

Which patients can benefit from Physical Therapy for Pelvic Floor Dysfunction?
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Objectives

- Discuss the qualities of a patient who can benefit from PFMT as a first line treatment for UI
- Discuss the definition of success
- Review pre and post operative physiotherapy for patients having POP and SUI surgery

NICE (2019) guidelines for the UK and the French College of Gynaecologists and Obstetricians guidelines (Fritel 2010) suggest PFM training as first line for patients with SUI and POP

After many well done RCTs and systematic reviews (Dumoulin 2011)

- Comparing PFM training to no treatment
- Women who were treated were 17 times more likely to report cure or improvement
- Were 5 to 16 times more likely to be continent on pad test

Recovery / success with conservative treatment of SUI (average 51.8% success)

- 49% (Cammu) PFMT
- 35.5% (Truijen) PFMT with or without ES
- 74% (Dumoulin 2010) Postpartum PFMT with and without abdominal muscle training
- 51% (Labrie) crossed over to surgery (average time to cross over 31.7 weeks)
- (Schaffer) SUI or MUI randomized to pessary, behavioral or combined treatment
- (Burgio) SUI, UUI, and MUI multidimensional behavioral treatment
- 43% and 59% (Hendrick) PT outpatient treatment

Hendrick EJM, et al. Prognostic indicators of poor short-term outcome of physiotherapy intervention in women with stress urinary incontinence. *Neurourol and Urodynam* 2010;29:336-343.

- 267 women seen in PT clinic for SUI.
- Treatments provided average 9.5 sessions, 30 to 40 min long, over 12 weeks
 - PFMT 94%
 - Education 92%
 - PFMT with ADLs 54%
 - General health exercises 11%
 - Biofeedback, or electrical stimulation less than 8%

Qualities of patients who did better with conservative treatment for UI

Intensity of symptoms

- Lower amount of UI (less than 10 to 14 UI episodes per week) (Schaffer, Burgio, Hendrick, Cammu, Labrie)
- POP Q stage II or less (Hendrick)
- Negative stress test results on first cough (Cammu)
- Mild to moderate symptoms best

Status of the PFM

- Weak PFM (Truijen) not a factor for Labrie
- Lower pre treatment force (Dumoulin)
- Greater pre treatment endurance (Dumoulin)
- Weaker muscles have more possibility to improve

General health

- BMI under 30 (Hendrick, Truijen) not a factor for Labrie
- Good health (Hendrick)
- Age under 55 (Labrie) no association Hendrick
- Conflicting influence of BMI and age, Should take in context with other factors

Psychosocial

- Lack of high psychosocial distress (Hendrick)
- Lack of use of chronic psychotropic medication (Cammu)
- Higher education (Schaffer, Hendrick) lower education (Labrie)
- Less stress better, Conflicting influence of education

Obstetric history

- Less than 90 minutes / short second stage of labor (Hendrick)
- 3 or less vaginal deliveries (Hendrick), not a factor for Labrie
- Conflicting influence of OB history

Previous failed treatment

- No previous UI surgery (Schaffer, Truijen)
- No failed previous PT (Hendrick), not a factor for Labrie
- No previous UI surgery best, Conflicting influence of failed previous PT

Other conditions not formally included in studies

- Cognitive status
 - Folstien's Mini Mental State
 - 23 or higher can participate more fully in treatment
 - Under 23 requires significant care giver interventions
- Neurological disease - NICE guidelines give good outline of evidence related to all types of treatment in patients with neurological conditions (NICE 2012)
 - Best candidate for PT - mild MS, without PFM spasticity or dyssynergia (De Ridder 1999)
 - Poor success - elevated PVR (McClurg 2008)

Best outcomes with:

- Mild to moderate UI symptoms best
- Weaker muscles
- Less psychosocial stress
- No previous UI surgery

Define success

Objective outcome - things that you can measure

- PFM function (Brazalez 2018)
 - Intrarater reliability
 - Manometry (CCC = 0.96) high
 - Dynamometry (CCC = 0.96) high
 - Palpation scales (k = 0.78 for both) moderate
 - sEMG (CCC = 0.79 vs 0.80 for RMS vs integral average) moderate
 - Validity correlations
 - Palpation, manometry, and dynamometry (coefficient of determination [r²] ranged from 0.52 to 0.75) were moderate
 - Transperineal sEMG amplitude (r² = 0.23-0.30). weak
 - Conclusion - Manometry and dynamometry are more reliable tools than vaginal palpation for the assessment of PFM strength in women with pelvic floor disorders (no mention of use of sEMG in measuring strength)
- Pad tests (Harvey 2010)
 - Pad is weighted and patient wears the pad(s) for 24hrs bringing all pads in the be weighted after
 - 24 hour pad test in normals range from 0-9g
 - Greater than 1.3g as a positive test

Subjective outcomes - patient reported outcome measure (PROM) Parker-Autry (2013)

- Bladder diary - psychometrics (Parsons 2010)
 - Frequency volume charts - a valid and reliable tool for assessment of micturition patterns
 - Test-retest reliability – high to moderate
 - Average or mean voided volume - best intra-individual reliability and may be the best measure for outcomes
 - Not reliable for
 - Quantity of urine loss
 - Diagnosis discrimination between urge UI (UII) and Stress UI (SUI)
- ICIQ SF MCID = 2 to 2.5
- Pelvic floor distress inventory (PFDI) MCID 45 points (Barber 2005)
 - CRADI - bowel dysfunction - MCID 11
 - UDI - urinary dysfunction - MCID 11
 - POPDI - POP dysfunction
- Pelvic floor impact questionnaire (PFIQ)
 - UIQ - urinary QOL MCID 16
 - CRAIQ - bowel QOL
 - POPIQ - POP QOL
- Calculation percent change
 - ending value - initial value / initial value
 - 33.3 - 89 / 89 = 62.5% change
 - Patients appear to recognize first signs of meaningful improvements at 50% better and significant improvement at 75% improvement (according to research)

- Patient Rated Percent Improvement
 - “Comparing your symptoms before treatment to today. On a scale of zero (no change in treatment) to 100 (as good as you think you can be) How much better are you?”
- Global impression of improvement
 - Circle the one best number which describes how your bladder / bowel / pelvic condition is now compared to how it was before you began treatment
 - 1. very much better
 - 2. much better
 - 3. a little better
 - 4. no change
 - 5. a little worse
 - 6. much worse
 - 7. very much worse

Which patients can benefit from pre and post op PT (SUI and POP)

Jarvis SK (2005)

- POP and SUI surgery with and without Pre operative PT
- Follow up 3 months
- Those with pre op PT had significantly better QOL, urinary symptoms, day time frequency

Sung VW (2019)

- MUI sling alone vs PT before and after (1 before and 5 after)
- Follow up 12 months
- Small statically significant difference that did not meet MCID

Zaccardi JE (2010)

- SUI surgery with and without behavioral training and PFMT
- Follow up 3 weeks.
- No statically significant difference in groups,
- 100% of patient in intervention group found information helpful and worth their time.

Weidner AC (2017)

- POP and SUI surgery with and without 5 perioperative PT visits
- Follow up 24 months
- No statically significant difference in groups

Barber MD (2014)

- POP surgery with and without behavioral and PFMT
- Follow up - urinary scores at 6 months, or prolapse scores at 24 months
- No statically significant improvements

Frawley HC (2010)

- POP surgery with and without PFM exercises
- Follow up at 12 months
- No statically significant difference in groups

Haya N, Cochrane Database of Systematic Reviews 2018,

- 2 small studies on PFM exercises before and after treatment - at 12 and 24 months - inconclusive

Dumoulin C, et al. Adult conservative management, in Incontinence 6th ed 2106, ICS.

- There is no evidence of improved outcomes with perioperative PFMT for women undergoing surgery for apical prolapse and SUI, (Level of Evidence: 2).

Other considerations for physiotherapy

- When to judge success
- 12 to 24 months VS 3 to 6 months
- Comprehensive pre and post surgery Physical Therapy appears to speed recovery time
- Certain types of patients should receive treatment

Central sensitization (CS) - sensitive nervous system

- Central sensitization questionnaire (Mayer 2012)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3248986/>
- Strongest predictor - disproportionate, non-mechanical pain, and unpredictable pattern of pain provocation
- Logistical regression - cluster of 3 symptoms and 1 sign predictive of CS (Smart 2012)
 - Disproportionate, non-mechanical pain, and unpredictable pattern of pain provocation
 - Pain disproportionate to type of injury or pathology - low pain tolerance
 - Strong association with maladaptive psychosocial factors (negative emotions, poor self efficacy, pain behaviors) - Pain responds to stress and anxiety
 - Defuse / non-anatomic areas of pain and tenderness on palpation, "spread" of pain
- Recent abstract at IUGA meeting "There is less favorable outcome for pelvic organ prolapse surgery in women with central sensitization syndrome especially in terms of persistence of symptoms, pain and overall satisfaction compared to those without." (Vij 2019)

Functional mobility (Oliphant 2104)

- Average age 71 years old undergoing POP surgery
- 6 month - 19% failed ADL, 17% failed IADL
- 71% of women who were dependant IADL baseline were still dependant 3 months after
- Higher BMI and higher baseline CRADI score was associated with non-recovery

Which patients should receive Pre and Post Surgery PT

- Central sensitization
 - Very nervous about surgery
 - Lots of questions
 - Previous / current chronic pain
- Decreased functional mobility
 - Need to return to a high activity level very quickly
- Higher BMI
- Higher baseline CRADI

Suggestions for pre and post operative programs

Pre operative PT (one month before)

- Brief discussion of post operative activity restrictions - reinforce lifting restriction
- Brief discussion of avoiding constipation
- Normal fluid intake and bladder pattern - improve pre op if needed
- PFM anatomy and function
- PFM training with set up of pre op home exercises using external EMG or imaging US

Post operative PT (3 to 6 weeks after)

- Review of activities approved and progression over time
- General suggestion for restoring strength and aerobic capacity
- Triage for need of post op PT for persistent pain
- Body mechanics, bracing, posture to decrease excessive IAP
- PFM training and long term PFM exercises

Overall activity guidance (Yamasato 2014 , Nygaard 2013, Weir 2006, Noordegraaf 2011)

Activity restrictions after gynecological surgery: is there evidence? Nygaard IE, Hamad NM, Shaw JM. Int Urogynecol J (2013) 24:719-724.

- mean cmH₂O
- Bench press 26 pounds nasogastric 17.7, intravesical 164.5 (10.1 to 164.5)
- Sit-ups measured intravesical 9.5 to 15.8
- Jumping measured nasogastric 74.8 to 177.4
- Lift from ground heavy measured rectally 82 to 170
- Lift from counter heavy (33 pounds) measured rectally 54 to 92.5
- Lift from ground light (5.5 pounds) measured rectally 35.4 to 74.7
- Lift from counter light measured rectally 10 to 47.7

Postoperative activity restrictions any evidence? Weir LF, et al. (2006) *Obstet Gynecol* 107:305-309.

Median cm H₂O measured rectally

47.7 to 68.0

- lift 8 pounds from counter, from low table, above head
- lift 13 pounds from counter, from floor
- touch floor, bend at waist, simulated gardening
- lift 20 pounds from counter
- crunch / sit up

70.0 to 83.3

- Stand from chair - without hands, with hands on thighs
- climbing stairs
- touch the floor, bend at knees
- walk on treadmill 2.2 mph, 2.7 mph, 3.3 mph
- lift 8 pounds from floor
- small cough sitting, standing

92.3 to 105.7

- medium cough sitting, standing
- supine to standing, standing to supine
- lift 35 pounds from counter

122.5 to 149.3

- lift from floor - 20 pounds, 35 pounds
- jumping jacks
- forceful cough standing, sitting

Multidisciplinary convalescence recommendations after gynecological surgery: a modified Delphi method among experts. Noordegraaf AV, et al. *BJOG* (2011), published online Sept 7, 1557-1567.

		Lap hyst	Vag hyst	Abd hyst
Light activities	Lifting or carrying 11 pounds 2 hrs sustained sitting 30 min sustained standing or walking	1 wk	2 wk	2 wk
Moderate activities	Lifting or carrying 22 pounds Pushing or pulling 33 pounds Riding a bicycle Vacuum cleaning	2 wk	3 wk	3-4 wk
Heavy activities	Lifting or carrying 33 pounds Standing and walking during entire work day	3 wk	4 wk	6 wk
Resumption of (ave) job	8 hours per day 40 hours per week	3-4 wk	4 wk	6 wk

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