
Pelvic PT Distance Journal Club
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Aim - Investigate relationship between activation of different muscle in the PF and UI in men after radical prostatectomy

Components of continence
- PF tone
  - muscle activation (three different muscles)
  - fibroelastic tissue of the PFM and bladder neck
- resting position of urethra - functional length
- coordination of PFM during ADL

Three major muscle groups (best verbal instructions discussed in journal club May 2015)
- puborectalis (PR) - pulls urethra anterior and elevated the bladder neck
- striated urethral sphincter (SUS) - pull urethra posterior
- bulbocavernous (BC) - compresses the bulb of the urethra

Method - 42 men post radical prostatectomy (19 with UI, 23 dry) 1 mo to 3 years after surgery
Perineal ultrasound images were analysis during involuntary cough and sustained PFM contraction. Unsure if this was 2D or 3D/4D imaging. I think they use 8 MHz probe
Displacement associated with activation of the three muscles of the PFM listed above
- "contract your PFM as if you were attempting to shorten the penis, as strongly as you can and hold"
- maintained until failure (time to fatigue) or 60 sec
Also measured
- functional urethral length
- resting position of ano-rectal junction
- resting position of the urethra-vesical junction

Components related to UI
correctly identified 88.1% of UI men with high sensitivity and specificity
SUS contract with MVC and cough - 16.6%
BC contract with MVC and cough and PR contract with MVC - 15.6%

Not significant
SUS fatigue and BC fatigue - 14.5%
Vesical junction position and urethral length - 13.7%
Vesical junction depression and elevation with cough and PR lengthening - 11.6%

Strong SUS can overcome weak PR and BC but not the opposite
Muscle fatigue was not different between men with and without UI
Current research questions
• Could this be used as a screening to identify men before surgery
• Will training the SUS before and after surgery result in better outcomes - study ongoing now
• This study used max hold endurance. ? submax hold endurance training

Discussion questions
• How do you know if the SUS is contracting in your patients?
• How many use imaging ultrasound?
• Would you consider ultrasound biofeedback training if evidence proved its efficacy?

I do not think there are previous studies of transperineal ultrasound with attention to SUS
• Ref 25 - comparison of US hiatus area to digital exam MMT in women - good correlation
• Ref 24 - used 3.5 - 5 MHz curvilinear probe with 3D/4D, did not separate muscle
• Ref 10 - used 3.5 MHz probe suprapubic - measuring bladder wall elevation ? vesical junction elevation


Method - 108 research papers on PFMT in men were reviewed

Table 1 - Consensus on Reporting Template (CERT) Evaluating the completeness of reporting components of PFMT (also discussed in Frawley 2017)
Lists important components of a training program that should be recorded and considered

- Great variety of study design / quality was found with many important components missing
- Most appear to be clinical research with much of the program individualized to each patient
- Treatment session duration 15 min to 90 min with the average 30 min
- Number of sessions 1 to 74
- Overall duration 1 to 52 weeks, average 11 to 20
- Most often focus of PFMT was anal
- HEP most commonly included 9 to 15 contractions per session
- Ave of 3 session per day most common
- Contractions per day 18 to 240 with ave of 50 per day
- Types of exercises include strength (max contract), endurance (submax contract), and coordination
- Most common hold was 10 seconds
- Paper lists many concerns and problems with existing research - THE REASON PPUI SYSTEMATIC REVIEWS DO NOT SUPPORT THE USE OF PFMT