
Introduction: 2022 still using incorrect terminology ☹ Many assumptions as to cause of increased PFM tone and the aim of Pelvic floor PT.

Primary Aim: Appraise the current literature on the efficacy of Pelvic floor PT on increased PFM tone

Study Format: Systematic review of studies published between 2000 and 2019 using Pelvic floor PT to treat increased PFM tone.

Methods:
- 10 studies met inclusion criterion 4 RCT, 1 case study, 5 prospective cohorts, including females with PVD and IC/PBS, males with CP/CPPS.
- Table one (pg 211) lists outcomes: 22 questionnaires, 6 palpation, rest sEMG, vulvalgesiometer (pressure pain threshold).
- Table 2 - Increased PFM tone was assessed by palpation or un-normalized sEMG in 4 studies
- Can you say you are treating increased PFM tone if you did not measure it?
- Can you say PT had an effect on tone if the only outcome is a questionnaire or a measure of pain?
- What does the diagnosis pelvic floor hypertonicity mean? Increased tone, pain, decreased function
- Should the name of the paper be “Pelvic floor PT for CPP: a systematic review of treatment efficacy”?
- See below for more studies on this topic

PFM resting tone and function – page 225

<table>
<thead>
<tr>
<th>Ref</th>
<th>Author</th>
<th>Design</th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ref 48</td>
<td>Schwartzman (medium quality)</td>
<td>RCT / dyspareunia</td>
<td>No significant decreased resting sEMG</td>
<td>Biofeedback, hold / relax, PFM MFR, infrared thermotherapy</td>
<td>Sig decrease dyspareunia</td>
</tr>
<tr>
<td>Ref 44</td>
<td>Cornel (low quality)</td>
<td>Prospective / CP/CPPS</td>
<td>Significant decrease resting sEMG</td>
<td>Biofeedback training, hold / relax, bladder training</td>
<td>Significant decrease pain</td>
</tr>
<tr>
<td>Ref 45</td>
<td>Gentilcore-Saulnier (low quality)</td>
<td>Prospective / PVD</td>
<td>No significant change in resting sEMG palpation: decreased tone, increased flexibility, increased ability to relax</td>
<td>Biofeedback training, dilators, EGS</td>
<td>Sig decrease pain on vulvalgesiometer</td>
</tr>
<tr>
<td>Ref 50</td>
<td>Oyama (low quality)</td>
<td>Prospective / IC</td>
<td>Sig improvement in PFM tone using Modified Oxford tone scale</td>
<td>PFM massage</td>
<td>Sig decrease pain</td>
</tr>
</tbody>
</table>

Discussion:
Use sEMG in conjunction with other muscle resting tone measures

Conclusion: The review suggested Pelvic floor PT can be beneficial “for CPP”. More good research needed

Clinical application:
- We do not have causality studies - does pain causes increased tone or increased tone causes pain.
- What is the interaction between tone, pain, and function?
- We need to use valid and reliable tone measurements - palpation and investigations (sEMG and others)
- We should be considering tone, pain, and function separately in assessment, diagnosis, and treatment
Evidence for Treatment of Pelvic Pain

Clinical Guidelines on chronic pelvic pain (EAU) (Engeler, 2010)

- Prostate pain - grade B second line treatments - biofeedback, relaxation, lifestyle changes, massage
- IC / BPS - grade B - bladder training, manual and physical therapy
- CPP - grade A - relaxation training with or without biofeedback, physical therapy, multi-disciplinary team approach
- PFM dysfunction - grade A - overactive PFM use biofeedback adjuvant to muscle exercises, pressure or needling recommended for myofascial trigger points
- PFM dysfunction - grade B - PFM treatment is first line treatment in CPPS

Systematic review of physiotherapy treatment for female CPP (Loving 2012)

- 10 studies – 6 RCT, 1 cohort, 3 case series
- Included studies of bladder pain syndrome but excluded endometriosis and vulvodynia
- Heterogeneity (participants, interventions, outcomes) prevented meta-analysis
- Unable to report value of PT as a stand-alone intervention
- Some evidence to support the effect of multi-disciplinary interventions and Mensendieck therapy (a hybrid of PT and cognitive behavioral therapy)
- Primary outcome based on pain reduction – this may not be the best measure of change in patients with chronic pain of any type

Systematic review of therapies for noncyclic CPP in women (Yunker 2012)

- 17 non surgical, 7 surgical studies
- Insufficient evidence to conclude that one surgical technique is better
- 2 studies of poor quality compared surgical to non surgical treatments (including PT) - no significant difference between the groups
- Poor quality study compared PT to counseling and found significant benefit for PT
- “Management of pelvic pain is most effective when a multidisciplinary team of physician, physical therapist, and psychologist is concurrently involved in patient treatment from the outset.” RCT (Peters 1991)
- Conclusion – not enough evidence to know which treatments work.

Cochrane Review Non-surgical interventions for the management of CPP (Cheong 2014)

- 13 studies included
- Most on medication and psychological treatment
- Some evidence that "distention therapy" (Intra-rectal stretching of PFM and sacrotuberous ligament) significantly decreased VAS and pain during intercourse (Heyman 2006)
- Multidisciplinary team approach recommended

Systematic review and meta-analysis of treatment for CP/CPPS (Cohen 2012)

- 35 articles
- Significant placebo effect for all outcomes
- In some cases the placebo effect was higher for control group than treatment group which blunts treatment effect.
- Efficacy of treatment for all modalities increased over time - should have at least 32 weeks of treatment to see effect
- Some evidence of improvement of symptoms over time without treatment "prostatitis burning itself out"
References


Normalization
Halaki M, Ginn K. Normalization of EMG Signals: To Normalize or Not to Normalize and What to Normalize to? Chapter 7 in Computational Intelligence in Electromyography Analysis – A Perspective on Current Applications and Future Challenges. 2012.

OK not to normalize
● Assessment of recruitment and de recruitment time
● “Amplitude comparisons of signals from a given muscle between short term interventions/movements within an individual in the same session under the same experimental conditions without changes to the EMG electrode set-up” for example 5 second hold compared to 10 second hold or supine versus standing ON THE SAME DAY!!

Must normalize
● Comparing PFM activity in the same patient on different days
● Comparing the PFM activity in different individuals

There are several methods and each has plus and minus, some machines calculate it for you (Noraxon)
● “The most common method of normalizing EMG signals from a given muscle uses to the EMG recorded from the same muscle during a maximal voluntary isometric contraction (MVIC) as the reference value”
● Assuming the patient can generate MVIC (there are alternatives if this is not possible)
● How to calculate MVIC – 3 reps of # seconds hold with adequate rest between (30 second to 2 minutes). Max value during all reps is the reference value.
● “Normalization of EMG signals is usually performed by dividing the EMG signals during a task by a reference EMG value (MVIC) obtained from the same muscle.”
  ○ Task EMG value / reference EMG value = normalized value
  ○ 10 second hold on Jan 3 - 5 uV / MVIC - 15 uV = .33
  ○ 10 second hold on Feb 13 – 10 uV / 15 uV = .66