

# Effects of Adding Concentration Therapy to Kegel Exercise to Improve Continence after Radical Prostatectomy, Randomized Control

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**Objective:** To compare the efficacy of pelvic floor muscle exercise with the concentration therapy versus pelvic floor muscle exercise alone after radical prostatectomy.

**Material and Method:** One hundred thirty five patients were randomized into the intervention group that concentration therapy was added to Kegel exercise, and control group that was Kegel exercise only, using the stratified randomization (stratified by taking the catheter off before and after discharge) and type of surgery. Incontinence was defined as a loss of urine equal or more than to 2 grams in one-hour pad test, before and after the test in each sample group. Follow-up results were obtained by phone visit at 3, 4, 5, 6, 8, 10, and 12 weeks after surgery.

**Results:** In the intervention group, 65 of 68 cases (95.6%) had continence in three months, compared to 48 of 67 (71.6%) in the control group, with significant statistical difference ( $p$ -value  $<0.001$ ). The secondary result was the regularity in practicing. It was 80% in total. In the intervention group, 66 of 68 cases (97.06%) practiced compared to 34 of 67 (50.75%) in the control group, which was significant difference between the two groups.

**Conclusion:** Combined concentration therapy with Kegel exercise had significantly improved continence after radical prostatectomy.

**Keywords:** Radical prostatectomy, Stress incontinence, Prostatectomy, Pelvic floor muscle exercise, Kegel exercise, Concentration therapy

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Prostate cancer is a serious disease that threatens people's lives<sup>(1)</sup>, which is an increasing. It affects to patient both physical and mental<sup>(2)</sup>. Even though the technology of surgery is advancing<sup>(3-6)</sup>, the authors had found that post-surgical patients still had an incontinence condition. From 90% of patients' data, more than 90% of patients were able to hold their urine well within six months and some patients could do sooner than that, maybe at 2 weeks or one month. However, 2 to 3% of patients continued to have problem of incontinence even after two years<sup>(7-9)</sup>. The temporary incontinence caused by surgery, if we categorized this into a characteristic condition, had "stress incontinence type"<sup>(10-12)</sup>. The criteria of incontinence is the urine loss equal or more than 2 grams/hour<sup>(11,12)</sup>. This is the pad test<sup>(10,11)</sup>, using a

pad to hold the urine leakage. Pelvic muscle floor exercise is is widely accepted way to improve this condition, with evidence support from research<sup>(13-17)</sup>. Practicing it regularly will help rehabilitate the condition of incontinence. To help compliance, follow-up by home visit plus phone counseling after prostatectomy and rehabilitation at home is done. The result will show within six to eight weeks. Between July 2008 and May 2009, 115 patients were included in the present study. Eighty percent of them did not do pelvic muscle floor exercise regularly<sup>(18)</sup>. For this problem, we have found an opportunity to develop a way to manage the incontinence condition by encouraging and promoting pelvic muscle floor exercise more effectively by adding concentration therapy<sup>(19,20)</sup>.

## Objective

To compare pelvic floor muscle exercise with concentration therapy and pelvic floor muscle exercise alone for continence of urine outcome after radical prostatectomy.

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## Material and Method

The present study is randomized controlled trial in prostate cancer patients age between 17 and 80 years old who had no problem or risks with incontinence before radical prostatectomy at Siriraj Hospital and volunteered to participate with written consent. We randomized the sample group into intervention group and control group, using Stratified randomization stratified method. [By taking the catheter off before/after discharged and type of surgery.] To determine the sample size by nQuery and to compensate 10% for any loss, we needed 69 cases in each group. The intervention group had taken the pelvic floor muscle exercise with concentration therapy. The test for incontinence was done by comparing the weigh of the pad, in gram, before/after the exercise at one-hour, from the standard incontinence evaluation, which is based on the amount of urine leakage. A leakage of equal or more than 2 grams was considered incontinence. Follow-up result of doing the exercise at 3, 4, 6, 8, 10, and 12 weeks was done. The study was approved by Siriraj Research Development Fund (Managed by Routine to Research: R2R).

### *The definition of the parameter in the present story*

1. Incontinence means having urine loss that could not be controlled after radical prostatectomy. The amount of urine loss from the pad test has to be equal or more than 2 grams in one hour.

2. The regularity of doing the exercise means practicing by following the guidelines, which are equal or more than 240 times per day, every day, from three weeks to three months after surgery.

3. Practicing pelvic floor muscle exercise (Kegel exercise) means to hold and relax the muscle tension around the anus to rehabilitate the muscle condition around the pelvic area to strengthen them.

4. Practicing pelvic floor muscle exercise (Kegel exercise) with concentration therapy means practicing the exercise while specifically concentrating on the exercise. In other words, it means concentrating while holding and relaxing the muscle tension around the anus. This is the normal form of practice. However, the patients can also use equipment such as health rehabilitation spa rock.

### *The result was determine in categories*

Primary result: The incontinence of the patients can be measured from the urine loss equal or more than 2 grams from the pad test after drinking two glasses of water (no salt) and then starting to do the exercise.

Secondary result: The regularity of doing the pelvic muscle floor exercise is judged by following the guideline, which it is equal or more than 240 times per day, every day from three weeks to three months after surgery.

### *Tools used for research*

The pad test was used to measure the severity of urine loss in gram unit from standard scales. The values of all the tests were used compare before and after giving standard procedure at three weeks, and every week up to three months.

### *Statistical analysis*

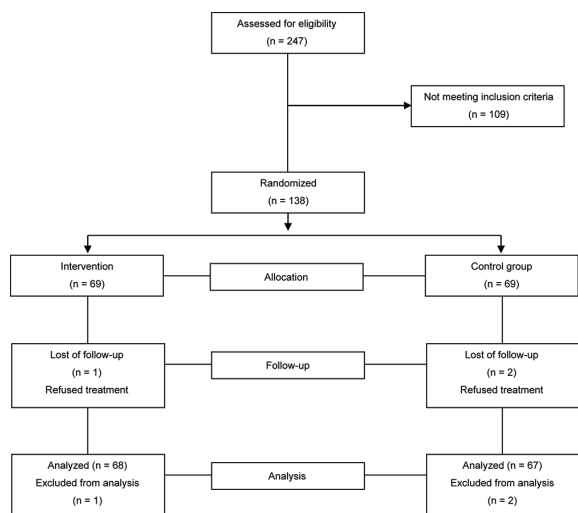
Descriptive statistics are used with demographic and clinical data. Inferential statistics used were Chi-square. Fisher's exact test and Independent t-test statistics were used in comparing the result of incontinence ratio in stress incontinence type at three months, between intervention group and control group. The data were analysis with SPSS version 18. Descriptive statistics are used with demographic and clinical data, and a *p*-value of less than 0.05 was considered statistically significant.

## Results

Two hundred forty seven patients between May 2011 and October 2012 were included. One hundred nine cases did not meet the criteria of study and were excluded. One hundred thirty eight cases were recruited. Three cases discontinued from the study after three months. Thus, 135 cases were analyzed, which 68 cases were in the intervention group and 67 cases in the control group (Fig. 1, Table 1). In the intervention group, 65 of 68 cases (95.6%) experienced continence when compared with 48 of 67 (71.6%) in the control group, which was statistically significant (*p*-value <0.001). The secondary result was the regularity in practicing. In the intervention group, 66 of 68 cases (97.06%) practiced while only 34 of 67 (50.75%) practiced in the control group, which was significant different (*p*-value <0.001).

## Discussion

From the present study data, the pelvic muscle floor exercise has effectiveness for the rehabilitation of incontinence<sup>(13,19,20)</sup>. From the research work Evaluation of Early Pelvic Floor Physiotherapy on the Duration and Degree of Urinary Incontinence After Radical Retropubic Prostatectomy in a Non-Teaching Hospital (EB Cornel, R de Wit, JA Witjes, 2005), the



**Fig. 1** Trial profile (CONSORT 2010).

result confirmed that doing the pelvic muscle floor exercise has effectiveness for the rehabilitation of incontinence. In searching past result from Siriraj Hospital in Thailand, more than 90% or patients were able to hold their urination well within six months. Some patients could even hold their urine at two weeks or one month. However, 2 to 3% of patients were still having incontinence two years later. We found that the result of doing pelvic floor muscle exercise with concentration therapy had helped the rehabilitation of stress incontinence in the radical prostatectomy patients. Our result clearly show that the rehabilitation significantly improve continence. In addition, the regularity of pelvic floor exercise have better outcome of continence. The intervention group practiced pelvic floor muscle exercise (Kegel exercise) with concentration therapy, which means practiced the

**Table 1.** Data in intervention group and control group

Basic data	Intervention (n = 68)	Control (n = 67)
Age (years), mean (SD) (Min, max)	61.71 (4.92) (51, 70)	62.70 (5.22) (49, 70)
Length of stay at the hospital (day), mean (SD)	7.49 (2.13)	8.09 (3.57)
Grading of incontinence before test (gram)	15.35 (2.00, 219.50)	21.80 (2.00, 180.70)
Grade 1 urine loss 1-10 g	26 38.2%	27 40.3%
Grade 2 urine loss >10-50 g	28 41.2%	22 32.8%
Grade 3 urine loss >50 g	14 20.6%	18 26.9%
Type of operation		
Open radical prostatectomy	4 5.9%	4 6.0%
Laparoscopic radical prostatectomy	14 20.6%	12 17.9%
Robotic assisted laparoscopic radical prostatectomy	50 73.5%	51 76.1%
Blood transfusion		
Did not receive	67 98.5%	64 95.5%
Received	1 1.5%	3 4.5%
Off cath before going home or not		
Yes	41 60.3%	42 62.7%
No	27 39.7%	25 37.3%
Time of retained cath (day), median (min, max)	8 (6, 41)	8 (6, 23)

**Table 2.** The average value and the standard deviation in reduced urine loss (before-after) and the amount percentage of the result Pad test the test result that had the amount of urine loss) 0 gram in each sample group

	Intervention (n = 68)	Control (n = 67)	p-value
% urine loss reduced, mean (SD)	97.79 (7.09)	85.18 (20.22)	<0.001
Pad test			<0.001
Continenence (urine loss <2 g)	65 95.6%	48 71.6%	
Incontinence (urine loss ≥2 g)	3 4.4%	19 28.4%	
Urine loss after doing exercise			<0.001
Urine loss 0 g	51 75.0%	6 9.0%	
Non-urine loss 0 g	17 25.0%	61 91.0%	

exercise by concentrating on the exercise and eliminating other subjects or issues. This can be a normal form of practice. However, patients can also use equipment such as health rehabilitation spa rock. The intervention therapy stimulate patient to keep regular pelvic floor exercise. Practicing the pelvic muscle floor exercise with concentration therapy is the best method when it is accompanied with equipment. The “Health Rehabilitation Active Cycle Spa Rock” was the best research work to form guideline for nursing patient in the health rehabilitation. The concept of developing native knowledge and cultural roots and adapting local resources, mixing them with belief is a good solution. We have brought them into use and got good result, reducing the severe effect, and promoting good quality of live. Therefore, nurses can bring this guideline of intervention to patients after the operation.

#### **Conclusion**

Pelvic floor muscle exercise with concentration therapy can help rehabilitate urinary incontinence. This gives good results in patients group that are older than 70 years old after radical prostatectomy.

#### **What is already known on this topic?**

Doing pelvic muscle floor exercise with adding concentration therapy is a method to rehabilitate efficiently for incontinence condition in post radical prostatectomy. It is a method that patients can practice regularly.

#### **What this study adds?**

The purpose of this study was to find methods to rehabilitate the incontinence condition by using the knowledge of doing pelvic muscle floor exercise (Kegel exercise) and developing pelvic muscle floor exercise by using equipment such as the Rehabilitation Health Spa Rock. Using the concept of mixing pelvic muscle floor exercise with concentration therapy helps doing the exercise regularly. Therefore, it gives good result in rehabilitating incontinence for patients after radical prostatectomy.

#### **What are the implications for public health practice?**

Practicing this new method in doing pelvic muscle floor exercise together with concentration therapy, to rehabilitate incontinence condition, proved to be successful and should be used as a way to treat patients after radical prostatectomy.

#### **Potential conflicts of interest**

None.

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**ผลการฝึกบริหารกล้ามเนื้อเชิงกราน (Kegel exercise) ร่วมกับสมาธิบำบัดต่อภาวะกลั้นปัสสาวะอยู่ (continence) ในผู้ป่วยที่ได้รับการผ่าตัดต่อมลูกหมากออกทั้งหมดในโรงพยาบาลศิริราช**

จาวรรรณ คงตระกูล, วรณวรา ทักชนนท์, ปิยะนุช ตัดพุดชา, กนิษฐา ชื่อดี, สุภาพร เทียนไชย, สุนัย ลีวันแสงทอง, ไชยยงค์ นวลยง

**วัตถุประสงค์:** ศึกษาเปรียบเทียบผลการฝึกบริหารกล้ามเนื้อเชิงกรานร่วมกับสมาธิบำบัดกับการฝึกบริหารกล้ามเนื้อเชิงกรานต่อภาวะกลั้นปัสสาวะไม่อยู่หลังผ่าตัดต่อมลูกหมากออกทั้งหมด

**วัสดุและวิธีการ:** ผู้ป่วยทั้งหมด 135 ราย ทำการสุ่มกลุ่มตัวอย่างแบ่งเป็นกลุ่มทดลองและกลุ่มควบคุม ด้วยวิธีการแบบมีชั้นภูมิ โดยการถอดสายสวนปัสสาวะ ก่อนและหลังจำหน่าย และชนิดของการผ่าตัด โดยกลุ่มทดลองได้รับการฝึกบริหารกล้ามเนื้อเชิงกรานร่วมกับสมาธิบำบัด ศึกษาผลลัพธ์การฟื้นฟูภาวะกลั้นปัสสาวะไม่อยู่จากการเปรียบเทียบผล pad test ใน 1 ชั่วโมง วัดน้ำหนักเป็นกรัม ก่อนและหลังทดลองจากเกณฑ์ประเมินภาวะกลั้นปัสสาวะไม่อยู่มีจำนวนปัสสาวะเกิดมากกว่าหรือเท่ากับ 2 กรัม และติดตามผลการฝึกเป็นระยะทุกสัปดาห์ที่ 3, 4, 6, 8, 10, 12 หลังผ่าตัด

**ผลการศึกษา:** กลุ่มทดลองสามารถกลั้นปัสสาวะได้ 65 ราย จาก 68 ราย (ร้อยละ 95.6) เมื่อเปรียบเทียบกับกลุ่มควบคุมสามารถกลั้นปัสสาวะได้ 48 ราย จาก 67 ราย (ร้อยละ 71.6) พบว่ามีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ( $p$ -value <0.001) และผลความสม่ำเสมอพบว่ากลุ่มทดลองมีร้อยละความสม่ำเสมอการฝึกร้อยละ 80 ขึ้นไป 66 ราย จาก 68 ราย คิดเป็นร้อยละ 97.06 เมื่อเปรียบเทียบกับกลุ่มควบคุมพบว่ากลุ่มทดลองมีร้อยละความสม่ำเสมอการฝึกร้อยละ 80 ขึ้นไป 34 ราย จาก 67 ราย (ร้อยละ 50.75) ซึ่งเมื่อเปรียบเทียบกับกลุ่มควบคุมพบว่ามีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ

**สรุป:** การฝึกบริหารกล้ามเนื้อเชิงกรานร่วมกับสมาธิบำบัดสามารถฟื้นฟูภาวะกลั้นปัสสาวะไม่อยู่หลังผ่าตัดได้ผลดีกว่าการบริหารกล้ามเนื้อเชิงกรานเพียงอย่างเดียว

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