



PFMT .... staring before 3months PP

Sigurdardottir et al 2023[13]

ABSTRACT RESULTS (direct quotes)

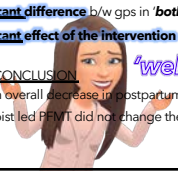
There was….

REMEMBER FROM BEFORE
In trials with small numbers, not finding a '**STATISTICALLY SIGNIFICANT DIFFERENCE**' simply occurs because the numbers were too small to be sure that the result wasn't a fluke…

- a gradual decrease in the number of ♀ with prolapse symptoms over time [all women].
- **no significant difference** b/w gps in the rate of ♀ with '***any'*** prolapse symptoms at 6mo (**p = 0.08**)
- **no significant difference** b/w gps in '***bothersome prolapse symptoms'*** at 6months (**p = 0.08**).
- **no significant effect of the intervention** (PFMT) over time (**p > 0.05**)

ABSTRACT CONCLUSION

There was an overall decrease in postpartum symptoms
Physiotherapist led PFMT did not change the outcomes.



'well....

Remember... not finding a STATISTICALLY SIGNIFICANT difference in a small cohort trial does not necessarily mean there wasn't a difference

PFMT .... staring before 3months PP

Sigurdardottir et al 2023[13]

LET'S LOOK AT THE FULL TEXT (RAW DATA) RESULTS

1. WOMEN WITH 'ANY' PROLAPSE SYMPTOMS

ANY POP Symptoms	PFMT Group	Control Group	p-value
Baseline (~9 weeks)	n = 17	n = 15	p = 0.60
FU: 5 - 7months	**n = 8** ↓ 53%	**n = 3** ↓ 80%	**p = 0.08**

The author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

on Raw Values, the control group again looks like it had better spontaneous improvement?

This is what enabled the authors to say:
There was no significant difference b/w gps in the rate of ♀ with '***any'*** prolapse symptoms at 6mo (**p = 0.08**)

PFMT .... staring before 3months PP

Sigurdardottir et al 2023[13]

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The author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

WARNING: this is where I am now going to show you my very CYNICAL side with Research...

Let's pretend the results had come out in reverse...

ANY POP Symptoms	CONTROL	PFMT
Baseline (~9 weeks)	n = 17	n = 15
FU: 5 - 7months	**n = 8** ↓ 53%	**n = 3** ↓ 80%

I feel like in this circumstance the conclusion would have been written to say...

'More women in the PFMT group reduced their prolapse, however due to small numbers it did not reach statistical significance.

It is recommended to repeat the trial with larger numbers to confirm this result'

PFMT .... staring before 3months PP

DISRUPT PELVICON 2026

Sigurdardottir et al 2023[13]

LET'S LOOK AT THE FULL TEXT (RAW DATA) RESULTS

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The author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

Why is it that when the result goes **against PFMT** we are too scared to say ....

'From the raw data it appears that more women in the control group reduced their prolapse by simply allowing for natural healing, however due to small numbers it did not reach statistical significance.

It is therefore uncertain whether PFMT commenced before 12 weeks PP places too much strain on the muscle during it's acute healing phase post-birth

It is recommended to repeat the trial with larger numbers to confirm this result'

PFMT .... staring before 3months PP

DISRUPT PELVICON 2026

Sigurdardottir et al 2023[13]

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The author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

I can't actually give you an acceptable answer to this.

I can say that it is often political,.... it does lack transparency,

and it is

unfair to you as clinicians trying to know what is the best for your clients.

PFMT .... staring before 3months PP

DISRUPT PELVICON 2026

Sigurdardottir et al 2023[13]

LET'S LOOK AT THE FULL TEXT (RAW DATA) RESULTS

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ANY POP Symptoms	PFMT Group	Control Group	p-value
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FU: 5 - 7months	**n = 8** ↓53%	**n = 3** ↓80%	**p = 0.08**

The author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

Unfortunately, for completion and full transparency, I actually need to give you one more data point from this trial that is even worse.

The result above was for women with ANY prolapse symptoms

PFMT .... staring before 3months PP

DISRUPT PELVICON 2026

Sigurdardottir et al 2023[13]

MORE FULL TEXT (RAW DATA) RESULTS

2. WOMEN WITH '**BOTHERSOME**' PROLAPSE SYMPTOMS

ANY POP Symptoms	PFMT Group	Control Group	p-value
Baseline (~9 weeks)	n = 5	n = 9	p = 0.30
FU: 5 - 7months	**n = 5**	**n = 1**	**p = 0.08**
% CHANGE	**0%**	**89%**	

Again, the author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

What I find fascinating about this result, is the comparison with the Bo et al 2015 result in women with avulsion,....

The abstract says that there was....

- **no significant difference** b/w gps in ***'bothersome prolapse symptoms'*** at 6months (p = 0.08).

PFMT .... staring before 3months PP

DISRUPT PELVICON 2026

Sigurdardottir et al 2023[13]

MORE FULL TEXT (RAW DATA) RESULTS

2. WOMEN WITH '**BOTHERSOME**' PROLAPSE SYMPTOMS

ANY POP Symptoms	PFMT Group	Control Group	p-value
Baseline (~9 weeks)	n = 5	n = 9	p = 0.30
FU: 5 - 7months	**n = 5**	**n = 1**	**p = 0.08**
% CHANGE	**0%**	**89%**	

Again, the author's did calculate p-values (even though the study wasn't powered for POP, it was powered for UI)

Bo et al 2015[11]

POP in ♀ with avulsion	PFMT Group	Control Group
Baseline (~6 weeks)	n =	n =
FU: 6 months	**n = 4**	**n = 1**
% CHANGE	**0% (↑33%)**	**86%**



DISRUPT PELVICON 2026

WHAT DOES ALL THIS MEAN FOR US CURRENTLY AS CLINICIANS??

3 Takeaways

DISRUPT PELVICON 2026

Takeaway 1

- **There is a chance that the early post-partum window** (0-3months) is a very unique window whereby the body is facilitating natural healing mechanisms post-birth, especially in ♀ with avulsion
- **The pelvic floor may react differently to PFMT in this acute trauma phase (0-3mo)** compared to the post-acute phase (after 3months)

Takeaway 2

- **The research is too early to know for certain in women with avulsion** whether PFMT may enhance, make no difference, or hinder recovery compared to doing nothing in the early (0-3mo) PP window
- **We do know PFMT is effective for urinary incontinence at any stage of life** (even 40 years after birth), so there isn't a need to rush into it if it could hinder!

Takeaway 3

- **In women at high risk of avulsion** (eg older age; larger baby, forceps delivery) it may be better to take a gentler approach in the first few months, and start PFMT after the acute healing phase (after 3months), but….
- **Pelvic Health Therapy still has a role in the early PP window even in ♀ suspected of avulsion!** eg bowel management, wound support, pain management etc

One final comment…

DISRUPT PELVICON 2026

Nicole and Jessica send all of us **a slide deck** to use when creating our presentations…

One of the possible slide designs is a '**quote slide**'.

So I am now going to ask for your openness for me to do something a little different.

I would like to ask you to please give me opportunity to leave you with a quote **from me**.

My one hope for our profession, is that we always remember that 'learning we didn't have an ideal outcome is not ever something to be ashamed of…..

…. in fact, acknowledging errors is not only humbling, but also the first step to improvement'.

SO PLEASE REMEMBER…..

'we create the possibility for improvement, when we are prepared to entertain the idea that we might be doing some things wrong'.

Taryn Hallam

DISRUPT PELVICON 2026

Thank you ☺

DISRUPT PELVICON 2026

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RACHEL RUBIN

FIRST-TIME PELVICON SPEAKER

@DRRACHELRUBIN

- Board-certified urologist and fellowship-trained sexual medicine specialist
- Leading advocate for evidence-based sexual healthcare
- Instrumental in the development and release of AUA medical guidelines for the Genitourinary Syndrome of Menopause (GSM) and efforts to overturn the black box label on vaginal estrogen



DISRUPTING IDEAS

DISRUPTING THE SYSTEM WITH LOW-HANGING FRUIT

1

Plant seeds. A lot of them. You don't get to decide which ones grow.

2

Do something. Research, education, advocacy, social media, luck. It literally all matters.

3

Vaginal hormones are sepsis preventing, UTI preventing, life-saving, pelvic healing, urinary magical drugs. Everone should be using this.

DISRUPT
PELVICON 2026

Disrupting Medicine with Low Hanging Fruit

Rachel Rubin, MD



About Me

- Urologist fellowship trained in sexual medicine
- Clinician, Researcher, Advocate, Educator
- Mom to Billie (9) and Ezra (7)
- Created a life where nobody tells her what to do



pretty pathetic -
don't ya think





What you do is weird

You're not going to make us enough money











JOURNAL OF THE AMERICAN GERIATRICS SOCIETY
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ATROPHIC AND SENILE VAGINO-PERINEAL DISORDERS: NEW TREATMENT WITH AN ESTROGEN-PROGESTERONE VAGINAL CREAM

KARL JOHN KARNAKY, M.D., F.A.C.O.G.*

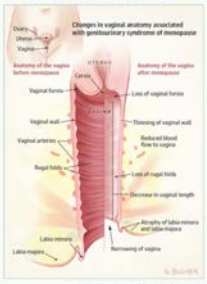
The Obstetrical and Gynecological Research Foundation and Research Institute, Houston, Texas

In 1963 Falk and Hassid (1) reported in this journal on the use of an estrogenic vaginal cream *alone* for the treatment of atrophic or senile vaginitis and also as the first treatment in other related disorders.

The purpose of this article is to report a ten-year study of an estrogenic vaginal cream and a six-year study of an estrogen-progesterone vaginal cream as used in the treatment of senile vagino-perineal disorders. A comparison was made of the clinical effects of these creams, in order to deter-

"VULVOVAGINAL ATROPHY" → "GENITOURINARY SYNDROME OF MENOPAUSE"

Symptoms	Signs
◦Genital dryness ◦Decreased lubrication with sexual activity ◦Discomfort or pain with sexual activity ◦Post-coital bleeding ◦Decreased arousal, orgasm, desire ◦Irritation/burning/itching of vulva or vagina ◦Dysuria ◦Urinary frequency/ urgency	◦Decreased moisture ◦Decreased elasticity ◦Labia minora resorption ◦Pallor/erythema ◦Loss of vaginal rugae ◦Tissue fragility/fissures/ petechiae ◦Urethral eversion or prolapse ◦Loss of hymenal remnants ◦Prominence of urethral meatus ◦Introital retraction ◦Recurrent UTIs





Photos courtesy of Irwin Goldstein MD and Murray Freedman MD

The NEW ENGLAND JOURNAL of MEDICINE

CURRENT ISSUE ▾ SPECIALTIES ▾ TOPICS ▾

ORIGINAL ARTICLE

A Controlled Trial of Intravaginal Estriol in Postmenopausal Women with Recurrent Urinary Tract Infections

Authors Raul Raz and Walter E. Stamm · Author Info & Affiliations

Published September 9, 1993 | N Engl J Med 1993;329:753-756 | DOI: 10.
VOL. 329 NO. 11 | Copyright © 1993

Table 2. Episodes of Infection in the Two Groups.

Variable	Estriol Group (N = 50)	Placebo Group (N = 43)
Episodes of bacteriuria	12	111*
Symptomatic	10	103*
Asymptomatic	2	8
Total person-mo of observation	310	225
Urinary tract infections per patient-yr	0.5	5.9†

*P<0.005.
†P<0.001.

Conjugated Equine Estrogens (if hysterectomy) vs. Placebo

Conjugated Equine Estrogens + Medroxyprogesterone Acetate vs. Placebo

Primary efficacy and safety outcomes:
1. Coronary heart disease
2. Invasive breast cancer

Data has been looked at for:

- DVT
- PE
- Other cancers (endometrial, ovarian, colorectal, lung, etc.)
- Alzheimer's Disease & dementia
- Fractures
- Type 2 diabetes
- All-cause mortality
- Weight gain
- Bone mineral density
- Joint pain
- Stroke
- Intraocular pressure
- Open-angle glaucoma
- & more

The Women's Health Initiative



The New York Times

Late Edition

NEW YORK, TUESDAY, JULY 9, 2002

Study Is Halted Over Rise Seen In Cancer Risk

Hormone Replacement Is Called Into Doubt

By GINA KOLATA

A large federal study of hormone replacement therapy in postmenopausal women was abruptly halted, researchers say, because the drugs caused a slight but significant increase in the risk of invasive breast cancer.

An estimated six million women take the drugs, estrogen and progestin, to replace the hormones lost at menopause. The hope was that the drugs would not just relieve the hot flashes, night sweats and vaginal dryness that can plague women at menopause but that over all they would also improve women's health.

9, 2002

A 2002 press conference sent shockwaves through the medical community, associating HRT with breast cancer (Photo: SBG)



The New York Times

New Evidence of Cancer Risk In Hormone Therapy Study

By DENISE GRADY

The New York Times

Hormone Replacement Study A Shock to the Medical System

By GINA KOLATA AND MELODY PETERSEN

TIME

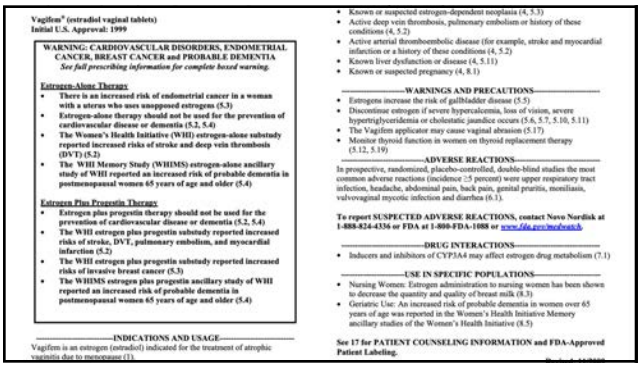
WALL STREET: LOSING SAVINGS—AND TRUST

THIS OUR FIRST ANCESTOR?

THE TRUTH ABOUT HORMONES

Hormone-replacement therapy is riskier than advertised. What's a woman to do?





Vagifem® (estradiol vaginal tablets)
Initial U.S. Approval: 1999

WARNING: CARDIOVASCULAR DISORDERS, ENDOMETRIAL CANCER, BREAST CANCER and PROBABLE DEMENTIA
See full prescribing information for complete boxed warning.

Estrogen-Alone Therapy

- **There is an increased risk of endometrial cancer in a woman with a uterus who uses unopposed estrogens (5.3)**
- **Estrogen-alone therapy should not be used for the prevention of cardiovascular disease or dementia (5.2, 5.4)**
- **The Women's Health Initiative (WHI) estrogen-alone substudy reported increased risks of stroke and deep vein thrombosis (DVT) (5.2)**
- **The WHI Memory Study (WHIMS) estrogen-alone ancillary study of WHI reported an increased risk of probable dementia in postmenopausal women 65 years of age and older (5.4)**

Estrogen Plus Progestin Therapy

- **Estrogen plus progestin therapy should not be used for the prevention of cardiovascular disease or dementia (5.2, 5.4)**
- **The WHI estrogen plus progestin substudy reported increased risks of stroke, DVT, pulmonary embolism, and myocardial infarction (5.2)**
- **The WHI estrogen plus progestin substudy reported increased risks of invasive breast cancer (5.3)**
- **The WHIMS estrogen plus progestin ancillary study of WHI reported an increased risk of probable dementia in postmenopausal women 65 years of age and older (5.4)**

INDICATIONS AND USAGE

Vagifem is an estrogen (estradiol) indicated for the treatment of atrophic vaginitis due to menopause (1).

- Known or suspected estrogen-dependent neoplasia (4, 5.3)
- Active deep vein thrombosis, pulmonary embolism or history of these conditions (4, 5.2)
- Active arterial thromboembolic disease (for example, stroke and myocardial infarction or a history of these conditions (4, 5.2)
- Known liver dysfunction or disease (4, 5.11)
- Known or suspected pregnancy (4, 8.1)

WARNINGS AND PRECAUTIONS

- Estrogens increase the risk of gallbladder disease (5.5)
- Discontinue estrogen if severe hypercalcemia, loss of vision, severe hypertriglyceridemia or cholestatic jaundice occurs (5.6, 5.7, 5.10, 5.11)
- The Vagifem applicator may cause vaginal abrasion (5.17)
- Monitor thyroid function in women on thyroid replacement therapy (5.12, 5.19)

ADVERSE REACTIONS

In prospective, randomized, placebo-controlled, double-blind studies the most common adverse reactions (incidence ≥5 percent) were upper respiratory tract infection, headache, abdominal pain, back pain, genital pruritis, moniliasis, vulvovaginal mycotic infection and diarrhea (6.1).

To report SUSPECTED ADVERSE REACTIONS, contact Novo Nordisk at 1-888-824-4336 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

- Inducers and inhibitors of CYP3A4 may affect estrogen drug metabolism (7.1)

USE IN SPECIFIC POPULATIONS

- Nursing Women: Estrogen administration to nursing women has been shown to decrease the quantity and quality of breast milk (8.3)
- Geriatric Use: An increased risk of probable dementia in women over 65 years of age was reported in the Women's Health Initiative Memory ancillary studies of the Women's Health Initiative (8.5)

See 17 for PATIENT COUNSELING INFORMATION and FDA-Approved Patient Labeling.

Practice Guideline > Menopause. 2007 May-Jun;14(3 Pt 1):355-69; quiz 370-1. doi: 10.1097/gme.0b013e31805170eb.

The role of local vaginal estrogen for treatment of vaginal atrophy in postmenopausal women: 2007 position statement of The North American Menopause Society

North American Menopause Society

PMID: 17438512 DOI: 10.1097/gme.0b013e31805170eb

> Maturitas. 2014 Nov;79(3):349-54. doi: 10.1016/j.maturitas.2014.07.013. Epub 2014 Aug 19.

Genitourinary syndrome of menopause: new terminology for vulvovaginal atrophy from the International Society for the Study of Women's Sexual Health and the North American Menopause Society

D J Portman, M L S Gass; Vulvovaginal Atrophy Terminology Consensus Conference Panel

PMID: 25179577 DOI: 10.1016/j.maturitas.2014.07.013

Abstract

Background: In 2012, the Board of Directors of the International Society for the Study of Women's Sexual Health (ISSWSH) and the Board of Trustees of The North American Menopause Society (NAMS) acknowledged the need to review current terminology associated with genitourinary tract symptoms related to menopause.



May 17, 2016

JoAnn E. Manson
The Working Group on Women's Health and Well-Being in Menopause
900 Commonwealth Avenue
Boston, MA 02215

JoAnn V. Pinkerton
The North American Menopause Society
5900 Landerbrook Drive, Suite 390
Mayfield Heights, OH 44124

Your petition to the Food and Drug Administration requesting that the FDA modify the package labeling for low-dose vaginal estrogen products approved for treating symptoms of vulvovaginal atrophy (VVA) and the Guidance for Industry, was received by this office on 5/13/2016.

It was assigned docket number FDA-2016-P-1246 and it was filed on 5/17/2016. Please refer to this docket number in future correspondence on this subject with the Agency.

Please note that the acceptance of the petition for filing is a procedural matter in that it in no way reflects an agency decision on the substantive merits of the petition.

JoAnn V. Pinkerton
The North American Menopause Society
5900 Landerbrook Drive, Suite 390
Mayfield Heights, OH 44124

MAY 2 0 2016

Re: Docket No. FDA-2016-P-1246

Dear Dr. Manson and Dr. Pinkerton:

This letter responds to the citizen petition submitted by the Working Group on Women's Health and Well-Being in Menopause and the North American Menopause Society (collectively, Petitioners), which the Food and Drug Administration (FDA or the Agency) received on May 12, 2016 (Petition). Petitioners request FDA to "modify the label for low-dose vaginal estrogen products approved for treating symptoms of vulvovaginal atrophy (VVA)" (also referred to as vulvar and vaginal atrophy) and correspondingly amend FDA's draft guidance for industry: *Noncontraceptive Estrogen Drug Products for the Treatment of Vasomotor Symptoms and Vulvar and Vaginal Atrophy Symptoms — Recommended Prescribing Information for Health Care Providers and Patient Labeling* (Draft Guidance).[1,2] Petitioners maintain that "[t]he label should be modified to accurately reflect the relevant evidence-based information for low-dose vaginal estrogen products."[3]

> Menopause. 2018 Jul;25(7):837-847. doi: 10.1097/GME.0000000000001138.

The role of androgens in the treatment of genitourinary syndrome of menopause (GSM): International Society for the Study of Women's Sexual Health (ISSWSH) expert consensus panel review

James A Simon [1], Irwin Goldstein [2], Noel N Kim [3], Susan R Davis [4], Susan Kellogg-Spadt [5], Lior Lowenstein [6], JoAnn V Pinkerton [7], Cynthia A Stuenkel [8], Abdulmaged M Traish [9], David F Archer [10], Gloria Bachmann [11], Andrew T Goldstein [12], Rossella E Nappi [13], Linda Vignozzi [14]

Affiliations + expand

PMID: 29870471 DOI: 10.1097/GME.0000000000001138

Abstract

Objective: The objective of this consensus document is to broaden the perspective on clinical management of genitourinary syndrome of menopause to include androgens.

AUA UTI GUIDELINES, 2019

Recurrent Uncomplicated Urinary Tract Infections in Women: AUA/CUA/SUFU Guideline (2019)

Published 2019

Unabridged version of this guideline [pdf]
Algorithm associated with this guideline [pdf]
Canadian French translated guideline courtesy of Canadian Urological Association (CUA) [pdf]

Panel Members

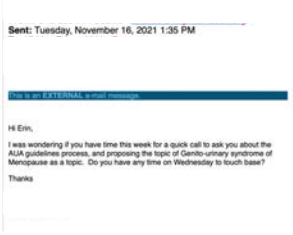
Jennifer Anger, MD, MPH; Una Lee, MD; A. Lenore Ackerman, MD, PhD; Roger Chou, MD; Bilal Chughtai, MD; J. Quentin Clemens, MD; Duane Hickling, MD, MSCI; Anil Kapoor, MD; Kimberly S. Kenton, MD, MS; Melissa R. Kaufman, MD, PhD; Mary Ann Rondanina, Ann Stapleton, MD; Lynn Stothers, MD; Toby C. Chai, MD

Estrogen

Guideline Statement 16

In peri- and post-menopausal women with rUTIs, clinicians should recommend vaginal estrogen therapy to reduce the risk of future UTIs if there is no contraindication to estrogen therapy. (Moderate Recommendation; Evidence Level: Grade B)





> Menopause. 2020 Sep;27(9):976-992. doi: 10.1097/GME.0000000000001609.

The 2020 genitourinary syndrome of menopause position statement of The North American Menopause Society

The NAMS 2020 GSM Position Statement Editorial Panel

Collaborators – collapse

Collaborators

The NAMS 2020 GSM Position Statement Editorial Panel: Stephanie S Faubion, Sheryl A Kingsberg, Jan L Shifren, Caroline Mitchell, Andrew M Kaunitz, Lisa Larkin, Susan Kellogg Spadt, Amanda Clark, James A Simon

PMID: 32852449 DOI: 10.1097/GME.0000000000001609







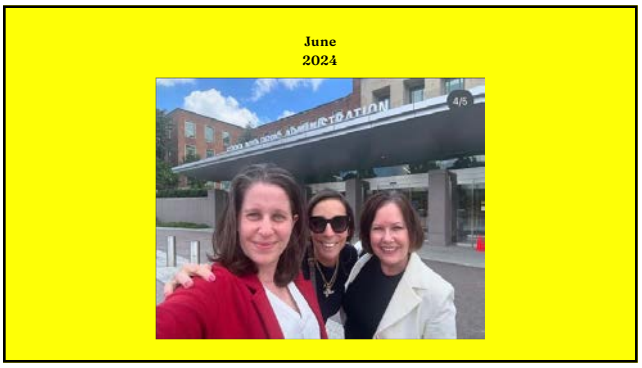
Review > Sex Med Rev. 2024 Jun 26;12(3):279-287. doi: 10.1093/sxmrev/qeae034.

Genitourinary syndrome of lactation: a new perspective on postpartum and lactation-related genitourinary symptoms

Sara Perelmuter [1], Ramzy Burns [2], Katie Shearer [3], Raeven Grant [4], Anantha Soogoor [5], Soyoun Jun [6], Janine Alexis Meurer [7], Jill Krapf [8], Rachel Rubin [9]

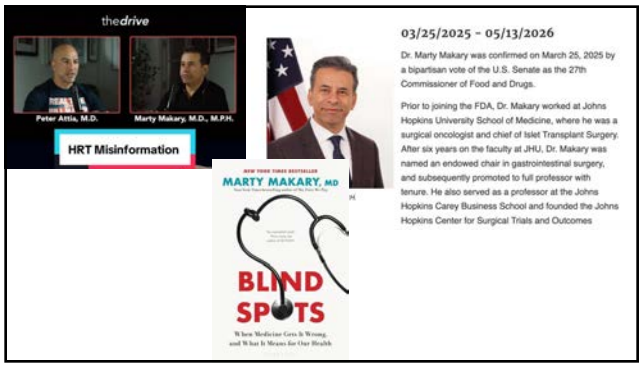
Affiliations + expand

PMID: 38757214 DOI: 10.1093/sxmrev/qeae034

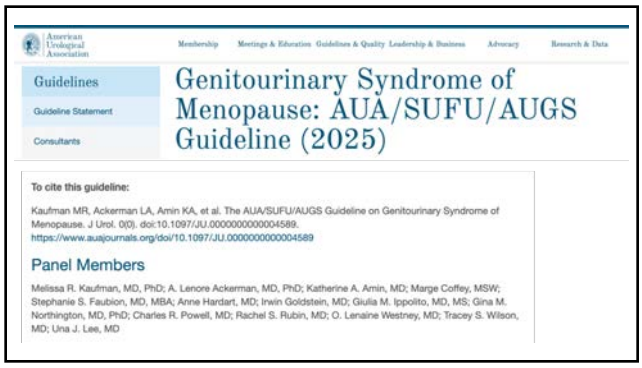




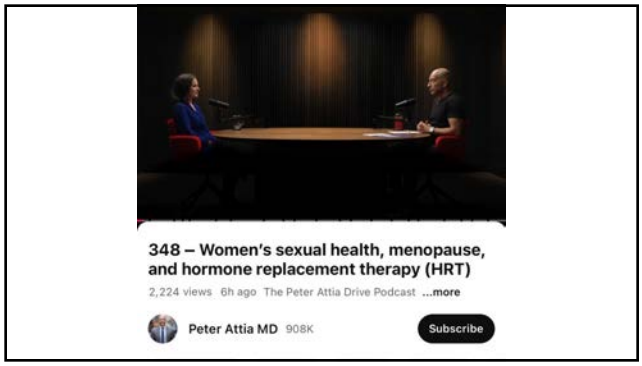



thedrive
Peter Attia, M.D.
Marty Makary, M.D., M.P.H.
HRT Misinformation
MARTY MAKARY, MD
BLIND SPOTS
When Medicine Gets It Wrong, and What It Means for Our Health
03/25/2025 - 05/13/2026
Dr. Marty Makary was confirmed on March 25, 2025 by a bipartisan vote of the U.S. Senate as the 27th Commissioner of Food and Drugs.
Prior to joining the FDA, Dr. Makary worked at Johns Hopkins University School of Medicine, where he was a surgical oncologist and chief of Islet Transplant Surgery. After six years on the faculty at JHU, Dr. Makary was named an endowed chair in gastrointestinal surgery, and subsequently promoted to full professor with tenure. He also served as a professor at the Johns Hopkins Carey Business School and founded the Johns Hopkins Center for Surgical Trials and Outcomes


2025


American Urological Association
Membership
Meetings & Education
Guidelines & Quality
Leadership & Business
Advocacy
Research & Data
Guidelines
Guideline Statement
Consultants
Genitourinary Syndrome of Menopause: AUA/SUFU/AUGS Guideline (2025)
To cite this guideline:
Kaufman MR, Ackerman LA, Amin KA, et al. The AUA/SUFU/AUGS Guideline on Genitourinary Syndrome of Menopause. J Urol. 0(0). doi:10.1097/JU.0000000000004589.
https://www.auajournals.org/doi/10.1097/JU.0000000000004589
Panel Members
Melissa R. Kaufman, MD, PhD; A. Lenore Ackerman, MD, PhD; Katherine A. Amin, MD; Marge Coffey, MSW; Stephanie S. Faubion, MD, MBA; Anne Hardart, MD; Irwin Goldstein, MD; Giulia M. Ippolito, MD, MS; Gina M. Northington, MD, PhD; Charles R. Powell, MD; Rachel S. Rubin, MD; O. Lenaine Westney, MD; Tracey S. Wilson, MD; Una J. Lee, MD




348 – Women's sexual health, menopause, and hormone replacement therapy (HRT)
2,224 views 6h ago The Peter Attia Drive Podcast ...more
Peter Attia MD 908K
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1906 - 2006
FDA
Centennial







The End?

Not so fast…

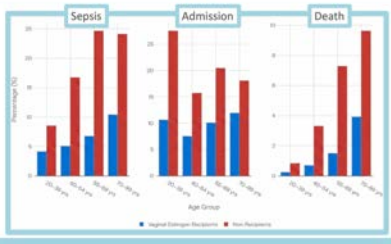


Nobody knows how to do this

It's our job to fix this



Vaginal Estrogen Associated with Fewer Serious Adverse Events



LaClair J, Visingardi J, Wells R, Feustel P, Deckert J, De EJ. Vaginal Estrogen Prescription is Associated with Reduced Rates of Serious Adverse Outcomes in Women of All Age Groups With Recurrent Urinary Tract Infection: An Epic Cosmos Database Analysis. Urology. 2026 Jun 10:S0090-4295(26)00358-4. doi: 10.1016/j.urology.2026.06.004. Epub ahead of print. PMID: 42269780

JAMA Network | Open

Original Investigation | Obstetrics and Gynecology

Vaginal Estrogen Utilization Among Medicare Beneficiaries With Genitourinary Syndrome of Menopause

Kelsey Gallo, MD; Chiyuan Amy Zhang, MPH; Claire Burton, MD; Neil Kamdar, MA; Elene A. Enemchukwu, MD, MPH

RESULTS A total of 1 838 732 women with at least 1 GSM-related diagnosis were identified (median [IQR] age, 74 [69-81] years; median [IQR] follow-up, 8 [4-10] years). VE prescriptions were filled by 165 530 women (9.0%) at a median (IQR) of 15 (2-46) months after diagnosis. Older women (adjusted odds ratio [aOR] for >86 years vs 66-70 years, 0.59; 95% CI, 0.58-0.60) and those with higher Charlson Comorbidity Index scores (aOR for score ≥5 vs 0, 0.67; 95% CI, 0.66-0.69) were less likely to have a VE claim. When comparing GSM symptom groups, women with recurrent urinary tract infections were least likely to have a VE claim (aOR vs local sexual symptoms, 0.54; 95% CI, 0.46-0.64). Women with vulvovaginal symptoms (aOR, 2.70; 95% CI, 2.45-2.97) and GSM multimorbidity (aOR, 15.91; 95% CI, 14.41-17.57) were most likely to have a VE claim.

Key Points

Question How prevalent is low-dose vaginal estrogen use for the treatment of genitourinary syndrome of menopause?

Findings In this cohort study of more than 1 million Medicare beneficiaries, 9.0% of women with a diagnosis indicative of genitourinary syndrome of menopause filled a prescription for vaginal estrogen at a median of 15 months after diagnosis.

Meaning This study found that the vast majority of patients with symptoms of genitourinary syndrome of menopause did not fill a vaginal estrogen prescription, suggesting that additional research is needed to improve our understanding of symptoms and facilitate care.

Category	Composition	Commonly used starting dose	Commonly used maintenance dose	Typical serum estradiol level (pg/mL)
Vaginal creams	17β-estradiol 0.01% (0.1 mg active ingredient/g)	0.5-1 grams daily for 2 weeks	0.5 -1 gram 1-3 times per week	Variable, 3-5a
	Conjugated estrogen (0.625 mg active ingredient/g)	0.5 -1 grams daily for 2 weeks	0.5 grams 1-3 times/week	Variable
Vaginal inserts	17β-estradiol inserts	4 or 10 µg/d for 2 weeks	1 insert twice/week	3.6 (4 µg) 4.6 (10 µg)
	Estradiol hemihydrate tablets	4 or 10 µg/d for 2 weeks	1 insert twice/week	5.5
	Prasterone (DHEA) inserts	6.5 mg/day	1 insert/day	5
Vaginal rings	Silicone polymer with a core containing 2mg estradiol	7.5 mcg/day for 3 months	1 ring/three months	8
Oral tablet	Ospemifene	60 mg/day	1 tablet by mouth/day	N/A

ESTRADIOL 0.01% CREAM

℞

MEDICATION: Estradiol 0.1 mg/gm (0.01%) Vaginal Cream

DOSE: 1 gm of 0.1 mg/gm (0.01%) cream

INSTRUCTIONS: Insert 1 gm vaginally nightly for 2 weeks and rub in. Use 1 gm twice weekly thereafter.

DISPENSE: 42.5 gm (1 tube)

DAYS SUPPLY: 90 days

Brand is Estrace vaginal cream (NOT the same as Estrace estradiol tablets)
- Generic available

Rub in to decrease mess.

Applicator is reused.

Cash pricing:
- GoodRx coupon: $30/tube ($10/mo)
- Cost Plus Drugs: $13/tube ($4/mo)



ESTRADIOL VAGINAL TABLET INSERTS

℞

MEDICATION: Estradiol 10 mcg tablet inserts

DOSE: 10 mcg

INSTRUCTIONS: Insert 1 tablet vaginally nightly for 2 weeks. Insert 1 tablet twice weekly thereafter.

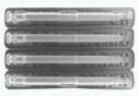
DISPENSE: 36 tablet inserts (for first fill)
24 tablet inserts (for subsequent fills)

DAYS SUPPLY: 90 days

Brand is Vagifem
- Generic available

Less mess.

Cash pricing:
- GoodRx coupon: $50/8 inserts
- Cost Plus Drugs: $30/8 inserts (comes in multiples of 30)



RACHEL RUBIN, MD

Urologist & Sexual Medicine Specialist

WHAT IS GSM?

Genitourinary Syndrome of Menopause

(and Lactation)

"Local vaginal hormones will save your life" - Rachel Rubin MD

Genitourinary Syndrome of Menopause is serious; it is not "just a little vaginal dryness."

Every day in our practice, we witness the life-saving impact of low-dose vaginal estrogen.

rachelrubinmd.com



pretty pathetic -
don't ya think

3 Takeaways

DISRUPT
PELVICON 2026

Takeaway 1

- Plant seeds. A lot of them.
- You don't get to decide which ones grow.

Takeaway 2

- Research
- Education
- Advocacy
- Social media
- Luck
- It literally ALL matters.
- Do something

Takeaway 3

- Vaginal hormones are sepsis preventing, urinary tract preventing, life saving, pelvic healing, urinary magical drugs.
- Everyone should be using this. Nobody is being offered it.

PAUL HODGES

PELVICON SPEAKER

@PAULWHODGES



- Internationally recognized neuroscientist & physiotherapy researcher
- World-leading expert in pain, movement, rehabilitation & men's pelvic health
- Author of 640+ peer-reviewed papers, books & book chapters

DISRUPTING IDEAS

BEYOND THE SQUEEZE: ULTRASOUND AND PRECISION IN MALE PELVIC FLOOR CARE

1

Continence in men depends on interplay between multiple striated muscles of pelvic floor.

2

Transperineal ultrasound imaging provides an opportunity to provide detailed evaluation of the individual muscles of the pelvic floor and their function.

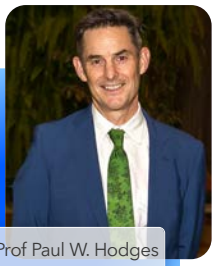
3

Recovery of continence after prostatectomy is faster when training is focused on urethral striated muscles.

DISRUPT
PELVICON 2026

Beyond the Squeeze: Ultrasound and Precision in Male Pelvic Floor Care

Paul W. Hodges



Prof Paul W. Hodges

About Me

- Physiotherapist, Neuroscientist & Pain Scientist
- PhD MedDr DSc Drhc BPhty(Hons) FACP FAA FAHMS FISEK FQA
- Director, Centre for Innovation in Pain and Health Research (CIPHeR), The University of Queensland, Brisbane, Australia
- Director, DISCERN NHMRC Synergy Grant
- International Continence Society – Committee Member – Physiotherapy Committee, Pain Committee
- Principal Investigator – Matchup RCT – pelvic floor training for postprostatectomy incontinence
- Developer of transperineal ultrasound imaging in men

Beyond the Squeeze in men

- **Disrupting the understanding of male pelvic floor**
- **Disrupting the assessment and training of pelvic floor in men with ultrasound imaging**
- **Disrupting the management of incontinence after prostatectomy**

Beyond the Squeeze in men

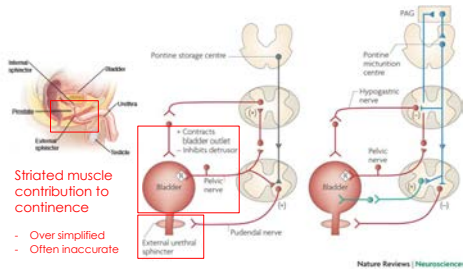
- **Disrupting the understanding of male pelvic floor**
- **Disrupting the assessment and training of pelvic floor in men with ultrasound imaging**
- **Disrupting the management of incontinence after prostatectomy**

Controversies of continence control in men

- Continence
  - Urethral Pressure > Bladder pressure
  - Simple equation – complex solution

Neural control of continence

Storage Micturition



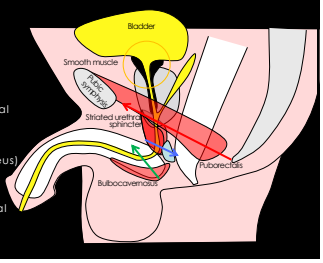
Striated muscle contribution to continence

- Over simplified
- Often inaccurate

Functional anatomy of male floor

Smooth & striated muscles of continence

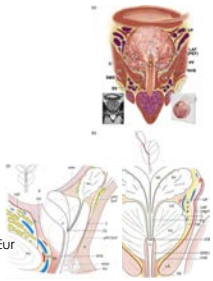
- Continence
  - Urethral pressure>Bladder pressure
- Major contributors to continence in males:
  - **Smooth muscle sphincter** (Lissosphincter, internal urethral sphincter)
  - **Levator ani** (Puborectalis, pubovisceralis, pubococcygeus)
  - **Striated urethral sphincter** (Rhabdosphincter, external urethral sphincter, peri-urethral striated muscle)
  - **Bulbocavernosus**



Anatomy & physiology

- Controversies
  - Urethral smooth muscle
    - Variable description of anatomy
    - Circumferential smooth muscle of urethra/bladder neck (internal urethral sphincter/ lissosphincter)
    - **Thickest proximally near bladder** (Koraitim, 2008)

    Vs.
    - **Present distally** (Walz et al., Eur Urol 2009)



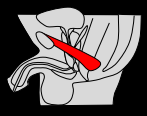
Anatomy & physiology

- Striated urethral sphincter
  - Anatomy
    - Omega shaped – anterior & lateral
    - Contraction draws the urethra posteriorly against plate formed by the perineal body and Denonvilliers' fascia
  - Muscle fibre types
    - Based on predominantly **slow-twitch** type Assumed to be "Passive function in urinary control" (Gosling et al., Br J Urol 1981)

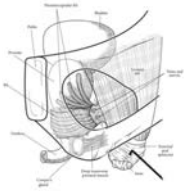


Anatomy & physiology

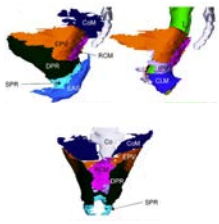
- Levator ani muscles
  - Largely ignored in male literature
  - Various names
    - Puborectalis
    - Puboperinalis
    - Pubopvisceralis
    - …



Levator ani: Variable anatomical description



Walz et al., 2009 Eur Urol



Wu et al. 2018 J Anat

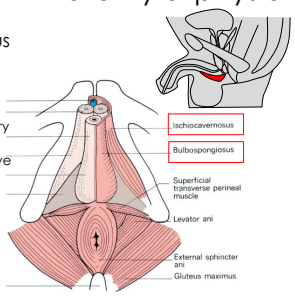
Anatomy & physiology



- Levator ani muscles
  - Elevate perineal structures
    - Influence mechanics of the urethra
  - Support bladder neck
  - Compress urethra against pubic symphysis

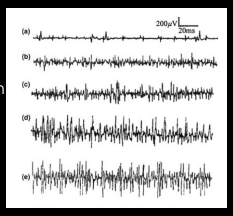
Anatomy & physiology

- Bulbocavernosus muscle
  - Function
    - Considered to have ejaculatory function
    - Assumed to have limited involvement in continence

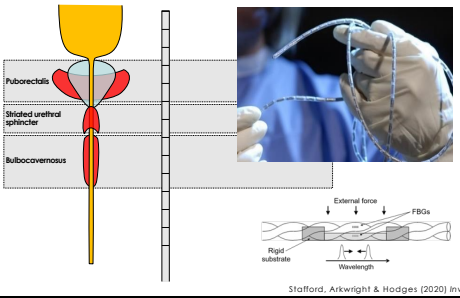


Anatomy & physiology

- Bulbocavernosus muscle
  - Activated in association with straining (Shafik et al., 2008)
  - Activated in cough to control elevated abdominal pressure (Stafford et al. 2014)

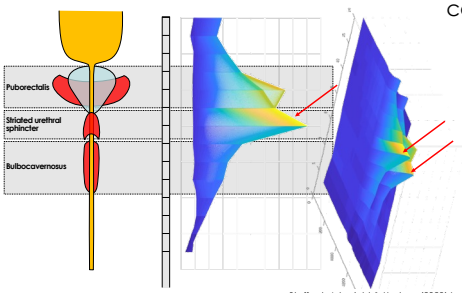


Multi-sensor pressure transducer



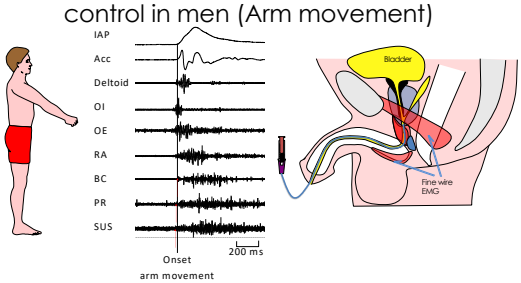
Stafford, Arkwright & Hodges (2020) *Investigative Clin Urol*

Multi-sensor pressure transducer: Evoked cough



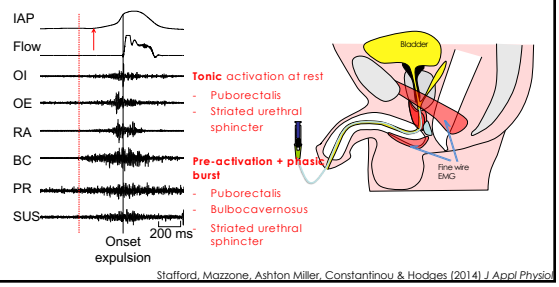
Stafford, Arkwright & Hodges (2020) *Investigative Clin Urol*

Multiple pelvic floor muscles contribute to **predictive** postural control in men (Arm movement)



Stafford & Hodges (2014), unpublished data

Activation of pelvic floor muscles during Evoked cough



Stafford, Mazzone, Ashton Miller, Constantinou & Hodges (2014) *J Appl Physiol*

Disrupting the understanding of male pelvic floor

- **Striated muscles**
  - Each striated muscle has unique mechanical action on urethra
- **New**
  - Clear role for PR and BC - not considered previously
  - SUS - tonic and phasic functions
  - Complex interaction in function
    - Independent and coordinated activation
      - Tonic activation: PR & SUS
      - Phasic burst with increased demand:
        - Distal before proximal
      - Differential fatiguability (BC fatigues first)

Beyond the Squeeze in men

- Disrupting the understanding of male pelvic floor
- **Disrupting the assessment and training of pelvic floor in men with ultrasound imaging**
- Disrupting the management of incontinence after prostatectomy

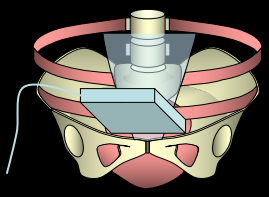
Ultrasound Imaging

Imaging: **Anatomy/position** of pelvic floor muscles

Position

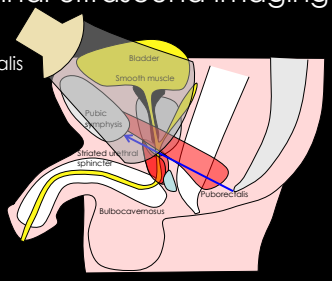
- Tone – higher/lower tone
  - Elevated tone of puborectalis in chronic pelvic pain
- Injury (trauma/surgery)
  - Levator ani avulsion after vaginal delivery
  - Bladder neck morphology after prostatectomy
- Support
  - Pelvic organ prolapse

Transabdominal US imaging

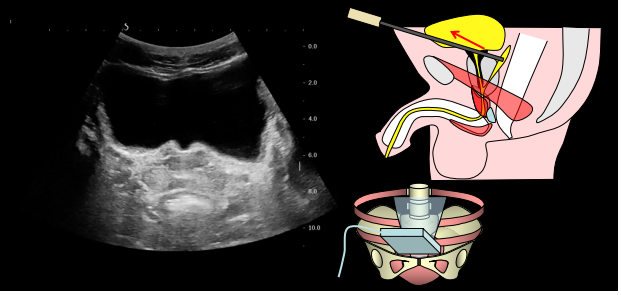


Transabdominal ultrasound imaging

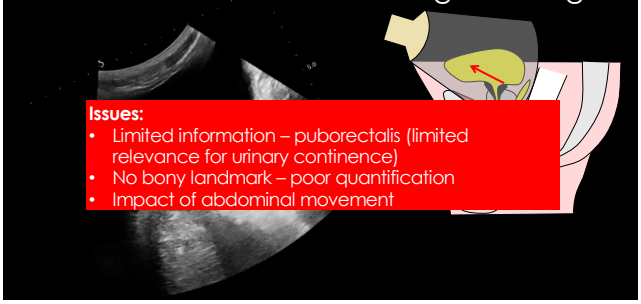
- Levator ani/ Puborectalis



Transabdominal US: Transverse image



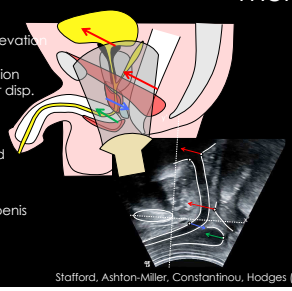
Transabdominal US: Sagittal image



Issues:
- Limited information – puborectalis (limited relevance for urinary continence)
- No bony landmark – poor quantification
- Impact of abdominal movement

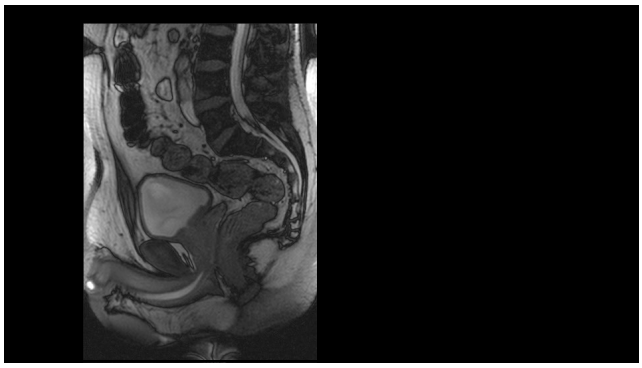
Transperineal ultrasound imaging in men

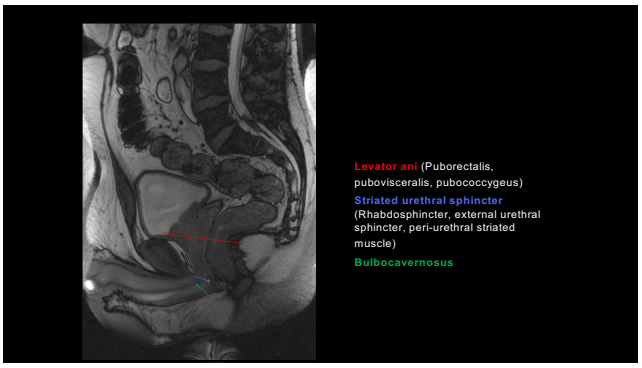
- Puborectalis
  - Ano-rectal angle elevation & anterior disp.
  - Urethrovesical junction elevation & anterior disp.
- Striated urethral sphincter
  - Posterior motion mid urethra
- Bulbocavernosus
  - Compression bulb penis



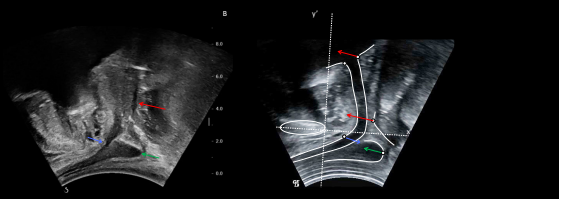
Stafford, Ashton-Miller, Constantinou, Hodges (2013) *Urology*





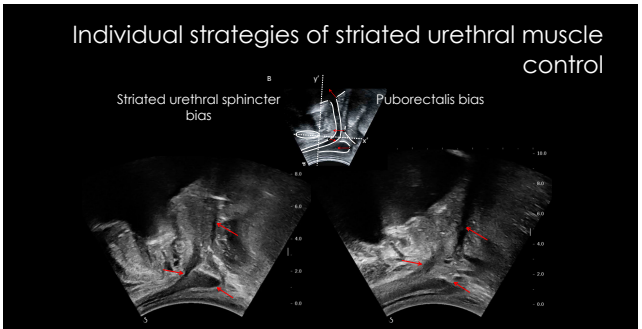


Transperineal ultrasound imaging: Voluntary contraction



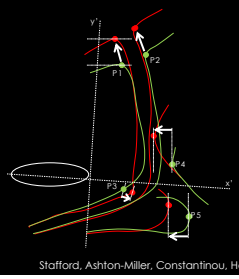
Stafford, Ashton-Miller, Constantinou, Hodges (2013) *Urology*

Individual strategies of striated urethral muscle control



Ultrasound imaging: Transperineal Measurement

- Relaxed state
- Contracted state



Stafford, Ashton-Miller, Constantinou, Hodges (2013) *Urology*

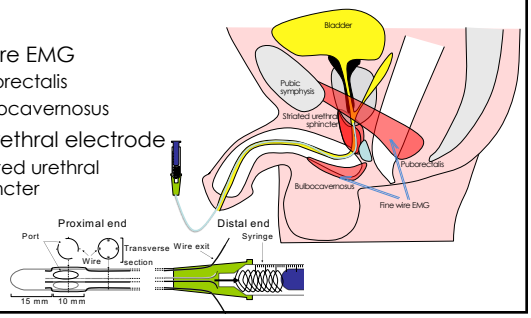
How?

- Interpretation ♂

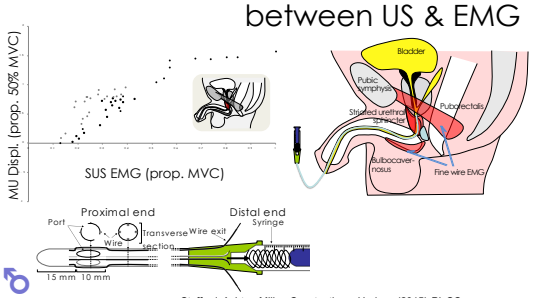
→Amplitude of contraction
→Pattern of activation

Validation with electromyography recordings

- Fine-wire EMG
  - Puborectalis
  - Bulbocavernosus
- Transurethral electrode
  - Striated urethral sphincter

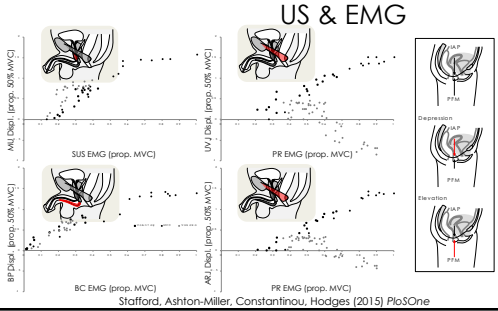


Significant, non-linear relationship between US & EMG



Stafford, Ashton-Miller, Constantinou, Hodges (2015) *PloSOne*

Non-linear relationship between US & EMG



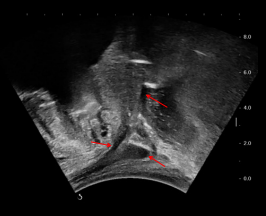
Stafford, Ashton-Miller, Constantinou, Hodges (2015) *PloSOne*

How?

- Interpretation ♂

→Timing of activation

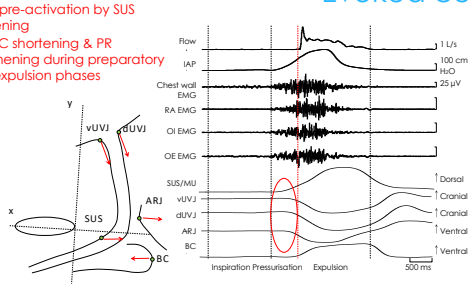
Transperineal ultrasound imaging: Evoked cough



- Striated muscle activation
  - Distal to proximal sequence
  - Lengthen deep PFM

Evoked cough

- Initial pre-activation by SUS shortening
- SUS/BC shortening & PR lengthening during preparatory and expulsion phases



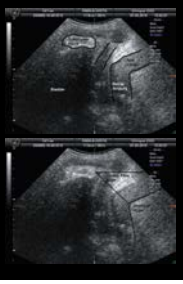
Stafford, Ashton-Miller, Constantinou, Hodges (2014) *J Appl Physiol*

How?

- Interpretation ♂

→**Position - Resting tone??**

Ultrasound: Evaluation of anatomy/position



- UCPPS N=24; controls N=26
- Higher resting tone
  - More acute ARA at rest and during contraction
    - More acute Rest ARA in UCPPS > contracted in controls
  - Less LPA elevation with contraction
    - ??greater IAP
  - Correlated with pain, sexual dysfunction, and anxiety

Davis et al. (2011) *J Sex Med*

Disrupting the assessment and training of pelvic floor in men with ultrasound imaging

- **Pros**
  - Non-invasive
  - Evaluate multiple muscle groups of pelvic floor
  - Objective measure of position and activation
- **Cons**
  - Indirect measure of muscle activation
  - Position may be affected by other issues – not just activity
    - Intra-abdominal pressure
    - Fascial integrity

Beyond the Squeeze in men

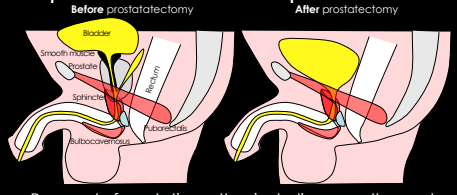
- **Disrupting the understanding of male pelvic floor**
- **Disrupting the assessment and training of pelvic floor in men with ultrasound imaging**
- **Disrupting the management of incontinence after prostatectomy**

Clinical question?

- Prostatectomy involves major structural changes to the continence mechanism

→How does prostatectomy change anatomy and function of pelvic floor muscles?

Impact of radical prostatectomy

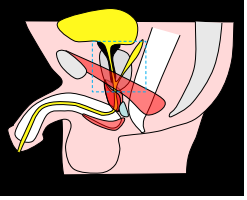


- Removal of prostatic urethra including smooth muscle
- Interference with bladder neck
- +/- Striated urethral sphincter injury
- Lower bladder position
- Reduced anterior support

Impact of radical prostatectomy

- URETHRAL SMOOTH MUSCLE SPHINCTER
  - Smooth muscle removed with prostate
  - Loss of autonomic control of continence
  - Unclear how much is retained
  - Need to compensate for loss

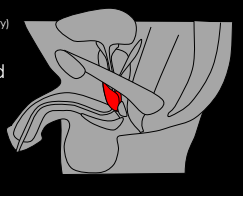
Potential value of Transperineal ultrasound imaging
→ Unable to interpret from TPUS



Impact of radical prostatectomy

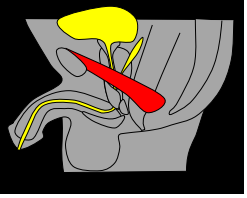
- STRIATED URETHRAL SPHINCTER
  - Sphincter incompetence (40-80%)
    - Muscle injury
      - Removal with prostate
      - Injury related to sutures – anastomosis/support
    - Nerve injury
      - Variation in innervation, close to apex of prostate
  - Urethral length <12 mm → more incontinence
    - Most literature evaluates pre-operative (not the result of surgery)
    - Post-op – ?greater damage to SUS

Potential value of Transperineal ultrasound imaging
→Reduced/absent shortening of SUS in some men?
→Reduced urethral length

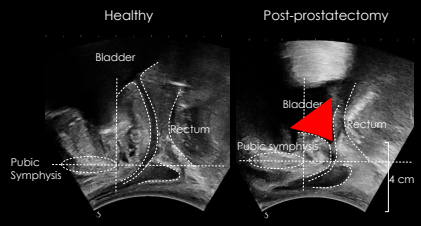


Impact of radical prostatectomy

- BLADDER STRUCTURE/FUNCTION



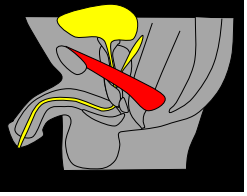
Impact of radical prostatectomy



Impact of radical prostatectomy

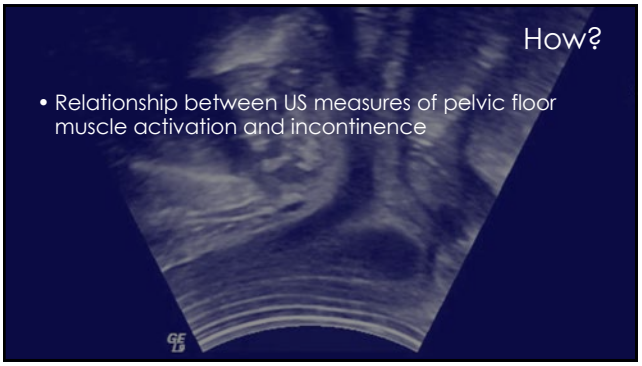
- BLADDER STRUCTURE/FUNCTION
  - Modified bladder neck
    - Funnel shape (variable) – modify mechanics
    - Remove bladder neck smooth muscle
  - Lower position/less support
    - Change mechanics of puboretalis contraction - Bladder compression?

Potential value of Transperineal ultrasound imaging
→Bladder neck funneling, lower position
→Compression of bladder in some men

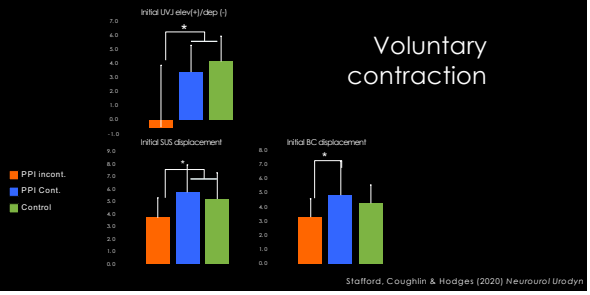


How?

- Relationship between US measures of pelvic floor muscle activation and incontinence



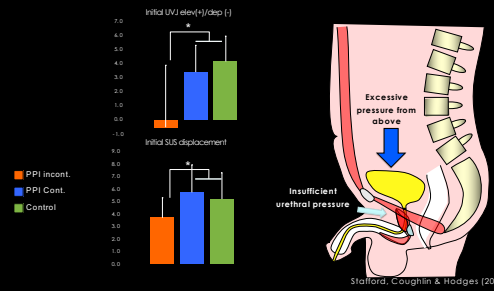
Modified dynamics – post-prostatectomy incontinence



Voluntary contraction

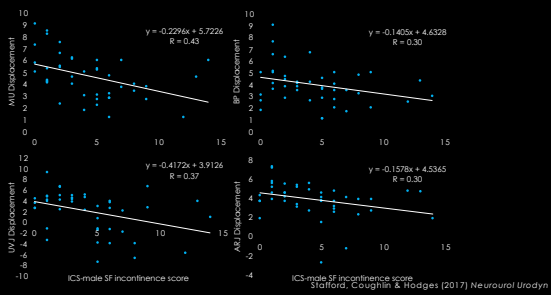
Stafford, Coughlin & Hodges (2020) *Neurourol Urodyn*

Modified dynamics – post-prostatectomy incontinence



Stafford, Coughlin & Hodges (2020) *Neurourol Urodyn*

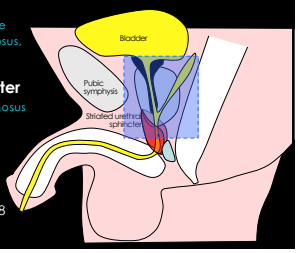
Function: Incontinence after prostatectomy



Stafford, Coughlin & Hodges (2017) *Neurourol Urodyn*

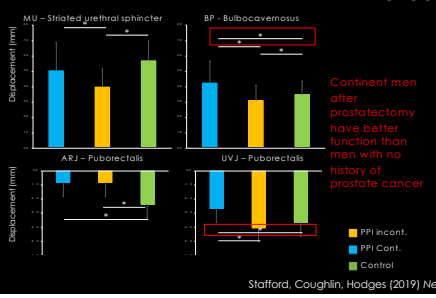
Recovery of continence after prostatectomy: role of pelvic floor muscle training

- Compensate for reduced **smooth muscle** contribution to continence
  - → Striated muscles greatest mechanical advantage
  - → Co-activation of puborectalis and bulbocavernosus, but not priority
- If compromised **striated urethral sphincter**
  - → Greater reliance on puborectalis & bulbocavernosus
- Restore **bladder** function
  - → Train bladder storage



MaTchUP RCT - Hodges P, et al. BMJ Open 2019;9:e028288. doi:10.1136/bmjopen-2018-028288

Modified dynamics – post-prostatectomy incontinence Evoked cough



Stafford, Coughlin, Hodges (2019) *Neurourol Urodyn*



The value of conservative interventions for urinary incontinence following prostate surgery alone, or in combination, remains uncertain

Johnson EE, Mamoulakis C, Stoniute A, Omar MI, Sinha S. Conservative interventions for managing urinary incontinence after prostate surgery. Cochrane Database of Systematic Reviews 2023, Issue 4. Art. No.: CD014799. DOI: 10.1002/14651858.CD014799.pub2.

Cochrane Library

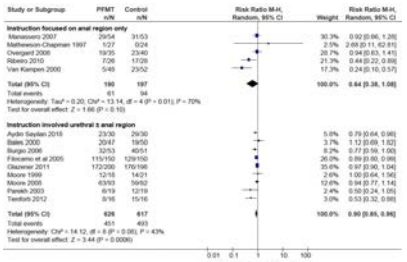
Excluded studies that commenced pre-operatively (n=14 RCTs)

Conservative interventions for managing urinary incontinence after prostate surgery (Review)

No control of intervention content

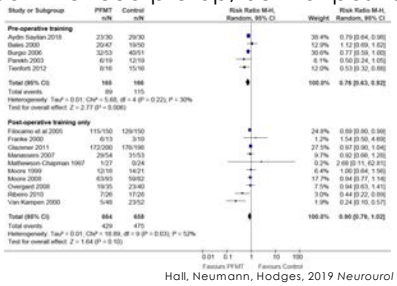
Johnson EE, Mamoulakis C, Stoniute A, Omar MI, Sinha S. Conservative interventions for managing urinary incontinence after prostate surgery. Cochrane Database of Systematic Reviews 2023, Issue 4. Art. No.: CD014799. DOI: 10.1002/14651858.CD014799.pub2.

PFM training is effective when instruct urethral contraction, but not when only anal



Hall, Neumann, Hodges, 2019 *Neurourol Urodyn*

PFM training is effective when commenced pre-op, but not post-op



Hall, Neumann, Hodges, 2019 *Neurourol Urodyn*

ELSEVIER

UROLOGIC ONCOLOGY

Urologic Oncology: Seminars and Original Investigations 00(2019) 1–18

Clinical-Prostate cancer

Reconsideration of pelvic floor muscle training to prevent and treat incontinence after radical prostatectomy

Paul W. Hodges, M.D., Ph.D.[b,*], Ryan E. Stafford, Ph.D.[a], Leanne Hall, Ph.D.[a], Patricia Neumann, Ph.D.[c], Shan Morrison, BAppSc(Phty)[c], Helena Frawley, Ph.D.[d], Stuart Doorbar-Baptist, M.Sc.[e], Irmina Nahon, Ph.D.[f], Jason Crow, M.Phy.St.[g], Judith Thompson, Ph.D.[h], Anne P. Cameron, M.D.[i]

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[b] University of South Australia, Adelaide, Australia
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[d] Monash University, Melbourne, Australia
[e] Sydney Physiotherapy Solutions, Sydney, Australia
[f] University of Canberra, Canberra, Australia
[g] Active Rehabilitation, Brisbane, Australia
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[i] Department of Urology, University of Michigan, Ann Arbor, MI

Received 4 October 2019; received in revised form 8 November 2019; accepted 2 December 2019

Training motor control to enhance pelvic floor muscle activation

Six goals for optimal control

1. **Optimise pattern** of pelvic floor muscle control
2. **Integrate** pelvic floor control into function
3. **Bladder training**
4. **Low intensity tonic hold** training for sustained tasks
5. **High level strength & endurance** training for high intensity
6. **High performance training** for demand & unexpected challenges

RCT: Efficacy of a personalised pelvic floor Muscle Training program on Urinary incontinence after radical Prostatectomy (MaTchUP)



Open access Protocol

BMJ Open

Efficacy of a personalised pelvic floor muscle training programme on urinary incontinence after radical prostatectomy (MaTchUP): protocol for a randomised controlled trial

Paul Hodges,[1] Ryan Stafford,[1] Geoff D Coughlin,[2,3] Jessica Kasza,[4] James Ashton-Miller,[5] Anne P Cameron,[6] Luke Connelly,[6,7] Leanne M Hall[1]

RCT: Efficacy of a personalised pelvic floor Muscle Training program on Urinary incontinence after radical Prostatectomy (MaTchUP)

- Randomised controlled trial
- Comparison – 3 group trial
  - Functional rehabilitation of urethral control
  - Conventional maximal levator ani training
  - No pelvic floor muscle rehabilitation
- Outcome
  - Primary outcome - proportion of participants continent at 3 months (24-hour pad test);
  - Secondary outcomes – incl. physiology, QoL, etc.
  - Health costs
- Moderation analysis
  - Efficacy depends on baseline muscle activation features
- Mediation analysis
  - Efficacy explained by improvement in neuromuscular control
- All standard RCT design features
  - Consort statement, trial registration, intention-to-treat, etc

Proposed ideal management

- **Pre-operative** assessment and commencement of training
- **Target** findings of assessment
- Restore optimal function of muscles that increase **urethra pressure**
  - Striated urethral sphincter
- **Minimal/no anal** assessment or training focussed on anus
- Assessment and feedback using **transperineal ultrasound imaging**
- **Functional re-education**
  - Individualised to patient urethral striated muscle activation
  - Skill learning
  - Tonic
  - Pre-activate
  - Relaxation when required
  - Strength and co-ordination for high demand and unexpected

Pelvic floor muscle activation & continence at 3 months

- Men are more likely to be continent if they
  - Have greater earlier and peak activation of SUS during coughing
  - Have greater peak activation of BC during coughing
  - Have better support of bladder by PR during coughing
  - Have ARJ further below UVJ
  - Have strong contraction of bulbocavernosus during maximal contraction
  - Have better support of bladder by PR during maximal contraction

Disrupting the management of incontinence after prostatectomy

DISRUPT PELVICON 2026

- **Better earlier recovery of continence with rehabilitation guided by transperineal ultrasound imaging than conventional training**

3 Takeaways

DISRUPT PELVICON 2026

Takeaway 1

- Continence in men depends on interplay between multiple striated muscles of pelvic floor

Takeaway 2

- Transperineal ultrasound imaging provides an opportunity to provide detailed evaluate of the individual muscles of the pelvic floor and their function

Takeaway 3

- Recovery of continence after prostatectomy is faster when training is focused on urethral striated muscles

Acknowledgement

DISRUPT PELVICON 2026

- Funding

Australian Government
National Health and Medical Research Council

- Collaborators
  - **The University of Queensland** – Dr David Cowley, James Sikkema, Riikka Lampinen
  - **Collaborating surgeons:** Wesley Hospital; Princess Alexandra Hospital; Royal Brisbane and Women's Hospital
  - **Clinical Advisors:** Jason Crow, Active Rehabilitation, Brisbane; Stuart Doorbar-Baptist, Sydney Physiotherapy Solutions, Sydney; A/Prof Helena Frawley, Monash University, Melbourne; Shan Morrison, Women's and Men's Health Physiotherapy, Melbourne; Dr Irmina Nahon, University of Canberra, Canberra; Dr Patricia Neumann, Flex Rehabilitation Clinic, Adelaide; Dr Judith Thompson, Curtin University, Perth

GRÁINNE DONNELLY

3-TIME PELVICON SPEAKER

@GRAINNEDONNELLY_ABSOLUTEPHYSIO

- Author of *"Sports Medicine and the Pelvic Floor: Science to Practice"*
- Editor-in-Chief of the POGP Journal
- Co-creator of the first 'Return to Run' guidelines



DISRUPTING IDEAS

WHAT THE COMPRESSION? THE SCIENCE OF PF SUPPORT GARMENTS

1

Compression is widely used across multiple medical domains and sports performance. Recent insights have explored targeting the female pelvic floor.

2

Studies have demonstrated that compression reduces SUI, attenuates load at the pelvis and improves user perception.

3

The lived experience of pelivc floor compression is not as clear, highighting individual and complex nature of patient-centered management.

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WHAT THE COMPRESSION?

The science of pelvic floor support garments

Gráinne M. Donnelly

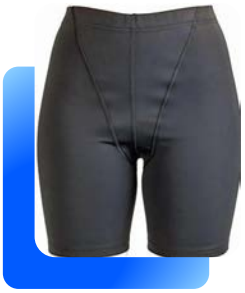


About Me

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- Advanced Practice Pelvic Health Physiotherapist
- Doctoral Researcher investigating compression garments targeting the pelvic floor
- Outgoing Editor-in-Chief of the Journal of Pelvic, Obstetric and Gynaecological Physiotherapy
- Editor of scientific textbook Sports Medicine and the Pelvic Floor

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Aims of this talk

Discuss the current science behind compression garments in general

Introduce the concept of compression garments targeting the pelvic floor

Explore research investigating this new approach to compression

Apply contemporary science to clinical practice

Compression in Medicine

Six clinical applications of therapeutic compression



Graduated Compression Stockings

Chronic venous insufficiency & DVT prevention.



Lymphedema Management

Multilayer bandaging reduces lymphatic limb swelling.



Compression Wound Care

Bandaging promotes healing of venous leg ulcers.



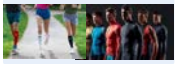
Intermittent Pneumatic Compression

Inflatable sleeves prevent venous stasis in immobile patients.



Post-Surgical / Postpartum Garments

Binders limit oedema and support tissue after surgery or birth.



Athletic Recovery Compression

Sleeves and tights aid circulation and speed recovery.

Compression garments







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But the evidence is conflicting and heterogeneous

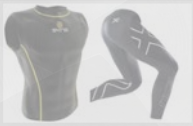
Compression garments (CG)

'Meta-analytical evidence suggests that wearing a CG during or after training does not seem to facilitate the recovery of muscle strength following physical exercise.

'CGs post-resistance exercise did not influence muscle protein synthesis, blood flow or indices of exercise recovery'

'CGs after resistance exercise enhances blood flow and indices of exercise recovery, and were not due to a placebo effect.'

'CGs significantly mitigated decline in muscle strength after exercise-induced muscle fatigue.'



'Neuromuscular evidence for the idea of previous studies that CGs alter the coordination of muscle groups, thereby affecting kinematic characteristics during running.'

Lower limb CGs often used in elite performance sports (particularly male)

Conflicting research regarding their impact on performance

'These results indicate that CGs are effective in enhancing recovery from muscle damage.'

(Bishop et al 2025; O'Riordan et al 2022; Li et al, 2025; Négyesi et al 2022; Hill et al 2014)

Key Points

In the past decade, there has been substantial growth in compression garment research. Most has occurred in **non-professional adult male participants**.

The evidence is equivocal on whether compression garments improve physical performance.

Majority of measures (e.g. rating of perceived exertion, kinetic and kinematic outputs and cardiorespiratory measures) are likely unchanged with their use. **However, muscle oscillatory properties, perceived muscle soreness and localised skin temperature may be affected.**

Despite evidence suggesting there is little benefit of wearing compression garments, it is unlikely that they harm performance.

It appears that **the individual response** to wearing lower-leg compression **varies** greatly and warrants further examination

When completing future research, researchers should measure and report **wearer beliefs**, **pressure and materials**, and **individual responses** to compression garment use.

(Stickford et al.; , 2014; Yang et al. 2020)

What about its effects on perinatal lumbopelvic pain and recovery?

Single-blind, quasi-experimental controlled study

Do CGs provide targeted support in n=55 pregnant women with lumbopelvic pain?

Conclusion: **effective and thermally safe** option for the management of **prenatal lumbopelvic pain**.

(Szkwara et al. 2019)

Prospective quasi-experimental controlled study in early postpartum women experiencing back pain, pelvic oedema, and urinary or faecal incontinence indicated CGs ***may*** assist **postpartum pain management and limit the impact of postpartum complications on functional capacity and quality of life.** *(Szkwara et al. 2020)*

NB - women chose whether to enrol in intervention group receiving CGs, standard care and physio, or control group receiving standard care and physio alone. Option to choose probably influenced low recruitment into control group (8 Vs 43). Didn't control for other factors including natural resolution/healing.



Journal of Pelvic, Obstetric and Gynaecological Physiotherapy, Spring 2026, 138, 45–56

RESEARCH

Running and walking during pregnancy: effects of an abdominal belt and increased cadence on pelvic loading, kinematics and abdominal discomfort

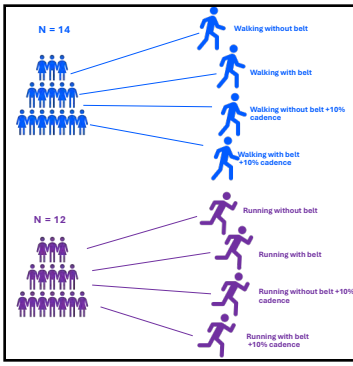
M. Raballand
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N = 26 pregnant volunteers, repeated measures design

A wearable system (*Runeasi, Tienen, Belgium*) used to measure impact magnitude and duration, and pelvic dynamic instability. This was equipped with an accelerometer, a battery- powered device incorporating low- power nine- axis motion sensor components centred on the lower back at a spinal level of L3–L5,



Findings indicate that the use of an abdominal belt *or* increased cadence reduces impact loading and pelvic dynamic instability. Statistically significant reductions were observed when both interventions were combined.

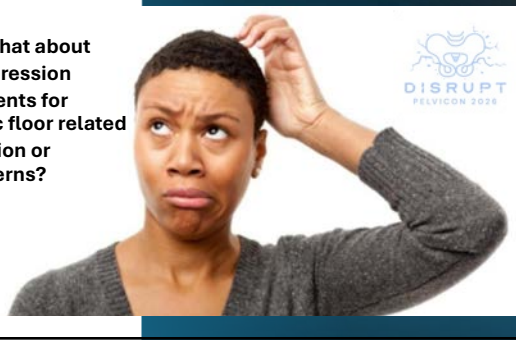
Wearing an abdominal belt and adjusting cadence are practical strategies for maintaining physical activity during pregnancy, while mitigating potential biomechanical challenges associated pregnancy.



Figure 2. Wearable system used to measure impact magnitude, impact duration and pelvic dynamic instability.

(Raballand et al 2026, JPOGP)

But what about compression garments for pelvic floor related function or concerns?



Control group

N=50

2nd control group
underwent PFM training for 12 weeks

N= 50

Perform the PFMT according to a training CD with music involving 26 voluntary contractions in 3 min x 2 day

Compression garment group
wore underwear all day x 12 weeks

N=50

(Okayama et al 2019, Int Urogynecol J)



CG group experienced reduced SUI at **comparable** level to 2nd control group doing PFMT

Positive impact of CG continued beyond the 12-week intervention

(Okayama et al 2019, Int Urogynecol J)

Mechanism of action?

Pilot investigation demonstrate a higher bladder neck in women with stress urinary incontinence who wore a tight 'underwear' *(Ninomiya et al 2014)*



Hold that thought!!!

What does their research tell us?

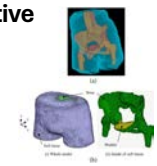
Pilot investigations demonstrate:

- a higher bladder neck in women with stress urinary incontinence who wore a tight 'underwear'
- Reduced 'reported' urinary leakage episodes per week, almost as effective as 12-week PFMT intervention group
- Increased bladder neck height on MRI when wearing the underwear proposed as the reason for improved leakage
- Some retention of effect 1 week after stopping wearing the tight underwear

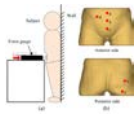
(Ninomiya et al 2014; Okayama et al 2019)

Computer modelling to establish an appropriate first-order design strategy for supportive underwear

- To clarify the relationship between the pressure from the underwear and the amount of elevation of the bladder neck, a finite element model of the pelvis was constructed based on MRIs of a subject in an upright position

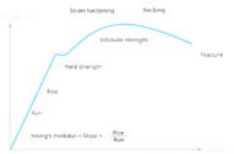


- It experimentally explored Young's modulus of the soft tissue and analyzed the amount of elevation of the bladder neck when changing the combination of applied pressures from the underwear.



- A measure of elasticity, equal to the ratio of the stress acting on a substance to the strain produced.
- **Young's modulus** is a mechanical property of solid materials that measures the tensile or compressive stiffness when the force is applied lengthwise. It is the elastic modulus for tension or axial compression.
- Defined as the quotient of the **stress** (force per unit area) applied to the object and the resulting axial **strain** (a dimensionless quantity that quantifies relative deformation) in the linear elastic region of the material.

Young's modulus



The slope of the linear part of the stress–strain curve for a material under tension or compression

The position of the bladder neck relatively elevated when the **pressure in the region from the abdomen to the pubis decreased** and when the **pressure in the region from the perineum to the coccyx increased**

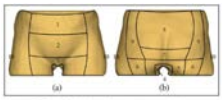
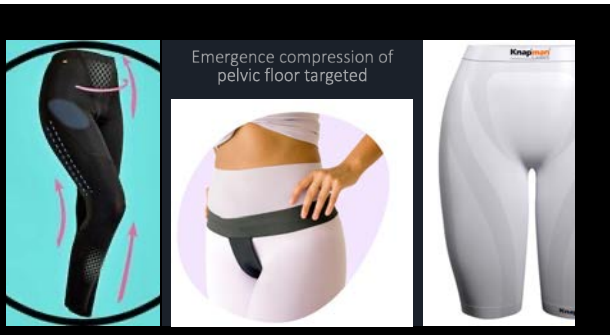


Figure 5. The 10 defined surface regions to apply the measured force which are named from 1 to 10 of the FE model: (a) anterior (abdomen) side and (b) posterior (buttocks) side.



(Tawara et al., 2022)





- 23% – 68% women experience PFD *(McCarthy-Ryan et al, 2026)*
- Postpartum runners → stress urinary incontinence (33%); vaginal heaviness (32%) *(Moore et al., 2021)*
- 1 in 2 women withdraw from physical activity due to PFD *(Dakic et al.,2021)*
- Irish Engineer Yvonne Brady designed compression shorts supporting the pelvic floor
- No research to support for or against the effect of compression garments

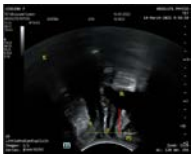




- Small feasibility study n=20 (underpowered)
- Transperineal US imaging to measure bladder neck height (BNH) at rest, during maximum voluntary contraction and during Valsalva under the following randomly assigned conditions:
  - (i)crook lying;
  - (i)standing;
  - (iii)crook lying wearing compression garment;
  - (iv)standing wearing compression garment



Figure 1 - 8cm incision into the gusset of each compression garment to enable ultrasound probe passage



(Donnelly & Liddle 2025, JPOGP)



	Mean	Std. Deviation	N
BND Crook	7.2mm	5.5	20
BND Crook with CG	5.5mm	5.8	20
BND Stand	8.8mm	7.6	20
BND Stand with CG	7.4mm	6.7	20

Table 4 - Measure of bladder neck descent (BND) in millimetres with and without compression garment (CG) intervention

RESEARCH

Transperineal ultrasound imaging to investigate the mechanical influence of EVB Sport compression shorts on bladder neck height in healthy adult female volunteers: a feasibility study

G. M. Donnelly
S. D. Liddle

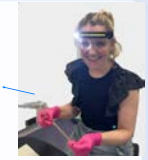
Primary aim: investigate the effect of a pelvic compression garment on running biomechanics, perceived pelvic support, and perceived symptoms in postpartum runners with PFD

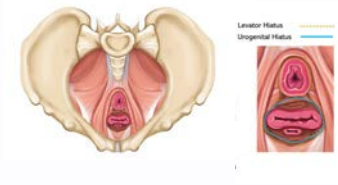
Secondary aim: explore whether levator hiatus distensibility contributes to how postpartum women biomechanically or perceptually respond to a compression garment during running

Randomised, cross-over, repeated measures design.



APFQ; Modified Oxford Manual Muscle Test; Bayden-Walker; Modified POP-Q





6-min familiarisation run then 2 x 7-min self-selected pace running trials with randomised conditions.

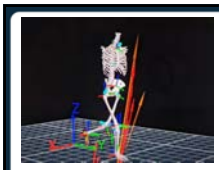
15 Camera 3D motional analysis system

51 14mm retro-reflective markers (thorax, breasts, pelvis, lower limbs)

3 IMUs (distal tibia, sacrum)

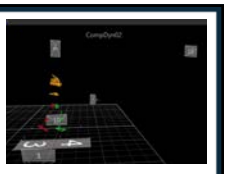








Domain	Variable
Accelerometer	Peak pelvic jerk ($g \cdot s^{-1}$)
	Freq shock attenuation (low) (dB)
	Freq shock attenuation (high) (dB)
	Area under the peak pelvic acceleration curve ($g.s$)
Kinetic	Average loading rate ($BW \cdot s^{-1}$)
	Instantaneous loading rate ($BW \cdot s^{-1}$)
	Leg stiffness ($BW \cdot m^{-1}$)
	Vertical impulse (N*s)
	Vertical impulse (BW s)
	Vertical active peak (BW)
Spatiotemporal	Stride length (m)*
	Stride frequency (Hz)*
	Steps per minute
	Ground contact time (s)*
	Vertical COM displacement (m)
	Duty factor (%)
Perceptual	Pelvic floor support (/10)
	Core support (/10)
	Fear of PFD symptoms (/10)
	PFD SENTINEL (/5)



Accelerometer, kinetic, spatiotemporal and perceptual data collected

Biomechanical variables during stance across 20 steps
Perceptual variables following each run trial

$$t_{pairwise} = \frac{\bar{x}_{change} - 0}{\frac{s_{observed}}{\sqrt{n_{observed}}}}$$

Stepwise linear regression models for biomechanical and perceptual variables of interest

Statistical Parametric Mapping (SPM) across stance

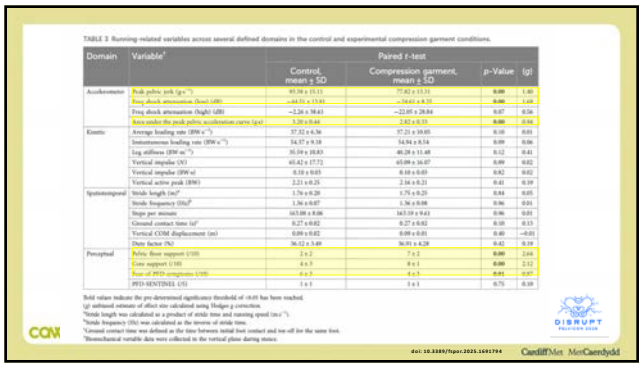
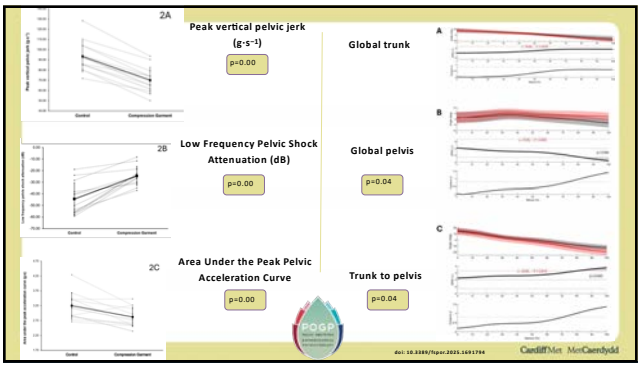


TABLE 3 Running-related variables across several defined domains in the control and experimental compression garment conditions.

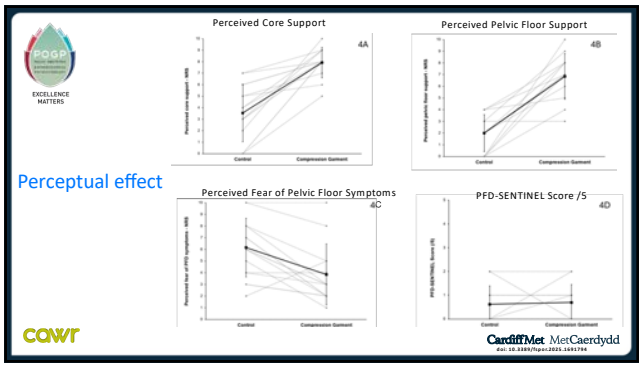
Domain	Variable†	Paired t-test			
		Control, mean ± SD	Compression garment, mean ± SD	p-Value	(g)
Accelerometer	Peak pelvic jerk ($g \cdot s^{-1}$)	95.38 ± 35.13	77.82 ± 33.31	**0.00**	1.40
	Freq. shock attenuation (loss) (dB)	−44.55 ± 13.81	−36.41 ± 8.35	**0.00**	1.69
	Freq. shock attenuation (high) (dB)	−2.26 ± 38.43	−22.05 ± 28.84	0.07	0.56
	Area under the peak pelvic acceleration curve ($g \cdot s$)	3.20 ± 0.44	2.82 ± 0.33	**0.00**	0.94
Kinetic	Average loading rate ($BW \cdot s^{-1}$)	57.32 ± 6.56	57.21 ± 10.05	0.10	0.01
	Instantaneous loading rate ($BW \cdot s^{-1}$)	54.57 ± 9.18	54.94 ± 8.54	0.09	0.06
	Leg stiffness ($BW \cdot m^{-1}$)	35.59 ± 10.83	40.28 ± 11.48	0.12	0.41
	Vertical impulse (Ns)	65.42 ± 17.72	65.09 ± 16.07	0.09	0.02
	Vertical impulse ($BW \cdot s$)	0.18 ± 0.03	0.18 ± 0.03	0.92	0.02
	Vertical active peak (BW)	2.21 ± 0.25	2.16 ± 0.21	0.41	0.19
Spatiotemporal	Stride length (m)*	1.76 ± 0.20	1.75 ± 0.21	0.84	0.05
	Stride frequency (Hz)*	1.36 ± 0.07	1.36 ± 0.08	0.96	0.01
	Steps per minute	163.08 ± 8.06	163.59 ± 9.61	0.96	0.01
	Ground contact time (s)‡	0.27 ± 0.02	0.27 ± 0.02	0.10	0.15
	Vertical COM displacement (m)	0.09 ± 0.02	0.09 ± 0.01	0.40	−0.01
	Duty factor (%)	36.12 ± 3.49	36.91 ± 4.28	0.42	0.19
Perceptual	Pelvic floor support (/10)	2 ± 2	7 ± 2	**0.00**	2.64
	Core support (/10)	4 ± 3	8 ± 1	**0.00**	2.12
	Fear of PFD symptoms (/10)	4 ± 3	4 ± 3	0.91	0.07
	PFD-SENTINEL (/5)	1 ± 1	1 ± 1	0.75	0.10

Bold values indicate the pre-determined significance threshold of <0.05 has been reached.
(g) unbiased estimate of effect size calculated using Hedges g correction.
*Stride length was calculated as a product of stride time and running speed ($m \cdot s^{-1}$).
†Stride frequency (Hz) was calculated as the inverse of stride time.
‡Ground contact time was defined as the time between initial foot contact and toe-off for the same foot.
†Biomechanical variable data were collected in the vertical plane during motion.

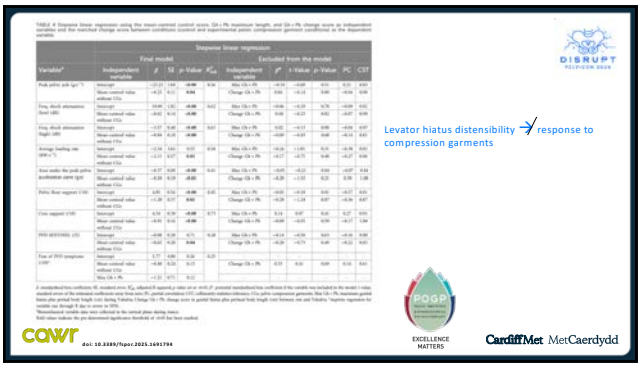
doi: 10.3389/fspor.2025.1691794



doi: 10.3389/fspor.2025.1691794



doi: 10.3389/fspor.2025.1691794



doi: 10.3389/fspor.2025.1691794

Caution! Limitations

- Small sample
- Confounding variables (complexity of researching pelvic floor dysfunction across domains)
- PFD severity was mild – issues recruiting moderate to severe PFD to trials
- Unintentional bias – runners knew which condition they were in



Implications for practice

Pelvic compression garments ***alter perception*** and running ***biomechanics*** in postpartum women with PFD, producing trunk–pelvis coordination similar to healthy runners

↓

May offer a ***low-cost option*** to support postpartum runners with PFD to return to physical activity

↓

Levator hiatus distensibility offers limited predictive value for how postpartum runners with PFD respond to pelvic compression garments.

↓

Future studies are needed to further investigate the biopsychosocial effect of CG.



Pelvic compression garments alter running biomechanics, perceived support, and fear of symptoms in postpartum women with pelvic floor dysfunction: preliminary observations from an exploratory, randomised, repeated-measures crossover design

doi: 10.3389/fspor.2025.1691794

The acute effects of running on pelvic floor morphology and function in runners with and without running-induced stress urinary incontinence

(Bérubé & McLean 2024)

The area and antero-posterior diameter of the levator hiatus were larger after the 30-min steady state treadmil run

The bladder neck height was lower after the run

The levator plate length was longer after the run ($p \leq 0.05$)

No between-group differences were observed for any outcomes



Institut national du sport, de l'expertise et de la performance (INSEP)

Acknowledgement: Model developed and 3D printed by **the Pelvic Floor Research Group at University of Michigan-Ann Arbor and Michigan Medicine**





Note: lines represent muscle fiber direction
Innervated by the to the levator ani (from the sacral plexus)

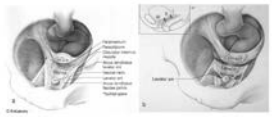


FIG. 2.7 Levels of pelvic support.

Image source: LaCross, JA, Ashton-Miller JA, DeLancey, J. The female pelvic floor— anatomy, function, and the lifespan model. In: *Sports Medicine and the Pelvic Floor – Science to Practice*. Elsevier (imprint: Academic Press). 2026

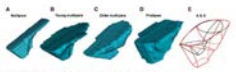


FIG. 2.10 Conceptual model for changes to 3D levator bowl volumes.

Modified from DeLancey, J.O., Masteling, M., Homer, M., Ashton-Miller, J.A., Chen, L., 2024a. A unified pelvic floor conceptual model for studying morphological changes with prolapse, age, and parity. Am. J. Obstet. Gynecol. 1097-6868. 230 (5), 476. Available from: https://www.ajog.org/article/S0002-9378(23)00911-1/fulltext. https://doi.org/10.1016/j.ajog.2023.11.1247.

Acknowledgement: Model developed and 3D printed by **the Pelvic Floor Research Group at University of Michigan-Ann Arbor and Michigan Medicine**



The position of the bladder neck relatively elevated when the **pressure in the region from the abdomen to the pubis decreased** and when the **pressure in the region from the perineum to the coccyx increased**

(Tavares et al., 2022)



Note: lines represent muscle fiber direction
Innervated by the to the levator ani (from the sacral plexus)

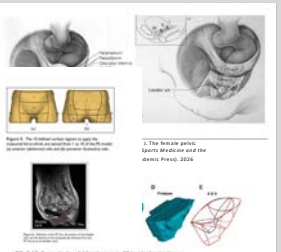


FIG. 2.10 Conceptual model for changes to 3D levator bowl volumes.

Modified from DeLancey, J.O., Masteling, M., Homer, M., Ashton-Miller, J.A., Chen, L., 2024a. A unified pelvic floor conceptual model for studying morphological changes with prolapse, age, and parity. Am. J. Obstet. Gynecol. 1097-6868. 230 (5), 476. Available from: https://www.ajog.org/article/S0002-9378(23)00911-1/fulltext. https://doi.org/10.1016/j.ajog.2023.11.1247.

Acknowledgement: Model developed and 3D printed by **the Pelvic Floor Research Group at University of Michigan-Ann Arbor and Michigan Medicine**





Note: lines represent muscle fiber direction
Innervated by the to the levator ani (from the sacral plexus)

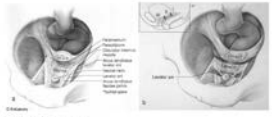


FIG. 2.7 Levels of pelvic support.

Image source: LaCross, JA, Ashton-Miller JA, DeLancey, J. The female pelvic floor— anatomy, function, and the lifespan model. In: *Sports Medicine and the Pelvic Floor – Science to Practice*. Elsevier (imprint: Academic Press). 2026

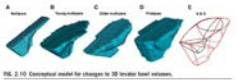
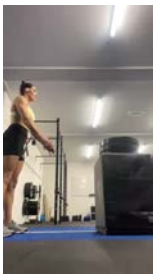
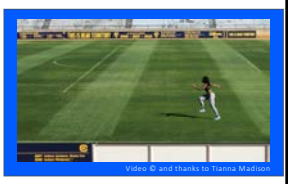


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Video © and thanks to Tianna Madison

The balance of mobility and stability, P Hodges 2021, ICS Podcast



(Campos et al 2025)



Journal of Biomechanics

journal homepage:

Inefficient impact absorption and reduced shock attenuation in female runners with stress urinary incontinence

Natália Cardoso Campos, Sérgio Teixeira Fonseca, Laura Jardim Nunes, Samá Isabela Ramos Rodrigues, Elyonara Mello Figueiredo, Priscila Albuquerque de Araújo, Mariana Rodrigues Carvalho de Aquino, Lívia Okai-Nóbrega, Juliana Melo Ocarino, Thales Rezende Souza, Mariana Maia de Oliveira Sunemi, Renan Alves Resende

Case series with phenomenological approach

- Some of the limitations to current research on compression is because they investigate compression as the sole intervention/solution
- This study aims to explore the experience of compression garments as a standard component of multi-modal management
- N=6 cases



Individualised pelvic health rehab:

PFMT
Education
Graded load exposure
Defecation dynamics
Sports specific strategies etc
Compression shorts for their sport

- x3 runners
- 1 x semi-pro female soccer player
- 2 x hyrox participants

CASE SCENARIO

Stress urinary incontinence in elite volleyball player

The lived experience:

- Impact on QoL
- Impact on athlete performance
- Self-consciousness, athlete uniform
- Need to raise awareness especially to younger athletes



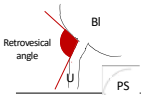
References:
BBC Media feature https://www.bbc.co.uk/news/articles/c1mk3kp8id1o
@bodyfitmums IG publicly sharing her journey from conservative to surgical management
Active Mom Podcast S5 Episode 229 - *I Tried Everything... and Still Leaked. One Athlete's Road to Pelvic Floor Surgery*

CASE SCENARIO

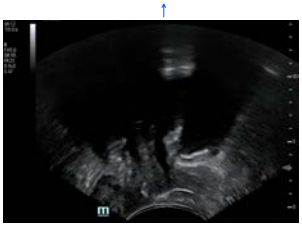
Stress urinary incontinence in elite volleyball player

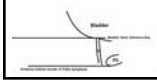
First engaged in physio-led PFMT in 2018:
Pelvic floor assessment identified strength, endurance and **urethral support deficits**.









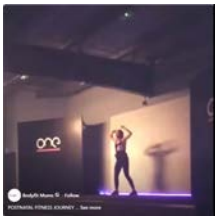


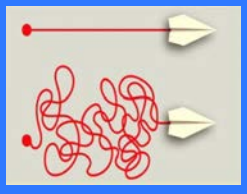


Initial management: *S+C, adjunctive products, education and advice*

PFMT (*8-12 close to maximum contractions, Knack, impact drills*) and the use of urethral support device helped symptoms, and she returned to symptom-free training and competition.

As a performance athlete, this newfound symptom-free threshold meant one thing…



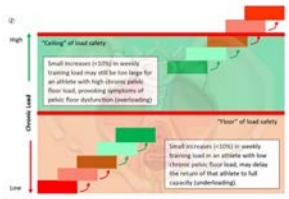




Re-assessment

- No longer getting recovery days due to occupation and multiple competitive sports training and performance
- PFM function on assessment appeared good – grade 4, 10 second hold
- PFMs fatigue under higher impact load, soaking thought volleyball shorts even with urethral support device, changing shorts during game
- Symptoms occasionally carrying into new tasks that previously didn't provoke leakage
- Life load had increased – job demands, parental demands, busy schedule

✓Added in pelvic compression garments – now able to compete with same pair of shorts, leakage significantly reduced



Kennaway et al (2026). Load Capacity and the Pelvic Floor. In: Donnelly, GM. Sports Medicine and the Pelvic Floor – Science to Practice

Anecdotal insights:



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Compression as an adjunct, not the sole solution

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Some of the limitations to current research on compression is because they investigate compression as the sole intervention/solution

Compression garments for the pelvic floor are more akin to adjunctive products e.g., urethral support devices, pessaries, sports bras, knee supports etc.

Like other adjuncts, it may be trial and error according to patient perception and preferences



CHAPTER 20

Adjuncts to pelvic floor muscle training—The application of products and devices

Compression garments

Compression garments are widely used in sports medicine, for example, in lower and upper limb recovery postsport (Brown et al., 2017; Weakley et al., 2022). The growth in female sports participation and performance success has stimulated the focus and development of shorts and leggings targeting compression towards the pelvic floor muscles. As a relatively new concept, little research exists to evaluate the role and efficacy of compression targeting the pelvic floor. Early research insights suggest that they may have a role in continence and pelvic organ support (Nisonaiya et al., 2014; Okayama et al., 2019; Tawara et al., 2022; Donnelly et al., 2026) and that they significantly improve the perception of symptoms of pelvic floor dysfunction (Donnelly and Liddle, 2025; Donnelly et al., 2026). Furthermore, exploratory biomechanical analysis has identified that compression garments alter bladder neck height (Donnelly and Liddle, 2025) and several biomechanical running variables in symptomatic women with pelvic floor dysfunction (Donnelly et al., 2026). Specifically, pelvic jerk, pelvic shock attenuation and area under peak pelvic acceleration curve were reduced when symptomatic postpartum runners were targeted compression shorts in a laboratory-based running investigation in the UK. The results suggest that compression garments produce smoother pelvic motion during running and offer a passive means of attenuating vertical force transmissions at the pelvis. In doing so, they are likely to improve pelvic load capacity.

Overall, compression garments demonstrate merit in improving pelvic-related running biomechanics and positively influencing the perception of support and symptoms in female runners. They may offer an accessible and beneficial adjunct

In book: Sports Medicine and the Pelvic Floor – Science to Practice. 2026. Editor - Donnelly, G., Elsevier

Insights from qualitative research

"Wearing the shorts definitely helped bring an awareness to the area at my pelvic floor and hips because obviously there was that tension from the shorts. So, I think it helped as far as my awareness to activate certain muscles when I was being active and running." ~P01K

"I did wear the shorts underneath my playing shorts. And they definitely did help…the support that they make you feel. It makes you feel like you're being just sucked, not just sucked in, but sucked up, if that makes sense?

I wasn't allowed to wear them in a match, we have to wear our team ones and they have to be a certain length. And we even get fined if our shorts are not a certain length. The only thing I felt like it was almost too much, because I was wearing two pairs of shorts, was the rolling up bit…I definitely had a bit of friction" P02A

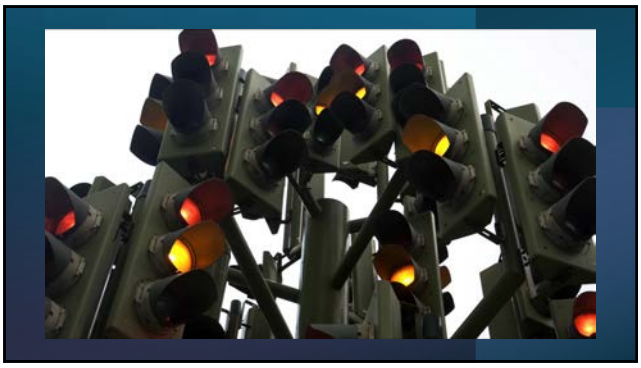
"They definitely made a difference. When I do run and wear them, I definitely don't leak as much.

But in regards to comfort and wearing them as an athlete that runs, I don't find them overly comfortable. I find them a little bit cumbersome. I don't love wearing them for that reason." ~P04M

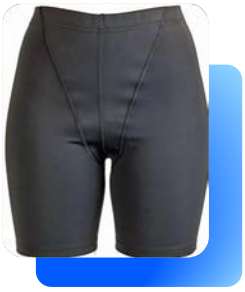
"I first put them on, I thought, yeah, you know, you can feel the support…But then after mile three or four and five, I thought Oh my God, it just started to change the whole experience of wearing them…. It felt like I was in a straightjacket and it just made me feel like my muscles and stuff started to ache" ~ P05MM

"I only wore them a few times because I really didn't like them…, I just felt really restricted and uncomfortable in them and like comfort is really important to me when I'm exercising because a lot of the time it's quite uncomfortable just by virtue. I don't want to feel uncomfortable in my clothing as well.

I don't own a pair of jeans. I don't ever wear compression-based activewear. They did feel supportive. Yeah, they did. Yeah, they definitely did. And they didn't feel too tight around the thighs, it was just around the tummy." ~ P06N



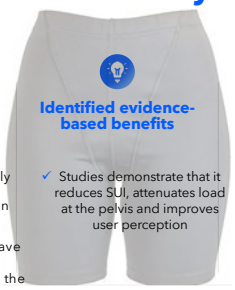




Application to practice

- Compression is a widely used management option across multiple medical domains
- It is also used in sports performance with limited understanding to it sports and performance related benefits
- **Compression targeting the pelvic floor** is a newer concept
- Studies demonstrate that it reduces SUI, attenuates load at the pelvis and improves user perception
- The lived experience of pelvic floor compression is mixed highlighting the individual and complex nature of patient centered management
- **Future studies investigating real-world symptom change and comparison of compression zones and level are needed**

3 Takeaways



Compression as an adjunctive option

- Compression is a widely used across multiple medical domains and in sports performance.
- More recent insights have explored the utility of compression targeting the female pelvic floor

Identified evidence-based benefits

- ✓ Studies demonstrate that it reduces SUI, attenuates load at the pelvis and improves user perception

Not a 1 size fits all benefit – the lived experience

- The lived experience of pelvic floor compression not as clear, highlighting the individual and complex nature of patient centered management and the importance of research exploring lived experience

Will pelvic floor targeted compression be the future sports bra for the pelvic floor?



Follow my work

- @grainnedonnelly_absolutephysio
- www.absolute.physio
- @sportsmedicinepelvicfloor
- www.sportsmedicineandthepelvicfloor.com

KATHERINE SYLVESTER

PELVICON SPEAKER

@OPERATIONMIST



- Maternal health advocate focused on reducing maternal mortality & morbidity
- Physical therapist & founder of Operation M.I.S.T.
- Pioneer in using wearable technology & health data to empower pregnant and postpartum patients

DISRUPTING IDEAS

SCARRED FOR LIFE? NOT ON OUR WATCH!

1

C-sections impact pelvic floor function. Treat every mom as soon as possible after her delivery.

2

Scar tissue is not the same as normal tissue. Help moms protect their scars as much as possible.

3

Cesarean delivery comes with increased risks. Help moms avoid them when possible!

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Scarred for life?
Not on our watch

Katherine Sylvester, PT, DPT



Dr. Kat
The Mommy Monitor

About Me

- I am a homebirth mom, physical therapist, wife, VBAC doula, and assistant professor for women's health.
- I released 60 scars in 32 days after taking my first scar release course.
- I host More than a Period and Lady Parts Power Parties to help women learn, trust, prepare and protect their bodies throughout all phases of womanhood.
- I help moms who are told they can't have vaginal births after cesareans achieve their VBACs.

Teach moms to say no to…

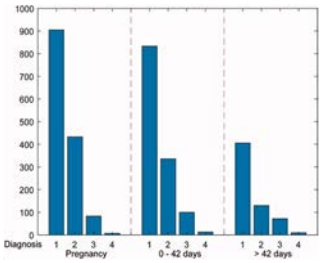
- Birthing on their backs
- Pushing on demand
- Unnecessary cesarean deliveries
- Unnecessary use of forceps and vacuums
- Continuous fetal monitoring
- Birthing without a midwife or doula
- Unnecessary separation



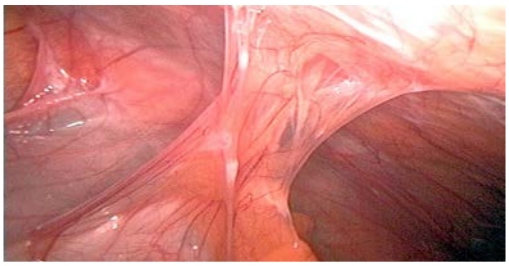
Unnecessary risk

1 = Blood clot
2 = Embolism
3 = Stroke
4 = Heart attack

Surgical deliveries carry more than double the risk of having a heart-related issue within the first 42 days following delivery. Over 1 million women were included in this study.



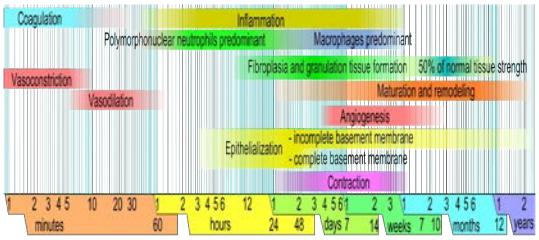
Adhesions



Wound healing



Delayed wound healing



Factors that impact healing

- Infection
- Age
- Stress
- Medications
- Health conditions
- Oxygenation
- Nutrition
- Obesity
- Alcohol
- Smoking
- Venous insufficiency
- Added sugars

Nutrition considerations

Vitamin A	Replacing and healing epithelial tissue
Vitamin B	Cellular enzyme functioning
Vitamin C	Collagen and blood vessel production and maintenance
Vitamin D	Bone healing and formation
Vitamin K	Blood clotting
Protein	Capillary formation, fibroblast proliferation proteoglycan and collagen synthesis, wound remodeling
Magnesium, zinc, iron	Collagen synthesis

Normal cells vs. scar tissue



- Resting state of cells (-)
- Typical scar (+)
- Scar tissue
  - Less elastic
  - Weaker
  - Does not oxygenate well
  - Can cause
    - hyperalgesia, allodynia, diminished proprioception, degenerative arthritis and joint deterioration
  - Responds well to force/stress placed on it to encourage healthy alignment
  - Is less resistant to UV radiation
  - Does not contain sweat glands or hair follicles

The role of scar therapy

- Stretch the elastic component of fascia
- Break up collagenous cross links/restrictions/adhesions/scar tissue
- Improve tissue extensibility
- Improve circulation and communicatior
- Increase ROM function
- Stimulate collagen fiber production
- Stimulate ground substance productior
- Improve metabolism
- Free trapped nerves



Improved appearance

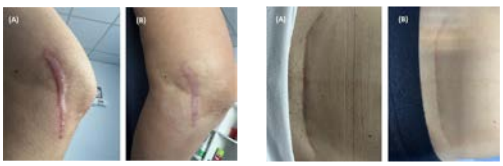


Photo credit: Effectiveness of various methods of manual scar therapy

Stretchability and Hydration

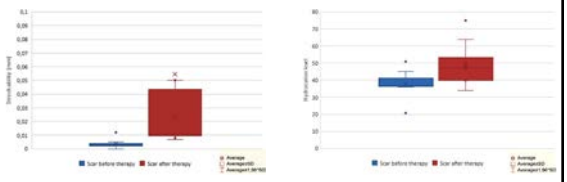


Photo credit: Effectiveness of various methods of manual scar therapy

Melanin and Erythema

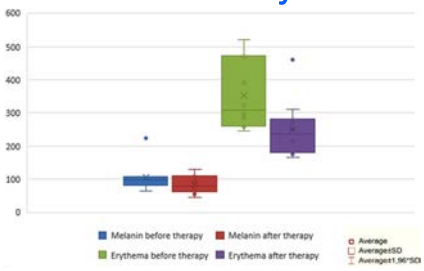


Photo credit: Effectiveness of various methods of manual scar therapy

Subjective reports

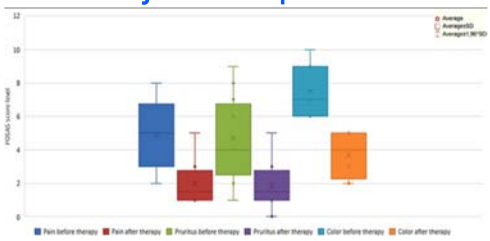


Photo credit: Effectiveness of various methods of manual scar therapy

Subjective reports

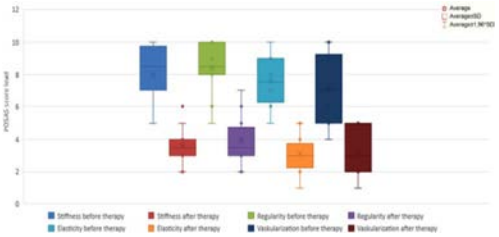


Photo credit: Effectiveness of various methods of manual scar therapy

Things to ask about

- Keloids
- Scar grade, numbness, pain (location, radiation), sensitivity
- Itching
- Discomfort with clothing
- Postural changes
- A pulling sensation with stretching or reaching
- Urine/fecal leakage/urgency
- Constipation
- Orgasms
- Touched or massaged scar
- Previous surgeries
- Exercise and stretching
- Breastfeeding
- Delivery date and experience
- Medications and infection
- Tattoos
- Changes to belly/bloating
- Elective, urgent, or emergent cesarean
- Status of baby
- Mental health

Scar therapy techniques



Photo credit: Effectiveness of various methods of manual scar therapy

Advice I give

- Watch c-section delivery
- Purchase a satin cloth, scaraway strips, and a squatty potty
- Logroll and follow abdominal precautions
- Splint with coughs and BMs
- Request PT and an abdominal binder
- Have vitals assessed with activity
- Do ankle pumps, hip IR/ER and heel slides
- Avoid sitting all day
- After a pregnancy loss, take maternity leave
- Check BP 2x/day for 6 weeks
- Attend to mental health



3 Takeaways

Takeaway 1

- C-sections impact pelvic floor function. Treat every mom as soon as possible after her delivery.

Takeaway 2

- Scar tissue is not the same as normal tissue. Help moms protect their scars as much as possible.

Takeaway 3

- Cesarean deliveries come with increased risks. Help moms avoid them when at all possible.

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ENDOMETRIOSIS DECODED (PART 1): WHAT'S NEW, WHAT'S CHANGING & WHAT MATTERS MOST

By, Amy Stein MPT, DPT, BCB-PMD, IF

Disclaimer:

Not Medical Advice

- This class is informational and education in nature and is not intended or implied to be a substitute for individual professional medical advice, diagnosis or treatment.

Questions Are General

- Any questions answered by our expert here today is based on general education and not meant to give personal medical advice, and there is no formal provider/patient relationship created with this class.

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Who Am I?



- 2017-President: International Pelvic Pain Society
- 2021-Owner/Founder Wellness by Nature CBD
  - www.wellnessxnature.com
- 2003-Owner/Founder Beyond Basics Physical Therapy
- *Author-BeatingEndo, HealPelvicPain, Healing in Urology*; Medical Textbook chapters, Journal Publications
- VIDEO- Healing Pelvic & Abdominal Pain
- Featured-ABC 20/20, Dr. Oz, NBC NY, Reuters, NY Daily News, Elle, Parents, Prevention, More Magazine, All You, Natural Solutions

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- Wellness by Nature CBD

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Objectives

- Identify updates in what defines endometriosis
- Identify the latest ACOG and Int'l Endometriosis Working Group, 2021 protocol in medical management of pelvic pain in relation to endometriosis
- Differential diagnosis of Endo and other inflammatory conditions that effect Endo

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True or False:
Endometriosis is a uterine disease?

Endo Basics –ACOG 2026 updates

- **Prevalence:** ~ .7- 8.6% of women of reproductive age; 9- 68% w subfertility, 15-71% in patients with pelvic pain, in laprascopy in adolescence 64% of time
  - Bw 45-65% have musculoskeletal Dysfx; or ***one study – up to 100%***
- **DX delay**: Avg 7-8 years to be diagnosed
- **ACOG definition:** a chronic, inflammatory, estrogen-dependent disorder characterized by the presence of endometrial-like tissue outside the uterus
- **Risk factors**: early menarche (before age 10), short menstrual cycles (less than 26 days), low BMI, muellerian anomalies, 1st degree relative w Hx of Endo
- **DX:** symptom-based assessment, physical exam or both sufficient to initiate empiric medical treatment – **WITHOUT SURGICAL DIAGNOSIS!**

(ACOG Guidelines 2026)

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Endo Subtypes

- **Superficial Peritoneal Endometriosis:** Lesions residing on the pelvic peritoneum
- **Ovarian Endometrioma:** Endometriotic cysts of the ovary
- **Deep Infiltrating Endometriosis:** Lesions penetrating deeper than 5 mm beneath the peritoneal surface, frequently involving pelvic compartments or bowel structures
- **Extra-Pelvic / Nerve-Centric Manifestations:** Emerging focus on thoracic, sciatic, and neuroinflammatory pathways driving chronic pain syndromes

2 ovarian cysts = endometriomas



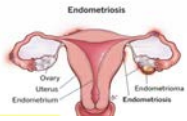
Oliveira et al. Transvaginal US in deep Endo, 2019

(ACOG Guidelines 2026)

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Endo Stages = Severity of Symptoms? NO!

- **Stage I (Minimal)**
  - Small, superficial lesions or implants on pelvic or abdominal lining
  - Little or no scar tissue.
  - Oft the disease is found incidentally during surgery for another reason.
- **Stage II (Mild)**
  - More and/or deeper implants than Stage I.
  - Limited scar tissue may be present.



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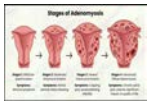
Endo Stages = Severity of Symptoms? NO!

- **Stage III (Moderate)**
  - widespread deep implants
  - One or both ovaries may have small endometriomas ("chocolate cysts")
  - Adhesions become more common, thicker and may begin to distort pelvic anatomy.
- **Stage IV (Severe)**
  - Heavy, widespread deep implants
  - Large ovarian endometriomas.
  - Dense adhesions involving the ovaries, fallopian tubes, uterus, bowel, bladder, or other pelvic organs.
    - Pelvic anatomy may be significantly altered.

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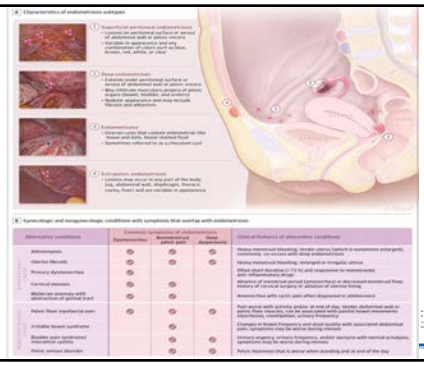
Adenomyosis: NIH & ACOG 2026

- Tissue that normally lines the uterus (endometrial tissue) grows into the muscular wall of the uterus, ***a uterine disease***, causing heavy bleeding, horrible cramping, and often, a heaviness in the pelvis, flu-like, inflammatory symptoms
- ***Focal:*** Concentrated in one specific localized area or tumor-like mass (adenomyoma).
- ***Diffuse***: Widely spread throughout a large portion of the muscular uterine wall (myometrium)
- **Depth of Infiltration:** Measured by how far the endometrial tissue penetrates into the myometrium or inner junctional zone of the uterus using high-resolution imaging or histological examination



Jay Mehta, MD, 2026, Mumbai

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Symptoms = Dx

- **Cyclic or Non-cyclic** chronic pelvic pain
- **Dysmenorrhea:** Severe menstrual cramps that do not get better with standard anti-inflammatory drugs.
- **Dyspareunia:** Deep pain or discomfort during or after penetrative sex.
- **Dyschezia & Dysuria: especially during menstruation.**
- **Infertility: Difficulty getting pregnant when tied to any of these pain symptoms.**

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Symptoms = DX

Extrapelvic Indicators

- **Gastrointestinal**: Bloating, diarrhea, constipation, or nausea or rectal bleeding
- **Fatigue**: Persistent tiredness and low energy.
- **Nerve pain**: Sciatic nerve discomfort or shooting pains. **DISRUPT** – PUDENDAL AND OTHER ABDOMINO-PELVIC NERVES!
- **Adolescent flags**: Missing school regularly due to period pain and a family history of endometriosis in a close relative
- **Thoracic Endo** – causing subcoastal or shoulder pain and in rare cases, Pneumothorax
- **Heavy bleeding**, more frequent and longer (even w peri-menopause, average blood cycle is 80mL)
- Possible **cardiovascular/vasodynamic** effects (Fainting, vomiting)
- Flu- like symptoms, **Systemic Inflammation**

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MAP the Endo w Experts

- Earlier diagnosis using advanced, mapped ultrasound and MRI by ***SKILLED*** radiologist
- Improved US and MRI protocols for superficial, deep infiltrating endometriosis and endometriomas, BUT, not always accurate. Adjunctive to SX and physical exam
  - Radiologists should be looking if ovaries, uterus are moving- ***DYNAMIC*** imaging
  - GOAL: ↓ diagnostic delay for ALL POPULATIONS!!
- Laproscopic surgery - Biopsy – Gold Standard for DX still



Young SW, Jha P, Chamié L, Rodgers S, Kho RM, Horrow MM, Glanc P, Feldman M, Grossmann Y, Khaw Z, Young SL, Pinder L, Burnett TL, Hu EM, Egan S, VanBuren W; Society of Radiologists in Ultrasound Consensus on Routine Pelvic US for Endometriosis. Radiology. 2024 Apr;311(1):e232191. doi: 10.1148/radiol.232191. PMID: 38591980; PMCID: PMC11070894.

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Testing – Not Valid by ACOG

National Institute of Care and Excellence (NICE) in the UK doing a 3 - year trial

- Endosure - saliva test to assess MRNA looking at biomarkers
- Endotest - pads are placed on abdomen following a 6-8 hour fast and assessed for activity. NOT valid!
- DotEndo/DotLab works by measuring biomarkers in the blood and applying biostatistics to identify endometriosis

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Pathophysiology DISRUPTED

- Endometriosis - a ***systemic,*** *inflammatory****, whole-body disease*** characterized at surgery by the presence of endometrium-like tissue and lesions found outside the uterus, usually with an associated inflammatory process. Tissue that is similar to, but not the same as, the tissue that normally lines the inside of your uterus. Endometriosis can be found anywhere in the body
- **Emerging data:** shows **immune dysregulation** and **nerve ingrowth** in lesions–best viewed as **neuroinflammatory** rather than just a "hormonal disease" or "uterine disease"

(Int'l Endometriosis Working Group, 2021)

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Autoimmunity and Co-morbid Autoimmune Diseases	↑antinuclear & anti-thyroid antibodies overlap with RA, MS, IBD, Chron's/UC, Hashimotos	Screen for autoimmune comorbidities; tailor therapy toward immune modulation (LDN, biologics, VNS) Multidisciplinary care; Monitor biologic cross-efficacy (anti-TNF, anti-IL-17)

Andrea Vidali.MD 2026

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Neuropathic & Dysautonomia	Small-fiber neuropathy biopsy-proven in≈30% of severe-pain patients ↑ rates of migraines (CGRP-driven), fibromyalgia, POTS, MCAS, Raynaud's	Add neuromodulators, CGRP-mAbs, autonomic rehab; consider mast-cell stabilizers

Andrea Vidali 2026

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Mast Cell/Allergy Axis	Mast-cell density ↑ in lesions & peritoneal fluid; histamine → nociceptor firing; MCAS frequently co-occurs	Dual H1/H2 blockade, cromolyn, low histamine diet
Gut-immune-Brain loop	Dysbiosis, endotoxemia, prime peritoneal macrophages; enteric-glial activation mimics IBS; vagal hypo-tone removes anti-inflammatory brake	Probiotics, low-FODMAP, vagus-nerve stimulation, exercise

Andrea Vidali 2026

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Vascular/Endothelial Dysfunction	↓ Flow-Mediated Dilation, ↑ arterial stiffness, oxidative stress	Cardio-metabolic risk assessment; antioxidant & lifestyle interventions
Genetic/Epigenetic "protoplasm"	Estrogen-receptor-hypersensitivity, progesterone-resistance genes, mRNA-driven macrophage polarization	Precision medicine: genotype-guided hormonal/ immune therapy

Andrea Vidali 2026

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What is Neuroimmunology?

Definition: Study of the reciprocal interactions between the nervous system and the immune system.

Key Concepts

- **Neurogenic Inflammation:** Nerve fibers releasing inflammatory peptides (Substance P, CGRP.
- **Immune-to-Nerve Signaling:** Cytokines activate or sensitize nociceptive neurons.
- **Cholinergic Anti-Inflammatory Pathway**: Vagus nerve modulates cytokine release.
- **Clinical Relevance:** Chronic inflammatory diseases (IBD, RA, MS) involve **dysregulated** neural-immune cross-talk.

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Neuroimmune Mechanisms in Endometriosis

- **Lesion Innervation:** Endometriotic implants are heavily innervated with sensory nerves→ release CGRP, Substance P→ sustain local inflammation.
- **Immune Cell-Nerve Feedback:** Macrophages, mast cells, T cells produce cytokines (TNFa, IL-ß) that sensitize nociceptive fibers.
- **Autonomic Imbalance**: Lower vagal tone, higher sympathetic drive → worsened inflammation/pain
- **Central Sensitization:** Chronic pelvic pain→ unregulated spinal cord glial cells → persistent pain amplification.

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Gastrointestinal Involvement

Symptom	Mechanistic Driver	Potential Approach
Bloating and Pain	Neurogenic inflammation, mast cell activation	Diet Mods (Low FODMAP), neuromodulators
Cyclical Rectal Bleeding	Lesion infiltration, local immune response.	Surgical resection of infiltrating lesions
Constipation /diarrhea	Dysregulated enteric nervous system, glial reactivity	Probiotics, anti-inflammatory strategies

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Multiple Pain Generators

- Evil Twins
  - Endometriosis, Painful Bladder Syndrome/IC[1]
- Evil Septuplets
  - Endometriosis, IC, Pelvic Congestion Syndrome, Vulvovestibulitis, Pelvic Floor Tension Myalgia, Irritable Bowel Syndrome, Fibromyalgia[2]
- **+ Evil Undecuple** (Amy Stein 2021)
  - **+** Autoimmune, Mast Cell Activation Syndrome, POTS, Connective Tissue Disorders

[1]Chung MK, Chung RP, Gordon D. Interstitial Cystitis and endometriosis in patients with chronic pelvic pain: the "evil twins" syndrome. JSLS 2005;9:25-9.

[2]Perry, P. "How to do a History and Physical on a Female Chronic Pelvic Pain Patient". Pelvic Pain Conference, Sydney, 2005.

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Pelvic Floor and Abdominal Function

- Support Organs
- Core Stabilization
- Sphincteric
- Sexual Arousal and Performance

Women's Health: A Textbook for Physiotherapists, 2008



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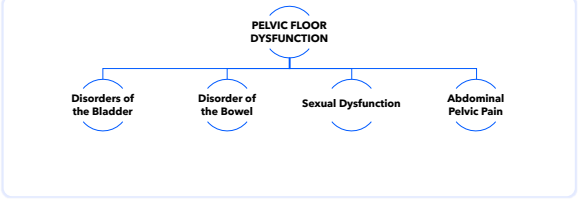
Pelvic Floor and Abdominal Function

- The two "diaphragms" work in parallel
- Must use the diaphragm to elongate and "relax" the pelvic floor – 360°
- Breathing with diaphragm is also a nice way to "massage" your organs
- Exercise: Breath for your Pelvic Floor



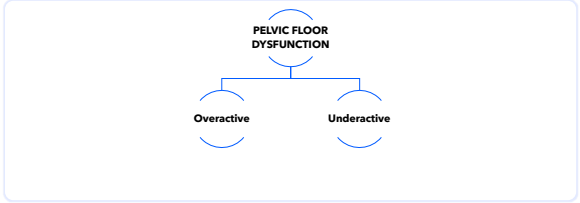
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Pelvic Floor Dysfunction



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Pelvic Floor Dysfunction



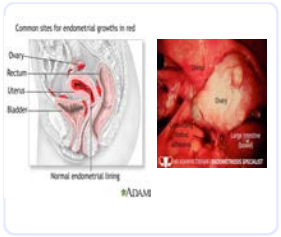
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Pelvic Pain/Overactive Syndromes

- Vulvodynia, Vaginismus
- Provoked/Unprovoked Vestibulodynia
- Abdomino-Pelvic Neuralgias
- Levator Ani Syndrome
- Pelvic Floor Tension Myalgia
- Coccygodynia
- Post-surgical/Scar Adhesions
- Hyperarousal Disorder/PGAD
- Interstitial Cystitis/PBS
- Fibromyalgia
- Endometriosis
- Bowel Disorders (IBS, Colitis, etc)

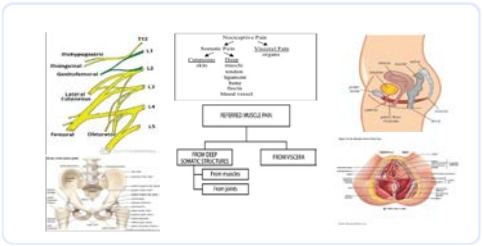
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Where is the Pain?
Where is Endo?



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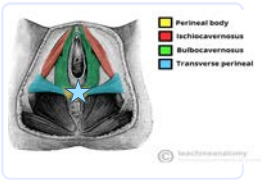
Where Is Pain Coming From?



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Superficial Pelvic Floor Muscles & Dysfunction (1st Layer)

- **Bulbocavernosus**
  - Clitoral Pain
  - Urethral Dysfx
  - Pain with Orgasm
- **Ischiocavernosus**
  - Clitoral Pain
  - Pain with Orgasm
- **Superficial Transverse Perineal & Perineal Body**
  - Posterior Fourchette Pain



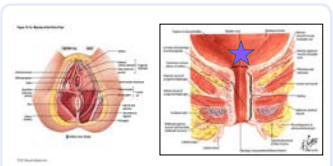
☆ eliminates vestibular pain & helps with BMs & pain with orgasm

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Pelvic Floor Muscles (2nd Layer)

- **Sphincter Urethra**
- **Deep transverse perineal muscles**
  - Palpation to IP
  - Pain with Penetration
  - Bladder Dysfx

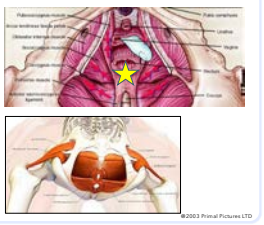
★ Visceral mobs externally & Trigone



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Pelvic Floor Muscles (3rd Layer)

- **Levator ani**
  - Pubococcygeus
  - Puborectalis
  - Iliococcygeus
- **Obturator Internus**
- **Coccygeus**
- Vaginal or ***Rectal*** ☆
  - Dyspareunia and deep penetration pain
  - Bowel dysfx



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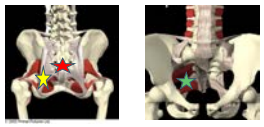
Pelvic Wall

- **Piriformis & Obturator internus**
  - Sandwich the sciatic nerve/pudendal nerve
- **Coccygeus**
  - Over the sacrospinous ligament
  - Stabilizes "tailbone"

★ Sacrococcygeal junction

★ Sacrotuberous ligament

★ Sacrospinous ligament



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It's more than a floor . . .



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Other Muscles Cause Dysfunction

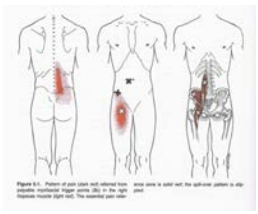
- Diaphragm
- Iliopsoas
- Hamstrings
- Adductors
- Abdominals
- Gluts, Quads
- Back muscles

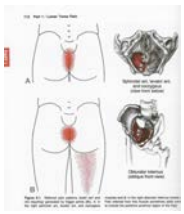


active Hip © 2000 Primal Pictures Ltd

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Myofascial Trigger Points





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Referred Pain Patterns

Transversus	T7-T12	Abdominal & low back
Internal Oblique	T7-T12	Abdominal, groin & genital symptoms
External Oblique	T8-T12	Same as internal oblique
Iliopsoas	L2-L4	Paravertebral & anterior thigh
QL	L1-L3	Iliac crest, outer thigh, buttock
Gluteus Maximus	L5-S2	Sacrum, coccyx, buttock
Gluteus Medius	L4-S1	Sacrum, sacrum, buttock, lateral hip/thigh
Gluteus Minimus	L4-S1	Lateral & posterior buttock & thigh
TFL	L4-S1	Anterolateral hip & thigh
Adductor Magnus	L3-L4	Intrapelvic, groin, anterolateral thigh
Adductor Longus	L2-L3	Groin & inner thigh
Adductor Brevis	L2-L4	Groin & inner thigh
Hamstrings	L5-S2	Gluteal fold, posterior thigh, popliteal fossa
Piriformis	S1-S2	Low back, buttock, posterior thigh
Obturator Internus	L5-S2	Deep ache, posterior thigh, fullness in rectum or vaginal pain
Obturator Externus	L3-L4	Same as OI
Quadratus femoris	L4-S1	Low back, buttock, posterior thigh
Coccygeus	S4-S5	Coccyx, sacrum, rectum
Pubococcygeus	S4	Coccyx, sacrum, rectum
Iliococcygeus	S4	Coccyx, sacrum, rectum
Ischiocavernosus	S2-S4	Perineal aching
Bulbospongiosus	S2-S4	Dyspareunia/impotence, perineal pain with sitting
Transversus perinea	S2-S4	Dyspareunia
External Anal Sphincter	S4	Diffuse ache, pain with bowel movements, constipation
Sphincter Urethrae	S2-S4	Urinary retention, perineal

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Referred Pain Patterns

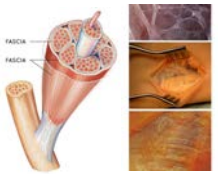
Pelvic Floor Muscle	Referred Pattern	Possible Patient Complaint
Superficial Muscle Layer		
Bulbocavernosus	Perineal pain, urogenital structures	Dyspareunia, pain with orgasm, clitoral pain
Ischiocavernosus	Perineal pain, urogenital structures	Dyspareunia, pain with orgasm, clitoral pain
Transversus perinearum (Superficial transverse perineal)	None documented	Dyspareunia
Anal sphincter (Sphincter ani externus)	Posterior pelvic floor, anus/rectum, pubic pain	Burning or tingling in anus/rectum, pain before/during/ after defecation
Deep Muscle Layer		
Levator ani anterior: Pubococcygeus/puborectalis	Suprapubic region, urethra, bladder, perineum, pain/symptoms	Increased urinary urgency & frequency, Painful urination after intercourse, dysparenia
Levator ani posterior: Iliococcygeus	Sacrococcygeal, deep vaginal, rectal, perineal, anal pain	Pain before/ during/after defecation, dyspareunia, thrusting pain
Other Deep Pelvic Floor Muscles		
Coccygeus	Sacrococcygeal, buttock pain	Pain with sitting, during defecation, intestinal fullness, anal pressure/pain
Obturator internus	Anal, coccyx, vulvar, urethral, vaginal, or posterior thigh pain	Generalized pelvic pain, often burning or aching
Piriformis	Sacroiliac region, lateral over ipsilateral buttock, posterior over ipsilateral hip, proximal 2/3 of posterior thigh	Buttock, leg pain if sciatic nerve affected

Pastore EA, Katzman WB. Recognizing myofascial pelvic pain with chronic pelvic pain. J Obstet Gybecol Neonatal Nur 2012

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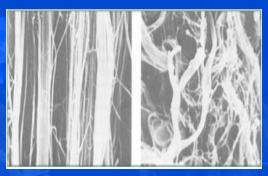
Fascia

- Interconnects & supports
- Allows independent motion
- Absorbs & attenuates shock
- Protects against spread of infection
- Has hydration & elastic properties
- Health depends on frequent & appropriate mobility
- Health declines with age, immobility, & trauma
- Adhesions: a natural part of the healing process



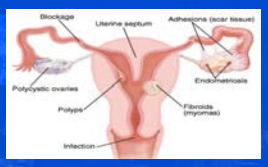
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Fascia – Healthy vs. Restricted



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Types of restrictions

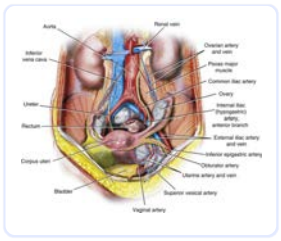


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Blood Supply

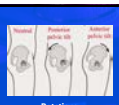
- Pelvic congestion: like the pain and immobility of a sprained ankle: the fluid build-up compresses structures, and must be reduced to allow full healing & mobility
  - IE compression of iliac vein can cause pelvic pain/heaviness

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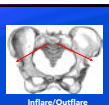


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★Ortho Meets Pelvis: Pelvic Alignment



Rotations



Inflare/Outflare



Uplip/Downslip /Leg Length



Sacral Sidebends/Rotations

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SIJ Anatomy

- Long Dorsal Ligament
- Sacrotuberous/ Sacrospinous ligament
- Ischial Tuberosities and medial

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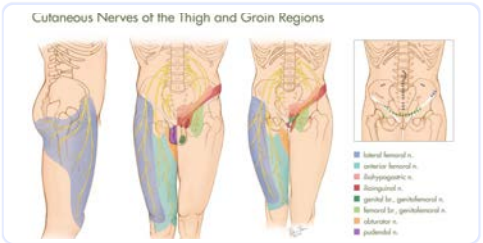


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Cutaneous Nerve Pathways

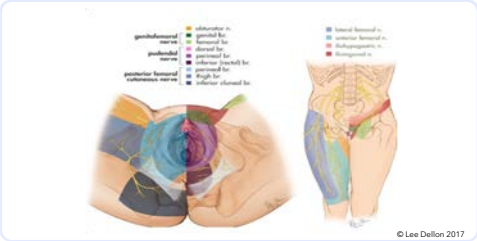
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Cutaneous Nerve Pathways



Adverse Neural Tension:

- Iliohypogastric – gluteal region, suprapubic region
- Ilioinguinal – inner thigh, groin region, lateral scrotal skin, lateral labia and mons pubis
- Genitofemoral – upper, front portion of thigh, scrotal skin, labia majora, mons pubis
- Lateral Femoral Cutaneous-side & front area of thigh
- Posterior Femoral Cutaneous- perineum, gluteal region, posterior thigh, popliteal fossa and the superior, posterior portion lower leg
- Cluneal (superior, middle, inferior) – buttocks
- Obturator - medial thigh
- Sciatic – buttocks, posterior leg, feet



Steege, Metzger et al "Chronic Pelvic Pain"

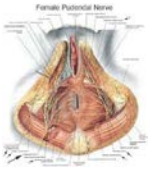
Pudendal Nerve Innervation

- Inferior rectal branch
  - Anal canal, caudal third of rectum, skin around anus
  - **Muscles:** posterior portion of external anal sphincter
- Perineal branch
  - Inferior third of vagina and urethra, skin of labia/scrotum
  - **Muscles:** transverse perineum, bulbospongiosus, ischiocavernosus, urethral sphincter, anterior portion of EAS
- Dorsal branch of clitoris/penis
  - Skin of clitoris/penis
  - **Muscles:** ischiocavernosus, bulbospongiosus



Pudendal Nerve? Posterior Femoral Cutaneous? Other?

- Inferior rectal branch
  - Rectal pain, burning, itching, sharp, nails
  - Incomplete emptying, constipation, IBS sx
  - DEEP DYSPAREUNIA
- Perineal branch
  - Genital &/or Bladder pain, burning, itching, sharp, nails
  - Incomplete emptying, dyspareunia, 'vestibulitis'
  - DEEP DYSPAREUNIA and superficial



Pudendal Nerve

- Dorsal branch of clitoris/penis
  - Clitoral, penis &/or Bladder/urethral pain, burning, itching, sharp, nails
  - Hyperarousal Disorder, Premature Ejaculation
  - Hypoarousal Disorder



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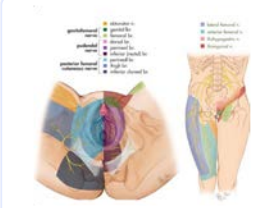


NERVE ➡ PFD

Can Cause (or BE MISTAKEN ★ FOR)

Other Diagnoses

- **Yeast?-**Vulvar pain, burning, itching
- **UTI?-** Bladder/Urethral/Rectal Pain/burning



Indications for Physical Therapy

- Diagnosed with disorder affecting reproductive system
- Painful penetration
- History of painful periods
- Dysfunctional bladder, bowel
- Pain management
- Joint dysfunction: spine, hips, SI joint, pubic symphysis
- Nutritional deficits, Pain Science

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PT Evaluation

Evaluation
- Posture & alignment
- Joint & soft tissue mobility
- Strength & stability

Manual Therapy
- Reduce soft tissue restrictions
- Restore joint & visceral mobility
- Reduce inflammation
- Improve blood flow

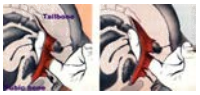
Functional Exercise/Activity Prescription
- To maintain improved mobility from manual treatment
- To correct asymmetries in movement and motor control
- To facilitate normal function
- To support pain management




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Pelvic Floor Evaluation

- External: Urogenital triangle, Obt Internus, Levator Ani
  - Myofascial trigger points, tone, pain
  - Scar, Neuro Mob's, skin changes/color, Q-tip tes
- Internal:
  - Myofascial trigger points, tone, pain
  - Scar Mob's, Neuro Mob's

Wurn, et al, 2004, Oyama IA,et al, 2004, Hartmann 2001, Travell, Simons 1992, King 2004, Bergeron et al, 2002

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PT Evaluation

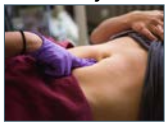
- Manual Therapy:
- External
  - Abdomen, Legs, Back, Gluts
  - Superficial Pelvic Floor
- ROM, Posture and Alignment, Functional
- Neural, Visceral "mobs", Edema Tx



Wurn B, Wurn L, Patterson K. Decreasing dyspareunia and dysmenorrhea in women w endometriosis via a manual therapy: results from two independent studies. 2011;3(4)

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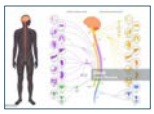
Abdominal Dysfunction



Abdominal/Vaginal Scarring



Back/SIJ Dysfunction



Hip Dysfunction



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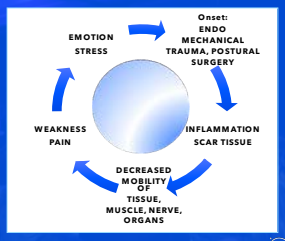
Realistic Goals and Expectations




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Vicious Cycle



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Thank you audience!

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DISRUPT
PELVICON 2026

AMY STEIN

PELVICON SPEAKER

@BEYONDBASICSPT

- Internationally recognized expert in pelvic pain & pelvic floor dysfunction
- Founder of Beyond Basics Physical Therapy in New York City
- Author of groundbreaking books Heal Pelvic Pain & co-author of Beating Endo



DISRUPTING IDEAS

ENDOMETRIOSIS DECODED (PT 1): WHAT'S NEW, WHAT'S CHANGING AND WHAT MATTERS MOST

1

Endometriosis is a systemic whole-body disease, involving immune dysregulation and neuroinflammation - it's not just a "hormonal" or "uterine" disease.

2

Patients often have multiple pain generators and therefore require a whole-body, multimodal and multidisciplinary approach.

3

Pelvic therapists need to examine and treat beyond the pelvic floor, considering potential neural, vascular, and fascial contributions - & more!

DISRUPT
PELVICON 2026

ENDOMETRIOSIS DECODED (PART 1): WHAT'S NEW, WHAT'S CHANGING & WHAT MATTERS MOST

By, Amy Stein MPT, DPT, BCB-PMD, IF

Disclaimer:

Not Medical Advice

- This class is informational and education in nature and is not intended or implied to be a substitute for individual professional medical advice, diagnosis or treatment.

Questions Are General

- Any questions answered by our expert here today is based on general education and not meant to give personal medical advice, and there is no formal provider/patient relationship created with this class.

NOTE: PLEASE DO NOT COPY OR POST ANY OF THE VIDEOS IN THIS POWERPOINT TO PROTECT THE PRIVACY OF THE MODEL.

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Who Am I?



- 2017-President: International Pelvic Pain Society
- 2021-Owner/Founder Wellness by Nature CBD
  - www.wellnessxnature.com
- 2003-Owner/Founder Beyond Basics Physical Therapy
- *Author-BeatingEndo, HealPelvicPain, Healing in Urology*; Medical Textbook chapters, Journal Publications
- VIDEO- Healing Pelvic & Abdominal Pain
- Featured-ABC 20/20, Dr. Oz, NBC NY, Reuters, NY Daily News, Elle, Parents, Prevention, More Magazine, All You, Natural Solutions

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Disclosures

- Wellness by Nature CBD

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Objectives

- Identify updates in what defines endometriosis
- Identify the latest ACOG and Int'l Endometriosis Working Group, 2021 protocol in medical management of pelvic pain in relation to endometriosis
- Differential diagnosis of Endo and other inflammatory conditions that effect Endo

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True or False:
Endometriosis is a uterine disease?

Endo Basics –ACOG 2026 updates

- **Prevalence:** ~ .7- 8.6% of women of reproductive age; 9- 68% w subfertility, 15-71% in patients with pelvic pain, in laprascopy in adolescence 64% of time
  - Bw 45-65% have musculoskeletal Dysfx; or ***one study – up to 100%***
- **DX delay**: Avg 7-8 years to be diagnosed
- **ACOG definition:** a chronic, inflammatory, estrogen-dependent disorder characterized by the presence of endometrial-like tissue outside the uterus
- **Risk factors**: early menarche (before age 10), short menstrual cycles (less than 26 days), low BMI, muellerian anomalies, 1st degree relative w Hx of Endo
- **DX:** symptom-based assessment, physical exam or both sufficient to initiate empiric medical treatment – **WITHOUT SURGICAL DIAGNOSIS!**

(ACOG Guidelines 2026)

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Endo Subtypes

- **Superficial Peritoneal Endometriosis:** Lesions residing on the pelvic peritoneum
- **Ovarian Endometrioma:** Endometriotic cysts of the ovary
- **Deep Infiltrating Endometriosis:** Lesions penetrating deeper than 5 mm beneath the peritoneal surface, frequently involving pelvic compartments or bowel structures
- **Extra-Pelvic / Nerve-Centric Manifestations:** Emerging focus on thoracic, sciatic, and neuroinflammatory pathways driving chronic pain syndromes

2 ovarian cysts = endometriomas



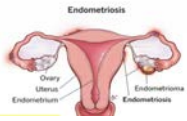
Oliveira et al. Transvaginal US in deep Endo, 2019

(ACOG Guidelines 2026)

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Endo Stages = Severity of Symptoms? NO!

- **Stage I (Minimal)**
  - Small, superficial lesions or implants on pelvic or abdominal lining
  - Little or no scar tissue.
  - Oft the disease is found incidentally during surgery for another reason.
- **Stage II (Mild)**
  - More and/or deeper implants than Stage I.
  - Limited scar tissue may be present.



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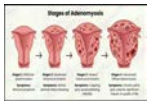
Endo Stages = Severity of Symptoms? NO!

- **Stage III (Moderate)**
  - widespread deep implants
  - One or both ovaries may have small endometriomas ("chocolate cysts")
  - Adhesions become more common, thicker and may begin to distort pelvic anatomy.
- **Stage IV (Severe)**
  - Heavy, widespread deep implants
  - Large ovarian endometriomas.
  - Dense adhesions involving the ovaries, fallopian tubes, uterus, bowel, bladder, or other pelvic organs.
    - Pelvic anatomy may be significantly altered.

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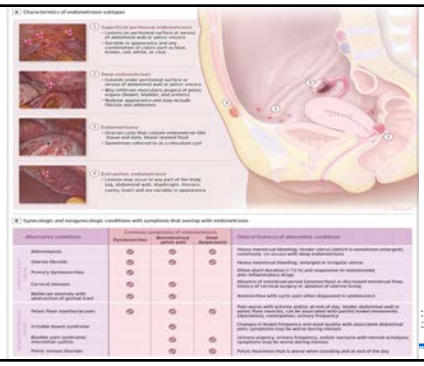
Adenomyosis: NIH & ACOG 2026

- Tissue that normally lines the uterus (endometrial tissue) grows into the muscular wall of the uterus, ***a uterine disease***, causing heavy bleeding, horrible cramping, and often, a heaviness in the pelvis, flu-like, inflammatory symptoms
- ***Focal:*** Concentrated in one specific localized area or tumor-like mass (adenomyoma).
- ***Diffuse***: Widely spread throughout a large portion of the muscular uterine wall (myometrium)
- **Depth of Infiltration:** Measured by how far the endometrial tissue penetrates into the myometrium or inner junctional zone of the uterus using high-resolution imaging or histological examination



Jay Mehta, MD, 2026, Mumbai

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Symptoms = Dx

- **Cyclic or Non-cyclic** chronic pelvic pain
- **Dysmenorrhea:** Severe menstrual cramps that do not get better with standard anti-inflammatory drugs.
- **Dyspareunia:** Deep pain or discomfort during or after penetrative sex.
- **Dyschezia & Dysuria: especially during menstruation.**
- **Infertility: Difficulty getting pregnant when tied to any of these pain symptoms.**

ACOG 2026

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Symptoms = DX

Extrapelvic Indicators

- **Gastrointestinal**: Bloating, diarrhea, constipation, or nausea or rectal bleeding
- **Fatigue**: Persistent tiredness and low energy.
- **Nerve pain**: Sciatic nerve discomfort or shooting pains. **DISRUPT** – PUDENDAL AND OTHER ABDOMINO-PELVIC NERVES!
- **Adolescent flags**: Missing school regularly due to period pain and a family history of endometriosis in a close relative
- **Thoracic Endo** – causing subcoastal or shoulder pain and in rare cases, Pneumothorax
- **Heavy bleeding**, more frequent and longer (even w peri-menopause, average blood cycle is 80mL)
- Possible **cardiovascular/vasodynamic** effects (Fainting, vomiting)
- Flu- like symptoms, **Systemic Inflammation**

ACOG 2026

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MAP the Endo w Experts

- Earlier diagnosis using advanced, mapped ultrasound and MRI by ***SKILLED*** radiologist
- Improved US and MRI protocols for superficial, deep infiltrating endometriosis and endometriomas, BUT, not always accurate. Adjunctive to SX and physical exam
  - Radiologists should be looking if ovaries, uterus are moving- ***DYNAMIC*** imaging
  - GOAL: ↓ diagnostic delay for ALL POPULATIONS!!
- Laproscopic surgery - Biopsy – Gold Standard for DX still



Young SW, Jha P, Chamié L, Rodgers S, Kho RM, Horrow MM, Glanc P, Feldman M, Grossmann Y, Khaw Z, Young SL, Pinder L, Burnett TL, Hu EM, Egan S, VanBuren W; Society of Radiologists in Ultrasound Consensus on Routine Pelvic US for Endometriosis. Radiology. 2024 Apr;311(1):e232191. doi: 10.1148/radiol.232191. PMID: 38591980; PMCID: PMC11070894.

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Testing – Not Valid by ACOG

National Institute of Care and Excellence (NICE) in the UK doing a 3 - year trial

- Endosure - saliva test to assess MRNA looking at biomarkers
- Endotest - pads are placed on abdomen following a 6-8 hour fast and assessed for activity. NOT valid!
- DotEndo/DotLab works by measuring biomarkers in the blood and applying biostatistics to identify endometriosis

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Pathophysiology DISRUPTED

- Endometriosis - a ***systemic,*** *inflammatory****, whole-body disease*** characterized at surgery by the presence of endometrium-like tissue and lesions found outside the uterus, usually with an associated inflammatory process. Tissue that is similar to, but not the same as, the tissue that normally lines the inside of your uterus. Endometriosis can be found anywhere in the body
- **Emerging data:** shows **immune dysregulation** and **nerve ingrowth** in lesions–best viewed as **neuroinflammatory** rather than just a "hormonal disease" or "uterine disease"

(Int'l Endometriosis Working Group, 2021)

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Autoimmunity and Co-morbid Autoimmune Diseases	↑antinuclear & anti-thyroid antibodies overlap with RA, MS, IBD, Chron's/UC, Hashimotos	Screen for autoimmune comorbidities; tailor therapy toward immune modulation (LDN, biologics, VNS) Multidisciplinary care; Monitor biologic cross-efficacy (anti-TNF, anti-IL-17)

Andrea Vidali.MD 2026

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Neuropathic & Dysautonomia	Small-fiber neuropathy biopsy-proven in≈30% of severe-pain patients ↑ rates of migraines (CGRP-driven), fibromyalgia, POTS, MCAS, Raynaud's	Add neuromodulators, CGRP-mAbs, autonomic rehab; consider mast-cell stabilizers

Andrea Vidali 2026

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Mast Cell/Allergy Axis	Mast-cell density ↑ in lesions & peritoneal fluid; histamine → nociceptor firing; MCAS frequently co-occurs	Dual H1/H2 blockade, cromolyn, low histamine diet
Gut-immune-Brain loop	Dysbiosis, endotoxemia, prime peritoneal macrophages; enteric-glial activation mimics IBS; vagal hypo-tone removes anti-inflammatory brake	Probiotics, low-FODMAP, vagus-nerve stimulation, exercise

Andrea Vidali 2026

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Re-Thinking Endometriosis

Dimension	Key Evidence/Associations	Clinical Implications
Vascular/Endothelial Dysfunction	↓ Flow-Mediated Dilation, ↑ arterial stiffness, oxidative stress	Cardio-metabolic risk assessment; antioxidant & lifestyle interventions
Genetic/Epigenetic "protoplasm"	Estrogen-receptor-hypersensitivity, progesterone-resistance genes, mRNA-driven macrophage polarization	Precision medicine: genotype-guided hormonal/ immune therapy

Andrea Vidali 2026

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What is Neuroimmunology?

Definition: Study of the reciprocal interactions between the nervous system and the immune system.

Key Concepts

- **Neurogenic Inflammation:** Nerve fibers releasing inflammatory peptides (Substance P, CGRP.
- **Immune-to-Nerve Signaling:** Cytokines activate or sensitize nociceptive neurons.
- **Cholinergic Anti-Inflammatory Pathway**: Vagus nerve modulates cytokine release.
- **Clinical Relevance:** Chronic inflammatory diseases (IBD, RA, MS) involve **dysregulated** neural-immune cross-talk.

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Neuroimmune Mechanisms in Endometriosis

- **Lesion Innervation:** Endometriotic implants are heavily innervated with sensory nerves→ release CGRP, Substance P→ sustain local inflammation.
- **Immune Cell-Nerve Feedback:** Macrophages, mast cells, T cells produce cytokines (TNFa, IL-ß) that sensitize nociceptive fibers.
- **Autonomic Imbalance**: Lower vagal tone, higher sympathetic drive → worsened inflammation/pain
- **Central Sensitization:** Chronic pelvic pain→ unregulated spinal cord glial cells → persistent pain amplification.

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Gastrointestinal Involvement

Symptom	Mechanistic Driver	Potential Approach
Bloating and Pain	Neurogenic inflammation, mast cell activation	Diet Mods (Low FODMAP), neuromodulators
Cyclical Rectal Bleeding	Lesion infiltration, local immune response.	Surgical resection of infiltrating lesions
Constipation /diarrhea	Dysregulated enteric nervous system, glial reactivity	Probiotics, anti-inflammatory strategies

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Multiple Pain Generators

- Evil Twins
  - Endometriosis, Painful Bladder Syndrome/IC[1]
- Evil Septuplets
  - Endometriosis, IC, Pelvic Congestion Syndrome, Vulvovestibulitis, Pelvic Floor Tension Myalgia, Irritable Bowel Syndrome, Fibromyalgia[2]
- **+ Evil Undecuple** (Amy Stein 2021)
  - **+** Autoimmune, Mast Cell Activation Syndrome, POTS, Connective Tissue Disorders

[1]Chung MK, Chung RP, Gordon D. Interstitial Cystitis and endometriosis in patients with chronic pelvic pain: the "evil twins" syndrome. JSLS 2005;9:25-9.

[2]Perry, P. "How to do a History and Physical on a Female Chronic Pelvic Pain Patient". Pelvic Pain Conference, Sydney, 2005.

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Pelvic Floor and Abdominal Function

- Support Organs
- Core Stabilization
- Sphincteric
- Sexual Arousal and Performance

Women's Health: A Textbook for Physiotherapists, 2008



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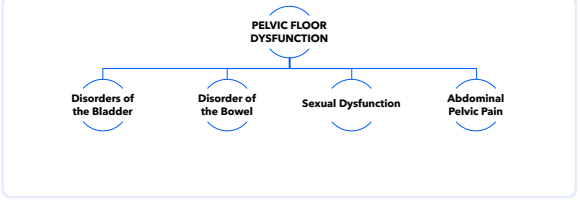
Pelvic Floor and Abdominal Function

- The two "diaphragms" work in parallel
- Must use the diaphragm to elongate and "relax" the pelvic floor – 360°
- Breathing with diaphragm is also a nice way to "massage" your organs
- Exercise: Breath for your Pelvic Floor



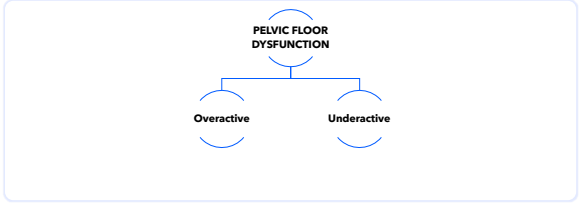
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Pelvic Floor Dysfunction



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Pelvic Floor Dysfunction



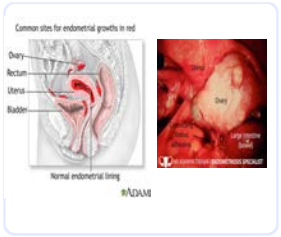
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Pelvic Pain/Overactive Syndromes

- Vulvodynia, Vaginismus
- Provoked/Unprovoked Vestibulodynia
- Abdomino-Pelvic Neuralgias
- Levator Ani Syndrome
- Pelvic Floor Tension Myalgia
- Coccygodynia
- Post-surgical/Scar Adhesions
- Hyperarousal Disorder/PGAD
- Interstitial Cystitis/PBS
- Fibromyalgia
- Endometriosis
- Bowel Disorders (IBS, Colitis, etc)

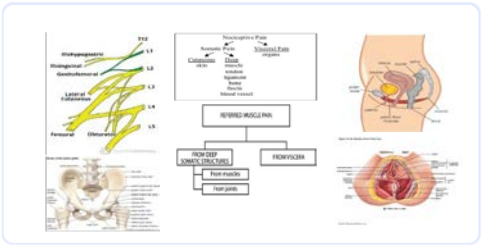
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Where is the Pain?
Where is Endo?



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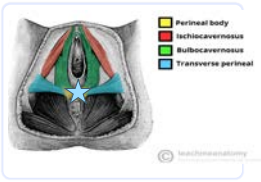
Where Is Pain Coming From?



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Superficial Pelvic Floor Muscles & Dysfunction (1st Layer)

- **Bulbocavernosus**
  - Clitoral Pain
  - Urethral Dysfx
  - Pain with Orgasm
- **Ischiocavernosus**
  - Clitoral Pain
  - Pain with Orgasm
- **Superficial Transverse Perineal & Perineal Body**
  - Posterior Fourchette Pain



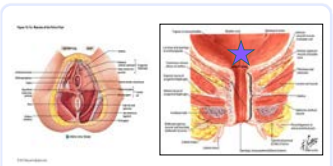
☆ eliminates vestibular pain & helps with BMs & pain with orgasm

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Pelvic Floor Muscles (2nd Layer)

- **Sphincter Urethra**
- **Deep transverse perineal muscles**
  - Palpation to IP
  - Pain with Penetration
  - Bladder Dysfx

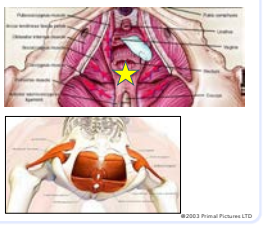
★ Visceral mobs externally & Trigone



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Pelvic Floor Muscles (3rd Layer)

- **Levator ani**
  - Pubococcygeus
  - Puborectalis
  - Iliococcygeus
- **Obturator Internus**
- **Coccygeus**
- Vaginal or ***Rectal*** ☆
  - Dyspareunia and deep penetration pain
  - Bowel dysfx



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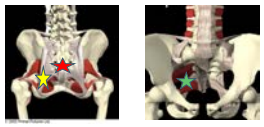
Pelvic Wall

- **Piriformis & Obturator internus**
  - Sandwich the sciatic nerve/pudendal nerve
- **Coccygeus**
  - Over the sacrospinous ligament
  - Stabilizes "tailbone"

★ Sacrococcygeal junction

★ Sacrotuberous ligament

★ Sacrospinous ligament



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It's more than a floor . . .



DISRUPT PELVICON 2026

Other Muscles Cause Dysfunction

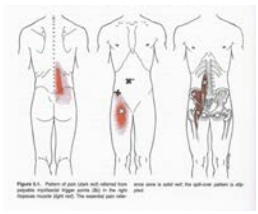
- Diaphragm
- Iliopsoas
- Hamstrings
- Adductors
- Abdominals
- Gluts, Quads
- Back muscles

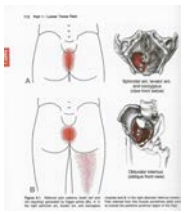


active Hip © 2000 Primal Pictures Ltd

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Myofascial Trigger Points





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Referred Pain Patterns

Transversus	T7-T12	Abdominal & low back
Internal Oblique	T7-T12	Abdominal, groin & genital symptoms
External Oblique	T8-T12	Same as internal oblique
Iliopsoas	L2-L4	Paravertebral & anterior thigh
QL	L1-L3	Iliac crest, outer thigh, buttock
Gluteus Maximus	L5-S2	Sacrum, coccyx, buttock
Gluteus Medius	L4-S1	Sacrum, sacrum, buttock, lateral hip/thigh
Gluteus Minimus	L4-S1	Lateral & posterior buttock & thigh
TFL	L4-S1	Anterolateral hip & thigh
Adductor Magnus	L3-L4	Intrapelvic, groin, anterolateral thigh
Adductor Longus	L2-L3	Groin & inner thigh
Adductor Brevis	L2-L4	Groin & inner thigh
Hamstrings	L5-S2	Gluteal fold, posterior thigh, popliteal fossa
Piriformis	S1-S2	Low back, buttock, posterior thigh
Obturator Internus	L5-S2	Deep ache, posterior thigh, fullness in rectum or vaginal pain
Obturator Externus	L3-L4	Same as OI
Quadratus femoris	L4-S1	Low back, buttock, posterior thigh
Coccygeus	S4-S5	Coccyx, sacrum, rectum
Pubococcygeus	S4	Coccyx, sacrum, rectum
Iliococcygeus	S4	Coccyx, sacrum, rectum
Ischiocavernosus	S2-S4	Perineal aching
Bulbospongiosus	S2-S4	Dyspareunia/impotence, perineal pain with sitting
Transversus perinea	S2-S4	Dyspareunia
External Anal Sphincter	S4	Diffuse ache, pain with bowel movements, constipation
Sphincter Urethrae	S2-S4	Urinary retention, perineal

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Referred Pain Patterns

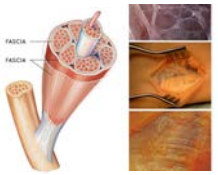
Pelvic Floor Muscle	Referred Pattern	Possible Patient Complaint
Superficial Muscle Layer		
Bulbocavernosus	Perineal pain, urogenital structures	Dyspareunia, pain with orgasm, clitoral pain
Ischiocavernosus	Perineal pain, urogenital structures	Dyspareunia, pain with orgasm, clitoral pain
Transversus perinearum (Superficial transverse perineal)	None documented	Dyspareunia
Anal sphincter (Sphincter ani externus)	Posterior pelvic floor, anus/rectum, pubic pain	Burning or tingling in anus/rectum, pain before/during/ after defecation
Deep Muscle Layer		
Levator ani anterior: Pubococcygeus/puborectalis	Suprapubic region, urethra, bladder, perineum, pain/symptoms	Increased urinary urgency & frequency, Painful urination after intercourse, dysparenia
Levator ani posterior: Iliococcygeus	Sacrococcygeal, deep vaginal, rectal, perineal, anal pain	Pain before/ during/after defecation, dyspareunia, thrusting pain
Other Deep Pelvic Floor Muscles		
Coccygeus	Sacrococcygeal, buttock pain	Pain with sitting, during defecation, intestinal fullness, anal pressure/pain
Obturator internus	Anal, coccyx, vulvar, urethral, vaginal, or posterior thigh pain	Generalized pelvic pain, often burning or aching
Piriformis	Sacroiliac region, lateral over ipsilateral buttock, posterior over ipsilateral hip, proximal 2/3 of posterior thigh	Buttock, leg pain if sciatic nerve affected

Pastore EA, Katzman WB. Recognizing myofascial pelvic pain with chronic pelvic pain. J Obstet Gybecol Neonatal Nur 2012

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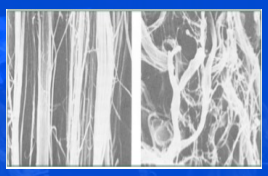
Fascia

- Interconnects & supports
- Allows independent motion
- Absorbs & attenuates shock
- Protects against spread of infection
- Has hydration & elastic properties
- Health depends on frequent & appropriate mobility
- Health declines with age, immobility, & trauma
- Adhesions: a natural part of the healing process



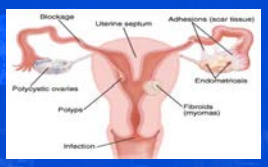
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Fascia – Healthy vs. Restricted



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Types of restrictions

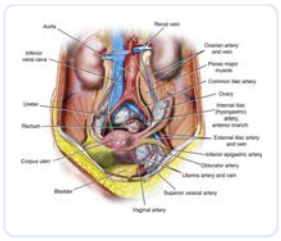


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Blood Supply

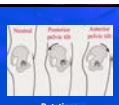
- Pelvic congestion: like the pain and immobility of a sprained ankle: the fluid build-up compresses structures, and must be reduced to allow full healing & mobility
  - IE compression of iliac vein can cause pelvic pain/heaviness

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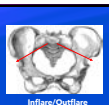


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★Ortho Meets Pelvis: Pelvic Alignment



Rotations



Inflare/Outflare



Uplip/Downslip /Leg Length



Sacral Sidebends/Rotations

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SIJ Anatomy

- Long Dorsal Ligament
- Sacrotuberous/ Sacrospinous ligament
- Ischial Tuberosities and medial

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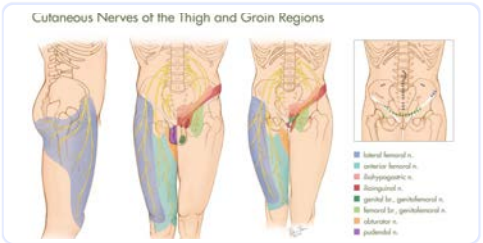


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Cutaneous Nerve Pathways

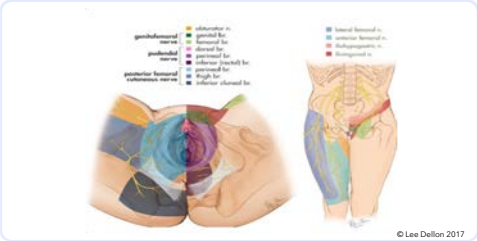
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Cutaneous Nerve Pathways



Adverse Neural Tension:

- Iliohypogastric – gluteal region, suprapubic region
- Ilioinguinal – inner thigh, groin region, lateral scrotal skin, lateral labia and mons pubis
- Genitofemoral – upper, front portion of thigh, scrotal skin, labia majora, mons pubis
- Lateral Femoral Cutaneous-side & front area of thigh
- Posterior Femoral Cutaneous- perineum, gluteal region, posterior thigh, popliteal fossa and the superior, posterior portion lower leg
- Cluneal (superior, middle, inferior) – buttocks
- Obturator - medial thigh
- Sciatic – buttocks, posterior leg, feet



Steege, Metzger et al "Chronic Pelvic Pain"

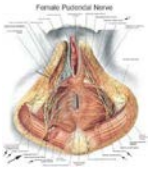
Pudendal Nerve Innervation

- Inferior rectal branch
  - Anal canal, caudal third of rectum, skin around anus
  - **Muscles:** posterior portion of external anal sphincter
- Perineal branch
  - Inferior third of vagina and urethra, skin of labia/scrotum
  - **Muscles:** transverse perineum, bulbospongiosus, ischiocavernosus, urethral sphincter, anterior portion of EAS
- Dorsal branch of clitoris/penis
  - Skin of clitoris/penis
  - **Muscles:** ischiocavernosus, bulbospongiosus



Pudendal Nerve? Posterior Femoral Cutaneous? Other?

- Inferior rectal branch
  - Rectal pain, burning, itching, sharp, nails
  - Incomplete emptying, constipation, IBS sx
  - DEEP DYSPAREUNIA
- Perineal branch
  - Genital &/or Bladder pain, burning, itching, sharp, nails
  - Incomplete emptying, dyspareunia, 'vestibulitis'
  - DEEP DYSPAREUNIA and superficial



Pudendal Nerve

- Dorsal branch of clitoris/penis
  - Clitoral, penis &/or Bladder/urethral pain, burning, itching, sharp, nails
  - Hyperarousal Disorder, Premature Ejaculation
  - Hypoarousal Disorder



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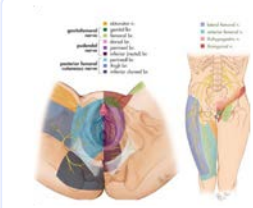


NERVE ➡ PFD

Can Cause (or BE MISTAKEN ★ FOR)

Other Diagnoses

- **Yeast?-**Vulvar pain, burning, itching
- **UTI?-** Bladder/Urethral/Rectal Pain/burning



Indications for Physical Therapy

- Diagnosed with disorder affecting reproductive system
- Painful penetration
- History of painful periods
- Dysfunctional bladder, bowel
- Pain management
- Joint dysfunction: spine, hips, SI joint, pubic symphysis
- Nutritional deficits, Pain Science

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PT Evaluation

Evaluation
- Posture & alignment
- Joint & soft tissue mobility
- Strength & stability

Manual Therapy
- Reduce soft tissue restrictions
- Restore joint & visceral mobility
- Reduce inflammation
- Improve blood flow

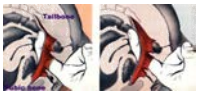
Functional Exercise/Activity Prescription
- To maintain improved mobility from manual treatment
- To correct asymmetries in movement and motor control
- To facilitate normal function
- To support pain management




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Pelvic Floor Evaluation

- External: Urogenital triangle, Obt Internus, Levator Ani
  - Myofascial trigger points, tone, pain
  - Scar, Neuro Mob's, skin changes/color, Q-tip tes
- Internal:
  - Myofascial trigger points, tone, pain
  - Scar Mob's, Neuro Mob's

Wurn, et al, 2004, Oyama IA,et al, 2004, Hartmann 2001, Travell, Simons 1992, King 2004, Bergeron et al, 2002

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PT Evaluation

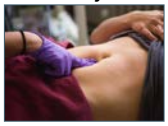
- Manual Therapy:
- External
  - Abdomen, Legs, Back, Gluts
  - Superficial Pelvic Floor
- ROM, Posture and Alignment, Functional
- Neural, Visceral "mobs", Edema Tx



Wurn B, Wurn L, Patterson K. Decreasing dyspareunia and dysmenorrhea in women w endometriosis via a manual therapy: results from two independent studies. 2011;3(4)

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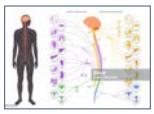
Abdominal Dysfunction



Abdominal/Vaginal Scarring



Back/SIJ Dysfunction



Hip Dysfunction



istockphoto-1348768322-1024x1024.jpg

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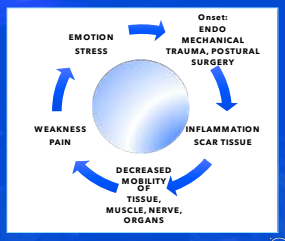
Realistic Goals and Expectations




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Vicious Cycle



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Thank you audience!

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GRÁINNE DONNELLY

3-TIME PELVICON SPEAKER

@GRAINNEDONNELLY_ABSOLUTEPHYSIO

- Author of *"Sports Medicine and the Pelvic Floor: Science to Practice"*
- Editor-in-Chief of the POGP Journal
- Co-creator of the first 'Return to Run' guidelines



DISRUPTING IDEAS

DISTILLING DIASTASIS: SEPARATING FACT FROM FICTION WITH CURRENT EVIDENCE

1

DRA is a normal pregnancy related adaptation. IRD naturally widens towards the end of pregnancy.

2

DRA evaluation should consider biopsychosocial impact over reductionist IRD measures alone.

3

Health language matters... what are you saying?

DISRUPT
PELVICON 2026

Distilling Diastasis

Separating fact from fiction with current evidence

Gráinne M. Donnelly



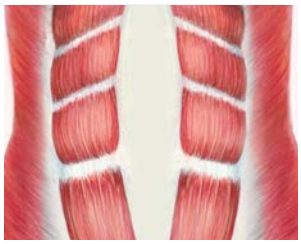
About Me

- Advanced Practice Pelvic Health Physiotherapist
- Doctoral Researcher
- Outgoing Editor-in-Chief of the Journal of Pelvic, Obstetric and Gynaecological Physiotherapy
- Editor of scientific textbook Sports Medicine and the Pelvic Floor

@grainnedonnelly_absolutephysio www.absolute.physio

Aims of this talk

- **Discuss** contemporary science informing DRA clinical assessment and management
- **Challenge** current DRA beliefs and diagnostic criteria
- **Introduce** a new biopsychosocial screening tool
- **Apply** contemporary science to clinical practice
- **Promote** the importance of evidence-based information dissemination and discuss what that means in the present day



Diastasis rectus abdominis (DRA)

Characterised by *thinning* and *widening* of the linea alba and associated increased laxity of the anterior abdominal wall

(Mommers et al., 2017)



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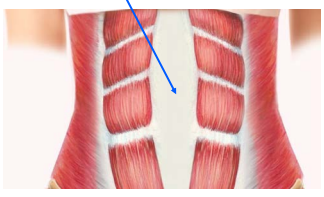


Is DRA simply about the gap?













RESEARCH Open Access

Mothers' experiences living with diastasis recti abdominis – an interview study

Research Article

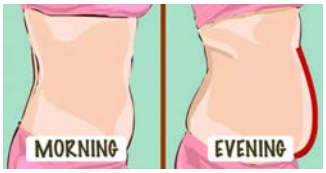
Australian women's experiences of post-partum rectus diastasis: A qualitative study



- Physical limitations
- A changed body
- Limited knowledge
- Impacted self-esteem and intimacy
- Negative impact on social function, child rearing and return to work

DRA negatively correlated with body image – (Keshwani et al 2018)
DRA negatively correlated to QOL – (Benjamin et al 2018)

"a condition with protrusion of the abdomen due to laxity of the myoaponeurotic system" (Akram and Matzen, 2013)



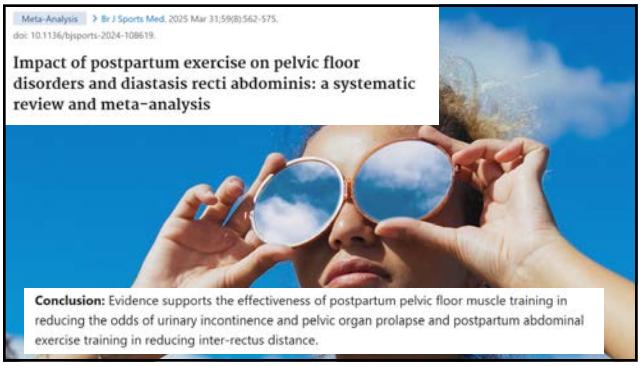
Systematic review found that self-reported symptoms of DRA include higher degrees of abdominal pain, which is frequently perceived as discomfort or bloating (Fuentes Aparicio *et al.* 2021)

Beliefs about DRA – you need to avoid crunches or outer abdominal wall muscle training



Meta-Analysis > Br J Sports Med. 2025 Mar 31;59(8):562-575.
doi: 10.1136/bjsports-2024-108619.

Impact of postpartum exercise on pelvic floor disorders and diastasis recti abdominis: a systematic review and meta-analysis



Conclusion: Evidence supports the effectiveness of postpartum pelvic floor muscle training in reducing the odds of urinary incontinence and pelvic organ prolapse and postpartum abdominal exercise training in reducing inter-rectus distance.

Effect of exercise on the inter-rectus distance in pregnant women with diastasis recti abdominis: an experimental longitudinal study

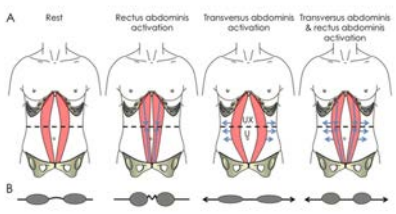
(Theodorsen et al 2024)

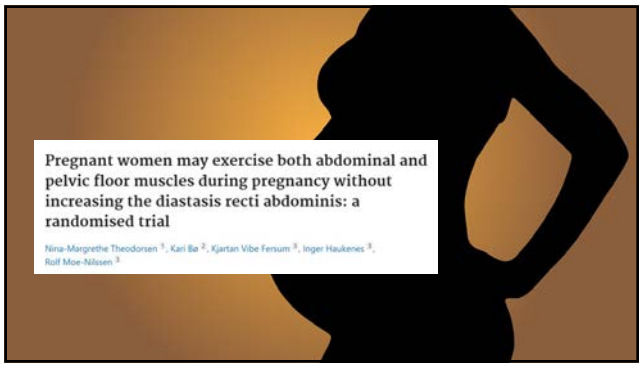


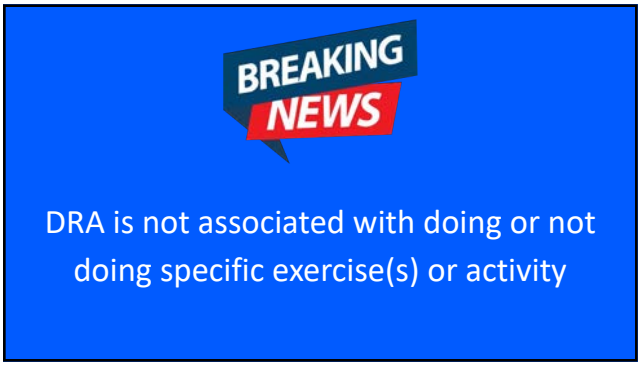
Conclusion: Pelvic floor and drawing-in exercise increased the IRD, whilst headlift, curl up and diagonal curl up decreased the IRD in pregnant women with DRA at gestation week 27 and 37.

Lee and Hodges 2016:

Behaviour during curl-up







Diastasis Recti Abdominis Rehabilitation in the Postpartum Period: A Scoping Review of Current Clinical Practice.

DISRUPT PELVICON 2026

Reviewed studies provide **valuable insights into exercise therapy**, but it is **important to recognize their limitations**, as variability in diagnostic criteria, sample characteristics, and exercise program design **hinder the generalizability of the findings**. **Further** high-quality **research** is **needed** to strengthen the evidence in this area and provide reliable recommendations for clinical practice.

↓

Inconclusive

(Int Urogynecol J, **Skoura et al 2024**)

An evidence-based comparison of rehabilitation strategies for diastasis recti abdominis in postpartum women: a systematic review and network meta-analysis

Nahid Bigdeli [1,✉], Ali Yalfani [1,✉], Amin Doosti-Irani [2], Ali Qodrati [3]

Comprehensive exercise programs that engage **both superficial and deep abdominal muscles**, especially when combined with **neuromuscular electrical stimulation** and **breathing techniques**, appear **more effective than passive or isolated approaches** in reducing inter-recti distance in postpartum women.

Bigdeli et al 2025

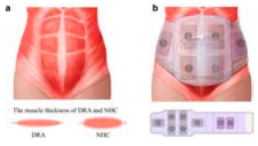
Control group n=41



Intervention group n=42



+



Intervention group had higher treatment response proportions ($p = 0.0031$ and $p = 0.0010$, W2 and W3, respectively), higher Janda assessment scores and greater reduction in low-back pain (both $p < 0.0001$). QoL evaluation indicated greater improvements in the SF-36 questionnaire (pain and role-emotional scales, $p < 0.05$) and HerQLes ($p < 0.0001$) in the treatment group.

Application of a trunk-wearable NMES on DRA patients, accompanied by exercise therapy, significantly reduced IRD and increased treatment response proportion. Moreover, we observed positive improvements in trunk muscle strength, low-back pain, and QoL.

Zheng et al 2025, prospective RCT





Journal of Pelvic, Obstetric and Gynaecological Physiotherapy, Spring 2024, **134**, 13–3

LITERATURE REVIEW

Does research support the current conservative care recommendations for pregnancy-related diastasis rectus abdominis? A scoping review

S. Dufour
Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada
C. Petrusevski
Faculty of Health Sciences, McMaster University, Hamilton, and Faculty of Applied Health and Community Studies, Sheridan College, Brampton, Ontario, Canada

Open Access – contemporary overview of the current state of science regarding DRA – many of the expert statements are not substantiated by evidence

- the present scoping review yielded no studies demonstrating an association between DRA and breathing or diaphragm mechanics
- lack of literature exploring a connection between breath and DRA does not necessarily mean that none exists.
- a systematic review of six studies found that breathing interventions modified PFM function (Mateus- Vasconcelos et al. 2018), highlighting a potential relationship. Could this stand true for breathing and the abdominal wall too??
- of course more research is warranted

Effect of hypopressive and conventional abdominal exercises on postpartum diastasis recti: A randomized controlled trial

Mercedes Soto-González, Iria Da Cuña-Carrera, Eva María Lantarón-Caeiro, Augusto Gil Pascoal

Published: December 12, 2024 • https://doi-org.ezproxy.cardiffmet.ac.uk/10.1371/journal.pone.0314274

N=28 women assigned to either hypopressive group or conventional exercise group.

US measures taken at 2cm and 5cm above umbilicus before and after 6-week intervention.

Reduction in IRD achieved in both groups. Conventional exercises result in a reduction during the rest condition, whereas with hypopressive exercises, the reduction occurs during the muscle contraction

Effect of hypopressive and conventional abdominal exercises on postpartum diastasis recti: A randomized controlled trial

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• Braz J Phys Ther. 2026 Mar 1;30(3):101584. doi: 10.1016/j.bjpt.2026.101584

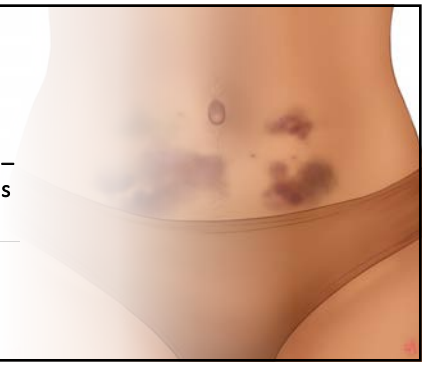
Hypopressive exercises for diastasis recti and pelvic floor symptoms in postpartum women: A randomized trial

Sara Emmanuela Moreira [a], Anyélica Lemos Debo [b], Elder Henrique de Oliveira [c], Milena Clícia Naves da Silva [d], Rogério de Melo Costa Pinto [e], Vanessa Santos Pereira-Baldon [f,*]

Highlights

- Hypopressive exercise did not reduce diastasis recti abdominis.
- Hypopressive exercise was able to improve muscle function in women with diastasis.
- Women had fewer pelvic floor dysfunction symptoms after hypopressive exercises.

Beliefs about DRA – C-section increases the risk



Risk factors and interaction analysis of severe diastasis recti abdominis within 6 months postpartum

SHAN Hongjie [1,2], XIAO Min [2], CHEN Chao [3], GAO Hong [4,5]

Retrospective cohort study on n=525 postpartum women.
IRD measured with Ultrasound
Stratified into groups: **1. *Severe*** (≥4cm), **2. Moderate** (3.0-3.9cm), **3. Mild** (2.0-2.9cm) and **4. Normal** (<2cm)
Normal, Mild and Moderate **grouped** and analysed against Severe group

Conclusion

Neonatal birth weight ≥3 350 g, gestational weight gain ≥12.25 kg, cesarean delivery, and multiparity are important independent risk factors for severe postpartum DRA, and significant synergistic amplification effects exist among these factors. This study clarified the characteristics of high-risk populations and may provide a basis for targeted early screening and intervention.

Impact of delivery mode on diastasis recti abdominis, pelvic floor muscle function, and quality of life in early postpartum women: a cross-sectional study

Yilin Liu [1], Wenqin Huang [1], Zhiliang Zhang [1], Luyao Wang [1], Xinyi Wu [1], Lu Chen [1], Yan Xia [1,*]

Delivery mode is associated with distinct postpartum recovery trajectories. **Caesarean section is associated with more severe DRA** and poorer early postpartum quality of life, whereas vaginal delivery is specifically associated with weaker fast-twitch pelvic floor muscles. **Sleep quality** is a primary determinant of maternal wellbeing, highlighting the need for delivery-mode-tailored, multidisciplinary postpartum rehabilitation with sleep support as an integral component of care.

Consensus statement

2025 Canadian guideline for physical activity, sedentary behaviour and sleep throughout the first year post partum

Beyond the Musculoskeletal System: Considering Whole-Systems Readiness for Running Postpartum

We know that biopsychosocial considerations are important



When it comes to risk profiling…

A recent prospective cohort study investigating associations with the IRD at gestation week 37 concluded that only IRD before gestation week 20 was significantly associated with IRD at gestation 37.

Early pregnancy abdominal wall characteristics may help risk profile

Theodorsen et al 2025

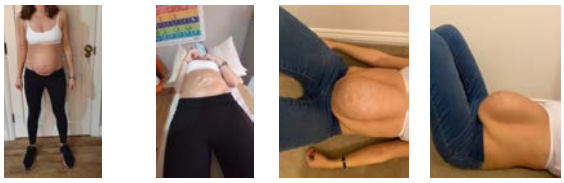
Beliefs about DRA:

DOMING





Claire Black - @clairemmac (Instagram)



Is doming a clinical concern?

Yes

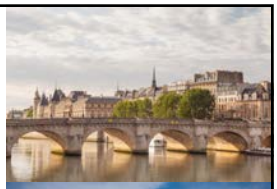
Is doming a clinical concern?

No



@clairemmac

@antonylo





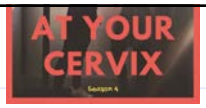
Video explaining this concept pinned to my IG page @grainnedonnelly_absolutephysio

@clairemmac





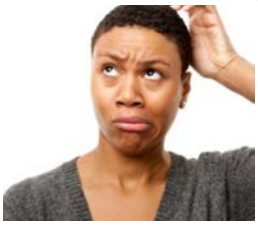
Doming does not need to be completely avoided – evaluate the load capacity of the tissues







How do we assess and diagnose DRA?



Journal of Pelvic, Obstetric and Gynaecological Physiotherapy, Spring 2024, **134**, 13–3

LITERATURE REVIEW

Does research support the current conservative care recommendations for pregnancy-related diastasis rectus abdominis? A scoping review

S. Dufour
Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada

C. Petrusevski
Faculty of Health Sciences, McMaster University, Hamilton, and Faculty of Applied Health and Community Studies, Sheridan College, Brampton, Ontario, Canada

Open Access – contemporary overview of the current state of science regarding DRA – many of the expert statements are not substantiated by evidence

NEW RESEARCH



LITERATURE REVIEW

Diastasis Rectus Abdominis: Time to Reconsider Our Approach. A Scoping Review

Journal of Women's & Pelvic Health Physical Therapy Publish Ahead of Print, July 28, 2026. | DOI: 10.1097/JWH.0000000000000383

Contemporary evidence-based insights on assessment, diagnosis, clinical significance, prevention, and conservative management of DRA while highlighting biopsychosocial considerations and the influence of health messaging on women's experiences.

Theodorsen et al 2026

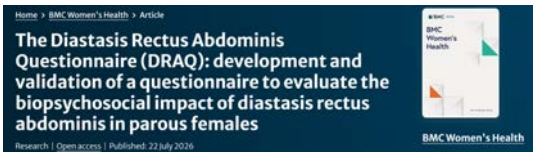
- Evidence suggests IRD widening in pregnancy = normal physiological adaptation, with substantial spontaneous recovery occurring postpartum
- No consensus re diagnostic cutoff values, measurement method or anatomical locations for defining DRA
- Limited consensus regarding optimal exercise type, dosage, or progression
- Evidence supporting exercise-based interventions to reduce IRD is inconsistent; structured abdominal and pelvic floor exercise appears safe and may improve function and patient-reported outcomes
- Emerging research highlights importance of biopsychosocial factors, including body image, fear of movement, and the influence of social media and clinical messaging.

A shift toward describing IRD changes as physiological adaptations, rather than pathological diagnoses, is therefore warranted during pregnancy and early postpartum period, with greater emphasis placed on function, symptoms, and reassurance rather than structural measurements alone

Exciting news....



Development of the first DRA PROM



Rejano-Campo et al., 2026

The Diastasis Rectus Abdominis Questionnaire

Questionnaire for the evaluation of symptoms and consequences of diastasis rectus abdominis

Diastasis rectus abdominis is an excessive separation of the muscles of the anterior abdominal wall that can result in physical, social, and psychological consequences. Please indicate to what extent diastasis symptoms affect you currently. Select the appropriate answer for each of the following statements:

	In relation to your diastasis, how much to you agree with the following statements?	Not at all	A little	Moderately	A lot	To a great extent
1	My quality of life is negatively affected					
2	My overall health is negatively affected					
3	My abdomen feels uncomfortable					
4	I experience abdominal bloating					
5	My abdomen feels saggy					
6	I am constipated					
7	I have trapped wind					
8	My abdomen feels heavy					
9	I have pain in my abdomen					
10	My abdominal muscles feel weak					
11	I have difficulty carrying out daily activities (such as walking, lifting light objects or standing)					
12	I have difficulty completing tasks involving strenuous effort, e.g. Lifting heavy objects					
13	I have difficulty participating in sporting activities					
14	I have difficulty with my job or carrying out my work tasks					
15	I have a negative body image					
16	I don't like the appearance of my abdomen					
17	I feel repulsed by my abdomen					
18	I feel ashamed by the appearance of my abdomen					
19	I avoid situations where I have to expose my body (pool, beach, public changing rooms)					
20	I have changed the way I dress					
21	My social life is negatively affected					
22	My sex life is negatively affected					
23	I feel ashamed by the appearance of my abdomen					
24	I feel frustrated by the appearance of my abdomen					
25	I think that people do not understand my problem					
26	I think about my abdominal problem daily					
27	I think my abdominal problem is permanent					

Clinical score of 108

The Diastasis Rectus Abdominis Questionnaire

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27	I think my abdominal problem is permanent					

The Diastasis Rectus Abdominis Questionnaire (DRAQ)

Scan me!

Okay so now that we are up to speed…



My problem with social media...

increased media focus has helped to highlight an important women's health issue, but there is a potential risk of making something essentially normal into a health problem

(Gustavsson and Eriksson-Crommert 2020)

Aim of study

-evaluate the content and quality of health information related to DRA, exercise, and sports on IG posts through an observational study design

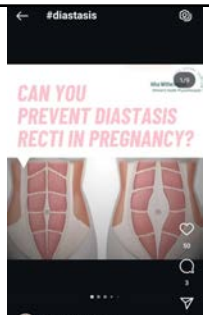
-explore how women with DRA perceive IG content and understand its impact on their exercise and sports participation using a qualitative study design

#diastasisrecti: a mixed-methods analysis of Instagram posts and their influence on women's exercise and sports participation

Giagio et al 2025, BMC Womens Health



Part 1





Part 1





Part 1

- Data from included posts extracted: characteristics, publication format (picture/text/video), exercise and sport suggestions in relation to DRA
- Content assessment of extracted data against evidence-based framework
- Content categorized as "evidence-based" or "non-evidence-based"
- Quality of post content assessed using Quality Evaluation Scoring Tool (QUEST) criteria
- Frequencies, percentages and descriptive statistics (median, interquartile range) were calculated using Statistical Package for the Social Sciences Inc.

Part 2

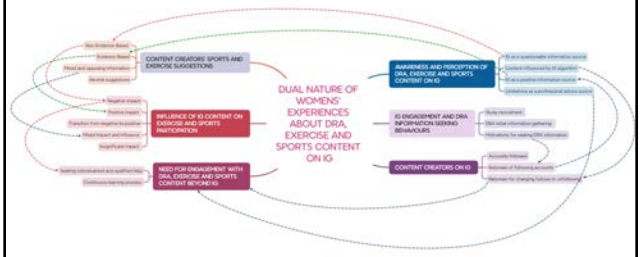
July 2023 – worldwide social media recruitment for English speaking women with DRA → Eligibility criteria and the DRAQ to characterize participants and their individual experience → 1:1 semi-structured and open-ended question interviews via Microsoft Teams

Questions explored individual recall and experience of posts about DRA on Instagram, what advice they offered, how they impacted their understanding, beliefs, and exercise behaviour in relation to DRA.

*[…] diastasis….***there was just no information out there on even how to, you know, what it was, how to heal your body and be able to still** *[…]* **progress in the life that they were used to being able to work out…**

…the only way they affect them is by just ***encouragement****. […] I think it's* ***good to see women that have****…you know,* ***show pictures of a core that looks like yours*** *[…] and you're like, OK, if they can do this, I can do this. […] And because they actually are like, no,* ***here's what I did. Here's what you can do****. Not just, oh, look at this magical transformation. And you're like, OK, cool, how did you get there? So, for me, I think* ***it has been encouraging****, you know, on days where I just, I'm like, man, am I ever going to be able to do this again? So, for me,* ***it's a positive****.*

Instagram posts	DRA participants interviewed
N=1000 screened, 28 made inclusion	N=20
6 = verified accounts, 7 profiles large following (>50K)	Average duration = 18 minutes
Most = wellness professionals/groups	9 nationalities
61% NOT supported by evidence (Median QUEST score = 10/28)	**Varying exposure to information on DRA**
Only 2 accounts included research/expert source	Varying impact of information on perception and behaviour of DRA



Thoughts and considerations about the impact of Instagram posts on perception and exercise behaviour in women with DRA

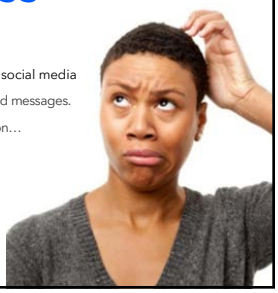
- Women are **seeking health information** on social media
- Limited options to access evidence-informed information on DRA elsewhere – they didn't know where else to look
- **Algorithm** determines what a user accesses…
- **No quality control** measures exist to govern health-related information on social platforms

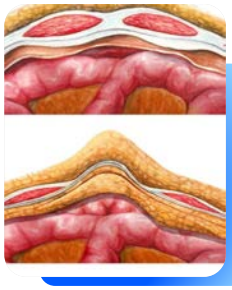
What does this suggest for social media?

- Women are **seeking health information** on social media
- The algorithm doesn't care for evidenced-based messages.
- Individuals are at the mercy of what they land on…
- **No information governance exists**

WHAT CAN WE DO????????

Collaboratively flood socials with consistent evidence-based content





Application to practice

- Exercises don't cause DRA or harm recovery – we need to **change the narrative** in clinical practice
- S+C **all of the abdominal wall**
- **Risk stratification** - ? High birth weight, CS, high maternal BMI, parity or early pregnancy IRD widening.
- **IRD should not be the focus** defining when or if we pathologize DRA or how we interpret its impact/severity
- Evaluation and management needs to expand to an individual **biopsychosocial approach (think DRAQ)**
- **Language and messaging matter**, especially on social media

3 Takeaways

DRA is a normal pregnancy related adaptation

- ✓ IRD naturally widens towards the end of pregnancy to facilitate and enable it

Pathological DRA criteria needs to change

- ✓ DRA evaluation should consider biopsychosocial impact over reductionist IRD measures alone

Language matters..

- ✓ Health language matters...what are saying?



Follow my work

DISRUPT PELVICON 2026

- @grainnedonnelly_absolutephysio
- www.absolute.physio
- @sportsmedicinepelvicfloor
- www.sportsmedicineandthepelvicfloor.com

KATHERINE SYLVESTER

PELVICON SPEAKER

@OPERATIONMIST



- Maternal health advocate focused on reducing maternal mortality & morbidity
- Physical therapist & founder of Operation M.I.S.T.
- Pioneer in using wearable technology & health data to empower pregnant and postpartum patients

DISRUPTING IDEAS

MATERNAL MORTALITY WILL DIE WITH THE USE OF DATA

1

Vital sign monitoring can be used to optimize health before pregnancy, catch minor issues before they turn into major complications, and help recovery after birth.

2

Utilizing individualized data to drive health decisions has proven to and will continue to drive down health disparities.

3

Women's bodies are as unique as their fingerprints and should be treated as such! We are in the perfect position to teach patients to advocate for themselves!

DISRUPT
PELVICON 2026

Maternal Mortality Will Die With the use of Data

Katherine Sylvester
PT, DPT



Dr. Kat,
The Mommy Monitor

About Me

- I am a homebirth mom, physical therapist, wife, VBAC doula, and assistant professor for women's health
- I authored Pregnancy Principles where I teach moms to have healthy pregnancies and avoid complications
- I consult and partner with with individuals, non profit organizations, hospitals and corporations to drive down maternal mortality and morbidity
- I thrived during pregnancy and afterwards because of a blood pressure cuff and smartwatch, and have been helping others do the same ever since.

Numbers we can help optimize

- Resting heart rate
- Heart rate recovery
- Blood pressure
- Stress
- Sleep quality
- Hemoglobin A1C
- Cholesterol



What and why we track

- Heart rate
- Blood Pressure
- Oxygen
- Sleep
- Temperature
- Stress



- Efficiency
- Effort
- Effectiveness
- Energy
- Environment
- Endurance

Image credit: Pixabay

Diagnoses/situations that warrant closer surveillance

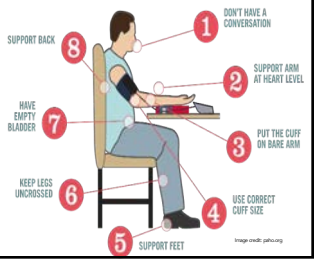
- Blood loss with no transfusions
- Cesarean delivery
- Blood pressure spike
- Preeclampsia
- Gestational diabetes
- Postpartum thyroiditis
- HELLP Syndrome
- NICU stays
- Carrying multiples
- Long and induced labors
- Bedrest
- Fluid administration
- Carpal tunnel syndrome
- Multiple epidural attempts
- Assistance needed with mobility while in the hospital
- High perineal lacerations
- Single mom

84% of pregnancy-related deaths are preventable and could be avoided if early warning signs weren't missed.

Centers for Disease Control

Preeclampsia

- Rise in BP
- Foamy urine
- Severe headache
- Changes in vision
- Upper abdominal pain under ribs on R side
- Nausea or vomiting
- Decreased urine output
- Shortness of breath
- Sudden weight gain in the hands and face



Hemorrhage

- Change in vitals >15%
- BP <85/45
- Resting heart rate > 110 bpm
- Oxygen < 95%
- Dizziness
- Bright red bleeding
- Shortness of breath
- Soaking more than 1 pad per hour
- Drop in HGB > 2 g/dL

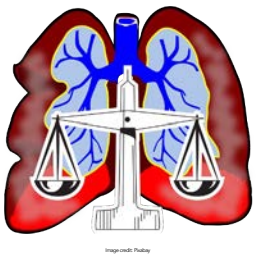


Hemorrhage

Metrics	Pre-pregnancy	1 week before birth	3 days after birth (in hospital)
Steps	4785	5231	1430
Resting heart rate	71	85	80
Max heart rate	120	126	140
Stress	27	41	59
Body battery high	69	14	40.5
Total sleep hours	7.53	6.9	3.95
Total quality hours	3.01	1.84	0.87
Blood pressure	120/80	110/70	80/50

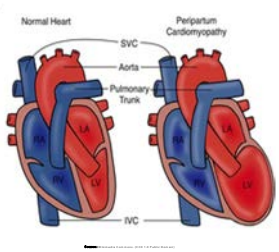
Embolism

- Resting heart rate > 100 bpm
- Respiratory rate > 20 bpm
- Oxygen < 92%
- Low blood pressure
- Low grade fever
- Sudden shortness of breath
- Chest pain that worsens with breathing
- Feelings of anxiety
- Dizziness, lightheadedness, fainting
- Irregular heart beat
- Palpitations
- Coughing up blood
- Sweating



Heart failure

- Shortness of breath
- Extreme tiredness
- Chest pain
- Low BP: <90/60 mmHg
- Troponin =/>0.1 ng/L
- Brain natriuretic peptide >100 pg/mL
- N-terminal pro BNP > 125 pg/mL
- Ejection fraction < 45%
- Low grade fever
- Sudden shortness of breath
- Can occur up to 5 months post delivery
  - diagnosis is delayed by more than 1 week in 48% of cases, and by several weeks to months in 30% of cases.



Heart failure

Metrics	Pre-pregnancy	1 week before birth	5 days after birth (at home)
Steps	5400	2550	2101
Resting heart rate	63	69	76
Max heart rate	140	126	146
Stress	26	28	62
Body battery high	86	88	18
Hemoglobin	13	12	8
Total sleep hours	9.08	4.9	2.98
Total quality hours	2.61	1.56	0.94

Infection

- Temperature 100.4
- Systolic BP < 90 mmHg
- Respiratory rate > 25 bpm
- Chills and shivering
- Severe muscle, abdominal, or chest pain
- Dizziness
- Increased bleeding
- Confusion or slurred speech
- Cold and clammy skin
- Difficulty breathing
- Pale skin on light complexions
- Light skin on darker complexions
- Not alert



Image credit: Pixabay

Teammates to consider

- Doulas
- Occupational therapists
- Cardiologists
- Kidney doctors
- Chiropractors
- ER MDs
- Lactation consultants
- Pediatricians
- Hematologists
- Endocrinologists
- Pulmonologists
- Social workers
- Community-based orgs
- Primary care doctors
- Mental health therapists
- Neurologists

3 Takeaways

Takeaway 1

- Vital sign monitoring can be used to optimize health before pregnancy, catch minor issues before they turn into major complications between office visits, and help moms recover well following delivery.

Takeaway 2

- Standards and protocols are not helping avert the crisis. They are contributing to it. Utilizing individualized data to drive health decisions have been proven to and will continue to drive down disparities.

Takeaway 3

- Women's bodies are as unique as their fingerprints and should be treated as such. We are in the perfect position to teach them how to make lifestyle decisions and advocate for themselves to ensure that they are.

SINÉAD DUFOUR

2-TIME PELVICON SPEAKER

@DR.SINEAD

- Educator, clinician and researcher who co-authored seminal study showing 95% of women with lower back pain have associated PFD
- Director of Pelvic Health at the WOMB
- Faculty at McMaster University and expert in the FIFA Women's Project



DISRUPTING IDEAS

SPIRIT IN SESSION: TOWARDS WHOLE PERSON PELVIC HEALTHCARE

1

Research is clear that attending to spiritual health is important. Anything less is not whole-person care.

2

First need to understand your own worldview. The more alignment between how you practice and your worldview, the better.

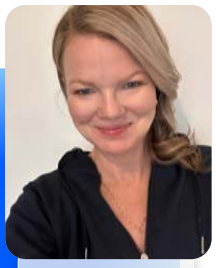
3

Potential of pain care, perinatal care and hands on care are not fully realized without spiritual domain.

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Spirit in session: Towards whole person pelvic health care

Sinéad Dufour PT PhD
Panelists: Shelly Prosko, Yeni Abraham & Lynn Schulte



Sinéad Dufour PT PhD

About Me

- Mother
- Clinician
- Educator
- Researcher
- Consultant
- Advocate
- Lifelong learner

Objectives

- Spiritually-informed care – the what
  - Let's get philosophical!
- Spiritually-informed care – the why and why not
- Spiritual-informed pelvic health care
  - Pain care = spiritual care
  - Reproductive matters = soul matters
  - Whole personal manual therapy = embodying the existential
- Practice integration considerations
- Panel Q & A

My spiritually-informed journey...





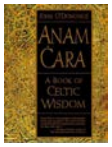


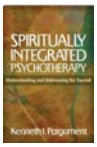


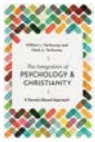





Perspectives Drawn From










Spiritually-informed care: What

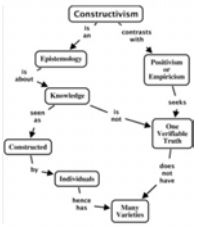
- A **whole person approach** that acknowledges spiritual or existential beliefs (**meaning, purpose, and values**) as **central** to one's health state including their health or rehabilitation journey.
  - Integrates the **worldviews** of both the **care provider** and **care receiver**.
- More about **how care is enacted** vs. what aspects of care are provided
- More about **philosophy** (existence, values)
- Less about **theology** (religious beliefs)
  - but for many also encompasses theology



Let's Get Philosophical

- Worldview
- Ontology
- Epistemology
- Need to understand your own worldview
- Need to discern the worldview of your client





Spiritually informed care: Why

- Call to action for **whole person care**
- Many people see the world through a sacred lens
- Spirituality is a health promotion resource for many
- Religious coping tied to less distress, depression and hospitalizations
- Empirical studies unable to "explain away" the effects of spirituality
- People generally prefer spiritually integrated care approaches
- Regulatory bodies recognize that not attending to the spiritual domain, compromises ethical practice.



Spiritually informed care: Why

Religious Landscape Survey - 2008 (USA)

- 68% believe in angels and demons
- 58% pray daily
- 40% report attending religious service in the last week
- 30% of people indicate that religion is their most important health resource
- Religious coping tied to less distress, depression and hospitalizations



"A clinician doesn't have to be an expert on all world religions, but they do need to understand how religion and spirituality function in a person's life"
Mark Yarhouse, PhD

Spiritually-informed care: Why not?

- "Whole person care" in rehabilitation exists through the **Biopsychosocial Model**
  - BPS model **has NOT realized the intent of whole person care**
- Roots of Western biomedicine very strong
  - illness resides within the body
  - body and disease are mind-independent realities that manifest in visible or otherwise tangible signs and symptoms
  - these become the biases of cause (etiology), and these need to be fixed.
  - shapes the clinicians' relationship with the client, justifying the position as an expert.
- Ongoing alliance with this health perspective = critiqued from within our profession

Spiritually informed care: Why Not?

- **Current BPS model enactment is insufficient**
  - Tends to biomedically anchor the psychology domain
  - Does not adequately hold space for the social domain
  - Does not integrate spiritual domain
- Bio-psychosocial-spiritual model

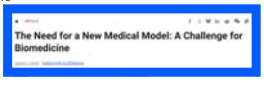






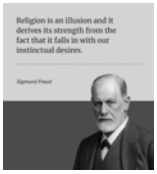
Spiritually-informed care: Why not?

- **History Lesson**
- George Engel - 1977 - challenged biomedicine
  - proposed a new model - BPS models
  - spirituality situated within the social domain
    - social determinant of health
    - cultural sensitivity includes one's spiritual orientation
    - To be enacted, requires acceptance of interpretivist or humanistic worldview
      - the person, rather than the body, the primary source of meaning-making and adapt their approach to practice, sensing and thinking accordingly.
  - criticized for being vague, and even incoherent--clinically and **philosophically**.



Spiritually-informed care: Why not?

- **History Lesson**
  - Psychology and Spiritually have not been friends
    - No bond of mutual affection
  - Psychology leaders (Freud and Skinner) pushed the field of psychology to function as a science.
    - Spread rumors about Spiritually
- A very intentional effort has been made more recently within psychology to integrate spirituality
- With this history - absence of spirituality informed care is not surprising
  - Yet, highly problematic, particularly with the matters of pelvic health,



"We're more than biological, social, and psychological beings, we are spiritual. The current application of the biopsychosocial model fails to capture what it means to be be human. This is a huge limitation for physiotherapy, but particularly for pain care and perinatal care."

Sinéad Dufour PT PhD

Spiritual Care - Key Constructs

- Meaning and purpose
- Coping and resilience
- Acceptance
- Compassion
- Beliefs
- Culture
- Social environment



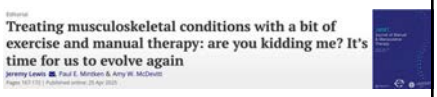




- **Requires a partnership (walking along side) vs. expert position**

Pain care requires spiritual care

- Data is conclusive that a strong therapeutic alliance is critical
- Pelvic pain encompasses the essence of so much
  - Fear
  - Grief
  - Worry
  - Fragile
  - Personal


Treating musculoskeletal conditions with a bit of exercise and manual therapy: are you kidding me? It's time for us to evolve again

- Pelvic pain care requires whole person care – anything less is substandard
  - **We care for people we don't "treat" or "fix" pain**

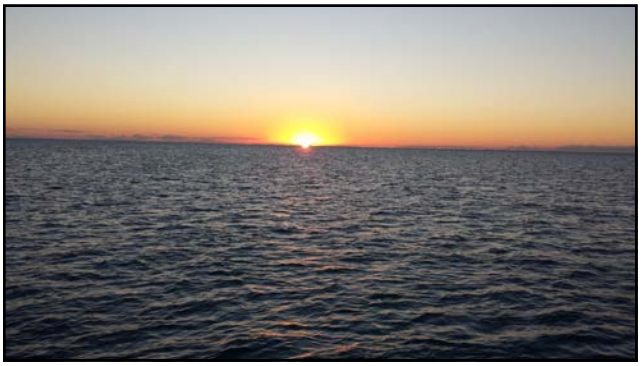



The Pelvic Pain Psychological Screening Questionnaire (3PSQ)

Everyone experiences painful situations at some point in their lives. We are interested in the thoughts and feelings that you have when you experience pelvic pain and how you cope with it.

PART A: In the past month:

		Never	Rarely	Sometimes	Often	Always
S	I felt overly stressed	0	1	2	3	4
A	I felt nervous, anxious or on edge	0	1	2	3	4
HA	I worried a lot about my health	0	1	2	3	4
D	I felt down, depressed or hopeless	0	1	2	3	4
D	I took little interest or pleasure in doing things	0	1	2	3	4
M	I worried whether something serious was wrong	0	1	2	3	4
A	I couldn't seem to keep the pain out of my mind	0	1	2	3	4
HV	I paid close attention to my pain	0	1	2	3	4
M	I could not confidently live a normal lifestyle due to my pain	0	1	2	3	4
H	I felt helpless in being able to reduce or cope with the pain	0	1	2	3	4
F	I was afraid of the pain	0	1	2	3	4
Av	I tried to avoid anything that caused or worsened my pain	0	1	2	3	4



Pain Care – Shelly Prosko

- Compassionate Care Essential
  Safety & Therapeutic Alliance
- Compassion Can Be Trained
  Halifax Model of Enactive Compassion
  - Intention
  - Attention
  - Embodiment
  - Affective
  - Insight
  - Engaged



Halifax J. (2013). Understanding and cultivating compassion in clinical settings. In: Singer T, Bolz M. (Eds). *Compassion – Bridging Practice and Science*. Munich, Germany: Max Planck Society: 208-226; 467-478.

- Compassionate Care ***is*** Spiritually-Informed Care

Arman M, Hök J. (2016). Self-care follows from compassionate care - chronic pain patients' experience of integrative rehabilitation. *Scand J Caring Sci* 30: 374-381.

Reproductive matters = soul matters

Fertility
- Coping with the grief of unfulfilled longing, questioning life purpose.
- Grappling with personal ethics related to assisted reproductive assistance

Pregnancy and Childbirth
- Acknowledging the profound spiritual and transformative nature of the start of life, beyond purely clinical or biomedical frameworks.

Loss and Decision Making
- Providing judgment-free emotional and support during complex reproductive crisis, including miscarriage, still born, multifetal reduction or abortion.

- **Power of a birth debrief – what is really going on in this care interaction?**

Reproductive matters = soul matters
Yeni Abraham

Reproductive Issues = Identity, Cultural, Community & Soul Matters

Identity – Who is she, if not a mother? Infertility unsettles the self she'd assumed.

Cultural – What her world quietly says a woman is for.

Community – Belonging and its loss: "so when are you two starting a family?"

Soul – Meaning, legacy, lament, hope – the existential floor.

Manual therapy – connecting beyond the tissues

Mechanism of action of manual therapy = poorly understood.
- current state of the science **points towards central mediated** mechanisms vs. peripherally mediated mechanisms.
  - Neuroimmune & endocrine mechanisms particularly compelling
    - reduce pro-inflammatory cytokines
    - increasing anti-inflammatory markers
    - influencing glial cell activity through mechanical and neural signaling
    - oxytocin production
- Opportunity to bring in the sacred?

Spirituality in Manual Therapy
Lynn Schulte

INTUTION:
- The ability to understand or know something instinctually
- Without conscious reasoning or analytical thinking
- Draws upon your past experiences, knowledge, and subconscious information
- Sudden insight, gut feeling, or a hunch, hit, lightbulb moment
- My Definition: Spirit guiding me!

McCrea SM. Intuition, insight, and the right hemisphere: Emergence of higher sociocognitive functions. Psychol Res Behav Manag. 2010;3:1-39. doi: 10.2147/prbm.s7935. Epub 2010 Mar 3. PMID: 22110327; PMCID: PMC3218761.

4 Ways to Access Intuition:
1. **Auditorily – Hear words in you mind**
2. **Visually – See pictures in your mind's eye**
3. **Kinesthetically – gut feeling, sensation in your body**
4. **Knowingness – Strongest of them all, you just KNOW what needs to happen**

REMEMBER….

Upwards of 80% of the physiotherapy outcome is driven by "non-specific contextual factors", rather than technical nuances of the treatment performed.

JOSPT, 2024

Which Portion of Physiotherapy Treatments' Effect Is Not Attributable to the Specific Effects in People With Musculoskeletal Pain? A Meta-Analysis of Randomized Placebo-Controlled Trials

What does it look like in practice?



A word about practice safety

- Integrating spirituality into a clinical encounter involves attention to boundary management, client autonomy, and cultural competence.
  - Requires aware of transference and counter-transference
  - Ensures avoiding imparting your own spiritual views
    - different from ensuring transparency with respect to your worldview

3 Takeaways

Takeaway 1

- Research is clear that **attending to spiritual health is important**
- Anything less is not whole person care.

Takeaway 2

- First need to understand **your own worldview**
- The more alignment between **how you practice** and your world view, the better.

Takeaway 3

- **Potential** of pain care, perinatal care and hands on care are **not fully realized** without spiritual domain.
- **Whole person care = win**

MICHELLE LYONS

5-TIME PELVICON SPEAKER

@CELEBRATEMULIEBRITY

- Global educator and activist for women's health
- Founder of Celebrate Muliebrity and the Celebrate Muliebrity Podcast
- Presented at CSM, ICS, IPPS, the British Pelvic Floor Society and more, and an expert in the FIFA Women's Health Project



DISRUPTING IDEAS

RETHINKING WOMEN'S BACK PAIN: WHY PELVIC HEALTH MATTERS

1

The Pelvic, GI and NS team is always involved with EVERYTHING! Don't forget to ask and remind and demo for your ortho/sports colleagues!

2

Be a good detective - track everything - MC, sleep, PeriMeno, Scars, Constipation, Stress, OB hx, Surgical hx, (and don't forget hip health!)

3

Think local, regional, GLOBAL - because it's not pelvic rehab vs. lifestyle! You can be a gamechanger in your patient's life!

DISRUPT
PELVICON 2026

Re-thinking Women's Back Pain: Why Pelvic Health Matters

Michelle Lyons



MICHELLE LYONS

About Me:

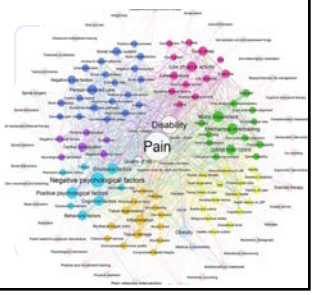
- Founder of CelebrateMuliebrity.com, Online Courses for Women's Health
- Creator of Global Pelvic Physio
- Passionate about knowledge translation - Creator/host of the CelebrateMuliebrity podcast
- Educator, Student, Reader, Writer, Gardener, Cook
- Powered by Oestrogen, Coffee and Bookshopping

Information & Disclosures

- EVERYONE DESERVES GREAT PELVIC HEALTH….AND MY PASSION IS MULTIMODAL WOMEN'S HEALTH
- My collaborations/affiliations include FIFA, ESGO, Sport Ireland, Pelvic Health Solutions, Embodia, Medbridge, Pelvic Floor University, Bayer Pharmaceutical and Thrive Speakers Network
- As well as my Physiotherapy degree (UCD) I have postgrauate qualifications in Health Coaching & Nutrition (University of Galway), Lic Acupuncture & TCM (British School of Acupuncture), Herbal Medicine (University of Arizona) Innovation & Enterprise (Trinity Dublin) Mindfulness, Yoga & Pilates Teacher Trainings (multiple) Stress Management & Resilience (Harvard Medical School) and vegetarian cooking (Le Cordon Bleu Paris)

Cholewicki et al 2026

- 'Low back pain (LBP) is a complex, multifactorial condition with numerous contributors across biopsychosocial domains'



Walter 2026

Low back pain occurs in the area between the lower ribs and the buttocks and ***is the leading cause of years lived with disability worldwide.***

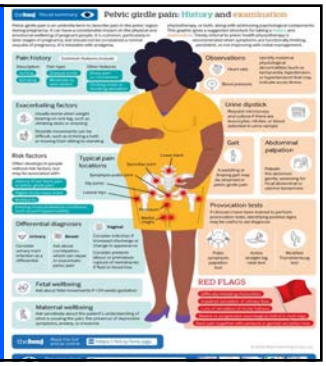
Low back pain affects approximately 619 million people globally, and approximately 40% of adults in the US have low back pain at some point in their lives… Low back pain increases with age.

Low back pain is more common among females than males



But Why Women?

Anatomy
Hormones
Breasts
Endometriosis
Pregnancy/ Postpartum
Musculoskeletal Syndrome of Menopause
Carrying Invisible Loads



Core Concepts of Systems Thinking

Understanding how a business operates requires looking at four basic elements:

1.Inputs: The resources, information, and capital fed into the system.
2.Processes: The workflows and operations that transform those inputs into value.
3.Outputs: The final products, services, or results delivered to the market.
4.Feedback: The data, customer reviews, or metrics that feed back into the system to adjust and improve future inputs and processes.

Why It Matters

•**Breaks down silos:** Helps departments (like sales, marketing, and product) see how their actions cause ripple effects across the entire company.
•**Solves root causes:** Prevents the cycle of treating symptoms and repeatedly applying temporary fixes.
•**Improves decision-making:** Aligns strategies with a broader vision so that technology investments and operations work in unison

Systems Thinker

- A systems thinker is someone who is able to look at a complex system and **consider its interconnectedness and interdependencies, not just its isolated components.**
- Effective systems thinkers usually have **an open mind and think holistically, rather than rely on a predictable formula or a linear approach.**



CALL TO ACTION



- Those who operate from a systems thinker's perspective:
- Are curious
- Find root causes
- Have an open mind
- Are good listeners

Icebergs, Back Pain & Pelvic Health



The Iceberg Model

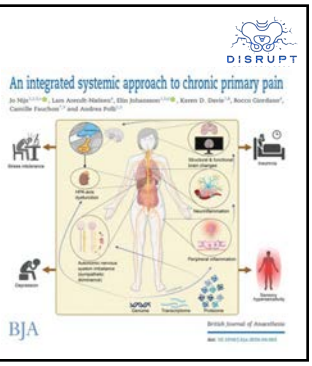
- In business, problems often seem to appear out of nowhere. Systems thinkers use the **Iceberg Model** to look beneath the surface, categorizing problems into three levels:

- **Events (What happened):**
- **Patterns (What has been happening):**
- **Systemic (why is it happening?)**



Nijs et al 2026

Systems Thinking for Female Back Pain



What's YOUR Clinical OS?



Think: Local, Regional, Global



And Pelvic Health?





Down The Rabbit Hole…

- '…a strong association between back pain and GI symptoms in women. Possible factors that may account for this relationship include referred pain through viscerosomatic convergence, altered pain perception, increased spinal loading when straining during defecation, or reduced support of the abdominal contents and spine secondary in function of the abdominal muscles'

PubMed Advanced User Guide

How common is back pain in women with gastrointestinal problems?

Michelle D Smith et al. Clin J Pain. 2008 Mar-Apr.

And This…

The relationship between incontinence, breathing disorders, gastrointestinal symptoms, and back pain in women: a longitudinal cohort study

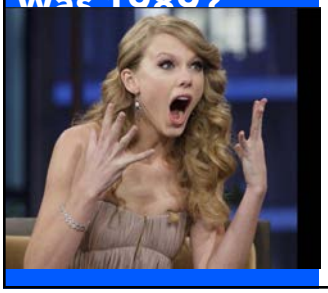
Michelle D Smith et al. Clin J Pain. 2014 Feb.

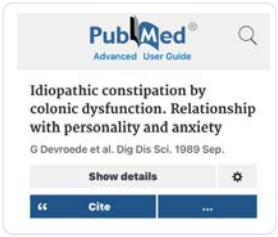
And this…

The Association Between Constipation or Stool Consistency and Pain Severity in Patients With Chronic Pain

Young-Chang Arai et al. Anesth Pain Med. 2018.

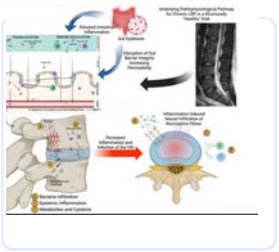
How Long Ago Was 1989?





Sima et al 2026

- Patients with chronic low back pain without advanced disk degeneration exhibit gut microbiome dysbiosis



Interestingly, emerging evidence linking physiotherapy and cognitive behavioral therapy with enhanced gut microbial diversity and increased abundance of commensal bacteria lends support to the hypothesis **that these interventions exert their therapeutic effects on chronic LBP via the gut–brain–disk axis. This offers a novel mechanistic perspective and may partly explain their sustained benefits in terms of pain relief and functional recovery**

Sima et al 2026

But Don't Forget

What Goes In

AND

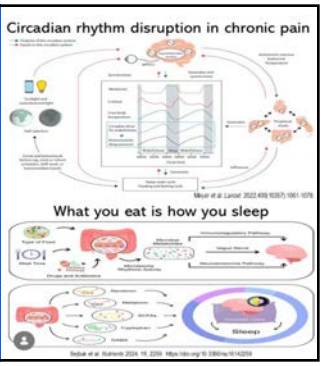
What Comes Out!



Because/Also:

- Sejbuk et al 2024





But Also:



World Neurosurgery
Volume 97, January 2017, Pages 760.e1-760.e3

Case Report

Cyclic Sciatica and Back Pain Responds to Treatment of Underlying Endometriosis: Case Illustration

Jaya Uppal [1 2], Stanislaw Sobotka [1], Arthur L. Jenkins III [1]

Uppal et al 2017

'We report on a 39-year-old gymnast with cyclic sciatica and back pain whose initial presentation initially led to a spinal fusion at L4/5 and L5/S1, but that procedure did not change her symptoms... Her diagnosis of endometriosis was not made until 2 years after her spinal fusion.

Ultimately, once diagnosed with endometriosis of the retroperitoneal spinal and neural elements, her back and leg pain responded completely to hormonal therapy and then to a hysterectomy and a bilateral salpingo-oophorectomy.

Because her true diagnosis of endometriosis was unknown and she had some degenerative changes in her spine, she underwent a spinal fusion that would probably not have been done if the diagnosis of endometriosis had been suggested...'

- '**Multiple causes outside the spine can mimic spinal back pain** such as hip arthritis, kidney stones, and other pelvic pathology. Endometriosis, an important gynecologic disorder affecting women, commonly affects the lower region of the female pelvis and less frequently the spine and soft tissues.
- The lumbosacral trunk is vulnerable to pressure from any abdominal mass originating from the uterus and the ovaries. ***Therefore, symptoms of endometriosis include severe reoccurring pain in the pelvic area as well as lower back and abdominal pain..'***



So...

How Does

PFD affect LBP?



Bertuit et al 2021

- 'Many observational studies have suggested the existence of a link between urinary incontinence (UI) and lumbopelvic pain.
- Our results support the association between UI and BP/PGP, which seems to be independent of gender-based differences. The strength of this association depends on pain or incontinence subtypes. Clinicians should be aware of the relationship in their clinical practice'.

Relationship between urinary incontinence and back or pelvic girdle pain: a systematic review with meta-analysis

Duray et al 2026

Conclusions:

As NSLBP gets worse, SUI complaints increase. Trunk flexor muscle endurance, agility, and physical activity levels decrease as the severity of SUI increases in women with NSLBP.

› Int Urogynecol J. 2026 Jan;37(1):151-160. doi: 10.1007/s00192-025-06272-1. Epub 2025 Aug 9.

The Relationship Between Urinary Incontinence, Physical Performance, and Physical Activity Levels in Women with Low Back Pain

Mehmet Duray [1], Burak Kara [2 3], Pinar Yagar [2]

Affiliations + expand

PMID: 40782169

What do we know (or think we know…)

- A **2018** study by Dufour et al. revealed a connection between back pain and pelvic health: 95.3% of women with lumbopelvic pain also suffer from pelvic floor dysfunction**. Of these cases, 71% involved overactive, tight muscles, while 66% experienced weakness…**
- Keizer et al **(2019)** 'There is evidence to suggest that a large proportion of individuals seeking care for lumbopelvic pain also have pelvic floor muscle dysfunction (PFMD).. Women who have **lumbopelvic pain, urinary urgency, and central sensitization** were, on average, 2 times more likely to test positive for pelvic floor muscle tenderness on palpation
- Vandyken et al **(2021)** 'To assess convergent validity of PFM tenderness on digital palpation with the presence of central pain mechanism, as determined by a score of greater than 40 on the CSI.. **PFM tenderness on digital palpation confirmed convergent validity with CSI scores, suggesting central pain mechanisms**

Always Listening

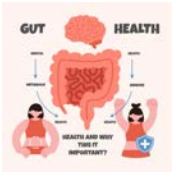
Brain/NS



PFMs



Gut



- **Manual therapy**
- **Mindfulness?**
- **Movement?**
- **'LBP care is most effective when it is active and person centered. Education, exercise and psychologically informed approaches should be prioritized'** Saragiotto et al 2026

Where Do We Start?



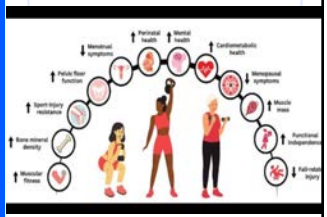
Regazzo et al 2026



- **Cognitive Reappraisal:** Exercise trains the brain to associate movement with safety rather than harm, breaking the cycle of maladaptive pain beliefs and fear-avoidance behaviours.
- **Emotional Regulation:** Physical activity triggers neurobiological and psychosocial pathways that help mitigate the depression, anxiety, and stress
- **Metacognition and Awareness:** Psychologically informed exercise fosters *decentering* - the ability to observe bodily sensations with a non-reactive, detached awareness, reducing emotional rumination.
- **Interoceptive Modulation:** Engaging in controlled physical activity improves the brain's capacity to accurately process and interpret inner-bodily signals, enhancing overall emotional regulation.

- **Faigenbaum et al.'s work on the Female Strengthspan redefines resistance training as a vital healthspan strategy across a woman's entire life.**
- **Rather than focusing solely on aesthetics or athletics, the research highlights how consistent strength training protects long-term bone density, metabolic health, mental well-being, and functional independence**
- ***But what if you're worried about leaking?***

Faigenbaum et 2026



because

> Phys Ther. 2022 Mar 1;102(3):pzab284. doi: 10.1093/ptj/pzab284.

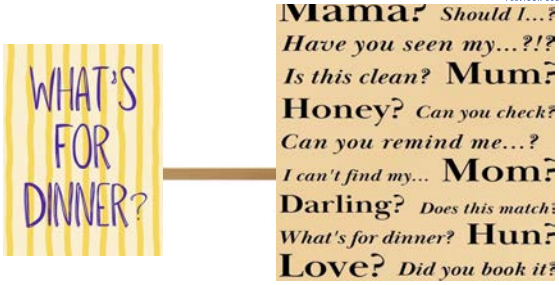
Pelvic Floor Symptoms Are an Overlooked Barrier to Exercise Participation: A Cross-Sectional Online Survey of 4556 Women Who Are Symptomatic

Jodie G Dakic [1 2], Jill Cook [3], Jean Hay-Smith [4], Kuan-Yin Lin [5 6], Christina Ekegren [7], Helena C Frawley [8 9 10]

Affiliations + expand

PMID: 34939122

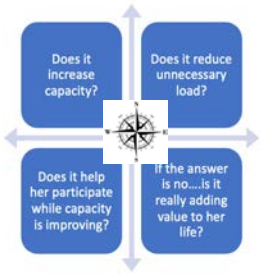
Balancing the Load

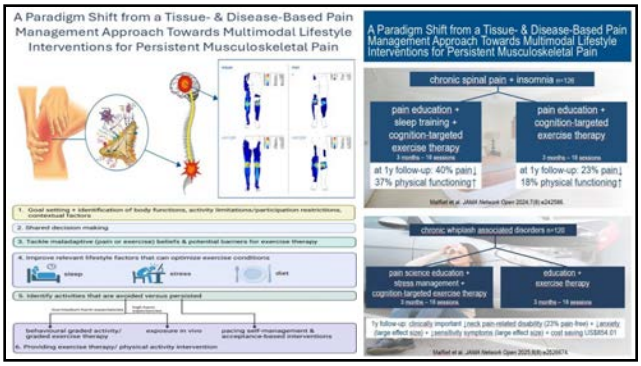


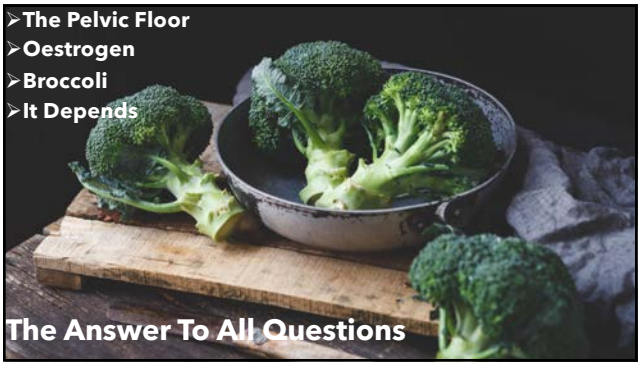
Building Capacity

- Movement
- Support
- Optimisation
- Empowerment

- Our job isn't simply to reduce symptoms but to either:
- Increase capacity
- Reduce unnecessary loads
- Provide temporary support whilst capacity is being rebuilt







- Low oestrogen – GSM/Urgency/Frequency/ Leakage
- Musculoskeletal Syndrome of Menopause – Wright et al 2024

- <u>But also:</u>
- Low oestrogen & pain processing
- Low oestrogen & inflammation/insulin resistance/weight distribution
- Low oestrogen & GI function
- Low oestrogen & sleep disruption
- Low oestrogen & exercise tolerance

What About Oestrogen?



We don't just prescribe pf exercises...we build capacity

We don't just educate ...we empower

We don't just 'manage symptoms'...we restore participation

BECOME THE CLINICIAN WHO SEES THE WHOLE PERSON!

Better Q's = Better Outcomes

- Instead of asking 'what structure is generating the pain?'
- 'What aspects of this woman's biology, life stage, lived experience and environment might be influencing this presentation?'

3 Takeaways

DISRUPT PELVICON 2026

Takeaway 1

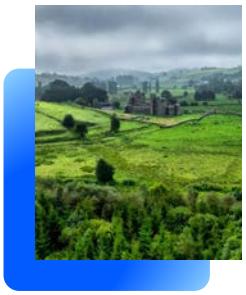
- The Pelvic , GI & NS **team** is always involved WITH EVERYTHING – so don't forget to ask and remind and demo for your ortho/sports colleagues too!

Takeaway 2

- Be a good detective – track EVERYTHING – MC, sleep, PeriMeno, Scars, Constipation, Stress, OB hx, Surgical hx (and don't forget hip health)

Takeaway 3

- Think local, regional, GLOBAL because its not pelvic rehab VS lifestyle! YOU can be the gamechanger in your patient's life by teaching them self-awareness, self-efficacy, self-care and how to build their own toolbox



DISRUPT PELVICON 2026

Thank You!

- **Instagram: @michellelyons_muliebrity**
- **Website: CelebrateMuliebrity.com**
- **Podcast: CelebrateMuliebrity with Michelle Lyons (Apple & Spotify)**
- **'MULIEBRITY IS THE ART & STATE OF BEING A WOMAN – AND I THINK THAT SHOULD BE CELEBRATED!**



PAUL HODGES

PELVICON SPEAKER

@PAULWHODGES

- Internationally recognized neuroscientist & physiotherapy researcher
- World-leading expert in pain, movement, rehabilitation & men's pelvic health
- Author of 640+ peer-reviewed papers, books & book chapters

DISRUPTING IDEAS

PAIN PHENOTYPING IN PELVIC HEALTH

1

Pain can be explained by three main descriptors that are presumed to be explained by different mechanisms

2

Treatment should be more effective when matched to descriptors/mechanisms

3

Work underway to translate pain descriptors to pelvic health conditions, to validate the discrimination tool and to test clinical validity

DISRUPT
PELVICON 2026

Same Symptoms, Different Pain: Phenotyping Pelvic Pain in Clinical Practice

Paul W. Hodges



Prof Paul W. Hodges

About Me

- Physiotherapist, Neuroscientist & Pain Scientist
- PhD MedDr DSc Drhc BPhty(Hons) FACP FAA FAHMS FISEK FQA
- Director, Centre for Innovation in Pain and Health Research (CIPHeR), The University of Queensland, Brisbane, Australia
- Director, DISCERN NHMRC Synergy Grant
- Chair, Terminology Task Force, International Association for the Study of Pain

Pain Descriptors

- What are they & why are they useful?
- Can they guide treatment matching?
- How do we discriminate between them?
- How can we test whether they improve outcomes?

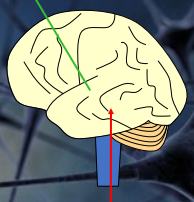
Pain Descriptors

- What are they & why are they useful?
- Can they guide treatment matching?
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- How can we test whether they improve outcomes?

What is pain?

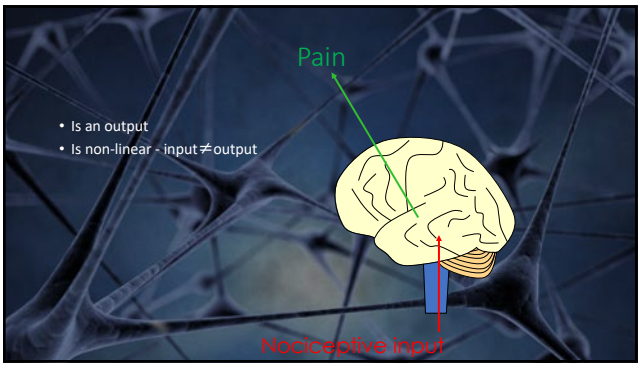
Pain

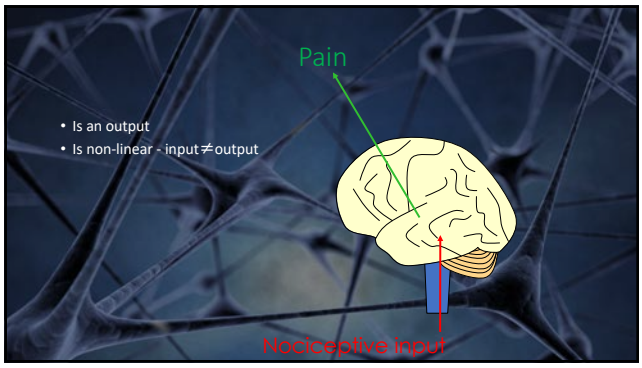
- Is an output

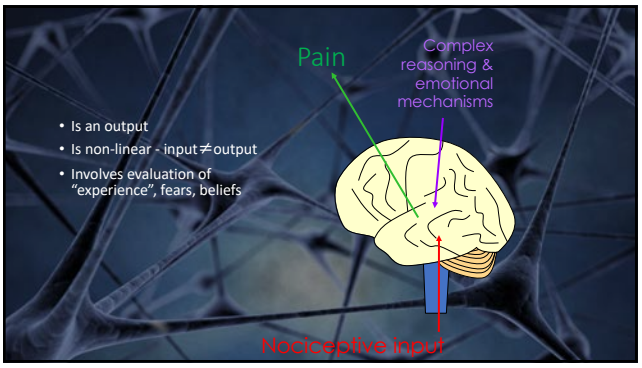


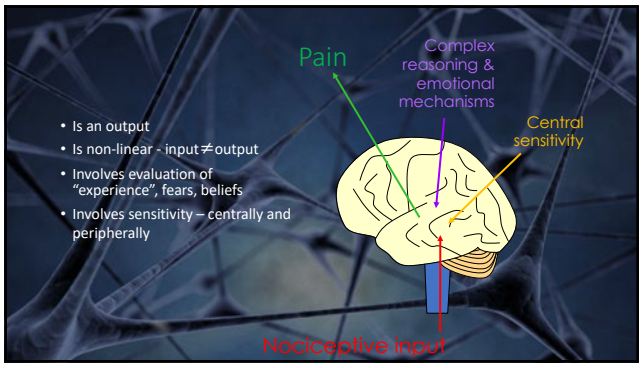
Nociceptive input

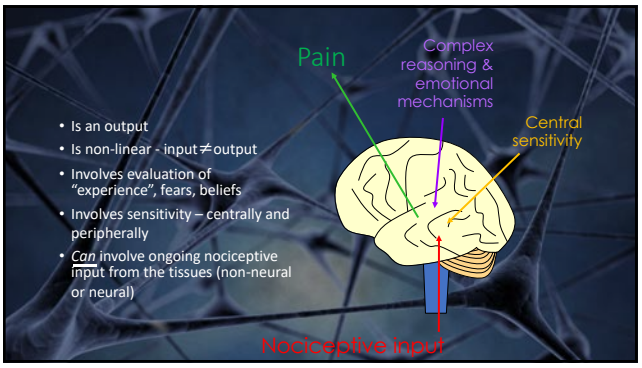

Pain **alerts & motivates**


Pain
• Is an output
• Is non-linear - input≠output
Nociceptive input


Pain
• Is an output
• Is non-linear - input≠output
Nociceptive input


Pain
Complex reasoning & emotional mechanisms
• Is an output
• Is non-linear - input≠output
• Involves evaluation of "experience", fears, beliefs
Nociceptive input

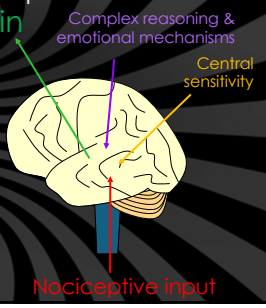

Pain
Complex reasoning & emotional mechanisms
Central sensitivity
• Is an output
• Is non-linear - input≠output
• Involves evaluation of "experience", fears, beliefs
• Involves sensitivity – centrally and peripherally
Nociceptive input


Pain
Complex reasoning & emotional mechanisms
Central sensitivity
• Is an output
• Is non-linear - input≠output
• Involves evaluation of "experience", fears, beliefs
• Involves sensitivity – centrally and peripherally
• Can involve ongoing nociceptive input from the tissues (non-neural or neural)
Nociceptive input

Pain neurobiology: Not all pain is the same

Pain mechanistic descriptors;

- **Nociceptive pain**
- **Nociplastic pain**
- **Neuropathic pain**



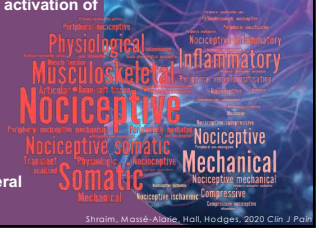
IASP 2020

Nociceptive pain

Mechanisms

Pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors

- **Mechanical**
- **Chemical**
  - Inflammatory, Ischaemic
- **Thermal**
- **Primary hyperalgesia, local peripheral sensitisation**



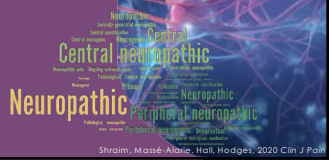
Shraim, Massé-Alarie, Hall, Hodges, 2020 *Clin J Pain*

Neuropathic pain

Mechanisms

Pain caused by a lesion or disease of the somatosensory nervous system.

- **Central nervous system**
- **Peripheral nervous system**
  - Mechanical
  - Non-mechanical



Shraim, Massé-Alarie, Hall, Hodges, 2020 *Clin J Pain*

Nociplastic pain

Mechanisms

Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system causing the pain.

- **Any mechanisms that "amplifies" pain**
- **Central sensitisation is assumed to be the major mechanism**
- **Cells to networks**
- **including neuro-immune interactions**



Shraim, Massé-Alarie, Hall, Hodges, 2020 *Clin J Pain*

Pain Descriptors

What are they & why are they useful?

Important considerations

- Proposed as pain descriptors, not mechanisms
- Presumed to be associated with specific mechanisms, but these are difficult to directly measure in humans

Pain Descriptors

What are they & why are they useful?

Important considerations

- It is likely that;
  - The experience of pain will have features of more than one descriptor – aim to identify the predominant pain descriptor
  - The predominant pain descriptor might change over time (e.g., transition from nociceptive to nociplastic)

Pain Descriptors

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What are they & why are they useful?

- How do pain descriptors relate to pelvic health conditions?
  - Not yet well defined
  - Major controversies
    - Endometriosis - when are "lesions" relevant?

Chronic pelvic pain

Primary vs. secondary pain conditions (ICD11) Aziz et al, 2019 Pain

- Primary
  - Pain as a condition in the absence of a pelvic condition
    - No underlying pathology/cause can be identified
    - Symptoms are not better explained by any of the other chronic visceral pain diagnoses
  - Shares feature with **Nociplastic pain**
- Secondary
  - Pain secondary to a pelvic condition
  - **Nociceptive pain**
    - Inflammation
    - Vascular mechanisms
    - Mechanical factors
  - **Neuropathic pain**

Nociceptive pain

- Inflammatory
  - CAUSE: long-lasting inflammation of internal organs → due to infectious or noninfectious agents or autoimmune causes.
  - EXAMPLES: Recurrent cystitis and urethritis, Crohn disease, ulcerative colitis, chronic salpingitis and oophoritis, chronic pelvic inflammatory disease, and chronic prostatitis.

Nociceptive pain

- Vascular
  - CAUSE: Alterations of arterial or venous blood vessels supplying the viscera
  - EXAMPLES: Ischemic colitis and iliac artery aneurysms;

Nociceptive pain

- Mechanical
  - CAUSE
    1. Obstruction of hollow viscera as a consequence of internal migrating obstacles (eg, stones) or stenosis
    2. Traction of ligaments and vessels of internal organs
    3. External compression of internal organs
  - EXAMPLE
    - Recurrent urinary colic because of obstructions such as lithiasis of lower urinary tract, ureteric kinking or stenosis of the anus/rectum; compression of the male or the female reproductive organs

Neuropathic pain

- Neuropathic causes of pain
  - CAUSES: Nerve entrapment (e.g., pudendal), herniated intervertebral disc, spinal pathology, Tarlov cyst, sacral chordoma, multiple sclerosis
  - Polyneuropathy

Nociplastic pain

- Chronic primary pelvic pain syndrome
  - Symptoms are not better accounted for by one of the other possible chronic secondary visceral pelvic pain diagnoses: chronic visceral pelvic pain from persistent inflammation, vascular mechanisms, and

Nociplastic pain

- Chronic primary bladder pain syndrome
  - Perceived in the region of the urinary bladder - when not better accounted for by any diagnosis of chronic secondary visceral pain
  - Associated with at least one other symptom
    - Worsening of the pain upon bladder filling and urinary frequency
    - Sexual dysfunction
    - Dysfunction of the lower urinary tract
  - Other names - "interstitial cystitis," "painful bladder syndrome," and "PBS/IC" or "BPS/IC"

Chronic pelvic pain

- Primary and secondary pain are both often associated emotional, cognitive and behavioural features
- A condition/disease process might be present, but it might not explain the pain
  - i.e., transition from nociceptive/neuropathic to nociplastic pain
- Primary pain vs. Nociplastic pain
  - Not equivalent, but overlapping
  - Primary pain does not require presence of additional features including generalised sensitivity

Pain Descriptors

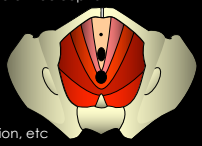
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What are they & why are they useful?

- How do pelvic floor muscles fit in?

How do pelvic floor muscles fit?

- Pelvic floor muscle tone could be:
  1. A cause of pain (source of nociception)
  2. Consequence of pain or other aspects of condition (e.g., response to psychological component) +/- source of nociception
  3. Comorbid with other pain mechanism +/- source of nociception
- Pain
  - Mechanical
  - Vascular - Ischaemia
  - Inflammatory
- Interference with function
  - Voiding dysfunction, dysparunia, painful ejaculation, etc



Somatic structures - Muscle/myofascial tissue

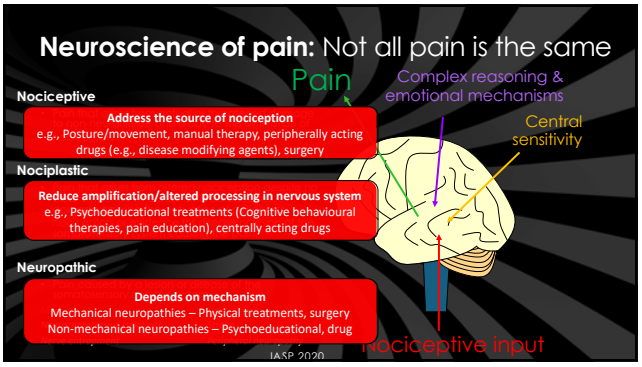
Pelvic floor muscles (PFMs)

- **Primary source of nociceptive input**
  - Rich innervation by nociceptive neurons
  - Increased muscle tone/spasm/activation
    - Muscle ischemia - pain
    - Hyperalgesia/sensory changes
    - Local inflammation
- **Secondary changes**
  - Protective response
    - Physical or sexual trauma - threat of pain
  - Reactive response
    - Bladder fullness, urgency
    - Excessive pressure from above – intra-abdominal pressure/breathing
    - Reaction to changes related to sacroiliac joint/pubic symphysis

Pain Descriptors

- What are they & why are they useful?
- **Can they guide treatment matching?**
- How do we discriminate between them?
- How can we test whether they improve outcomes?

Neuroscience of pain: Not all pain is the same



Pain Descriptors

Can they guide treatment matching?

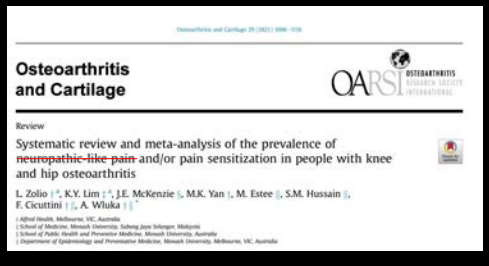
- The pain descriptor does not tell us exactly which treatment(s) to use
- It tells us which "toolbox" from which we should select the treatment

Pain Descriptors

Can they guide treatment matching?

- Limited data available for pelvic health conditions
- What can we learn from other pain conditions?
  - Are pain descriptors relevant for matching treatments in knee osteoarthritis?

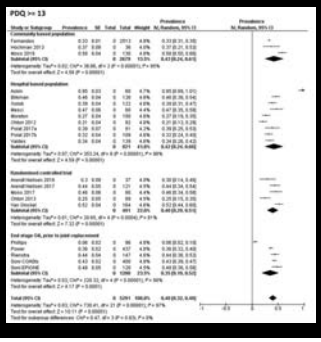
Pain descriptors in knee OA


Osteoarthritis and Cartilage

Review

Systematic review and meta-analysis of the prevalence of ~~neuropathic-like pain~~ and/or pain sensitization in people with knee and hip osteoarthritis

L. Zolio, K.Y. Lim, J.E. McKenzie, M.K. Yan, M. Estee, S.M. Hussain, F. Cicuttini, A. Wluka

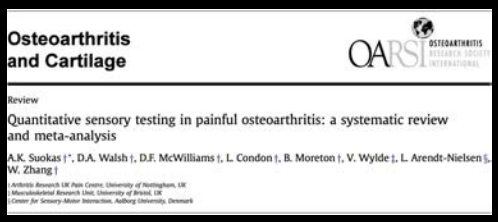


PainDETECT (PDQ)

40% (95%CI 32% to 48%) have possible "neuropathic" pain

Evidence of sensitivity

Pain descriptors in knee OA



Osteoarthritis and Cartilage

OARSI OSTEOARTHRITIS RESEARCH SOCIETY INTERNATIONAL

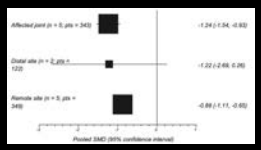
Review

Quantitative sensory testing in painful osteoarthritis: a systematic review and meta-analysis

A.K. Suokas †,*, D.A. Walsh †, D.F. McWilliams †, L. Condon †, B. Moreton †, V. Wylde ‡, L. Arendt-Nielsen §, W. Zhang †

† Arthritis Research UK Pain Centre, University of Nottingham, UK
‡ Musculoskeletal Research Unit, University of Bristol, UK
§ Center for Sensory-Motor Interaction, Aalborg University, Denmark

QST: Pressure pain thresholds



- People with OA - lower pressure pain thresholds (PPTs)
  - Affected joint (SMD 1⁄4 1.24, 95%CI 1.54, 0.93)
  - Remote sites (SMD 1⁄4 0.88, 95%CI 1.11, 0.65)
- Inconsistent across different studies, differences in QST protocols
- Group difference
  - Ignores individual data – likely that some individuals have remote sensitivity whereas others do not…and this distinction is relevant for treatment matching

Matching treatments to pain descriptors in osteoarthritis

- Are treatments matched to pain descriptor more effective than un-matched treatment in knee osteoarthritis?



Musculoskeletal Review

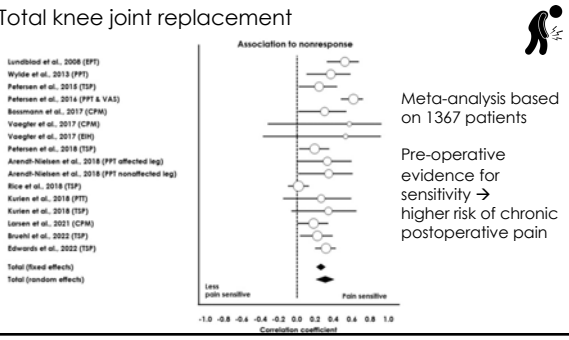
OPEN

PAIN REPORTS

Quantitative sensory testing as an assessment tool to predict the response to standard pain treatment in knee osteoarthritis: a systematic review and meta-analysis

Kristian Kjær-Staal Petersen[a,b,*], Kübra Kilic[a], Emma Hertel[a,b], Trine Hyttel Sejersgaard-Jacobsen[c,d], Marlene Kanstrup Jørgensen[c,d], Anders Troelsen[e], Lars Arendt-Nielsen[a,b,f], Dennis Boye Larsen[a]

Total knee joint replacement



Meta-analysis based on 1367 patients

Pre-operative evidence for sensitivity → higher risk of chronic postoperative pain

Pain Descriptors

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Can they guide treatment matching?

- Need to test clinical validity in a clinical trial
  - Demonstrate that matched treatment is more effective than unmatched treatment
- Issues
  - Need to be able to discriminate between descriptors

Pain Descriptors

- What are they & why are they useful?
- Can they guide treatment matching?
- **How do we discriminate between them?**
- How can we test whether they improve outcomes?

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REVIEW ARTICLE

Clin J Pain • Volume 36, Number 10, October 2020

Systematic Review and Synthesis of Mechanism-based Classification Systems for Pain Experienced in the Musculoskeletal System

Muath A. Shraim, BPhty (Hons), Hugo Massé-Alarie, PhD,*† Leanne M. Hall, PhD,* and Paul W. Hodges, PhD**

Shraim, Massé-Alarie, Hall, Hodges, 2020 *Clin J Pain*

Systematic Review and Meta-Analysis

PAIN

Methods to discriminate between mechanism-based categories of pain experienced in the musculoskeletal system: a systematic review

Muath A. Shraim[a], Hugo Massé-Alarie[a,b], Paul W. Hodges[a,*]

How can we identify the predominant pain mechanism(s) in an individual?

- 184 papers; 200 unique methods; 5 themes
  - Clinical examination
  - Quantitative sensory testing
  - Imaging
  - Diagnostic and laboratory testing
  - Pain-type questionnaires

Build on this information to build a consensus based tool

Consensus on candidate measures

Research Paper

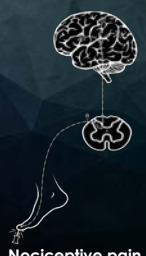
PAIN

Features and methods to discriminate between mechanism-based categories of pain experienced in the musculoskeletal system: a Delphi expert consensus study

Muath A. Shraim[a], Kathleen A. Sluka[b], Michele Sterling[c], Lars Arendt-Nielsen[d], Charles Argoff[e], Karl S. Bagraith[f], Ralf Baron[g], Helena Brisby[h], Daniel B. Carr[i], Ruth L. Chimenti[j], Carol A. Courtney[k], Michele Curatolo[l], Beth D. Darnall[m], Jon J. Ford[n], Thomas Graven-Nielsen[o], Melissa C. Kosek[p], Eva Kosek[q,r], Richard E. Liebano[s], Shannon L. Merkle[t], Romy Parker[u], Felipe J. J. Reis[v,w], Keith Smart[x], Rob J. E. M. Smeets[y,z], Peter Svensson[aa], Bronwyn L. Thompson[ab], Rolf-Detlef Treede[ac], Takahiro Ushida[ad], Owen D. Williamson[ae], Paul W. Hodges[a,*]

Pain characteristics

	Nociceptive pain
Pain features	Predictable Inc/dec with movement/posture Proportional Localised
QST	Normal sensitivity or local hyperalgesia
Questionnaire	Generally low psychosocial features – multiple questionnaires available to assess specific features
History	Relevant tissue damage/threat



Nociceptive pain

Arises from **activation of nociceptors**

Shraim, Massé-Alarie & Hodges 2021 Pain.

Pain characteristics

	Nociplastic pain
Pain features	Unpredictable Inconsistent inc/dec Disproportionate Broad area/multiple area/changing area
QST	Hyperalgesia - ↓ pressure/ temp threshold – local & distant areas
Questionnaire	Central Sensitization Inventory Various Psychological Qs – Pain Catastrophizing Scale; Fear Avoidance, Pain Self Efficacy, etc
History	Mismatch between pain & history/mechanism

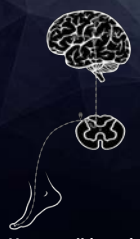


Nociplastic pain

Arises from **altered nociceptive/pain processing** (i.e. central sensitisation)

Shraim, Massé-Alarie & Hodges 2021 Pain.

Pain characteristics



	Neuropathic pain
Pain features	"Electric" Dermatomal distribution/ribbon Pins & needles Numbness +/- positive neurodynamic signs
QST	Can be sensitized – Hyperalgesia - ↓ pressure/ temp threshold
Questionnaire	PainDETECT, LANSS (not specific to neuropathic)
History	History of nerve damage/ dysfunction

Neuropathic pain
Caused by a **lesion** or **disease** of the **nervous system**

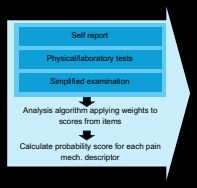
Shraim, Massé-Alarie & Hodges 2021 Pain.

How can we identify pain mechanisms in clinical practice?

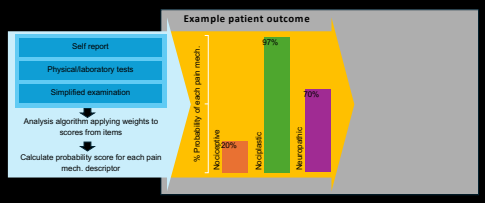
	Nociceptive pain	Neuropathic pain	Nociplastic pain
Pain features	Predictable Inc/dec with movement/posture Proportional Localised	"Electric" Dermatomal distribution/ribbon Pins & needles Numbness +/- positive neurodynamic signs	Unpredictable Inconsistent inc/dec Disproportionate Broad area/multiple area/changing area
QST	Normal sensitivity or local hyperalgesia	Can be sensitized – Hyperalgesia - ↓ pressure/ temp threshold	Hyperalgesia - ↓ pressure/ temp threshold – local & distant areas
Questionnaire	Generally low psychosocial features – multiple questionnaires available to assess specific features	PainDETECT, LANSS (not specific to neuropathic)	Central Sensitization Inventory Various Psychological Qs – Pain Catastrophizing Scale; Fear Avoidance, Pain Self Efficacy, etc
History	Relevant tissue damage/threat	History of nerve damage/ dysfunction	Mismatch between pain & history/mechanism

Shraim, Massé-Alarie & Hodges 2021 Pain.

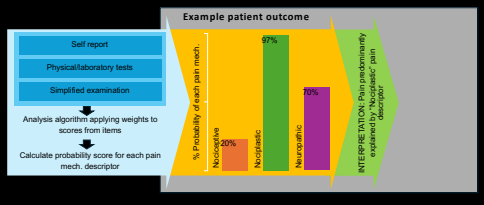
Pain descriptor discrimination tool



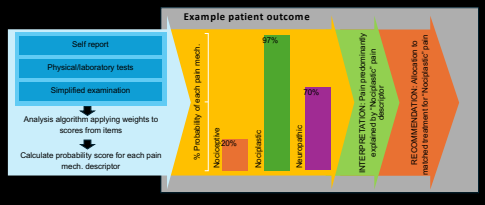
Pain descriptor discrimination tool



Pain descriptor discrimination tool



Pain descriptor discrimination tool



Pain Descriptors

How do we discriminate between them?

- Can we apply tool to pelvic health conditions?
  - Some challenges
    - Assessment of local sensitivity
    - Assessment of provocation and relief of pain

Pain Descriptors

How do we discriminate between them?

- Identification of the predominant pain mechanistic descriptors provide a potentially potent response biomarker to guide matching the right treatment to the right patient at the right time
- Validated using patient vignettes
- Requires further clinical validation

Pain Descriptors

- What are they & why are they useful?
- Can they guide treatment matching?
- How do we discriminate between them?
- **How can we test whether they improve outcomes?**

Pain Descriptors

How can we test whether they improve outcomes?

- Requires clinical trials that test whether treatment matched to the pain descriptor is more effective than treatment that is not-matched
- Trials under development in musculoskeletal pain
- Critical need in pelvic pain

3 Takeaways

Takeaway 1

- Pain can be explained by three main descriptors that are presumed to be explained by different mechanisms

Takeaway 2

- Treatment should be more effective when matched to descriptors/mechanisms

Takeaway 3

- Work underway to translate pain descriptors to pelvic health conditions, to validate the discrimination tool and to test clinical validity

Acknowledgement

- Funding

Australian Government
National Health and Medical Research Council

- Collaborators
  - **IASP Terminology Task Force** - Paul Hodges (Chair), Michele Sterling, Kathleen Sluka, Andrew Rice, Daniel Clauw, Eva Kosek, Jo Nijs, Lars Arendt-Nielsen, Milton Cohen, Raif Baron, Muath A Shraim, Ian Gilron, Matthias Ringkamp, Miroslav Backonja, Richard Harris, Eleni Kaprelli, Fusao Kato, Sigrid Elesenbruch, Felipe Reis, Lester Jones, Vivian Blechschmidt, Chris Veasley, Annina Schmid, Victoria Tory Madden, Anushka Soni
  - **The University of Queensland** – Johnathan Davies, Brooke Coombes, Rebecca Mellor, Raimundo Sanchez
  - **DISCERN NHMRC Synergy** – Nadine Foster, Mark Hutchinson, Lorimer Moseley, Michele Sterling, Stuart Brierley, Irina Vetter, Catherine Hill, Thomas Jaki, Melissa Day, Katherine Brain

AMY STEIN

PELVICON SPEAKER

@BEYONDBASICSPT

- Internationally recognized expert in pelvic pain & pelvic floor dysfunction
- Founder of Beyond Basics Physical Therapy in New York City
- Author of groundbreaking books Heal Pelvic Pain & co-author of Beating Endo



DISRUPTING IDEAS

ENDOMETRIOSIS DECODED (PT 2): REHAB AFTER EXCISION SURGERY

1

A multidisciplinary, multimodal approach is key! Not all providers know how to diagnose abdomino-pelvic floor dysfunction and Endometriosis/

2

Treat the whole person! Recognize comorbildities that are common with Endometriosis. Realize progress takes time and patience.

3

Don't forget to be thorough on your internal exams! Compare left to right, and don't skip your rectal examination!

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Endometriosis Decoded (Part 2): Rehab After (and Before) Surgery

By, Amy Stein MPT, DPT, BCB-PMD, IF

Disclaimer:

Not Medical Advice

- This class is informational and education in nature and is not intended or implied to be a substitute for individual professional medical advice, diagnosis or treatment.

Questions Are General

- Any questions answered by our expert here today is based on general education and not meant to give personal medical advice, and there is no formal provider/patient relationship created with this class.

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Objectives

- Demonstrate how and why physical therapy is integral in the treatment and management of pelvic pain in relation to endometriosis
- Identify advances of a neuromusculoskeletal approach to pelvic floor physical therapy treatment and endometriosis
- Identify the latest in Patient Education, Behavioral Modifications, Mindfulness and more

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True or False:
Doing surgery alone is usually the answer to treating endometriosis

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Medical Treatment

- **First-line therapy:** Nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives (pill, patch, ring, or progestin-only options) control pain and suppress lesion growth
- **Second-line therapy:** Gonadotropin-releasing hormone (GnRH) agonists or antagonists help shrink tissue by lowering estrogen

Surgical Treatment

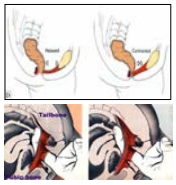
- **Indications:** Used when medical therapy fails, when pain is severe, or when pelvic masses/endometriomas are present
- **Approach:** Laparoscopic excision or ablation performed by an expert surgeon to remove or destroy lesions and restore normal anatomy

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Pelvic Floor Treatment

- External: Urogenital triangle, Obt Internus, Levator Ani
  - Myofascial trigger points, tone, pain
  - Scar, Neuro Mob's, skin changes/color, Q-tip test
- Internal:
  - Myofascial trigger points, tone, pain
  - Scar Mob's, Neuro Mob's



Wurn, et al, 2004, Oyama IA,et al, 2004, Hartmann 2001
Travell, Simons 1992, King 2004, Bergeron et al, 2002

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External Manual Techniques – EX: Abdomen

[redacted]

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Visceral Treatment

- **Viscersomatic reflexes** are diagnostic tools. They are somatic dysfunction that develops in response to visceral pathology and severity of pathology has proven to correlate with irritability of segmental tissues/muscles
  - Inflammation assoc with endo and visceral pathology → activation of nociceptive, visceral afferent neurons which can be persistent bc of the chronic pain → spinal cord → synapses and irritability to internuncial neurons of that spinal segment→ hyperalgesia at that segment and then referred pain → internuncial neurons synapse to ventral horn motor neurons → segmentally related myospasticity and palpable tissue texture change.



Dreamstime.com

Somatic Dysfunction in Osteopathic Family Medicine. Nelson KE, Isreek T, eds. ACOFP: Lippincott, Williams & Wilkins; 2007; Chapt 5

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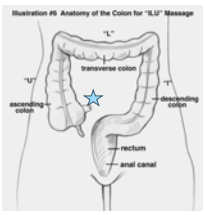
Visceral Mobilizations



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Colon: Iliocecal Valve Massage

- Star at IC Valve:
- Valve dysfunction implicated in SIBO
- 1/3 the distance from hip bone To umbilicus
- Gentle circles over this point
- "Baby CPR"



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Pyloric Valve Massage

- Pyloric Valve: connection between stomach and small intestine. Starts the peristaltic wave.
- Lay hand just above umbilicus and feel with other hand just above index finger for a small density
- Small circles or "Baby CPR"



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Connective/Fascial Tissue Treatment



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External Manual Techniques – EX: Thigh and Pelvic Region



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Example: Internal Manual Techniques



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Example: Self Massages



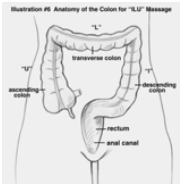
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Example: Self Massages



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Colon Massage- ILU





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Relaxation Poses, Stretches and Massages

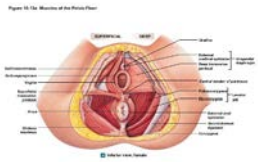
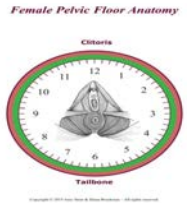







Trigger point ball massage back and hamstring

External Pelvic Floor Massage

Internal Massage






Educate, Educate, Educate

- Educate on ***fear avoidance, pain science, diet and sleep***
- Get patients **moving and back to activities they want to do**
- Activate PNS/Calm SNS: Breathing techniques
- Being in heightened state for extended periods of time can tax our system, depress our immune system, and contribute to increased anxiety and depression.



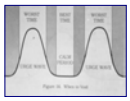
Unsplash 2021



Eliminate Poor Bladder Habits

- Going "JUST IN CASE", Don't PUSH!
- Hovering over public toilet seats
- Not drinking enough water
- Bladder Irritants: Soda, Coffee, Caffeine
- Alcohol
- Artificial Sweetener
- Juices

RETRAIN: Void Delay & Progressive Timed Voiding

Bowel Retraining

- Toileting techniques
  - Squatty Potty
- Relaxation Training
- Abdominal massage
- Fluid/Fiber Intake
- Timed Voiding
- NO straining
- NO breath holding




Sexual Function

- Importance of asking the right questions
  - Gender neutral questions
  - What bothers them
  - What their goals are
- Sex Education
  - Sex should NOT be painful
  - Positioning






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Proper Stretching and Strengthening

- Stretches-pelvic floor, hip, trunk, leg
- Strengthening- Pain-Free
  - Core mobility and stability
  - Diastisis recti, SIJD, hip dysfx
  - Requires close monitoring





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Behavioral Modifications and HEP

- Posture / position modifications:
  - Cushions, Support Belts
- Dilators, wands, trigger point ball/stick
- Ice, heat/hot bath
- PF down-training – Biofeedback- mirror - palpation
- CNS down-training; Relaxation techniques: yoga, mind/body therapy
- IN a FLARE?





Battaglia 2004, Heyman 2007, Rao 2007, Bergeron 2001, Bo K et al, 2007

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Vagus Nerve Calming

- TENS on the ear points or Apollo Neuro Device/Massage ear points
- Massage on Mastoid Process area clockwise and counter-clockwise
- Gentle Mobilization of C1 and Mesenteric Root of GI
- Humming, singing, gargling, eye movement reset

RESOURCES

- Micro current therapies - www.CESultra.com
- Bilateral stimulation music with headphones
- Www.scientificsounds.com, Jeffrey Thompson, DC, BFA
- Emotional freedom techniques - www.the tappingsolutions.com



Zero Point for Vagal nerve regulation

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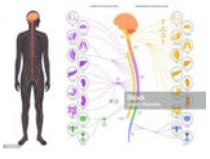
Self Care For You and For Your Patients!




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General: *Why do I still have pain?* Post surgical: *Why am I still in pain?*

- Turn the Pain Dial Down
  - Address Musculoskeletal Issues: Pre- & Post-surgery
  - Behavioral Modifications
    - Bladder, Bowel, Sexual Function & Pain
- Nutritional Factors – anti-inflammatory diet
- Mind-Body Behaviors
- Environmental Factors
- = ↓ **PAIN and INFLAMMATION**



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Pelvic Floor Physical Therapy

PROVEN effective for patients with Endo

- Free up adhered tissues due to endo
- With or without surgery-need to **OPTIMIZE** abdomino-pelvic tissues
- Urinary / Bowel urgency, frequency, retention & nighttime frequency, Sexual Health OPTIMIZED
- Significant Improvement in Quality of Life

Can G, das Virgens IPA, Fehér B, Orbán EP, Fehérvári P, Bánhidy F, Hegyi P, Mayer ÁÁ, Ács N. Physiotherapy for endometriosis-associated pelvic pain: a systematic review and meta-analysis. Pain Med. 2024 Jan 1;27(1):95-103. doi: 10.1093/pm/pnad083. PMID: 40705433; PMCID: PMC12771236.

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Patient Advocacy

1. Track symptoms in relation to menstrual cycle *or not*
2. Reference the new ACOG #11 guideline, and report your symptoms to MD
3. Ask specific questions – "can we try empiric tx first"
4. Bring a partner or support person
5. If doctor is dismissive or making u feel bad - seek out another doctor. If concerned about fertility, then see fertility specialist with experience with endo

Lora Shahine, MD , 2026

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DISTRUPT……

WE STILL NEED TO CHANGE THE NARRATIVE!!

1. ↓ Diagnostic Delay by educating patients, practitioners and the community
2. ADD interdisciplinary approach to ACOG and NIH guidelines – PT as a 'core' treatment
3. As PTs – treat the whole body and multidisciplinary/multimodal

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Key Points

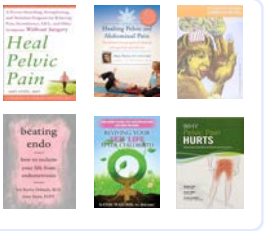
- Importance of Multidisciplinary, Multimodal Approach, Patient Advocacy
- Not all HCP's know how to diagnose Abdomino-Pelvic Floor Dysfunction/Endo
- Treat the WHOLE body
- Internally: Compare Left to Right; Assess RECTALLY!
- Recognize Co-morbidities with Endo
- Takes time and patience and can be a rollercoaster
- May reproduce patient's symptoms. REINFORCES the need for PT and this will subside!



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Resources:

- Nancy's Nook
- Societies:
- International Pelvic Pain Society: www.pelvicpain.org
- American Physical Therapy Association- www.apta/academyofpelvichealth
- International Society of the Study of Womens' Sexual Health: ISSWSH.org
- Endometriosis Summit



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Thank you audience!

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DISRUPT
PELVICON 2026

TARYN HALLAM

4-TIME PELVICON SPEAKER

@WHTAEDUCATION

- Founder of WHTA (Women's Health Training Associates)
- One of Australia's leading pelvic health experts
- Passionate about bringing research to clinicians in a meaningful way with her annual Research Updates



DISRUPTING IDEAS

COITAL INCONTINENCE AND FEMALE EJACULATION: SEPARATING FACT FROM FICTION

1

Coital Incontinence is a common urinary disorder affecting 30-50% of women with daytime UI.

2

Female Ejaculation and Squirting are normal physiological responses that can occur in 40 – 50% of women that do not need treatment.

3

We have no research on the conservative management of Coital Incontinence, but the approach is to manage CI on penetration like SUI and CI at orgasm like DO.

DISRUPT
PELVICON 2026

Coital Incontinence and Female Ejaculation
- separating fact from fiction

Taryn Hallam

WHY THIS TOPIC?



To give a bit of background…

WHY THIS TOPIC?

DISRUPT PELVICON 2026

Fit the theme!



I knew it would be very controversial

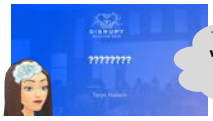
PLEASE ALSO REMEMBER THOUGH!!!
My discussions yesterday are not something I am 100% convinced of (the research is too early)….

I just believe that we shouldn't bury our heads in the sand just because we don't like the results, and be open to delaying PFMT for a few months in certain cases until we are sure it's not detrimental

AND THAT THE RESEARCH I WOULD PRESENT
would definitely disrupt
the thinking we have all held to so strongly up until now

WHY THIS TOPIC?

DISRUPT PELVICON 2026



There is a **different way** to interpret the conference theme '***DISRUPT***'…

I'll admit that at first I struggled to think of another topic that linked ell to the theme 'DISRUPT'…

But then I had a thought….

I'm just going to go down a little bit of a garden path for a second…





Why this talk?

DISRUPT PELVICON 2026

Anderson et al 2024[1]


ORIGINAL RESEARCH
Health Science Reports — WILEY
Imposter phenomenon in physical therapists: A cross-sectional observational study
Alexandra R. Anderson[1] | Jamie LaPenna[2] | Dustin Wills[3] | Khyrah Simpson[4] | Alison H. Chang[1]

→ used the **Clance Imposter Phenomenon Scale** to assess the level of imposter syndrome in

→ **n = 520 physical therapists across the United States.**

NOTE: IMPOSTER SYNDROME
Not an official diagnosis in the DSM-V

But first described in 1978 by Clance and Imes as

"an internal experience of intellectual phoniness in people who are objectively successful but are unable to internalise their achievements and persistently fear being exposed as frauds"



Why this talk?

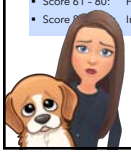
DISRUPT PELVICON 2026

Anderson et al 2024[1]

RESULTS for n = 520 USA based Physical Therapists…..

NOTE #2: Clance Imposter Phenomenon Scale
20-item questionnaire using a 1 - 5 Likert scale (TOTAL SCORE 20 - 100) to assess the degree of IMPOSTER PHENOMENON.

- Score 20 – 40: Low Imposter Phenomenon **10.7%**
- Score 41 – 60: Moderate Imposter Phenomenon **38.1%**
- Score 61 – 80: Frequent Imposter Phenomenon **41.8%**
- Score [illegible]: Intense Imposter Phenomenon **9.3%**



89.3% of PT's reported moderate to intense imposter phenomenon!!

with that said…

I find this so awful…

(often when I speak to clinicians I find they doubt themselves so much!)

You guys are awesome!



Why this talk?

DISRUPT PELVICON 2026

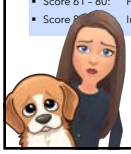
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89.3% of PT's reported moderate to intense imposter phenomenon!!

with that said…

This is a fear that we will probably never *100% eliminate*

Because we can never know everything!

But this is an interesting one…

the idea the everyone else knows more….

and we are bad if we don't now it all?



The reality…

DISRUPT PELVICON 2026

Some conditions most of us ARE pretty confident in…



But some conditions most pelvic therapists are NOT confident in…



It seems that the problem a lot of health practitioners have though, is that the moment we don't know something…..

There are some topics that most clinicians don't have any training in

This isn't actually true



Goal of this 2nd Talk of mine….

DISRUPT PELVICON 2026

To **try to DISRUPT** all your silly **IMPOSTER SYNDROMES**



MY STRATEGY

Step 1: **pick a topic** that I was fairly confident **most** therapists **are not very confident in**

Hence this topic

Step 2: **show you all that this should not be something that makes you feel like a fraud compared to everyone else….**

→ there are topics that virtually no clinician is fully confident in!

Hence the 'woohoo' poll ✓

Step 3: **teach you about it** so at least it is one less topic you can stress yourself out about with completely unjustified imposter syndrome ☺

Goal of this 2nd Talk of mine….

DISRUPT PELVICON 2026

To **try to DISRUPT** all your silly **IMPOSTER SYNDROMES**



SO ARE WE READY TO HAVE SOME FUN LEARNING ABOUT THIS???



IMPOSTER SYNDROME



Let's DISRUPT our IMPOSTER SYNDROME on this topic and kick it to the curb for good!

DISRUPT PELVICON 2026

Coital Incontinence and Female Ejaculation

- separating fact from fiction

Taryn Hallam

Presentation Overview

DISRUPT PELVICON 2026

TWO PARTS TO THE LECTURE

What are the FACTS vs FICTION surrounding….

COITAL INCONTINENCE	vs	FEMALE EJACULATION

Rare? Silent Epidemic?
- → **prevalence**
- → **pathophysiology**
- → **impact on S-QoL**
- → **management?**



Does it even exist?

If yes…..
- → **what is it?**
- → **how common is it?**
- → **what advice do we give?**

Coital Incontinence (CI)

First defined in 2010 by the **International Continence Society (ICS) and the International Urogynaecological Association (IUGA)** as:

DEFINITION (ICS / IUGA: Haylen et al 2010)[2]

'the complaint of involuntary loss of urine with coitus'

the definition does then have two sub-classifications

- CI occurring with Penetration

= digital, penile, sex toy etc penetration



- CI occurring with Orgasm



Coital Incontinence (CI)

First defined in 2010 by the **International Continence Society (ICS) and the International Urogynaecological Association (IUGA)** as:

DEFINITION (ICS / IUGA: Haylen et al 2010)[2]

'the complaint of involuntary loss of urine with coitus'

How many women actually suffer from coital incontinence?

ANSWER: The prevalence seems to differ depending on whether you are asking women who suffer from **other urinary incontinence** or not….

??



Coital Incontinence (CI)

PREVALENCE OF COITAL INCONTINENCE

Athey et al (2024)[3] performed a retrospective review of the results of n = 4,843 women who attended one of seven urogynaecology outpatient services* between 2018 and 2022

*note: being recruited from a UG outpatients means they are more likely to have PF dysfunction (SUI, UUI, POP etc)

amongst **n = 1,002** ♀ **with no UI** → only **n = 115 (11.5%)** reported **CI**

amongst **n = 3,841** ♀ **reporting UI** (eg SUI, UUI or MUI) → a massive **n = 2,014 (52.4%)** also reported **CI!!**

MAIN SUMMARY POINT

COITAL INCONTINENCE is: very common amongst women *with* SUI, UUI or MUI; less common *in* ♀ *without any other* urinary incontinence

Are these % differences a consistent finding??

Coital Incontinence (CI)

PREVALENCE	♀ **URINARY INCONTINENCE** in everyday life (SUI, UUI or MUI)	♀ **WITHOUT UI** in everyday life (no SUI, UUI or MUI)
Skoric & Nale et al (2018)[4] **n = 554** sexually active ♀	**CI = 18.6%**	**CI = 1.5%**
Gray et al (2018)[5] **n = 1200** sexually active ♀	**CI = 47.7%**	**CI = 1.0%**

Karacam Yilmaz et al (2026) – SYSTEMATIC REVIEW[6]
n = 23 articles with **n = 21,650 women WITH UI**

CI = 35.3%
95%CI 27.2% - 44.3%

SYSTEMATIC REVIEW RESULT

CI in ♀ with UI = ~1 in 3!

Coital Incontinence (CI)

IMPORTANT CLINICAL APPLICATION POINT FOR LATER

Whilst the exact rates do vary from paper to paper, the data does tend to suggest that

CI is usually ASSOCIATED with some type of UI in everyday life (eg SUI, UUI or MUI)…

It is very RARE in women without UI in everyday life

♀ **WITHOUT UI** in everyday life (no SUI, UUI or MUI)

CI = 1.5%

CI = 1.0%

Karacam Yilmaz et al (2026) – SYSTEMATIC REVIEW[6]
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CI = 35.3%
95%CI 27.2% - 44.3%

SYSTEMATIC REVIEW RESULT

CI in ♀ with UI = ~1 in 3!

Coital Incontinence (CI)

A LITTLE THINKPOINT ABOUT THE 1 in 3 ♀ with UI

Do you think this reflects what you see in your own clinical practice?

Do you find about **35% of your women** with urinary incontinence are also reporting COITAL INCONTINENCE?



Karacam Yilmaz et al (2026) – SYSTEMATIC REVIEW[6]
n = 23 articles with **n = 21,650 women WITH UI**

CI = 35.3%
95%CI 27.2% - 44.3%

SYSTEMATIC REVIEW RESULT

CI in ♀ with UI = ~1 in 3!

Coital Incontinence (CI)

SHARING MY OWN CLINICAL LEARNING

I must admit that when I started reading the papers on this many years ago I remember thinking…

"I just don't have that many women complaining of coital incontinence?"

I would ask all my women complaining of SUI, UUI or MUI….

"Do you ever find that you leak urine during intercourse or sexual play?"

→ **THEY WOULD NEARLY ALL SAY "NO".**

Then one day I had a patient respond slightly differently….

"Well no, but that's because I would never have sex without emptying my bladder first?"

That obviously triggered me to say…..

"So do you think you would leak during sex if you didn't empty your bladder first?"

Coital Incontinence (CI)

MY NEW APPROACH TO ASKING ABOUT THIS TOPIC

1. Do you mind if I ask if you are currently sexually active?
2. If yes, do you consciously choose to empty your bladder before intercourse?
   → no ; occasionally ; always
3. If you didn't empty your bladder before intercourse do you think you might leak?
4. Have you ever leaked with intercourse before?
   → how many times? how long ago?
   → can you remember if it was with physical **penetration or with orgasm**?

IMPORTANT NOTE
If they do report CI,
I do clarify if it occurs with

Coital Incontinence (CI) (from before)

Defined by ICS / IUGA as:

DEFINITION (ICS / IUGA: Haylen et al 2010)[2]

'the complaint of involuntary loss of urine with coitus'

but the definition then has two sub-classifications

- CI occurring with Penetration

= digital, penile, sex toy etc penetration



- CI occurring with Orgasm



Coital Incontinence (CI) (from before)

Defined by ICS / IUGA as:

DEFINITION (ICS / IUGA: Haylen et al 2010)[2]

'the complaint of involuntary loss of urine with coitus'

but the definition then has two sub-classifications

- CI occurring with Penetration ***- CI occurring with Orgasm***

Why separate them?

ANSWER: Because the research has shown they are often linked to **very different underlying dysfunctions / pathophysiological mechanisms!!**

??

Coital Incontinence (CI)

Let's look at two of the original studies first:	***- CI occurring with Penetration***	***- CI occurring with Orgasm***
Hilton P (1998)[7] n = 324 sexually active ♀ → **n= 79 (24%) coital incontinence**	CI-P: n = 53 (67%) → **70% had SUI** only 4% had DO	CI-O: n = 26 (33%) → **42% had DO** (pure DO or DO+SUI)
Serati et al (2008)[8] → **n= 132 ♀ with coital incontinence**	CI-P: n = 83 (63%) → **48% had SUI** 29% had DO	CI-O: n = 49 (37%) → **69% had DO** only 10% had SUI

Then a more recent study Iliano et al (2018)[9] n = 1,041 ♀ all with UI → **n = 560 (54%) with CI**

CI w Penetration / Thrusting	***CI w Orgasm***	***CI w P/T & O***
n = 313 (56%) → **92% had SUI**	n = 51 (9.1%) → **58.4% UUI** or urge predom. MUI	n = 196 (35%)
SUI PATHOPHYSIOLOGY as a RISK for CI ON PENETRATION **OR 56.6** 95%CI 32.1 – 100.0	**UUI PATHOPHYSIOLOGY** as a RISK for CI AT ORGASM **OR 8.2** 95%CI 5.4 – 12.5	*OR for pathophys was not calculated but… 49.8% of CI cohort did have MUI

Little note… in all studies CI-P is more common than CI-O

→ this could simply be due to the fact that CI-P is linked to SUI pathophysiology which is more common than DO in ♀

Let's look at two of the original studies first:	***- CI occurring with Penetration***	***- CI occurring with Orgasm***
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FYI… 2 Recent Systematic Reviews

Karacam Yilmaz et al 2026[6]

n = 23 articles with n = 21,650 women

Overall prevalence of coital incontinence in women with urinary incontinence is: **35.3%**

Amongst women with CI:

→ CI on penetration is most common: **~50.5%**

→ followed by CI at orgasm: **~37.1%**

→ and then some ♀ having mixed CI.

CI during Penetration is associated with SUI, with some studies suggesting it is specifically associated with urethral insufficiency.

CI at Orgasm is assoc. with detrusor overactivity.

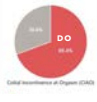
Mohamed et al 2026[10]

n = 23 articles addressing CI in terms of Pathophysiology

among ♀ with CI-P
89.4% demonstrate SUI



among ♀ with CI-O
69.4% demonstrate DO



severity of CI was significantly negatively correlated with abdominal leak point pressure (r = -0.36, p =0.01) suggesting a contribution of weak urethral sphincter.

CI on Penetration ⟷ SUI Mechanism

LET'S THINK

Stress Urinary Incontinence occurs when

→ **AN EXTRINSIC PRESSURE**
(separate to pressure created by the bladder wall itself)

→ places force on the bladder

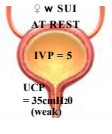
→ **INCREASE in IVP**

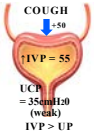
→ if there is poor UCP

→ **IVP > UCP**

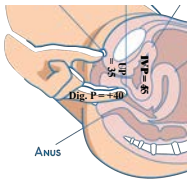
→ **URINE LEAKAGE**

COITAL INCONTINENCE triggered by the physical act of penetration
is simply just another EXTRINSIC PRESSURE triggering an increase in IVP that overcomes UP if it is insufficient









CI on Penetration ⟷ SUI Mechanism

LITTLE NOTE

Occasionally you will have a women report urinary incontinence with penetration (digital, penile, sex toy etc), but deny stress urinary incontinence with coughing, sneezing, laughing etc.

MOST LIKELY EXPLANATION

= Denovo SUI masked by Prolapse

Some women **with weak PF / Urethral Sphincters *who also have prolapse*** do not experience SUI in standing during the day as their prolapse kinks the bladder neck preventing leakage

These are the women who **often leak when a pessary is inserted that corrects the prolapse** → exposing the underlying urethral sphincter weakness



→ **PENETRATION** can have the combined impact of:

1. correcting the prolapse (acting like a pessary)
→ removing the 'bladder neck kink' / SUI protection

with the perfect storm of also…

2. placing pressure on the bladder
→ increasing the IVP

IVP > UCP
→ leakage



COITAL INCONTINENCE triggered by the physical act of penetration
is simply just another EXTRINSIC PRESSURE triggering an increase in IVP that overcomes UP if it is insufficient

CI at Orgasm ⟷ DO Mechanism

Not surprisingly, there is only 1 SMALL URODYNAMIC STUDY (n = 3 women) that has specifically assessed whether orgasm can trigger detrusor overactivity

Khan et al 1988

n = 3 women reporting CI at point of orgasm underwent urodynamics assessment.

→ all participants utilised a vibratory device on the clitoris to induce orgasm

RESULTS

In all three women, orgasm triggered

- involuntary detrusor contraction
- concomitant relaxation of the urethral sphincter





CI – Emotional Impact

Gubiotti et al 2022[12] found that

- 80% of ♀ with CI feel depressed because of the condition
- 56.6% of ♀ with CI reported that their coital incontinence restricted their sexual activity

Athey et al 2023[3] performed a large multicentre study of n = 4,900 women and found that coital incontinence was associated with greater sexual dysfunction including:

- Embarrassment
- Fear of leakage
- Avoidance of intercourse
- Reduced enjoyment of sex

Frigerio et al 2022[13] performed a narrative review and found that women with coital incontinence suffered from:

- Anxiety before intercourse
- Fear of partner rejection
- Avoidance of intimacy
- Lower self-image
- Poorer body image
- Relationship distress

IMPORTANT NOTE
This will become an important point of differentiation later when we discuss FE /Sq
CI is almost exclusively perceived as having a negative impact on sexual QoL



CI – Emotional Impact



IMPORTANT NOTE
This will become an important point of differentiation later when we discuss FE /Sq
CI is almost exclusively perceived as having a negative impact on sexual QoL



CI – Management

THE ONLY STUDY that has ever shown any data on this…

Bo et al 2000[14]
n = 59 women with SUI randomised to

Note: this was a general PFMT for SUI study

PFMT GROUP	CONTROL GROUP
n = 30 ♀ → 6/12 of PFMT	**n = 29 ♀ → No Treatment**
HEP 3 sets per day +1/wk Gp Class	

it just happened that at baseline….

CI: n = 6 (20%) (unfortunately not equal numbers) **CI: n = 13 (45%)**

6/12 PFMT TREATMENT — 6/12 NO TREATMENT

CI: n = 3 (10%) **CI: n = 12 (41.4%)**

JUST A LITTLE EMOTIONAL WELL-BEING REMINDER FROM BEFORE

It seems the problem a lot of health practitioners have, is that the moment they don't know something, their immediate thought is…..



CI – Management

SUMMARY

NO-ONE has **ANY EVIDENCE** to base their clinical practice on for conservatively managing coital incontinence

Therefore, at the moment **best practice** is simply based on pathophysiological **clinical reasoning**

1. COITAL INCONTINENCE with PENETRATION
   - →screen for all the pathophysiological mechanisms that commonly contribute to poor urethral closure pressure / stress urinary incontinence
   - → manage as required
2. COITAL INCONTINENCE at time of ORGASM
   - →screen for all the pathophysiological mechanisms commonly contributing to detrusor overactivity / urgency urinary incontinence
   - →manage as required

JUST A LITTLE EMOTIONAL WELL-BEING REMINDER FROM BEFORE

It seems the problem a lot of health practitioners have, is that the moment they don't know something, their immediate thought is…..



SUMMARY: Coital Incontinence

DEFINITION 'the complaint of involuntary loss of urine with coitus'

PREVALENCE
- amongst sexually active women with UI: ~ 1 in 3
- amongst sexually active women without UI: <2%

SUB-TYPES

Coital Incontinence with Penetration:
- most strongly linked with an SUI mechanism
- most likely an intrinsic urethral sphincter weakness

Coital Incontinence with Orgasm:
- most strongly linked with a DO mechanism

CONSERVATIVE MX Virtually no published research to guide us….
→ suggested to treat as per SUI or DO

SUMMARY: Coital Incontinence

DEFINITION 'the complaint of involuntary loss of urine with coitus'

PREVALENCE
- amongst sexually active women with UI: ~ 1 in 3
- **amongst sexually active women without UI: <2%**

Strangely, the research tells us that a lot more women than this report **FLUID EXPULSION with INTERCOURSE** (even when they have no other UI)

What might they be experiencing?



FEMALE EJACULATION??

Does it even exist?
If yes…..
- **→ what is it?**
- **→ how common is it?**
- **→ what advice do we give?**

Female Ejaculation… does it exist?

- books for HER
- apps for HER
- books for PARTNERS





Two Important People ….

Regnier de Graaf
1641 – 1673



Alexander Skene
1837 – 1900



Two Important People ....

Regnier de Graaf
1641 – 1673



First anatomist / physician to use the term "**Female Prostate**"

In a translation of his works by Jocelyn & Setchell 1972, he is said to have described:

*"**Along the whole duct of the urethra, a whitish membranous structure about one finger-breadth thick which completely surrounds the urethral canal....**"*

*"the structure could be aptly called the **female prostate** ...*

*...that produces a **pituito-serous juice**"*

Two Important People ....

Alexander Skene
1837 – 1900



Unlike De Graaf, did not use the term "Female Prostate"

*Instead used the terms **Para- and Peri-Urethral Glands**, describing....*

*"small **mucous glands** **within the walls** of the urethra."*

Suggesting that the glands commence at the level of the urethral meatus and continue upwards

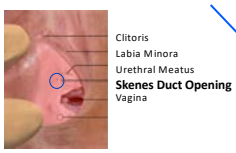
Two Important People ....

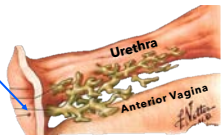
Skene not only claimed to identify the GLANDS...

He also claimed to identify the precise location of the **ductal openings** from each peri-urethral gland as

*"**one each side of the urethral meatus**"*

Alexander Skene
1837 – 1900





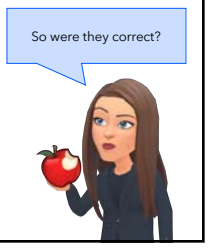
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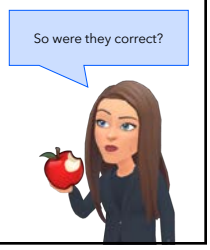
Alexander Skene
1837 – 1900





3 Questions we need to answer...

1. **Is there any current evidence that these para-urethral glands and ducts described by De Graaf and Skene actually exist?**
2. **If yes, are they prostatic?**
3. **If they are prostatic, do they produce "Female Ejaculate" during orgasm?**



1. Evidence of Paraurethral Glands

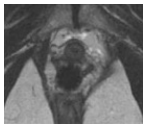
Wimpissinger et al 2009[15]

n = 7 women aged 17 - 62years (median 40yrs) undergo **MRI of the urethra / para-urethral area**.

→note: interestingly, two women reported female ejaculation at orgasm, and three women reported occasional secretions independent of sexual stimulation.

RESULTS OF MRI

- **Para-urethral glands could be visualised in 6 of 7 ♀**
  - in only 1 case was no glandular structures identified
- **Gland volumes ranged from 2-4cc**
- **In all 6 cases, ducts to the lumen of the urethra could be visualised**.



But are they actually 'prostatic' in nature?

2. Are ♀ urethral glands Prostatic?

NOTE: PROSTATE SPECIFIC ANTIGEN (**PSA**)

PSA is a serine protease produced by the glandular epithelial cells of the prostate (♂).
It is secreted into prostatic ducts and is widely regarded as a valid marker of prostatic tissue.

STUDY #1: Deitrich et al 2011[16]

Wanted to define the existence, structure and arrangement of a possible human **female** prostate

METHODS:
- utilised resected urethral specimens of 25 consecutive female patients 60 – 75yrs, who had required removal of the bladder & urethra due to bladder cancer (not urethral)
- the whole length of each urethra was cut in 4mm slices to allow assessment of the urethral wall, as well as surrounding glands and stroma, from the bladder neck (proximal) down to the outer urethral meatus (distal)
- serial slides at 3 levels (proximal, mid and distal urethra) then underwent



1. **H&E staining to simply identify any glandular structures**



2. **PSA antibody staining to identify if there were any prostatic cells / tissue**



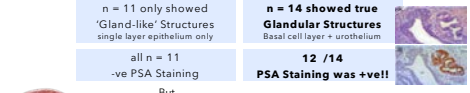
2. Are ♀ urethral glands Prostatic?

STUDY #1: Deitrich et al 2011[16] continued…

RESULTS:

n = 25 ♀ Urethras

n = 11 only showed 'Gland-like' Structures (single layer epithelium only)	**n = 14 showed true Glandular Structures** (Basal cell layer + urothelium)
all n = 11 -ve PSA Staining	**12 /14 PSA Staining was +ve!!**



But …





2. Are ♀ urethral glands Prostatic?

STUDY #1: Deitrich et al 2011[16] continued…

RESULTS:

n = 25 ♀ Urethras

~~50%♀ have prostatic glands~~

Alexander Skene 1837 – 1900



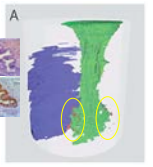




n = 14 showed true Glandular Structures (Basal cell layer + urothelium)
12 /14 PSA Staining was +ve!!

OTHER RESULTS

The **Prostatic Gland Acini** were mainly found in the **distal half of the urethra***, lateral and dorsolateral to urethral axis



PART 2: 3D modelling

BLUE	=	Vaginal Wall
GREEN	=	Urethra
RED	=	Female Prostatic Glands as identified by PSA Staining

2. Are ♀ urethral glands Prostatic?

Interestingly, Dietrich's findings were very consistent with an earlier paper published by..

But again, it was only about HALF of ♀



STUDY #2: Wernert et al in 1992 (that was then formally published online in 2017)[17]
Performed H&E and then PSA staining of cross sections of the urethra of n = 33 donors.

→ glandular structures were identified in = 22/33 (66.7%) donors, but…

→ glandular structures that **stained positive for PSA occurred in n = 14/33 (42.4%)**

OTHER RESULTS INCLUDED

- The glands were not evenly distributed, and instead concentrated in the distal half of the urethra
- Unlike the male prostate, they did not completely surround the urethra, and instead
  - existed within the peri-urethral connective tissue adjacent to the ant vaginal wall
  - occur as small periurethral clusters with long excretory ducts that empty into the urethral lumen (not just the vestibule)

Alexander Skene 1837 – 1900



Seems Skene was onto something back in the 1800s

2. Are ♀ urethral glands Prostatic?

Then more recently…

STUDY #3: Haller et al 2024

Performed an autopsy study of the female urethra and anterior vaginal wall with tissue derived from a series of n = 7 donors

→ PSA staining performed

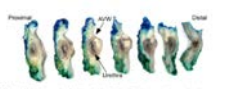
RESULTS

n = 5 out of 7 (71.4%) specimens stained positive for PSA

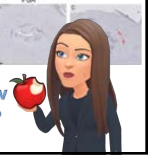
Positive PSA staining mainly occurred in the

- outer edges of the URETHRAL SUBMUCOSA of the DISTAL half of the urethra (with highest concentration in the last 10 – 15mm)

There was no positive PSA staining outside the circular smooth muscle of the urethra or in the anterior vaginal wall







3 Questions we needed to answer…

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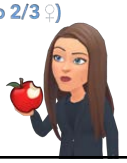
   Yes, peri-urethral glands seem to exist in 50 – 90% of women

2. **If yes, are they prostatic?**

   It appears that they are prostatic in 45 – 70% (? ½ to 2/3 ♀)

3. **If they are prostatic, do they produce "Female Ejaculate" during orgasm?**

   (or is the fluid some women expel at orgasm just urine)



Is there really Female Ejaculate?

DISRUPT PELVICON 2026

A range of studies have managed to get women who report they "ejaculate" to volunteer for fluid analysis

In all studies the woman first passed urine

→ **masturbate to orgasm at sexual medicine clinic**

→ **fluid expulsion collected**

→ **compared to urine voided** (and sometimes male ejaculate)

PUBLICATION	Collected Female Ejaculate *(composition comparison to ♀ urine)*	
Addiego et al 1981	**Glucose**	Higher than urine
	PSAP	Higher than urine
	Creatinine	Lower than urine
Zaviacic et al 1988	**Fructose**	Higher than urine
Schubach et al 2001	**Urea**	Lower than urine
	Creatinine	Lower than urine
Rubio-Casillas 2011	**PSA**	Higher than urine

SIDE NOTE re: FLUID MARKERS

URINE
the main markers for identifying a liquid is urine:

1.Urea: produced from protein metabolism and is the the major nitrogenous waste product

2.Uric Acid: produced from purine metabolism and is an additional urinary marker to confirm bladder origin

3.Creatinine: very stable marker of urine concentration

EJACULATE (male)
very different → no urea, uric acid or creatinine, the main markers are **PSA, PSAP, Glucose, Fructose**

SPECIFIC PATIENT EXAMPLE (from Wimpissinger et al 2007[19])

♀ Patient	URINE pre-orgasm	FLUID EXPULS. at orgasm	MALE ejaculate
PSA (ng/mL)	0.8	213 →	110-2,200

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It's more similar to **MALE EJACULATE** than it is to female urine??



Collected Female Ejaculate *(composition comparison to ♀ urine)*	
Glucose	**Higher** than urine
PSAP	**Higher** than urine
Creatinine	**Lower** than urine
Fructose	**Higher** than urine
Urea	**Lower** than urine
Creatinine	**Lower** than urine
PSA	**Higher** than urine

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Is there really Female Ejaculate?

DISRUPT PELVICON 2026

Pastor 2013[20] – was the first to perform a systematic review to clarify non-pathological fluid expulsion in ♀ at orgasm (vs urine)

	FEMALE URINE sample	FEMALE EJACULATE sample
PSA	+	**+++**
PSAP	+	**+++**
Glucose	none	**+++**
Fructose	none	**+++**
Uric Acid	**+++**	none
Urea	**+++**	none
Creatinine	**+++**	none
Colour	**Yellow**	**White**

Rodriguez et al 2020[21] – then performed a review of n = 44 publications and stated:

- *'anatomical studies have shown that female ejaculate originates from the parauerethral glands'*
- *'it differs from urine in its creatinine and urea concentrations (lower)*
- *'it also contains prostate specific antigen (PSA) and could have antibacterial properties that serve to protect the urethra'*

and then this year...

SIDE NOTE re: FLUID MARKERS

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MALE EJACULATE
very different → no urea, uric acid or creatinine, the main markers are **PSA, PSAP, Glucose, Fructose**

Is there really Female Ejaculate?

DISRUPT PELVICON 2026

Mohamed et al 2026[10] – performed another systematic review and found...

FEMALE EJACULATION was consistently found in studies to be:

- **small volume** (1-5mls); **whitish** viscous fluid
- **elevated PSA** (pooled mean: 42.6 ng/mL; 95% CI: 35.2–50.0 ng/mL)
- **minimal urinary solutes** (urea <5 mg/dL, creatinine 0.1mg/dL),

Does that mean any **LARGE VOLUME** fluid expulsion has to be coital incontinence?





This is consistent with the fact that the para-urethral glands are only about **1-5cc** in volume

Alexander Skene
1837 – 1900



Actually no

Is there really Female Ejaculate?

DISRUPT PELVICON 2026

Arias-Castillo et al[22] explains that:

FEMALE EJACULATION
consists of
*the orgasmic expulsion of a **small quantity** of whitish fluid produced by the female prostate.* p427

SQUIRTING
consists of the
*orgasmic transurethral expulsion of a **substantial amount of diluted urine** during sexual activity, but it is not considered pathological.* p428



also... actually no.

TWO MAIN CONSIDERATIONS...

CI and FE vs.... Squirting

DISRUPT PELVICON 2026

Pastor 2013[20] (from before) **actually describes three types of fluid expulsion that can occur...**

	CI - Urine	Ejaculate	Squirting
Colour	Yellow	White	Clear
Volume	Variable	1-5mls	50-900mls
Timing with Intercourse	Penetration or Orgasm	Orgasm	Orgasm
PSA	+	+++	++
Uric Acid	+++	none	+
Urea	+++	none	++
Glucose/ Fructose	none	+++	+

So how do we as pelvic health therapists **differentiate CI-O with Squirting?**



Abdelshafi et al 2026[23]

Performed a systematic review of n = 9 studies and confirmed two distinct phenomena

1. **Female ejaculation** originates from Skene's glands, evidenced by high concentrations of prostate-specific antigen (PSA) comparable to male prostatic fluid.
2. **Vaginal squirting** originates from the urinary bladder, showing elevated urea and creatinine levels, but real-time ultrasound imaging demonstrating bladder emptying concurrent with female ejaculation.

CI and FE vs.... Squirting

Pastor 2013[20] (from before) **actually describes three types of fluid expulsion that can occur...**

	CI - Urine	Ejaculate	Squirting
Colour	Yellow	White	Clear
Volume	Variable	1-5mls	50-900mls
Timing with Intercourse	Penetration or **Orgasm**	Orgasm	**Orgasm**
PSA	+	+++	++
Uric Acid	+++	none	+
Urea	+++	none	++
Glucose/ Fructose	none	+++	+

So how do we as pelvic health therapists **differentiate CI+O with Squirting?**



Distinguishing '**COITAL INCONTINENCE w ORGASM**' vs '**SQUIRTING**'

1. Does the woman have any signs of OTHER PELVIC FLOOR or URINARY DISORDERS?
   if no.... more likely to be squirting
2. Does the ♀ experience INCREASED or REDUCED (inhibited) SEXUAL RESPONSE?
   → squirting is often associated with an increased sexual response

WHY IS IT IMPORTANT TO KNOW ALL THIS??

FE & Squirting... why we need to know

Mohamed et al 2026[10] in their…

systematic review and meta-analysis of the biochemical, imaging and urodynamic diagnostic criteria for female ejaculation, squirting and coital incontinence state:

Coital incontinence *is pathological, confirmed by urodynamic evidence of SUI amongst women with coital incontinence on penetration and detrusor overactivity for women with coital incontinence at orgasm*

in contrast

Female ejaculation and Squirting *represent physiological responses requiring no intervention*

Women experiencing orgasmic fluid expulsion have often been misdiagnosed with urinary incontinence, resulting in unnecessary interventions and psychosexual distress.

Distinguishing physiological phenomena (female ejaculation and squirting) from pathological coital incontinence (CI) is critical, as misdiagnosis leads to inappropriate treatment of normal sexual responses

Clinical application of these biochemical, imaging, and urodynamic criteria...

- *prevents misdiagnosis*
- *avoids inappropriate treatment of normal sexual function, and*
- *ensures appropriate management for pathological CI*

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Clinical application of these biochemical, imaging, and urodynamic criteria...

- ***prevents misdiagnosis***
- ***avoids inappropriate treatment*** *of normal sexual function, and*
- ***ensures appropriate management*** *for pathological CI*

LITTLE THINKPOINT THOUGH

Whilst I 100% agree,
(we need to know to prevent misdiagnosis, avoid inappropriate treatment of FI/Sq, whilst also ensuring appropriate treatment of CI)

I think it's more than just ensuring appropriate patient selection and treatment application....

IT'S ALSO ABOUT ACCURATE EDUCATION & EMOTIONAL REASSURANCE

when the fluid expulsion is a normal physiological response



Other reasons we need to know...

PSYCHOLOGICAL IMPACTS

Abdelshafi et al 2026[23] in their systematic review titled 'vaginal squirting: origin, experiences and discoveries', reviewed the data from n = 9 studies and found that:

- *women's subjective reactions [to fluid expulsion with sex] span from pride and sexual empowerment through to confusion, embarrassment and shame.*

  →*shame and embarrassment - reported by approximately 25% of women - was rooted primarily in fear of having urinated during sex. However…*

  → *lack of accurate sexual education was directly linked to initial misperceptions of urinary leakage.*

They go on to say….

- *Health professionals have long conflated female ejaculation and vaginal squirting with coital incontinence due to inconsistent terminology, methodological variability, and cultural taboos.*
- *This confusion impedes accurate clinical assessment and sexual health education.*

Other reasons we need to know...

PSYCHOLOGICAL IMPACTS

The research tells us this pride is common in women confident with their sexuality and proud of the sexual response with female ejaculation and squirting...

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- *Health professionals have long conflated female ejaculation and vaginal squirting with coital incontinence due to inconsistent terminology, methodological variability, and cultural taboos.*
- *This confusion impedes accurate clinical assessment and sexual health education.*

But there is just one more sensitive topic I would quickly like to explore…

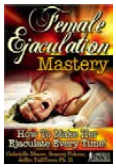
Societally Created Expectations…

- Irrespective of your own personal opinions on pornography (positive or negative), the reality is that pornography is a part of many peoples lives and is not disappearing anytime soon.
- Further, with increasing accessibility over the last few decades due to the internet, more and more young people are forming their **'baseline ideas of sex'** from pornography.



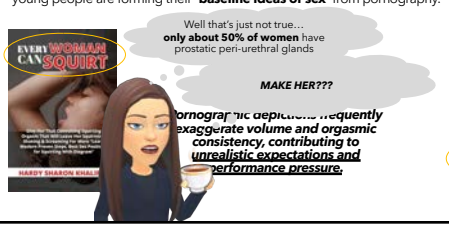
SYSTEMATIC REVIEW
Abdelshafi et al 2026
found that in term of FE/Sq

Pornographic depictions frequently exaggerate volume and orgasmic consistency, contributing to unrealistic expectations and performance pressure.



Societally Created Expectations…

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Influence of the Partner…

Pafs et al 2026[24]

Discuss in the introduction to their paper on women's experiences of FE/ Sq:

- *that research suggests a partner's "response" plays a pivotal role in shaping how women experience squirting, particularly during their first encounter*

and that….

- *further, a partner's response, whether real or imagined, seems to play a crucial role in shaping how women navigate this experience*

Influence of the Partner...

Pafs et al 2026 continued...

AIM OF THEIR RESEARCH

To perform a narrative study of **cisgender women's experiences of male sexual partners responses to squirting**, aiming to conceptualize the interpersonal meanings of squirting within sexual interactions between women and men.

Note: the authors specifically explained that the focus was on interactions **between w** n sexual identity, acknowledging that participants themselves may identify as bisexual, pans

So what did they find?



Note re: PARTICIPANTS

The analytical sample consisted of **n = 16 cisgendered women aged 34 to 60**.

- the group reflected diverse relationship statuses, including single, dating, and partnered within both monogamous and consensually non-monogamous arrangements.
- crucially for the aim of this study, all participants had sexual experiences with men, tho reported having had sexual experiences with women.
- all women had experienced squirting with one or several partners.

Influence of the Partner...

Pafs et al 2026 continued...

RESULTS

The authors described that while positive responses were frequently reported, the data revealed complex and various experiences where squirting had been received with negative responses or by strategies of avoidance, or, less commonly, neutral responses.

Ultimately, the analysis identified **four key themes**:

1 - VALIDATION

- Commonly sited when there was a neutral response from a partner; referring to squirting as a neutral bodily response, met with either accepting or supportive responses

  eg one woman recalled: *"I was like, 'Watch out, it's going to get really wet,'* and he just undramatically responded, *'That's fine.'*

- Whilst a rare response, its presence contrasted the other themes, and it appeared that this validating, unburdened response provided women relief, allowing them to focus less on the act of squirting and more on their own experience

Influence of the Partner...

Pafs et al 2026 continued...

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Influence of the Partner...

Pafs et al 2026 continued...

THEMES continued...

2 - DESIRED (by partner)

- squirting as tangible proof of sexual prowess, where partners expressed pride and viewed it as an achievement or confirmation of climax–sometimes in contrast to the woman's own experience;

3 - AVOIDED (by woman and / or partner)

- squirting as an undesirable sexual response, accompanied by a negative or dismissive partner

and then the most worrying one…

4 - COERCED (by partner)

- squirting as a pressured performance, where women felt pushed beyond their boundaries to satisfy a partner's desire for this response.

Influence of the Partner...

Pafs et al 2026 continued...

4 – MORE INFORMATION ON 'COERCED'...the authors reported that:

This study's most novel and troubling finding, the Coerced theme, reveals the potential for harm inherent in the "squirting imperative".

- *Ideally, positive attention from a partner would be validating, yet several women described how a partner's intense desire for squirting could transform into pressure.*
- *Experiences of persistent "nagging" were also reported, with narratives of **partners** trying to persuade them, **insisting on exploring certain techniques**, or using pornography for inspiration.*
  - This pressure manifested in various ways, from partners asserting a "**right technique**" **(mentioned as "rough")** that sometimes caused discomfort or pain for the woman, to persistent "nagging" that pushed women to compromise their boundaries.
- *The pursuit of squirting led women to feel compelled, or **to compromise their personal boundaries** in an effort to please their partners and provide them with a squirt.*

Influence of the Partner...

Pafs et al 2026 continued...

STUDY CONCLUSION

By analysing women's accounts of partners' responses, this study identifies how the bodily occurrence of squirting is not merely a physiological event but a charged symbolic event of social, emotional, and relational meaning-making

These findings reveal that squirting is imbued with conflicting meanings–ranging from neutral acceptance and pride to discomfort and coercion–influenced by the responses of men as partners and cultural expectations.

While some women described feeling affirmed or empowered, others recounted navigating shame, avoidance, or pressure to perform.

Squirting in sexual interactions between women and men thus emerges not as a purely physiological event, but as a socially charged experience, negotiated and expressed through diverse squirting scripts.

3 Takeaways

DISRUPT PELVICON 2026

Takeaway 1

- **Coital Incontinence** is a common urinary disorder affecting 30-50% of women with daytime UI
- **Coital incontinence triggered by penetration** is most strongly linked to the same factors that trigger SUI
- **Coital incontinence triggered by orgasm** is more commonly linked to detrusor overactivity

Takeaway 2

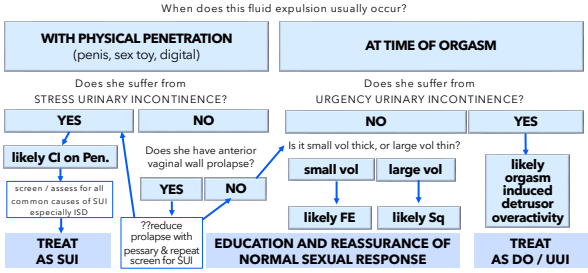
- **Female Ejaculation and Squirting** are normal physiological responses that can occur in 40 – 50% of women that do not need treatment
- **Female Ejaculation (FE)** is usually small volume, thick, whitish fluid expelled at orgasm from the periurethral / Skene's glands.
- **Squirting (Sq)** is usually large volume, clear fluid, that is a mix of female ejaculate and urine, also expelled at the time or orgasm

Takeaway 3

- **We have no research on the conservative management of Coital Incontinence,** but the accepted approach is to manage CI on penetration like an SUI and CI at orgasm like a detrusor overactivity.
- **Female Ejaculation / Squirting:** a vital role of pelvic health therapists is to be a safe place for women to receive accurate, evidenced based education and reassurance

CLINICAL REASONING FLOW CHART

DISRUPT PELVICON 2026



Thank you

Taryn Hallam

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