STARS Education and Research Alliance

CREATING KNOWLEDGE | TRANSFORMING CARE

STARS Critically Appraised Topic (CAT) Group: Urinary Incontinence after Radical Prostatectomy CAT

2023

The University Of Queensland AUSTRALIA

Metro North Health | Queensland Government

STARS Critically Appraised Topic (CAT) Group: Urinary Incontinence after Radical Prostatectomy CAT

Specific Question:

For men with urinary incontinence (involuntary loss of urine) after radical prostatectomy (surgical removal of the prostate for cancer reasons), does post-operative pelvic floor physiotherapy improve urinary incontinence compared to usual care / minimal intervention / no treatment?

Clinical bottom line

For men with urinary incontinence after radical prostatectomy, post-operative pelvic floor physiotherapy leads to inconsistent benefits. There is some evidence of benefit but with high uncertainty. Future research studies that are larger and better quality are needed.

Why is this important?

Urinary incontinence after surgical removal of the prostate for cancer affects about 10% of men at 12 months after surgery and is a major deterrent for men to proceed to have this type of surgery. Urinary incontinence reduces quality of life and is often long-lasting, and is a source of decisional regret about the surgery. Affected men often require daily use of pads or nappies and about a third require corrective surgery. Locally here in Brisbane, the STARS hospital urology service aims to provide care to approx 200-250 men having robotic radical prostatectomies per year, and the services in STARS and the Royal Brisbane and Womens Hospital (both in Metro North Health) are complementary but there is no Metro North wide 'one-approach' to the management of these men with urinary incontinence. There was a service at Caboolture hospital but it closed, and Redcliffe hospital has a service (showing the variability in service provision across Metro North hospital sites). In Metro South Health, the QEII hospital has a urinary incontinence service but the PA hospital does not – so there is local service inequity. In addition, the STARS DaVinci robot is currently on lease for 12 months and future service provision is under review. We want to understand the best evidence from research about the effectiveness of post-operative pelvic floor physiotherapy for men with urinary incontinence in order to consider next steps for the clinical service in STARS and to inform future research.

Inclusion Criteria

All men having radical prostatectomy, either open or robotic surgery
Surgery for any other reason (non-malignancy) – to be excluded
Laparoscopic / non-robotic surgery – to be excluded

Search dates

2012-2023: given changes in the surgical technique with improvements in 2000 onwards, and given robotic surgery from the late 2000's; 2015 was the year the previous Cochrane systematic review was published, hence choosing to go back to 2012 to ensure inclusion of best recent evidence

Type of Study

Recent meta-analysis, systematic review, and/or high quality RCT

PICOT

	Description	Search terms
Population and Setting	Men with urinary incontinence (involuntary loss of urine) after radical prostatectomy, either open or robotic surgery	Prostate cancer, neoplasm
Intervention or Exposure	Post-operative personalised pelvic floor physiotherapy – defined as: assessment, with or without imaging such as Ultrasound, referral to	Post-surgical/post-operative, personalised/individualised/tailored,

CAT Lead: Matthew Roberts. Email: Matthew.Roberts@health.qld.gov.au
Date CAT completed: 1/12/2023; To be reviewed tbc

(ie what is being tested)	physiotherapy, referral to a continence service, intervention which includes instruction by trained therapists re: individualised pelvic floor exercise, anal examination or anal electrical stimulation, biofeedback – pressure or EMG, could include commencement pre-operative)	Pelvic floor exercise, physiotherapy, assessment, referral to physiotherapy, continence service, incontinence service, pelvic floor health, anal examination, anal electrical stimulation, biofeedback
Comparison, if any	usual care / minimal intervention / no treatment (standard instructions to exercise the pelvic floor, patient leaflets, patient video)	Usual care (standard care) – instructions, advice, education, leaflets, exercise sheets, video No treatment
Outcomes of interest	improve urinary incontinence defined as any pads, nappies, safety pads, yes/no incontinence ('pad-free'), rate of return to continence, volume of loss of urine, self-reported urine loss (PROMs)	urinary incontinence; pads, nappies, safety pads, yes/no incontinence ('pad-free'), rate or speed of return to continence, volume of loss of urine, self-reported urine loss (PROMs)
Types of studies	Meta-analysis, systematic review, high quality RCT	Meta-analysis, systematic review including Cochrane review, RCT

Databases Searched

PubMed, CINAHL, EMBASE, Cochrane Library

Date of search

28th April 2023

Search Strategies (including subject headings)

PubMed 71results

((("prostatectomy"[mh] OR prostatectomy*[tiab] OR prostate removal[tiab] OR resection of prostate[tiab] OR prostate surger*[tiab]) AND ("Urinary Incontinence, Stress"[Mesh] OR "urinary incontinence"[Mesh] OR "stress urinary incontinence" OR incontinent[Text Word] OR "Lower Urinary Tract Symptoms"[Mesh] OR "Urinary tract symptoms"[tiab] OR LUTS[tiab] OR Nocturia[tiab] OR "Overactive bladder"[tiab] OR "Urinary Urge"[tiab] OR "Frequent Urination"[tiab] OR Nycturia[tiab] OR "Urge Incontinence"[tiab])) AND ((("Pelvic Floor"[Mesh] OR "Pelvic Floor"[tiab]) AND ("Exercise Therapy"[MAJR] OR "Physical Therapy Modalities"[Mesh] OR physiotherapy[tiab] OR exercise[tiab])) OR PFMT[tiab] OR "pelvic floor muscle training"[tiab] OR pelvic floor training[tiab] OR pelvic floor exercise[tiab] OR pelvic floor muscle training[tiab] OR pelvic floor muscle exercise[tiab] OR pelvic floor muscle therapy[tiab] OR pelvic floor rehabilitation[tiab])) AND (clinical trials as topic[mesh:noexp] OR "Controlled Clinical Trial" [Publication Type] OR randomized controlled trial [pt] OR randomized [tiab] OR "randomised"[tiab] OR randomly [tiab] OR placebo [tiab] OR "trial"[ti] OR "Systematic Reviews as Topic"[Mesh] OR "Systematic Review" [Publication Type] OR "systematic"[ti] OR "Cochrane review*"[ti] OR "systematically"[tiab] OR "cochrane database syst rev"[Journal] OR "meta-analysis as topic"[MeSH:noexp] OR Meta-Analysis[ptyp] OR metaanaly*[tiab] OR meta-analy*[tiab] OR "meta analysis"[ti] OR "meta analyses"[ti] OR "meta review*"[ti]) AND ((2012:2023[pdat]) AND (english[Filter]))

CINAHL Complete (EBSCOhost) 15 results

Query Limiters/Expanders Last Run Via Results

S6 S1 AND S2 AND S3 AND S4 AND S5 Limiters - Published Date: 20120101-20231231 Database - CINAHL Complete 15

S5 (MH "Clinical Trials+") OR ("Controlled Clinical Trial") OR ("randomized controlled trial") OR (TI randomized OR AB randomized) OR (TI randomised OR AB randomised) OR (TI randomly OR AB randomly) OR (TI placebo OR AB placebo) OR (TI trial) OR (MH "Systematic Review") OR (PT "Systematic Review") OR (TI systematic) OR (TI "Cochrane review*") OR (TI systematically OR AB systematically) OR (SO "cochrane database syst rev" OR ST "cochrane database syst rev" OR IB "cochrane database syst rev") OR (MH "Meta Analysis")OR (TI metaanaly* OR AB metaanaly*) OR (TI meta-analy* OR AB meta-analy*) OR (TI "meta analysis") OR (TI "meta analyses") OR (TI "meta review*") Database - CINAHL Complete 769,672

S4 (TI Personalised* OR AB Personalised*) OR (TI personalized* OR AB personalized*) OR (TI individualised OR AB individualised) OR (TI individualized OR AB individualized) OR (TI tailor* OR AB tailor*) OR (TI Physiotherap* OR AB Physiotherap*) OR (TI "physical therap*" OR AB "physical therap*") OR (TI "continence service" OR AB "continence service") OR (TI "incontinence service" OR AB "incontinence service") OR (TI supervis* OR AB supervis*) OR (TI postoperative OR AB postoperative) OR (TI "post operative" OR AB "post operative") OR (MH "Postoperative

Care+") OR (TI postsurgical OR AB postsurgical) OR (TI "post surgical" OR AB "post surgical") OR (TI postsurgery OR AB postsurgery) OR (TI "post surgery" OR AB "post surgery") Database - CINAHL Complete 309,436
S3 (((MH "Pelvic Floor Muscles") OR (TI "Pelvic Floor" OR AB "Pelvic Floor")) AND ((MH "Therapeutic Exercise+") OR (MH "Physical Therapy+") OR (TI physiotherapy OR AB physiotherapy) OR (TI exercise OR AB exercise))) OR (TI PFMT OR AB PFMT) OR (TI "pelvic floor muscle training" OR AB "pelvic floor muscle training") OR (TI "pelvic floor training" OR AB "pelvic floor training") OR (TI "pelvic floor exercise" OR AB "pelvic floor exercise") OR (TI "pelvic floor muscle training" OR AB "pelvic floor muscle training") OR (TI "pelvic floor muscle exercise" OR AB "pelvic floor muscle exercise") OR (TI "pelvic floor muscle therapy" OR AB "pelvic floor muscle therapy") OR (TI "pelvic floor rehabilitation" OR AB "pelvic floor rehabilitation") Database - CINAHL Complete 2,335
S2 (MH "Stress Incontinence") OR (MH "Urinary Incontinence+") OR "stress urinary incontinence" OR incontinent OR (TI "Urinary tract symptoms" OR AB "Urinary tract symptoms") OR (TI LUTS OR AB LUTS) OR (TI Nocturia OR AB Nocturia) OR (TI "Overactive bladder" OR AB "Overactive bladder") OR (TI "Urinary Urge" OR AB "Urinary Urge") OR (TI "Frequent Urination" OR AB "Frequent Urination") OR (TI Nycturia OR AB Nycturia) OR (TI "Urge Incontinence" OR AB "Urge Incontinence") Database - CINAHL Complete 18,867
S1 (MH "Prostatectomy+") OR (TI prostatectomy* OR AB prostatectomy*) OR (TI "prostate removal" OR AB "prostate removal") OR (TI "resection of prostate" OR AB "resection of prostate") OR (TI "prostate surger* OR AB "prostate surger*") Database - CINAHL Complete 9,090

Embase (Elsevier) **32** results
Embase Session Results No. Query

32 #8 #1 AND #2 AND #3 AND #4 AND #5 AND ([article]/lim OR [article in press]/lim OR [review]/lim) AND [english]/lim AND [embase]/lim AND [2012-2023]/py

50 #7 #1 AND #2 AND #3 AND #4 AND #5 AND ([article]/lim OR [article in press]/lim OR [review]/lim) AND [english]/lim AND [embase]/lim

112 #6 #1 AND #2 AND #3 AND #4 AND #5

2,534,075 #5 'clinical trial (topic)'/exp OR randomized:ti,ab OR randomised:ti,ab OR randomly:ti,ab OR placebo:ti,ab OR trial:ti OR 'systematic review (topic)'/exp OR term:it OR systematic:ti OR 'cochrane review*':ti OR systematically:ti,ab OR 'cochrane database syst rev':jt OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR 'meta analysis':ti OR 'meta analyses':ti OR 'meta review*':ti

1,845,304 #4 personalised*:ti,ab OR personalized*:ti,ab OR individualised:ti,ab OR individualized:ti,ab OR tailor*:ti,ab OR physiotherap*:ti,ab OR 'physical therap*':ti,ab OR 'continence service':ti,ab OR 'incontinence service':ti,ab OR supervis*:ti,ab OR 'postoperative period'/exp OR postoperative:ti,ab OR 'post operative':ti,ab OR 'postoperative care'/exp OR postsurgical:ti,ab OR 'post surgical':ti,ab OR postsurgery:ti,ab OR 'post surgery':ti,ab

6,154 #3 ('pelvis floor'/exp OR 'pelvic floor':ti,ab) AND ('kinesiotherapy'/exp OR 'physiotherapy'/exp OR physiotherapy:ti,ab OR exercise:ti,ab) OR pfmt:ti,ab OR 'pelvic floor training':ti,ab OR 'pelvic floor exercise':ti,ab OR 'pelvic floor muscle training':ti,ab OR 'pelvic floor muscle exercise':ti,ab OR 'pelvic floor muscle therapy':ti,ab OR 'pelvic floor rehabilitation':ti,ab

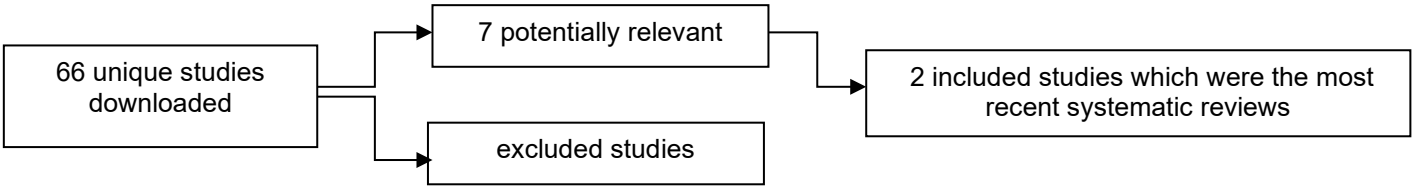
123,691 #2 'stress incontinence'/exp OR 'urine incontinence'/exp OR 'stress urinary incontinence' OR incontinent:ti,ab OR 'lower urinary tract symptom'/exp OR 'urinary tract symptoms':ti,ab OR luts:ti,ab OR nocturia:ti,ab OR 'overactive bladder':ti,ab OR 'urinary urge':ti,ab OR 'frequent urination':ti,ab OR nycturia:ti,ab OR 'urge incontinence':ti,ab

80,591 #1 'prostatectomy'/exp OR 'prostatectomy' OR prostatectomy*:ti,ab OR 'prostate removal':ti,ab OR 'resection of prostate':ti,ab OR 'prostate surger*':ti,ab

Cochrane Library (Wiley) 45 results
Date Run: 28/04/2023 05:55:21
ID Search Hits
#1 [mh prostatectomy] OR prostatectomy*:ti,ab OR "prostate removal":ti,ab OR "resection of prostate":ti,ab OR ("prostate" NEXT surger*):ti,ab 5570
#2 [mh "Urinary Incontinence, Stress"] OR [mh "urinary incontinence"] OR "stress urinary incontinence" OR incontinent:ti,ab,kw OR [mh "Lower Urinary Tract Symptoms"] OR "Urinary tract symptoms":ti,ab OR LUTS:ti,ab OR

Nocturia:ti,ab OR "Overactive bladder":ti,ab OR "Urinary Urge":ti,ab OR "Frequent Urination":ti,ab OR Nycturia:ti,ab OR "Urge Incontinence":ti,ab 10440
#3 (([mh "Pelvic Floor"] OR "Pelvic Floor":ti,ab) AND ([mh "Exercise Therapy"] OR [mh "Physical Therapy Modalities"] OR physiotherapy:ti,ab OR exercise:ti,ab)) OR PFMT:ti,ab OR "pelvic floor muscle training":ti,ab OR "pelvic floor training":ti,ab OR "pelvic floor exercise":ti,ab OR "pelvic floor muscle training":ti,ab OR "pelvic floor muscle exercise":ti,ab OR "pelvic floor muscle therapy":ti,ab OR "pelvic floor rehabilitation":ti,ab 2239
#4 Personalised*:ti,ab OR personalized*:ti,ab OR individualised:ti,ab OR individualized:ti,ab OR tailor*:ti,ab OR Physiotherap*:ti,ab OR ("physical" NEXT therap*):ti,ab OR "continence service":ti,ab OR "incontinence service":ti,ab OR supervis*:ti,ab OR [mh "Postoperative Period"] OR postoperative:ti,ab OR "post operative":ti,ab OR [mh "Postoperative Care"] OR postsurgical:ti,ab OR "post surgical":ti,ab OR postsurgery:ti,ab OR "post surgery":ti,ab 202717
#5 #1 AND #2 AND #3 AND #4 with Cochrane Library publication date Between Jan 2012 and Apr 2023 45

Results



First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Johnston E et al 2023, systematic review	Men with urinary incontinence following prostate surgery 25 studies with 3079 participants	Pelvic floor muscle training (PFMT) with biofeedback, combination treatment, electrical or magnetic stimulation, verbal/written instructions	The value of conservative interventions for urinary incontinence following prostate surgery alone, or in combination, remains uncertain There was some evidence in favour of combination treatments and adding electrical stimulation to PFMT	Most studies were at high risk of bias for at least one domain Existing trials are small with methodological flaws, PFMT lacks standardisation protocols vary markedly Of the 25 studies included, 23 were with men having radical prostatectomy or radical retropubic prostatectomy
Yang JM et al 2023, umbrella review of meta-analysis and systematic review	Male patients who had radical prostatectomy and urinary incontinence 18 studies with 29,925 patients included	Pelvic floor muscle training (PFMT) with or without biofeedback or electrical stimulation	PFMT is effective in improving urinary incontinence after radical prostatectomy as well as patient quality of life. Biofeedback might provide additional benefits compared to PFMT alone, in the short and medium term (< 6 months) There is insufficient evidence that electrical stimulation provides additional benefits	All studies were judged to be of critically low methodological quality by the study authors. Concerns about comprehensiveness of the literature searches, lack of registration of protocols, The review also included a study that mis-classifies some post-operative trials as being pre-operative

Summary

The Cochrane Review (Johnston et al 2023) is the most recent and best quality systematic review that addresses our question (in part). It included 25 studies (RCTs, quasi-RCTs), with a total of 3079 men of which 23 studies were with men having radical prostatectomy and who had urinary incontinence after surgery (and no pre-operative intervention). Results showed that for each intervention comparison there were small numbers of studies only, inconsistent findings

and high uncertainty. However, there was some evidence in favour of combination treatments and adding electrical stimulation to PFMT. The harms include skin health and rectal pain but these were rare. There was no information on costs. A second systematic review by Yang et al (2023) of 18 studies concluded that Pelvic Floor Muscle Therapy is effective for urinary incontinence after radical prostatectomy and the biofeedback might provide additional benefit.

Both reviews highlighted the methodological limitations of the current evidence base, and future better quality randomised trials are needed.

Implications for Practice/research

Offering men with urinary incontinence after radical prostatectomy access to combination treatment (that includes PFMT) or electrical stimulation alongside PFMT may be beneficial.

Further research is needed (ie. larger trials of higher quality). Future research would benefit from considering all men having radical prostatectomy and considering whether pre-operative management added to post-operative management improves urinary incontinence

What would you tweet? (140 characters)

The evidence for pelvic floor physiotherapy for urinary incontinence after radical prostatectomy is currently limited. More research is needed.

Critical Appraisal Topic Group Team Members

Meeting 1 (23rd March 2023): Matt Roberts (STARS urologist), Nadine Foster (Alliance Director), Peter Window (conjoint physiotherapist and research co-ordinator), Susan Sullivan (Alliance Manager), Melissa Rantala (Urology Care Manager and CNC Nurse in STARS), Natasha Roberts (conjoint nurse and specialist prostate cancer nurse), Lucy James (physiotherapy in procedural services in STARS), David Cowley (UQ PhD student and physiotherapist delivering care to men for urinary incontinence), Paul Hodges (UQ research lead in urinary incontinence treatment following prostatectomy), Loretta Atkinson (UQ health librarian). Apologies from Lars Eriksson (UQ librarian) and Lisa Anemaat (STARS Research Consumer Group project officer). Invited but unable to attend Catherine Willis from RBWH physiotherapy team (Catherine.Willis@health.qld.gov.au) and Karen Walsh (karen.walsh2@health.qld.gov.au)

Meeting 2 (26th April 2023): Matt Roberts (STARS urologist), Nadine Foster (Alliance Director), Peter Window (conjoint physiotherapist and research co-ordinator), Natasha Roberts (conjoint nurse and specialist prostate cancer nurse), Lucy James (physiotherapy in procedural services in STARS), Paul Hodges (UQ research lead in urinary incontinence treatment following prostatectomy), Lars Eriksson (UQ librarian).

References

Johnson EE, Mamoulakis C, Stoniute A et al 2023. Conservative interventions for managing urinary incontinence after prostate surgery. Cochrane Database of Systematic Reviews, Apr 18;4(4):CD014799. doi: 10.1002/14651858.CD014799.pub2.

Yang, JM, Ye H, Long YI et al 2023. Effect of pelvic floor muscle training on urinary incontinence after radical prostatectomy: an umbrella review of meta-analysis and systematic review. Clinical Rehabilitation 2023;37(4):494-515