Physiotherapy Interventions and Pelvic Organ Prolapse

Primary Care Conference May 2014: Dr Doreen McClurg POGP Chair, Reader, NMAHP RU, Glasgow Caledonian University. Doreen.mcclurg@gcu.ac.uk
Background
- Definition
- Prevalence
- Types of prolapse
- Aetiology
- Natural history

Signs and symptoms

Treatment options Physiotherapy
- PFMT – Treatment and symptoms
- Surgery – Peri-operative Physiotherapy
- Pessaries
Background: Pelvic Organ Prolapse (POP) through time

“of a woman whose posterior, belly, and branching of her thighs are painful, say thou as to it, it is the falling of the womb,” (Kahun papyrus ca. 1835 B.C.E.)
Hippocrates 460-377 BC “fumigation” and “succussion”

First century “. . . Bathe the prolapsed part of the uterus with much lukewarm olive oil, and make a woolen tampon corresponding in shape and diameter to the vagina and wrap it in very thin clean linen. . . one should dip it briefly in vinegar. . . acacia juice. . . or wine, and apply it to the uterus and move the whole prolapsed part, forcing it up gently until the uterus has reverted to its proper place and the wholemass of wool is in the vagina” Soranus

Middle ages and Renaissance

16th Century – evolution of the pessary

Mid-late 19th Century - surgery
Definition

POP - The descent of one or more of the anterior vaginal wall, posterior vaginal wall, the uterus (cervix), or the apex of the vagina (vaginal vault or cuff scar after hysterectomy).

The presence of any such sign should be correlated with relevant POP symptoms. More commonly, this correlation would occur at the level of the hymen or beyond.

*Objective findings of prolapse in the absence of relevant prolapse symptoms may be termed “anatomic prolapse”.*

Haylen et al 2010
Types of prolapse

- Anterior vaginal wall prolapse: bladder (cystocele, urethrocele)
- Posterior vaginal wall prolapse: rectal wall (rectocele), enterocoele
- Apical: uterine/cervical prolapse (cervix, uterus)
- Apical: vaginal vault, cuff (after hysterectomy)
- High posterior/apical: enterocoele (small bowel loops).
## Prevalence of POP - signs

<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
<th>Defn of POP</th>
<th>Age</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samuelsson 1999</td>
<td>Sweden</td>
<td>Standardized pelvic examination</td>
<td>20-59 (mean=39)</td>
<td>487</td>
<td>Any prolapse: 31</td>
</tr>
<tr>
<td>Hendrix 2002</td>
<td>USA</td>
<td>Standardized pelvic examination</td>
<td>50-79 (mean=63)</td>
<td>27,342</td>
<td>Any prolapse: 41</td>
</tr>
<tr>
<td>Handa 2004</td>
<td>USA</td>
<td>Standardized pelvic examination</td>
<td>50-79 (mean=63)</td>
<td>412</td>
<td>Any prolapse: 32</td>
</tr>
</tbody>
</table>
| Nygaard 2004  | USA     | POP-Q                        | 50-79 (mean=68) | 270  | Stage 0: 2
Stage 1: 33
Stage 2: 63
Stage 3: 2
Stage 4: 0
> hymeneal ring: 26 |
| Bradley 2007  | USA     | POP-Q                        | 50-79 (mean=68) | 270  | > hymeneal ring: 24    |
### Prevalence of POP - symptoms

<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
<th>Defn of POP</th>
<th>Age</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>McLennan 2000</td>
<td>Australia</td>
<td>A feeling of something coming down in the vagina</td>
<td>15-97</td>
<td>1546</td>
<td>8%</td>
</tr>
<tr>
<td>Tegerstedt 2004</td>
<td>Sweden</td>
<td>Validated 5 item questionnaire</td>
<td>30-79</td>
<td>5489</td>
<td>8%</td>
</tr>
<tr>
<td>Eva 2003</td>
<td>Sweden</td>
<td>Any symptom of pelvic heaviness, genital bulge, or use of fingers in vagina or on perineum for defecation</td>
<td>40</td>
<td>641</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>663</td>
<td>28%</td>
</tr>
<tr>
<td>Rortveit 2007</td>
<td>USA</td>
<td>Feeling of bulging, pressure or protrusion or visible bulge or protrusion</td>
<td>40-73</td>
<td>2109</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(mean=56)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawrence 2008</td>
<td>USA</td>
<td>Sensation of bulge in vagina or something falling out of vagina with a degree of bother of at least 33 on a 1-100 visual analogue scale (validated)</td>
<td>25-84</td>
<td>4103</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(mean=57)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleiker Ten Hove 2009</td>
<td>Norway</td>
<td>Seeing/feeling vaginal bulge.</td>
<td>45-85</td>
<td>2921</td>
<td>11.4%</td>
</tr>
<tr>
<td>Gyhagen 2013</td>
<td>Sweden</td>
<td>Feeling of a vaginal bulge</td>
<td>35-67</td>
<td>5199</td>
<td>12.8%</td>
</tr>
</tbody>
</table>
Aetiology: Theoretical model for the development of PFD in women (Bump, Norton 1998)

**Predispose**
- Collagen
- Race/ethnicity
- Family history

**Incite**
- Childbirth
- Parity
- Radical pelvic surgery

**Decompensating**
- Ageing
- Diabetes
- Mobility/dexterity
- Disease

**Promote**
- Constipation
- Obesity
- Occupation, recreation
- Lung disease

(normal support or function)
(abnormal support or function)
## Aetiology - Predisposing Factors

### Collagen
- Collagen different in women with POP compared to controls (Jackson 1996, Kerkhof 2009)
- Ehlos-Danlos and Marfan’s syndrome (Twiss 2007, MacIntosh 1995)

### Race/ethnicity
- Hispanic women highest risk (Swift 2005)
- African American women lowest risk (Hendrix 2002, Rortveit 2007)

### Family History
- Strong link when one family member has POP (Lince 2012, Meidel 2009, Rinne 1999)
- Link with VVs, haemorrhoids (Meidel 2009, Rinne 1999)
Aetiology– Incite Factors

Childbirth

Parity
- Hendrix 2002, Mant 1997

Caesarian section protective?
- Perhaps not: Dolan (2010), Sleiker ten Hove (2009), MacLennan (2000)

Nulliparity protective?
- Hendrix 2002

Radical surgery
Radiation
Other gynaecological surgery
Aetiology of POP – Promoting Factors

- Constipation
- Obesity
- Occupation/heavy lifting
- Exercise
- Chronic cough/smoking
- Posture
Aetiology of POP – Decompensating Factors

• Ageing – all studies show increased risk with ageing (e.g. Swift 2005, Hendrix 2002, Miedel 2009, Abrams 2005)

• Menopause – no established link in research (Jelovsek 2007, Nygaard 2004)

• Disease – RA, osteoporosis (weak link Strohbehn 1997)
POP natural history

• 412 women – not always progressive, spontaneous reduction common especially in stage 1. Handa 2004
• 259 women observed – prolapse waxed and waned yearly in individual women. Bradley 2007
• 280 women observed over 5 years. Miedel 2011
• 62 women observed over 2 years – 81% had no disease progression. Gilchrist 2011
abnormal ligaments cause apical descent

apical descent is abnormal forces placed on normal ligaments because of levator ani damage

Does shape matter?
Nguyen et al 2000, Stein et al 2009
Sahinkanat et al 2011, Brown et al 2013

Smith et al 2013
POP symptoms

- **Vaginal bulging**
  Complaint of a “bulge” or “something coming down” towards or through the vaginal introitus.

- **Pelvic pressure**
  Complaint of increased heaviness or dragging in the suprapubic area and/or pelvis.

- **Splinting/digitation**
  Complaint of the need to digitally replace the prolapse or to otherwise apply manual pressure, for example, to the vagina or perineum (splinting), or to the vagina or rectum (digitation) to assist voiding or defecation.

- **Low backache**
  Complaint of low, sacral (or “period-like”) backache associated with POP.

- **Bleeding, discharge, infection**
  Complaint of vaginal bleeding, discharge, or infection related to dependent ulceration of the prolapse.

Haylen 2010
Bladder Symptoms

- **SUI** (40%)
- **Urgency**
- **UUI** (49% OAB Independent risk factor)
- **Stream issues**
- **Difficult/ incomplete voiding** (30%↑PVR)
- **UTI**
- **Nocturia**
Management of LUTS

PFMT + Knack
Pessary

Voiding techniques
CIC

Bladder retraining

Fluid management

Swithinbank 2005
Bowel symptoms

- Difficult defaecation
- Incomplete emptying
- Splinting, digitation
- Flatal incontinence,
- Faecal incontinence, urgency
Treatment

- Ensure stool type is “normal”
- Teach correct defaecation technique
- Teach effective perineum/posterior vaginal wall splinting/support
- PFM strength, endurance
- Rectal water irrigation
Sexual Symptoms

WHO definition

“a state of physical, emotional, mental and social well-being related to sexuality; it is not merely the absence of disease, dysfunction or infirmity”

What you don’t ask you won’t learn!
Vaginal/Sexual symptoms

- Dyspareunia - on stretch / high tone / altered organ position
- Obstructed intercourse – collapsed walls / positional changes/ incomplete emptying
- Vaginal laxity – lack of sensation/ increased GH/ low tone, weak PFM
- Vaginal wind – nooks and crannies/ poor expulsion
- Avoidance of intercourse – stigma/ anxiety / reduced arousal/ body image
Evidence

Studies generally not conclusive

- Jelovsek (2006) – women with advanced POP related poorer QOL, increased self conscious, reduced physical attractiveness

- Athanasious (2012) - women with POP have more sex dysfunction, but no less sexual activity. POP stage and years of menopause were an influence but severity of POP not an independent factor. Not POP compartment specific

- Cetinkaya (2013) – POP stage with LUTS/ sex dysfunction and QoL- using PISQ-12 – no change for those with POP
6 simple questions – or 2

• Are you sexually active?
• If not – would you like to be?
• Is it due to your POP?
• Do you have any problems with intercourse?
• Do you have any pain with intercourse?
• Do you use a lubricant?
Patient statements

• Will it do any harm?
• He says that I am too loose
• I can’t feel anything
• He says that it feels like hitting a wall
• It feels like he’s hitting something
• I can be ‘achey’ afterwards – like period cramps
Management

- Advice
- Safe - yes
- Positioning -
- Lubricant
- Bladder / bowel
- Bleeding after
Procidentia
Procidentia

Eversion of the vagina
  ant. view
  post. view
Rectal Prolapse

Rectal Prolapse
PFMT for POP

The evidence
<table>
<thead>
<tr>
<th>Author</th>
<th>No. Women</th>
<th>Risk of bias</th>
<th>Conclusions re PFMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hagen, 2014</td>
<td>447</td>
<td>Low</td>
<td>↓ symptoms, ↓ severity</td>
</tr>
<tr>
<td>Kashyap, 2013</td>
<td>140</td>
<td>Medium – four women swopped from control to training group.</td>
<td>↓ symptoms, ↓ severity</td>
</tr>
<tr>
<td>Stupp, 2011 pilot</td>
<td>37</td>
<td>Medium</td>
<td>↓ severity, ↑ pelvic floor muscle function</td>
</tr>
<tr>
<td>Braekken, 2010</td>
<td>109</td>
<td>Low</td>
<td>↓ severity ↓ symptoms ↑ bladder &amp; rectum position</td>
</tr>
<tr>
<td>Hagen, 2009 (pilot)</td>
<td>47</td>
<td>Low</td>
<td>↓ symptoms, ↓ severity</td>
</tr>
<tr>
<td>Ghroubi, 2008</td>
<td>47</td>
<td>High – very poor reporting</td>
<td>↓ pelvic heaviness, ↑ quality of life</td>
</tr>
<tr>
<td>Piya-anant, 2003</td>
<td>654</td>
<td>High - severe methodological problems</td>
<td>prevents severe prolapse getting worse</td>
</tr>
</tbody>
</table>
PFMT Intervention - POPPY

- 16 weeks duration
- 5 appointments: weeks 0, 2, 6, 11 & 16
- Clinically pragmatic model
- Specialist pelvic floor physiotherapists
- Standardisation of content/ training day

- Control group: leaflet by post with advice on intra-abdominal pressure
Outcome Measures

• postal questionnaires: baseline, 6 & 12 months
  – prolapse symptoms (7 item POP-SS, scored 0-28)
  – average number of days of prolapse symptoms
  – perceived change in prolapse
  – further prolapse treatment
  – urine, bowel, sexual symptoms (ICIQ, PISQ-12)
  – pelvic floor exercise practice
  – lifestyle changes
  – use of health services

• prolapse assessment (POP-Q)
  – baseline and blinded at 6 months
Recruitment and Compliance

- 25 centres
  - 2093 women approached
  - 603 eligible
  - 447 randomised: 225 intervention, 222 control
- Questionnaire response rates:
  - 85% (381/447) at 6 months
  - 66% (295/447) at 12 months
- 82% (365/447) attended for prolapse review at 6 months
- 80% in intervention group attended 4 or 5 physiotherapy appointments
### Baseline Characteristics

<table>
<thead>
<tr>
<th>Age (mean)</th>
<th>56.8 years (SD 11.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of births (median)</td>
<td>2 (range 0 to 7)</td>
</tr>
<tr>
<td>Duration of symptoms (median)</td>
<td>12 months (IQR 6 to 24)</td>
</tr>
<tr>
<td>Prolapse type:</td>
<td></td>
</tr>
<tr>
<td>Anterior</td>
<td>11%</td>
</tr>
<tr>
<td>Posterior</td>
<td>5%</td>
</tr>
<tr>
<td>Ant. &amp; post.</td>
<td>24%</td>
</tr>
<tr>
<td>Ant. &amp; upper</td>
<td>11%</td>
</tr>
<tr>
<td>Post. &amp; upper</td>
<td>3%</td>
</tr>
<tr>
<td>Ant., post. &amp; upper</td>
<td>45%</td>
</tr>
<tr>
<td>Prolapse stage:</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>11%</td>
</tr>
<tr>
<td>II</td>
<td>74%</td>
</tr>
<tr>
<td>III</td>
<td>15%</td>
</tr>
</tbody>
</table>

No clinical or demographic differences between the randomised groups at entry
## Change is POP-SS from Baseline

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
<th>Mean diff, 95% CI*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td>10.04 (6.00)</td>
<td>9.51 (5.64)</td>
<td>N=224, N=222</td>
</tr>
<tr>
<td><strong>6 months</strong></td>
<td>6.56 (5.09)</td>
<td>9.17 (5.81)</td>
<td>2.84 (2.05, 3.63)</td>
</tr>
<tr>
<td><strong>12 months</strong></td>
<td>5.74 (4.89)</td>
<td>7.04 (5.43)</td>
<td>1.52 (0.46, 2.59)</td>
</tr>
</tbody>
</table>

* Adjusted for baseline POP-SS score, centre, prolapse stage, whether or not considering surgery
Cost Effectiveness

• Cost net of saving for further treatment received/avoided, was £127 per woman

• This cost is set against an average difference in POP-SS change at 12 months of 2.37, which represents a clinically important change in symptoms for women

• Assuming QoL benefit of 10% for 1 year for the excess of 12% of intervention women who reported prolapse better at 12 months, cost per QALY = £10,615
Conclusions

- Individualised PFMT was effective in reducing prolapse symptoms at 12 months compared to lifestyle advice leaflet.
- Net cost of intervention was low and cost-per QALY is likely to be acceptable to decision makers.
- PFMT is an effective and cost-effective intervention to offer women with prolapse.
What next?

1. Identify the need for evidence
2. Locate the evidence
3. Appraise the evidence
4. Adapt and apply the evidence
5. Evaluate the outcome

IMPLEMENTATION
Primary and repeat surgical treatment for female pelvic organ prolapse and incontinence in parous women in the UK: a register linkage study

Mohamed Abdel-fattah,1 Akinbowale Familusi,1 Shona Fielding,2 John Ford,2 Sohinee Bhattacharyya3

ABSTRACT
Objectives: To determine the lifetime risk of undergoing pelvic floor surgery in a cohort of UK parous women and the re-operation rates for pelvic floor surgery, time intervals for repeat surgery and independent risk factors for undergoing primary and repeat pelvic floor surgery.

Study design: A register linkage study.

Main outcome measures: The primary outcome was lifetime risk of parous women in the UK undergoing pelvic floor surgery for pelvic organ prolapse (POP), urinary incontinence (UI), and rectal prolapse or faecal incontinence (RP-Fi). Secondary outcomes were re-operation rates and time interval of repeat surgery for POP/UI, and independent risk factors for undergoing primary and repeat pelvic floor surgery.

Results: 34,631 women identified from the Aberdeen Maternity and Neonatal Database were linked with the Scottish Morbidity Records databases of NHS Scotland to assess relevant outcomes. The lifetime risk for women by age 80 years of undergoing any form of pelvic floor surgery was 12.2%, 2130 (6.2%) women had at least one pelvic floor surgery, of whom 407 (19%) had repeat operations.

ARTICLE SUMMARY

Article focus
- Lifetime risk of undergoing various types of pelvic floor surgery in a cohort of UK women.
- Re-operation rates for various types of pelvic floor surgery and time intervals for repeat surgery.
- Independent risk factors for undergoing primary and repeat pelvic floor surgery.

Key messages
- The lifetime risk for women by age 80 years undergoing any form of pelvic floor surgery was 12.2%.
- The re-operation rate for pelvic floor surgery was 19%.
- There was a reduced lifetime risk of pelvic floor surgery in women who had all deliveries by caesarean section only and those aged <20 years at first delivery, while women who sustained at least one perineal laceration during delivery or who had at least one instrumental delivery with the use of forceps were at increased risk.

Strengths and limitations of this study
- To our knowledge, this is the first study to report the lifetime risk for women in the UK undergoing surgical treatment for pelvic floor dysfunction.
- As the study represents the general population rather than a selected population, we are confident that our findings are generalisable to the UK or indeed any European population.
- The Aberdeen Maternity and Neonatal Database and Scottish Morbidity Records (SMR) databases used in this study are subject to quality control measures at regular intervals and there are numerous consistency checks in place to ensure the validity of data entry.
- We were unable to link 27% of women with the SMR databases.

“The lifetime risk for women by age 80 years of undergoing any form of pelvic floor surgery was 12.2%. 2130 (6.2%) women had at least one pelvic floor surgery, of whom 407 (19%) had repeat operations.”
Predicting the number of women who will undergo incontinence and prolapse surgery, 2010 to 2050

Jennifer M. Wu, MD, MPH; Amie Kawasaki, MD; Andrew F. Hundley, MD; Alexis A. Dieter, MD; Evan R. Myers, MD, MPH; Vivian W. Sung, MD, MPH

OBJECTIVE: We sought to estimate the number of women who will undergo inpatient and outpatient surgery for stress urinary incontinence (SUI) or pelvic organ prolapse (POP) in the United States from 2010 through 2050.

RESULTS: The total number of women who will undergo SUI surgery will increase 47.2% from 210,700 in 2010 to 310,650 in 2050. Similarly, the total number of women who will have surgery for prolapse will increase from 166,000 in 2010 to 245,970 in 2050.

CONCLUSION: If the surgery rates for pelvic floor disorders remain unchanged, the number of surgeries for urinary incontinence and POP will increase substantially over the next 40 years.

Key words: future predictions, pelvic floor disorders, pelvic organ prolapse, surgery, urinary incontinence

Cite this article as: Wu JM, Kawasaki A, Hundley AF, et al. Predicting the number of women who will undergo incontinence and prolapse surgery, 2010 to 2050. Am J Obstet Gynecol 2011;205:x.ex-x.ex.
Impact on services

• Evidence-base for PFMT for management of prolapse → increased referrals → resource issues

• Those delivering the trial intervention were continence specialists

• Numbers limited and workload is large, mainly of the management of UI

• Solutions?
  – Manage with existing workforce?
  – Train more members of staff?
Impact on costs

• Can PFMT save money?

• In England 29,000 women had prolapse repair surgery in 08/09 at a cost of ~£60M
• 5 sessions of PFMT would cost around £3M
• If PFMT effective in avoiding surgery, for even some women, there are potential savings

• Invest in more services to provide PFMT
A multicentre randomised controlled trial of a pelvic floor muscle training intervention for the prevention of pelvic organ prolapse (PREVPROL)

- It has been hypothesised that PFMT could also prevent prolapse from developing through the same mechanism of increasing hypertrophy and functional recruitment of the muscles to support the pelvic organs.
Study design, materials and methods

• A multicentre, multinational RCT of PFMT versus control

• Women already involved in a longitudinal study of pelvic floor dysfunction after childbirth, who did not have prolapse symptoms which had caused them to seek treatment, were identified.

• Those who had agreed to a prolapse examination at the 12 year follow-up, and had not previously sought treatment for prolapse, were invited to take part.

• Women with POP-Q stage 0 or IV on examination were excluded.
Intervention

• Intervention group women were offered one-to-one PFMT (5 physiotherapy appointments over 16 weeks)

• Followed by Pilates-based classes, including PFMT. Classes were led by a physiotherapist trained in Pilates and were carried out in 6 week blocks; each woman was offered two 6 week blocks, with one class per week.

• An exercise DVD was provided for home use. Women were offered a one-to-one physiotherapy annual review appointment at 1 and 2 years after randomisation.

• The control group received only a Lifestyle Advice Leaflet by post.
Results/Conclusion

• The results (n>400) provide good evidence that PFMT can be effective in reducing prolapse symptoms in a non-clinical population of women who had not sought treatment for prolapse.

• This is important information for physiotherapists, gynaecologists, and women generally. They can use it to make decisions about preventative strategies that they might use. Cost-effectiveness will be fully assessed at future follow-up.
Surgery - Who goes for surgery?

Severity of prolapse and its symptoms

Woman’s general health and her preference.

Conservative or mechanical management is generally considered for:

– women with a mild degree of prolapse
– women who wish to have more children
– the frail or medically unfit
– unwilling to undergo surgery

Cochrane review 2011
The aims of surgery include:

- the restoration of normal vaginal anatomy
- the restoration or maintenance of normal bladder function
- the restoration or maintenance of normal bowel function
- the restoration or maintenance of normal sexual function
Types of Surgery

Most common:
• Anterior colporraphy
• Posterior colporraphy
• Vaginal hysterectomy

Specialist centres:
• Sacrospinous fixation
• Sacrocolpopexy
• Hysterosacropexy
• Transvaginal mesh
• Colpocleisis

Further information:
• http://www.bsug.org.uk
• www.rcog.org.uk
• www.iuga.org
Why use mesh?

- Reoperation rate of 29.2%. Olsen et al. (1997)
- Denman (2008) 17%

- Anatomical anterior vaginal wall recurrence is high; up to 40% but reoperation rate is lower (10-15%)

- Perception of high failure / reoperation rates in prolapse surgery
  - Re-use of previously failed connective tissue
  - Grafts used increasingly to replace the use of native tissue – in line with hernia repairs
FDA - 1\textsuperscript{st} Jan 2008 – 31\textsuperscript{st} Dec 2010

• 2,874 mesh associated complications
  • 1,503 with POP, 1,371 with SUI
  • 225,000 repairs in that period
  • Incidence of complications 0.7%

• What were they?
  • Pain
  • Infection
  • Bleeding
  • Dyspareunia
  • Organ perforation
  • Urinary problems
  • Vaginal mesh exposure
Current position for use of mesh in prolapse repairs

General usage

Beneficial:
- Recurrent prolapse
- Large cystocele
- Vault prolapse
- Individual issues

Specific situations

Not beneficial:
- Primary case
- Posterior wall
- Prolapse < stage 2

IUGA 2010
## Surgery and PFMT

<table>
<thead>
<tr>
<th>Author</th>
<th>Intervention</th>
<th>No. of appts</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005 Jarvis S</td>
<td>Surgery and PFMT vs surgery</td>
<td>1 pre-op and 2 post-op appts</td>
<td>Pad test&lt;br&gt;Urinary symptoms ques.&lt;br&gt;Sig benefit but No POP qol</td>
</tr>
<tr>
<td>2010 Frawley H</td>
<td>Surgery and PFMT vs surgery</td>
<td>1 pre-op and 8 post-op appts</td>
<td>UDI-19&lt;br&gt;IIQ-7&lt;br&gt;No POP qol&lt;br&gt;No diff</td>
</tr>
<tr>
<td>2013 Pauls RN</td>
<td>Surgery and PFMT vs surgery</td>
<td>5 post-op appts</td>
<td>WHO QOL&lt;br&gt;POP-Q (12 wks)&lt;br&gt;Favoured inter Gp</td>
</tr>
<tr>
<td>2008 2014 McClurg D (feasibility study)</td>
<td>Survey of UK Physios Surgery and PFMT vs surgery</td>
<td>1 pre-op and 6 post-op appts</td>
<td>POP-SS (12 mths)&lt;br&gt;Small favour Inter GP</td>
</tr>
</tbody>
</table>
Hypothesis Physio Peri/Post surgery

Braekken et al. demonstrated elevation of the pelvic organs and reduction in the levator hiatal area after PFMT and assumed that PFMT can be used to prevent POP.⁴

Bø hypothesised:

1. Women can build up 'muscle tone' and structural support of the pelvic floor muscles through regular strength training over time.

2. Women can learn to contract their pelvic floor muscles (PFMs) consciously before and during an increase in intra-abdominal pressure and will continue to make such contractions as a behavioural modification in order to prevent descent of the pelvic contents⁵
Results

• Compared to the control group (n=29), the intervention group (n=28) benefitted in terms of fewer prolapse symptoms at 12 months (mean difference between groups in change from baseline symptom score 3.945; 95% CI [1.36, 6.75]; t=3.25, p=0.006), however these results must be viewed with caution as it was only a feasibility study.

• A fully powered RCT is feasible and required to provide evidence of the effect of peri-operative PFMT in women who undergo surgery for POP

• Lack of information and advice
Summary

• Management of POP is currently conservative and surgical
• Surgical repair has an unacceptable failure rate
• Researchers are trying to understand why surgery fails in about 25% of cases
• Conservative treatment is increasing as the evidence improves
• Pelvic floor muscle training and lifestyle advice may have an important role in conjunction with surgery for long term success
PFMT considerations

- Correction of exercise technique
- Strength
- Endurance
- Timing of contraction
- How often?/how many?/how long?
- How many clinic appointments
- Use of biofeedback
- Neuromuscular stimulation
- Adherence