

# The Effectiveness of Kegel Exercise or Pelvic Floor Muscle Training to Incontinence Urine for Client Post Trans Urethral Resection of The Prostate

## A Systematic Review

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**Keywords:** Kegel Exercise or Pelvic Floor Muscle Training, Urine Incontinence, Trans Urethral Resection of The Prostate.

**Abstract:** Background: Incontinence of urine found for client post a trans urethral resection of the prostate after the release of the lapse of a catheter. Kegel exercise or Pelvic Floor Muscle Training useful to resolve incontinence of urine. This exercise can increase muscle power of pelvic. Objective: The purpose of this article was to explore research finding about effectiveness kegel exercise or pelvic floor muscle training client with incontinence of urine post trans urethral resection of the prostate. Methods: The search was carried in some data based electronically with use health discriptors pelvic floor muscle training and kegel exercise and incontinence urine and prostatectomy within the last ten years published in English. Results on the search was 13 journals that meet the criteria. Conclusion: Kegel exercise or pelvic floor muscle training effective to reduce incontinence of urine, improve erectil function cost and care more effective and improve the quality of life significantly. Need more research on the effectiveness of kegel exercise or pelvic floor muscle training to urinary incontinence, erectil function and quality of live for client post trans urethral resection of the prostate on the duration of the execution of the exercise.

## 1 INTRODUCTION

Urinary incontinence (IU) is a disorder of the fulfillment of elimination of urine. Urinary incontinence can be a passage of urine, sometimes only a very small amount (a few drops), very much, or uncontrolled (occurring outside the desire) (Smeltzer, 2009). IU is found on the client *post-TURP* or *Trans Urethral Resection of the Prostate* when the first control after the release of the catheter hose. According Bruschini *et al.* 2011, IU in the surgery of *benign prostatic hyperplasia* (BPH) is rare, but 30-40% of clients experiencing early IU.

According Bruschini *et al.*, 2011 IU cause post-TURP very multifaktorial, including *urinary sphincter insufficiency* (USI) or bladder dysfunction (BD), which is defined as a decrease in development or *detrusor overactivity* (DO). USI occur as a result of injury to the sphincter mechanism and incontinence is usually associated with *Bladder Disfungsi* (BD), which includes *detrusor overactivity* (DO).

Additionally DO associated with increased bladder muscle tension with urinary retention that can lead to IU.

Kegel exercises are exercises to strengthen the pelvic floor muscles that will improve urethral resistance and urinary control (Smeltzer, 2009). This exercise was originally developed by Arnold Kegel in 1948 as a method of controlling incontinence in women after childbirth.

This exercise is done by strained muscles hold off on pubbocogeus (PC) (Widianti, 2010). Kegel exercise can be used to reduce the symptoms of all types of urinary incontinence (Dumoulin, 2010).. Kegel is done twice a day for 15 minutes for 6-8 seconds with a break of 6 seconds is very effective for urinary incontinence in women (Kashanian *et al.*, 2011).

Kegel exercise has been used as a treatment for urinary incontinence in elderly women (Aslan *et al.*, 2008; (Kashanian, et al, 2011), lowered complaint dribbling on the client post-TURP (Madjid, 2011),

accelerate wound healing perinium on mother normal post partum (Ridlayanti, et al., 2011), effective against urinary incontinence and quality of life in post-TURP client ( Zhang, et al, 2007).

Results of previous systematic review showed that Kegel exercise is done before surgery had a significant effect on urinary incontinence after TURP. This review is conducted to assess the effectiveness of Kegel exercises for urinary incontinence in the client after TURP surgery.

## 2 METHODS

Research articles obtained from a search on line English language articles in several databases include Proquest, Science Direct, Jural nurses, Google Scholar in the last 10 years (2007-2017). The keywords used are pelvic floor muscle training and Kegel exercise and incontinence of urine and prostatectomy within the last ten years published in English.

### 2.1 Selection Research

Results obtained 657 journals were selected, leaving 15 full text journals titled pelvic floor muscle training or Kegel exercise. Of the 15 articles were selected and gained back 13 journals that met inclusion criteria. The inclusion criteria of this study were: 1) The reporting of interventions Pelvic Floor Muscle Training (PMFT) or Kegel exercise that aims to reduce urinary incontinence, 2) uses the randomized studies (RCT), 3) Original Research, 4) Do the clients who suffered incontinence urine, 5) Published in English.

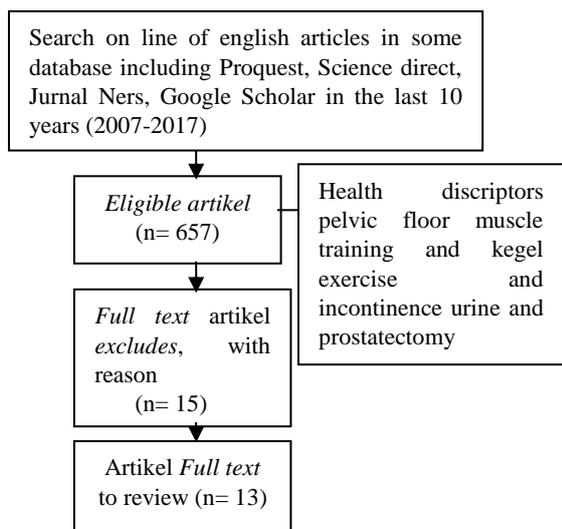


Figure 1: Alogaritme Pencarian Artikel.

## 3 RESULTS

This review examines the effect of Kegel exercise or Pelvic floor Muscle Training (PMFT) against urinary incontinence (10 journals), quality of life (2 journals), erectile dysfunction (1 journal). Design on 13 journals reviewed were all using the RCT were on level 2 of 7 degrees level of evidence to the random allocation. Aply uniform type of intervention that is Pelvic floor muscle training (PMFT) or Kegel exercise (KE).

PMFT or TO can degrade or improve urinary incontinence significantly in the women (Kashanian *et al.*, 2011), can treat urinary incontinence in the elderly (Aslan *et al.*, 2008), showed a significant increase of the resistance of the pelvic floor muscles (Tibaek *et al.*, 2007), improving the quality of life (Centemero *et al.*, 2010, Geraerts *et al.*, 2015), improves erectile function Geraerts *et al.*, 2015), menurunka urinary incontinence in the client post-prostatectomy (Tibaek *et al.*, 2007; Zhang, Strauss and Laura, 2007; Overga, 2008; Centemero *et al.*, 2010; Yamanishi *et al.*, 2010; Glazener *et al.*, 2011; Goode *et al.*, 2011; Tienforti *et al.*, 2012; Geraerts *et al.*, 2013).

PMFT performed before surgery showed a significant increase in the durability of the pelvic floor muscle after TURP, although the clinical relevance improving the status of urodynamic no difference. Process in getting the research articles that are relevant to the use of keywords, obtained 13 articles in accordance with the inclusion criteria, then the article is extracted. From the data extraction carried out several synthesis in order to provide an overview of The Effectiveness of Kegel Exercise or Pelvic Floor Muscle Training to Incontinence Urine for Trans Urethral Client Post Resection of the Prostate .. The results of the extraction of the synthesized research article can be seen in the table below:

(Tibaek *et al.*,2007). The instrument used is the DAN-PSS-1 questionnaire. The procedure has been standardized intervention carried out by a physiotherapist experienced and do not know to jamming and the results of the initial test (Tibaek *et al.*, 2007).

PMFT can improve urinary incontinence in women with or without kegelmaster (Aslan *et al.*, 2008; Kashanian *et al.*, 2011). Three questionnaires were used Incontinence Quality of Life (IQOL), Incontinence Impact Questionnaire (IIQ) and its

complementary Urogenital Distress Inventory (UDI). Pelvic floor muscle strength was evaluated using the Oxford grading system (Kashanian *et al.*, 2011). The muscle strength was evaluated using digital tools gained 52% in women who do PMFT and 48% who did PMFT (Aslan *et al.*, 2008).

Two journals were reviewed comparing the effects of PMFT done since before and after post-surgery (Centemero, *et al.*, 2010) (Geraerts, *et al.*, 2013). RESULTS  $p = 0.002$ , which means patients do PMFT before and after surgery showed better results compared to only do after surgery is PMFT performed before surgery have an increased risk 0.41-fold lower incontinence and 0.38-fold lower incontinence in PMFT after surgery (Centemero, *et al.*, 2010).

One journal comparing whether behavioral therapy with or without biofeedback and pelvic floor electrical stimulation to the patient prostatectomy urinary incontinence, urge incontinence episodes showed an average decrease of 28 to 13 per week, or a reduction of 55% after the behavioral therapy of incontinence episodes while the average decline of 26 to 12 or 51% after the behavior and stimulation, but there was no significant difference in the reduction of incontinence between the treatment group and the control group with  $p = 0.069$  (Goode, *et al.*, 2011)

Support groups can improve the effectiveness PMFT (Zhang, *et al.*, 2007). The group that only did PMFT have a level higher urinary incontinence based on a visual analog scale assessment of the group PMFT a support group (4.7 vs. 3.2) and more groups are using pads PMFT (85%) compared with the group with the support group (50 (Zhang, *et al.*, 2007).

Besides effect on urinary incontinence, PMFT also affect erectile function in patients post prostatectomy (Geraerts, *et al.*, 2015). One is reviewed journals show that PMFT can improve erectile function in post-prostatectomy patients are significantly ( $p = 0.0025$ ) using the questionnaire used is or International reindexs IIEF erectile function (Geraerts, *et al.*, 2015).

A decrease in urinary incontinence and erectile function improvement has a positive correlation with quality of life. Two journals state that kpatuhan against PMFT can give a good effect on urinary incontinence and quality of life (Zhang, *et al.*, 2007) (Centemero, *et al.*, 2010)

## 4 DISCUSSION

The results of this review indicate that article 13 pelfic floor muscle training (PMFT) or Kegel exercise

effectively lower urinary incontinence, improve erectile function and quality of life. In addition to the single intervention that is PMFT, can also be combined with a support group (Zhang, *et al.*, 2007). PMFT effective against urinary incontinence in men due to the condition of the bladder muscles and improved (Parekh in the (Zhang, *et al.*, 2007)).

Research conducted (Zhang, *et al.*, 2007) showed that urinary incontinence in men better by combining PMFT and support group. The combined effect significantly to the quality of life especially in the field of social events and the relationship of husband and wife (Zhang, *et al.*, 2007).

Research conducted by Goode *et al.* 2011 states that 16% of men who do PMFT with behavioral therapy that can reduce the frequency of their urinary incontinence is more than half the frequency. (Goode, *et al.*, 2011) also, say that the addition of biofeedback and electrical stimulation did not promote behavioral change in doing PMFT. Behavior therapy is a technique that can be used to change a person's behavior through teaching or improve their knowledge (Goode, *et al.*, 2011). This behavior occurs because the changes after the teaching of the revenue, one would think, act and behave (Notoatmojo *et al.*, 2012). Patients reflect behavioral therapy with a positive attitude may be because the client has a strong desire to heal and improve the quantity of their lives.

Research conducted by (Overga, *et al.*, 2008) which distinguish whether there are differences PMFT effect on urinary incontinence after radical prostatectomy surgery guided by a physiotherapist to be done alone showed that the group who received training physiotherapist guided reduction of urinary incontinence significantly more than their coaching clients themselves with  $p = 0,001$  with a time of 3 months. This is probably due to oversight, respondents were more focused and to be serious in doing the exercises. (Goode, *et al.*, 2011) stated that the client's behavior can be influenced by the presence of a stimulus. The stimulus could be anything, including guidance from a physiotherapist.

(Centemero, *et al.*, 2010), (Geraerts, *et al.*, 2013) states that PMFT were performed before surgery and continued after surgery the results are more significant in reducing urinary incontinence than PMFT is done after surgery. This is likely caused because the muscles of the pelvic longer getting stimulation. To get the muscles of the body are obvious, of course, will not be obtained in practice only occasionally, the client should exercise regularly followed by a gradual increase in training volume within a specific time period. The combination of

these two things will greatly affect muscle enlargement process (Ongko *et al.*, 2016).

Tibaek *et al.*, 2006 proves that PMFT performed before surgery resulted in a significant improvement in pelvic floor muscle endurance after TURP is a significant increase of 86% occurred after training ( $p = 0.004$ ). (Geraerts, *et al.*, 2015) found that clients with post radical prostatectomy (RP) who experienced erectile dysfunction at least 12 months after RP after PMFT for 3 months to recover erectile function better ( $P = 0.025$ ) and showed an increase klimaksuria with  $p = 0.004$ . This is probably due to the PMFT conducted both before and after surgery can improve the strength and pelvic floor muscle mass and can accelerate blood circulation and improve muscle bulbocavernosus. Widiyanti 2010 says that stimulation of the pelvic floor muscles will build muscle mass that can strengthen the pubococcygeus muscle (PC) supports muscle bulbocavernosus and muscle iskhioavernosus so as to make the penis erect very loudly anytime they want, improving blood circulation in the penis, can enhance sexual stamina, increase the volume and the intensity of ejaculation, improve urinary flow.

## 5 CONCLUSION

The purpose of this systematic review is to assess the effectiveness of the use of pelvic floor muscle training or Kegel exercise as a therapeutic intervention in post-TURP urinary incontinence clients. Some studies showed that significantly reduces urinary incontinence, treatment costs, improve erectile function and quality of life of the client. Further studies on the duration of the execution of the exercise.

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## APPENDIX 2

No	Title	Design, Instrumen	Variable	Sample	Result
1	Evaluation of the effect of pelvic floor muscle training (PFMT or Kegel exercise) and assisted pelvic floor muscle training (APFMT) by a resistance device (Kegelmaster device) on urinary incontinence in women: a randomized trial Kashanian, M., Ali, Shadab Shah., Nazemi, Mitra., Bahasadri, Shohreh. 2011	RCT - Incontinence Quality Of Life (IQOL) - Incontinence Impact Questionnaire (IIQ) - Urogenital Distress Inventory (UDI)	- pelvic floor muscle training (PFMT or Kegel exercise) - assisted pelvic floor muscle training (APFMT) by a resistance device (Kegelmaster device) - urinary incontinence in women	A sample size of 76 patients (38 in each group)	Pelvic floor muscle exercises (PMFT ) or Kegel exercise with or without the aid of resistance which device was conducted twice a day for 15 minutes during 6-8 seconds with breaks 6 seconds each session with the duration of 12 weeks does not show a significant difference which means that both this method effective for the repair of incontinence of urine in women.
2	Bladder Training and Kegel Exercises for Women with Urinary Complaints Living in a Rest Home. Aslan, Ergul., Komurcu, Nuran., Beji, Nezihe K., Yalcin, Onay. 2008	RCT - Quality of Life Scale, - Mini-Mental Test - The Rankin Scale	- Bladder Training - Kegel Exercises - Urinary Incontinence for Women	Sample 64 patient, 33 treatment, 31 control. After 8 week and 6 month follow up treatment group 7 dropped and 1 died, control group 5 dropped and 1 died.	Bladder exercises and Kegel exercises performed on women aged 65 years and over with urge incontinence urgency for 6-8 weeks were found to be statistically and significantly decreased in frequency and nocturia. So this therapy can be used easily as an effective treatment of urinary incontinence in elderly women who live at home.
3	Pelvic floor muscle training before transurethral resection of the prostate: A	RCT - DAN-PSS-1 questionnaire - Observation	- PMFT - TURP	- 26 PMFT group - 23 control group	Pelvic floor muscle exercises performed before surgery showed a significant

	randomized, controlled, blinded study Tibaek, S., Klarskov, P., Lund, H.B., Thomsen, H., Andresen, H., Schmidt, J.C., & Niemann, O.M. (2007)				increase muscle endurance of the post-TURP muscle, although clinically the correlation of post-TURP urodynamic status increase was no difference
4	Preoperative Pelvic Floor Muscle Exercise for Early Continence After Radical Prostatectomy Centemero, P., Rigatti, L., Giraudo, D., Lazzeri, M., Lughezzani, G., Zugna, D., Montorsi, F., Rigatti, P., Guazzani, G. (2010).	RCT - International Continence Society (ICS) standards	- PMFT - Early Continence	Intervention group= 59 Control group: 59	The results obtained with pelvic floor muscle exercises performed before and continued after prostate surgery showed significant results can decrease incontinence incidence and improve quality of life.
5	Influence of Preoperative and Postoperative Pelvic Floor Muscle Training (PFMT) Compared with Postoperative PFMT on Urinary Incontinence After Radical Prostatectomy Geraerts, I., Poppel, H. V., Devoogdt, N., Joniau, S., Cleynebreugel, B. V., Groef, A. D., Kampen, M. V. (2013)	RCT - visual analog scale (VAS) concerning their subjective feelings about UI - Complete the International Prostate Symptom Score (IPSS) a questionnaire to assess voiding symptoms. - The King's Health Questionnaire (KHQ),	- PMFT - Urinary Incontinence	Experiment group: 91 Control group: 89	There was no significant difference in PMFT results in pre and post patients with postoperative, but quality of life improved more rapidly in the group performing PMFT before and after surgery.
6	Urinary incontinence in men after formal one-to-one pelvic-floor muscle training following radical prostatectomy or transurethral resection of the prostate (MAPS) Glazener, C., Boachie, C., Buckley, B., Cochran, C, et al. (2011)	RCT - ICIQ-UI SF questionnaire - quality-adjusted life year (QALY)	- PMFT - Urinary incontinence - Quality of live	Trial 1: intervention group= 205 respondent, control group=206 respondent Trial 3: intervention group= 220 respondent, control group=222 respondent	This study compared the effects of PMFT on urinary incontinence in patients following prostate radical surgery and trans urethral prostate resection between control and intervention groups. The results obtained no significant differences

					between the two groups, ie, the intervention did not change the incidence of urinary incontinence and quality of life in both groups and reported no adverse effects.
7	Does Physiotherapist-Guided Pelvic Floor Muscle Training Reduce Urinary Incontinence After Radical Prostatectomy? Overgard, M., Angelsen, A., Lydersen, S., Merkued, S. (2008)	RCT - the questionnaire UCLA-PCI (University of California, Los Angeles, Prostate Cancer Index)	- PMFT - Urinary incontinence	Intervention group= 42 (with PMFT) Control group= 43 (without PMFT)	There was no statistically significant difference for PMFT performed 3 times 10 contractions daily at home for 3 months, after 6 months there was a clinical difference and after 1 year there was a statistically significant and clinical difference of PMFT effect in reducing urinary incontinence on patients post radical prostatectom.
8	Randomized, Placebo Controlled Study of Electrical Stimulation With Pelvic Floor Muscle Training for Severe Urinary Incontinence After Radical Prostatectomy Yamanishi, T., Mizuno, T., Watanabe, M., Honda, M., Yoshida, K. (2010).	RCT - ICIQ-SF - KHQ	- Electrical stimulation with PMFT - Incontinence	26 intervention group 30 control group	PMFT before and continued after surgery. For active Stimulation 50 Hz square wave 300 pulse duration and 5 seconds. At, 5 seconds off duty cycle is applied for 15 minutes twice daily with anal electrode. Stimulation of shock is limited to 3 mA with 2 sec at 13 seconds found that electrical stimulation combined with PMFT can result in recovery of urinary incontinence in post-operative

					prostatectomy patients every month
9	Efficacy of an assisted low-intensity programme of perioperative pelvic floor muscle training in improving the recovery of continence after radical prostatectomy: a randomized controlled trial Tienforti, D., Sacco, E., Marangi, F., et al. (2011)	RCT - (International Consultation on Incontinence Questionnaire on Urinary Incontinence [ ICIQ-UI ] [ ICIQ ] - Overactive Bladder [ OAB ] - University of California, Los Angeles- Prostate Cancer Index [ UCLA-PCI ] ,	- biofeedback (BFB) combined with an assisted low-intensity programme of postoperative perineal physiokinesitherapy in reducing the incidence, duration urinary incontinence	Overall, 34 consecutive patients were eligible and 32 were available for the final analysis: 16 patients for each study group	Pelvic floor muscle exercises performed three times a day for 10 minutes with 5 contractions and 5 seconds of rest after removal of catheter tube at home under supervision and evaluated thrice for 6 months showed that the preoperative biofeedback combined with PMFT was significantly more effective rather than standard treatments in improving urinary incontinence recovery.
10	Effects of Combined Pelvic Floor Muscle Exercise and a Support Group on Urinary Incontinence and Quality of Life of Postprostatectomy Patients Zhang, A., Strauss, G. J., Siminoff, L. A. (2007)	RCT - Los Angeles, Prostate Cancer Index - American Urological Association Symptom Index - visual analog scale (VAS)	- Combined Pelvic Floor Muscle Exercise and a Support Group - Urinary Incontinence and Quality of Life	Support group= 14 Control group= 15	PMFTs performed four to seven days per week at home and attending bi-weekly group meetings have lower urinary incontinence rates.
11	Behavioral Therapy With or Without Biofeedback and Pelvic Floor Electrical Stimulation for Persistent Postprostatectomy Incontinence Goode, P. S., Burgio, K. I., Johnson, T. M., et al. (2011)	RCT - The American Urological Association (AUA-7) symptom index - International Prostate Symptom Score quality-of-life question	- Behavioral Therapy - Pelvic Floor Electrical Stimulation - Persistent Postprostatectomy Incontinence	Behaviour :70 Behaviour plus:70 Control: 68	Clients who were in the PMFT behavior therapy group who performed for 8 weeks with fifteen contractions with 10 seconds of relaxation had a significant decrease of an average of 55% in incontinence

12	Pelvic floor muscle training for erectile dysfunction and climacturia 1 year after nerve sparing radical prostatectomy: a randomized controlled trial Geraerts., Poppel, H. V., Devoogdt, N. Et al (2015)	RCT - IIEF-EF - a visual analog scale	- Pelvic floor muscle training - erectile dysfunction	Treatment group: 16 Control group: 17	Clients with post radical prostatectomy (RP) who had erectile dysfunction at least 12 months after RP after PMFT for 3 months experienced better erectile function recovery with (P = 0.025) and showed an increase in climaxuria with p = 0.004.
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