Pelvic Floor Musculature

- Obturator fascia
- Puborectalis
- Pubococcygeus
- Iliococcygeus
- Tendinous arch
- Obturator internus
- (Ischio)coccygeus
- Piriformis

Netter Plate 358
The Roles of the Pelvic Floor

- Support for viscera
- Spinal stability
- Bowel and bladder function
- Sexual function
- Respiration

Gentilcore-Saulnier et al. 2010, Fritsch et al. 2011
What is Chronic Pelvic Pain?
Pain in the pelvis or lower abdomen

Pain with sex

Pain with urination/defecation

Bowel and bladder dysfunction

Sexual dysfunction

Anxiety and depression

CPP

Significance of CPP

- Prevalence: 14.7% - 25% women and men
- 60-95% women and men with refractory CPP
- $881 million to $2 billion per year in the US

Causes of CPP

- Trauma
- Visceral disease
- Visceral pain
- Mechanical abnormalities
- Chronic holding patterns
- Repetitive minor trauma
- Pain anxiety

## Current Treatment of CPP

### Surgery
- Laparoscopy
- Laparotomy
- Coccygectomy

### Pharmacology
- Hormone therapy
- Tricyclic Antidepressants
- SSRIs
- Local injection
- Botox injection

### Psychotherapy
- Psychotherapy
- Writing in a diary

### Manual Therapy
- Static magnetic therapy
- PFM manual therapy?

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Roth 2011, Stones et al. 2010, Butrick 2009, Patijn et al. 2010
The CPP Cycle

Hypertonic PFM

Sustained muscle activity

Pain anxiety

PFM dysfunction

Myofascial trigger points

Prevents normal resting tone

Relevance to PT

- Test and measure incontinence
- Toileting position
- Muscle length of PFM
- Muscle performance of PFM
- Myofascial trigger point release (MFR)

Pauls and Shelly, 1999
PFM Manual Therapy

- PFM Manual Therapy: Compression, contract/relax stretching and STM of myofascial trigger points
  - Abdominal wall, back, buttocks, thighs, and PFM transrectally or transvaginally

- Thiele Massage: massage from origin to insertion along the direction of the PFM
Gap in Literature

No current reviews on manual therapy for the treatment of men and women with CPP

Little guidance to PTs on effective treatment for these symptoms
Purposes

Primary Purpose

• Is manual therapy effective at reducing pain for men and women with CPP symptoms?
• This is a foreground question.

Secondary Purpose

• Is manual therapy more effective than a control or comparison group at reducing pain for men and women with CPP symptoms?
PICO

P: Acyclic
- Inflammatory or non-inflammatory pelvic pain
- Lower abdominal pain
- Urogenital pain
- > 1 month
- Not associated with pregnancy

I: PFM manual therapy
- Thiele Massage

C: Control
- General, non-specific massage
- Counseling
- Short-form wave therapy (magnetic)

O: Visual Analog Scale (VAS) for pain
Hypotheses

First Null Hypothesis:
• Manual therapy is not effective in reducing pain in patients with CPP

First Alternative Hypothesis:
• Manual therapy is an effective treatment for reducing pain for patients with CPP

Second Null Hypothesis:
• Manual therapy has no effect on pain reduction when compared to a control or comparison group

Second Alternative Hypothesis:
• Manual therapy has an effect on pain reduction when compared to a control or comparison group
Expected Findings

10-20 articles on manual therapy for CPP

Statistically significant reduction in pain with manual therapy interventions

Statistically significant difference in pain with manual therapy interventions when compared to control or comparison groups
## Methods: Criteria

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PFM Manual therapy</td>
<td>• Incorporation of other therapies (chiropractic manipulation, drug therapy, surgery, dry needling)</td>
</tr>
<tr>
<td>• Outcome measurement of pain with the visual analog scale (VAS)</td>
<td>• Perinatal subjects</td>
</tr>
<tr>
<td>• English</td>
<td>• Case reports</td>
</tr>
<tr>
<td>• Human studies</td>
<td></td>
</tr>
</tbody>
</table>

**Inclusion Criteria**
- PFM Manual therapy
- Outcome measurement of pain with the visual analog scale (VAS)
- English
- Human studies
Methods

Databases searched

- PubMed
- Cochrane Library
- CINAHL

Search terms

- Thiele massage, physiotherapy, manual therapy, physical therapy, trigger point, or myofascial and coccydynia, perineal, pudendal neuralgia, prostatitis, chronic pelvic pain, pelvic floor, pelvic pain, levator ani, interstitial cystitis, coccygodynia, or sexual dysfunction and pain.
Methods: Statistics

Analysis of reduction in pain via VAS:

- Single group effect size
- Two-group effect size
- Q statistic with inverse variance for weighting
- 95% confidence intervals
Results: PRISMA Diagram

Records initially identified from database searches (n=250)

Records screened for specified criteria (n=233)

Duplicates identified (n=17)

Records not meeting specified criteria (n=224)

Records discarded for participant overlap (n=2)

Full text records reviewed for eligibility (n=9)

Records included in this review (n=7)

A secondary reviewer confirmed that the studies met the inclusion criteria.
## Results: Primary Articles

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Type of Study</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>FitzGerald, 2009</td>
<td>Single-Blind RCT</td>
<td>2b</td>
</tr>
<tr>
<td>Maigne, 2006</td>
<td>Randomized Case Control</td>
<td>3b</td>
</tr>
<tr>
<td>Heyman, 2006</td>
<td>Randomized Case Control</td>
<td>3b</td>
</tr>
<tr>
<td>Anderson, 2011</td>
<td>Case Series</td>
<td>4</td>
</tr>
<tr>
<td>Oyama, 2004</td>
<td>Case Series</td>
<td>4</td>
</tr>
<tr>
<td>Montenegro, 2010</td>
<td>Case Series</td>
<td>4</td>
</tr>
<tr>
<td>Figuers, 2010</td>
<td>Retrospective Case Series</td>
<td>4</td>
</tr>
</tbody>
</table>
## Results: Population

<table>
<thead>
<tr>
<th>Study</th>
<th>Patient Population</th>
<th>Age</th>
<th>N</th>
<th>Diagnosis</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>FitzGerald, 2009</td>
<td>Females, Males</td>
<td>43</td>
<td>44</td>
<td>IC/PBS CP/CPPS</td>
<td>&lt;3 years</td>
</tr>
<tr>
<td>Maigne, 2006</td>
<td>Females, Males</td>
<td>45</td>
<td>100</td>
<td>Coccygodynia</td>
<td>13 months</td>
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<tr>
<td>Heyman, 2006</td>
<td>Females</td>
<td>34</td>
<td>44</td>
<td>CPP</td>
<td>29 months</td>
</tr>
<tr>
<td>Anderson, 2011</td>
<td>Males</td>
<td>48</td>
<td>116</td>
<td>CP/Orchialgia</td>
<td>4.8 years</td>
</tr>
<tr>
<td>Oyama, 2004</td>
<td>Females</td>
<td>42</td>
<td>13</td>
<td>IC</td>
<td>5-14 years</td>
</tr>
<tr>
<td>Montenegro, 2010</td>
<td>Females</td>
<td>36</td>
<td>6</td>
<td>CPP</td>
<td>&gt;6 months</td>
</tr>
<tr>
<td>Figuers, 2010</td>
<td>Females</td>
<td>52</td>
<td>5</td>
<td>CPP</td>
<td>13 years</td>
</tr>
</tbody>
</table>
## Results: Population

<table>
<thead>
<tr>
<th>Patient Characteristic</th>
<th>Average Across Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>45%</td>
</tr>
<tr>
<td>Female</td>
<td>55%</td>
</tr>
<tr>
<td>Age</td>
<td>42.9 years</td>
</tr>
<tr>
<td>Symptom Duration Range</td>
<td>6 months to 14 years</td>
</tr>
</tbody>
</table>
## Results: Intervention

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Frequency/Duration</th>
<th>Follow Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>FitzGerald, 2009</td>
<td>Manual stretching PFM, MFR of PFM</td>
<td>10 visits, 30-60 mins</td>
<td>12 weeks</td>
</tr>
<tr>
<td>Maigne, 2006</td>
<td>Manual stretching PFM</td>
<td>3 visits, 5 mins</td>
<td>12 weeks</td>
</tr>
<tr>
<td>Heyman, 2006</td>
<td>Manual stretching PFM</td>
<td>2 visits, 5 mins</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Anderson, 2011</td>
<td>MFR to PFM</td>
<td>5 visits, 60 mins</td>
<td>4-6 weeks</td>
</tr>
<tr>
<td>Oyama, 2004</td>
<td>Thiele massage</td>
<td>10 visits, 5 mins</td>
<td>6 months</td>
</tr>
<tr>
<td>Montenegro, 2010</td>
<td>Thiele massage</td>
<td>4 visits, 5 mins</td>
<td>5-7 weeks</td>
</tr>
<tr>
<td>Figuers, 2010</td>
<td>MFR to PFM</td>
<td>3-15 visits</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>
Single Group Effect Size for Pain VAS

Q Statistic: 35.67

Random Effects Model

Statistically Significant!

Combined Effect Size

-1.28 (-1.93, -0.63)
Two Group Effect Size for Pain VAS

Q Statistic: 14.28
Random Effects Model

Not statistically significant

Combined Effect Size
-0.72 (-1.44, 0.004)
Discussion

Able to reject first null hypothesis!

- Manual therapy is effective
- Effect size is large
- Clinically crucial effect
Discussion

Unable to reject second null hypothesis

- Manual therapy is not statistically effective as an intervention when compared to control groups
Clinical Significance

**Single group effect size**
- Change in VAS: Decreased by **2.56 points**

**Two group effect size**
- Change in VAS: Difference between groups of **1.77 points**

**MCID in endometriosis**
- **1 point change** on 0-10 scale

Gerlinger et al. 2010
Two Group Effect Size for Pain VAS

Q Statistic: 14.28

Random Effects Model

Not statistically significant

-0.72 (-1.44, 0.004)
Current Treatment of CPP

**Surgery**
- Laparoscopy
- Laparotomy
- Coccygectomy

**Pharmacology**
- Hormone therapy
- Tricyclic Antidepressants
- SSRIs
- Local injection
- Botox injection

**Psychotherapy**
- Psychotherapy
- Writing in a diary

**Manual Therapy**
- Static magnetic therapy
- PFM manual therapy

Roth 2011, Stones et al. 2010, Butrick 2009, Patijn et al. 2010
Harm/Adverse Events

4 articles mentioned adverse events

- Increase in pain from manual therapy

Potential harm of other interventions vs. manual therapy

- Surgical complications
- Medication side effects
## Cost

None of the articles specifically address cost

### No direct cost increase
- Training for PTs in PFM manual therapy
- Feasibility at a clinical site

### Improvement with brief duration of treatment
- 4 of 8 studies used 5 min treatment sessions
Implications for Clinical Practice

Address this issue!

- 70% of women diagnosed with endometriosis report that at least 1 physician has claimed their symptoms were due to psychological disturbance

What specifically should YOU do?

- Ask patients about pain in this area
- Possible questionnaires: McGill Questionnaire
- Refer as necessary!

Roth 2011, Stones et al. 2010, Montenegro 2007
Limitations

Articles in English available to author

High Q statistic, heterogeneity in articles

- Different manual therapy techniques
- Different diagnoses

Lack of functional outcomes

Pathogenesis of CPP is poorly understood
Future Work

More studies on PFM manual therapy

• CPP diagnosis
• Functional outcomes
• Intervention frequency/duration
PFM manual therapy is a low risk, effective intervention for pain associated with CPP
Thank You!

- Amy Selinger, PT, DPT, OCS
- Jeannette Lee, PT, PhD
- Diane Allen, PT, PhD
- Brianna Pickering, DPTc
- Justin Trumbull, DPTc
- UCSF/SFSU Faculty
- UCSF/SFSU Class of 2012


References


Questions?