

# SCREENING PELVIC FLOOR DYSFUNCTION BETWEEN NORMAL AND OVER WEIGHT MENOPAUSE WOMEN USING CASCO SPECULAM, SIMS SPECULAM AND LAYCOCK PALPATION METHOD

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## ABSTRACT

Pelvic floor dysfunction affects the female urinary genital faecal and is responsible for storing and evocating urine and stool, Physiotherapy helps in the treatment of pelvic floor dysfunction and Kegel exercise is recommended fir women having problems of this dysfunction. In this study the standard method like casco speculum, sims speculum and laycock palpation method. This study proves the use of Kegel's exercise in the treatment of pelvic floor dysfunction. There is marked decreased in muscle testing which shows the subject with high score of body mass index are reliable to get pelvic floor muscle dysfunction.

**KEY WORDS:** Pelvic floor, Kegel exercise, Physiotherapy. Dysfunction, BMI.

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## INTRODUCTION

The pelvic floor is the part of muscular skeletal capsule surrounding the abdominal and pelvic organs that contribute to cotenanciespelvic organ function, generation of intra abdominal pressure anti gravity support and lumbo pelvic stability. The pelvic floor is a dome shaped muscular sheet that contains the bladder, uterus and rectum. Anatomy of pelvic floor is the levator ani or pelvic diaphragm is subdivided into four muscles, these are Pubococcygeus, Iliococcygeus, Coccygeus and Puborectalis [1]. Pelvic floor is responsible (with bladder and anorectum) for storing and evacuating urine and stool [1]. Pelvic floor dysfunction can be describe as a condition which affect the female urinary, genital faecal, Colo rectal system adversely. In effective functioning of the pelvic floor muscle can be a factor in urinary incontinence, vaginal prolapsed

obstructed defecation and low back pain, body position has marked effect on the pelvic floor muscle activity, which increases from line to sitting. Many women experience pelvic floor dysfunction during the delivery and later in life. The factors such as pregnancy, child birth, aging, over weight and abdominal surgery such as caesarean section, often result in the weakening of the pelvic floor muscles [2]. PFD is a major health issue for women as shown by 11% life time risk under going surgery for prolapse or urinary incontinence [3].

Physiotherapy plays an important role to strengthen the pelvic floor muscle in the treatment of prolapse and urinary incontinence and also improve mobility and relives pain. Physiotherapy also helps in the treatment of Pelvic Floor Muscle dysfunction, pelvic pain, bladder and bowel symptoms, pregnancy

related to pelvic pain, revitalise and sexual health.

Pelvic floor exercise, or Kegel exercise consists of repeatedly contracting and relaxing the muscles that form part of the pelvic floor, now sometimes colloquially referred to as the "Kegel muscles" [2]. Exercises are usually done to reduce urinary incontinence [4], reduce urinary incontinence after childbirth [5]. Pelvic floor exercises are recommended for women with urinary incontinence of the stress, urge, or mixed types [6]. Kegel exercises are said to be good for treating vaginal prolapse [7] and preventing uterine prolapse [8] in women. Kegel exercises may be beneficial in treating incontinence in both men and women [4]. The action of slowing or stopping the flow of urine may be used as a test of correct pelvic floor exercise technique [9]. Pelvic floor exercises may be of benefit in cases of faecal incontinence and pelvic organ prolapse conditions e.g. rectal prolapse [10]. Regular Kegel exercises should achieve tangible results (such as less frequent urine leakage) within about 8 to 12 weeks. For some women, the improvement could be dramatic [11].

Pelvic floor exercises helps to support the pelvic organs and abdominal contents, especially during standing, support the bladder to help it stay closed. It actively squeezes when the patient cough or sneeze to help avoid leaking. When the muscles are not working effectively the patient may suffer from leaking ("urinary incontinence"), and / or urgent or frequent need to pass urine. It is used to control wind and when 'holding on' with the bowels.

The aim of the study is to assess pelvic floor muscle function and strength and to discuss the responsiveness, reliability and validity of data obtained with the method available for clinical practice. Vaginal palpation, casco speculum and sims speculum are the standard tools in assessing the ability to contract the pelvic floor muscle function. The study also determines the applicability of Kegel's exercises (Pelvic floor exercises) in reducing the pelvic floor muscle dysfunction in menopause women.

## MATERIALS AND METHODS

The materials used in this study are sterile

gloves, sterile speculum (sims and casco), cotton swab, Beta-Dine solution paper, Pencil and Assessment sheet. Random sampling technique was used for conducting this study. Experiments were conducted by using the following methods:

**(i) Speculum Method** (sims and casco): In this type of method, patients instructed to empty the bladder before the test, clean the outer part of the vagina and cervix by cotton swab with Beta-Dine solution to avoid infection. Therapist should wear the gloves and the speculum must be sterile before the test. In this method, position of the patient is to make the patient supine line with the flexed knees and hip in the abducted position. After that, the therapist insert the speculum into the vagina and slightly lift the muscle by making the proper positioning of patient. Now give the instruction to the patient to cough or sneeze, the leakage of urine or mass like projection profess the Pelvic floor muscle dysfunction.

**(ii) Palpation Method:** This is the method currently used by most physical therapists to evaluate a correct Pelvic floor muscle contraction and was first described by Kegel as a method to evaluate Pelvic floor muscle function [12,13]. In this method, place one finger in the distal one third of the vagina and ask the patient to lift inward and squeeze around the finger. Vaginal palpation is based on manual muscle testing which is used to teach women, how to contract their Pelvic floor muscle and classified the contraction qualitatively. To test the strength, there is a six point scale which can be classified as 0=No contraction, 1=Flicker, 2=Weak, 3=Moderate, 4=Good, 5=Strong.

### Inclusion and Exclusion Criteria of the Study:

The inclusion criteria of the patients includes menopause women (45-65 years), the patients who are willing to participate in study, ability to comprehend and understand and well oriented. Exclusion criteria of the patients includes the women with ongoing menstrual cycle, the patients having urinary tract infection, mentally unstable, less communication and in co-operative subjects. The inclusion patients was divided into two groups, Group A contains 30 number of patients having Body Mass Index (BMI) of 18-25 and Group B contains 30 number

of patients having BMI of 25-29. BMI is statistical measure of the weight of a person scale according to height. As such it is useful in population measure only and is not appropriate for diagnosis individual. BMI define as the individual body weight and divided by the square of their height.

$$\text{BMI} = \text{kg}/\text{m}^2$$

BMI is a measure of body fat based on height and weight that applies to both adult men and women. BMI categories have values such as <18.5 means underweight, 18.5-24.9 means normal weight, 25-29.9 means overweight, 30 or more means obesity.

**Procedure of Kegel Exercise [14]:** In the exercise 1, tighten the muscle around the back passage, vagina and lift up inside as if trying to stop passing urine. It is very easy to bring other, irrelevant muscle into play, so try to isolate the pelvic floor as much as possible by not pulling in the tummy, not squeezing the leg together, not tightening the buttocks and not holding the breath. In this way most of the effort should be coming from the pelvic floor and the duration of exercise is to hold it as long and as hard as you can. Built up to a maximum of 10 seconds. Rest for 4 seconds and then repeat the contraction as many times as you can up to a maximum of contraction. Try doing these exercises in a slow and controlled way with a rest of 4 seconds between each muscle contraction. Practice maximum number of held contraction (up to 10) about 6 times each day.

In the exercise 2, exercise the muscle around the front passage by pulling up the muscle as hard as you can take care not to tighten your stomach or buttock muscle. This is the same as the exercise practiced first when you tried to stop the flow of urine in the midstream. Hold the muscle up as hard as you can while you count to four, then consciously relax it. Repeat the exercise until you feel confident you are fully in controlled. The next thing is to try and combine both exercises tightening both set of the muscle simultaneously as hard as you can, holding to the count of four and then relaxing. Repeat this about 5 times. The duration of this exercise to do one set of slow contraction (exercise 1) followed by one set of quick contraction (exercise 2) six times each day.

In Exercise3, tighten both set of muscles, front and back, try to pull up hard on middle area to get a lift from the front to back. Again hold and relax about 5 times. Finally, try pulling up on all three areas simultaneously and hold for a count of 4. Repeat this about 5 times. The duration of the exercise should be repeated 5 times and done 10 times a day. Lying position for pelvic floor exercises: lying in the bed, on back or side, with knees crooked. Standing position for pelvic floor exercises: standing, leaning forward from the hips with hand flat on the table. Kneeling position for pelvic floor exercises: kneeling on all force.

## RESULTS AND DISCUSSION

After analysing the data collected by both speculum tool and Laycock palpation method, there was a marked decrease in muscle testing which showed the subject with high score of body mass index having more chances to get pelvic floor muscle dysfunction.

We are using an observational method in the form of speculum tool, it is a very reliable method and has got good validity in finding out the presence of urinary incontinence and prolapses during cough which the therapist can see. In our study, subject of group B with high values of body mass index showed signs of both urine leakage and prolapses during examination. The Laycock palpation method has also provided to be a valid tool in quantifying the strength of pelvic floor muscle and our study showed high body mass index scores of menopause women correlate with the low score in manual muscle testing.

The inward movement of a correct pelvic floor muscle contraction is the starting point for measurement of pelvic floor muscle function. However this inward movement of the skin may be created by contraction of the superficial perineal muscle and have no influence on the urethral closer mechanism. There may be palpable pelvic floor muscle contraction with no visible outside movement particularly in women who are obese; a correct lift can be difficult to observe from the outside [15].

Muscle strength measurement may be considered an indirect measure of pelvic floor

muscle function in real life activities [15]. Women with no leakage did not contract voluntarily, before coughing and jumping. Their pelvic floor muscle contraction is considered to be an automatic co-contraction occurring as a quick and strong activation of an intact neural system. Other important factors for quick and strong contraction are the location of the pelvic floor within the pelvis, the muscle bulk, and intact connective tissue [15]. A stretched and weak pelvic floor may be positioned lower within pelvis compared with well trained and non injured pelvic floor [16]. The time for stretch muscle to reach an optimal contraction may be too slow to be effective in preventing descent against increased abdominal pressure (example, sneeze), thereby allowing leakage to occur several cases or studies comparing pelvic floor muscle strength in women with normal weight (menopause condition) have demonstrated that women who are normal weight have better function and strength in the pelvic floor muscle than women who are overweight [17,18,19].

The results and discussion has been shown in Tables 1 to 4. In Table 1, the values shows that there was good reliability between speculum and manual muscle testing within group A. Table 2 shows the values of speculum tools and manual muscle testing method within group B, which indicates that the pelvic floor muscle dysfunction correlates with very low values of manual muscle testing grades which could be the main reason for leakage of urine or prolapsed. Table 3 compares the speculum values between Group A and B which showed that about 20 out of 30 patients in overweight menopause group has pelvic floor dysfunction so in Group A, the incidence of pelvic floor dysfunction is reasonable low. Table 4 compares manual muscle testing grades between Group A and B which quantatively shows that Group B has low scoring in the grade which indicates the profound weakness of pelvic floor muscle.

The mean value of A and B calculated by the help of Table 4 comes 3.5 and 2.06 respectively from the mentioned tables and it is clear that the women with high BMI (group) have the range of 0 means no contraction, 1 means flicker, 2 is weak, 3 is moderate while the women of low

BMI (group A) have less problem in comparison to group B.

Hence the need of Kegel exercise is there for patient so we applied this phenomenal exercise technique. Kegel exercises are a series of pelvic muscle exercises designed to strengthen the muscles of the pelvic floor. The principle of Kegel exercises to strengthen the muscles of the pelvic floor, there by, improving the urethral and rectal sphincter function. The success of Kegel exercises depends on proper technique and adherence of a regular exercise program. Basic position for pelvic floor exercises is to sit well back on a hard chair, thighs and feet unsupported, legs well apart, Lean forward with the elbow on the knees and the head drooped. Consciously relax the stomach on buttock muscle.

Following are the Tables from 1 to 4:

**Table 1:** Values of Speculum and Manual Muscle Testing within Group A. GROUP A: NORMAL BMI (18-25).

S. NO.	SPECULUM	PALPATION
1	N	5
2	N	3
3	N	4
4	N	4
5	D	2
6	N	5
7	N	4
8	D	2
9	N	3
10	N	3
11	N	4
12	N	3
13	D	1
14	N	5
15	N	5
16	N	4
17	N	3
18	D	1
19	N	3
20	N	4
21	N	3
22	N	3
23	D	2
24	N	4
25	N	5
26	D	2
27	N	4
28	N	4
29	N	3
30	N	5

N = NORMAL      D = DYSFUNCTION

**Table 2:** Values of Speculum and Manual Muscle Testing within Group B. GROUP B: OVERWEIGHT (BMI) (25-29)

S. NO.	SPECULUM	PALPATION
1	D	1
2	N	3
3	D	0
4	D	2
5	D	1
6	N	4
7	D	2
8	D	1
9	N	3
10	N	3
11	D	2
12	D	1
13	N	3
14	D	0
15	D	0
16	D	1
17	D	1
18	N	3
19	D	1
20	D	2
21	N	3
22	N	3
23	D	1
24	D	2
25	N	4
26	D	1
27	D	2
28	D	0
29	N	3
30	D	1

N = NORMAL D = DYSFUNCTION

**Table 3:** Speculum Values between GroupA and GroupB. Speculum (CASCO AND SIMS) (Comparison)

S. NO.	GROUP A	GROUP A
1	N	D
2	N	N
3	N	D
4	N	D
5	D	D
6	N	N
7	N	D
8	D	D
9	N	N
10	N	N
11	N	D
12	N	D
13	D	N
14	N	D
15	N	D
16	N	D
17	N	D
18	D	N
19	N	D
20	N	D
21	N	N
22	N	N
23	D	D
24	N	D
25	N	N
26	D	D
27	N	D
28	N	D
29	N	N
30	N	D

N = NORMAL D = DYSFUNCTION

**Table 4:** Manual Muscle Testing Values between Group A and Group B. LAYCOCK PALPATION METHOD (Comparison)

S. NO.	GROUP A	GROUP B
1	5	1
2	3	3
3	4	0
4	4	2
5	2	1
6	5	4
7	4	2
8	2	1
9	3	3
10	3	3
11	4	2
12	3	1
13	1	3
14	5	0
15	5	0
16	4	1
17	3	1
18	1	3
19	3	1
20	4	2
21	3	3
22	3	3
23	2	1
24	4	2
25	5	4
26	2	1
27	4	2
28	4	0
29	3	3
30	5	1

MEAN VALUE A = 3.53, MEAN VALUE B = 2.06, BMI = BODY MASS INDEX 0 = NO CONTRACTION, 1 = FLICKER, 2 = WEAK, 3 = MODERATE, 4 = GOOD, 5 = STRONG

## CONCLUSION

This study concludes that there is a significant relationship between body mass index and pelvic floor muscle dysfunction in menopause women. Scoring of pelvic floor muscle dysfunction by both Laycock palpation method and speculum method indicates high incidence of pelvic floor muscle dysfunction in over weight menopause. This study proves that the pelvic floor exercises (Kegel's exercises) are effective in reducing the pelvic floor muscle dysfunction in menopause women.

**Conflicts of interest:** None

## REFERENCES

- [1]. Bharucha AE. Pelvic floor: anatomy and function. Neurogastroenterol Motil 2006; 18:507-519.
- [2]. [http://en.wikipedia.org/wiki/Kegel\\_exercise](http://en.wikipedia.org/wiki/Kegel_exercise)

- [3]. Wieslander CK. Clinica approach and office evaluation of the patient with Pelvic floor dysfunction. *Obstet Gynecol Clin North* 2009;36(3):445-462.
- [4]. Medline Plus Medical Encyclopedia: Kegel exercises. Nlm.nih.gov. 2011-08-29. Retrieved 2011-09-02.
- [5]. Dumoulin C, Lemieux MC, Bourbonnais D, Gravel D, Bravo G, Morin M. Physiotherapy for persistent postnatal stress urinary incontinence: a randomize controlled trial. *Obstet Gynecol*. 2004;104(3):504-510.
- [6]. Dumoulin, C., Hay-Smith, J. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. *Cochrane Database Syst Rev*. 2010;(1):CD005654.
- [7]. Vaginal Prolapse. eMedicineHealth. 2011 (2011-02-09). Retrieved 2011-09-02.
- [8]. Medline Plus Medical Encyclopedia: Uterine prolapse. Nlm.nih.gov. 2011-08-29. Retrieved 2011-09-02.
- [9]. Kenway M, Goh J. *Inside Out – The essential women's guide to pelvic support*. Healthy Fit Solutions Pty Ltd; 1 edition 2009.
- [10]. BØ, K Can pelvic floor muscle training prevent and treat pelvic organ prolapse. *Acta Obstet Gynecol Scand*. 2006;85(3): 263-268.
- [11]. Kegel exercises: A how-to guide for women". Mayo Clinic. 2010. <http://www.mayoclinic.com/.../kegel-e.../WO00119/NSECTIONGROUP=2>.
- [12]. Kegel AH, Progressive resistance exercise in the functional restoration of the perineal muscles. *Am J Obstet Gynecol*. 1948;56:238–249.
- [13]. Kegel AH. Stress incontinence and genital relaxation. *Ciba Clin Symp*. 1952;4(2):35–51.
- [14]. [http://www.nhs.uk/planners/pregnancyareplanner/documents/bandbf\\_pelvic\\_floor\\_women.pdf](http://www.nhs.uk/planners/pregnancyareplanner/documents/bandbf_pelvic_floor_women.pdf)
- [15]. Bo K, Sherburn M. Evaluation of female pelvic-floor muscle function and strength. *Phys Ther*, 85;2005:269–282
- [16]. Howard D, Miller J, De-Lancey J, Ashton-Miller J. Differential effects of cough, Valsalva, and continence status on vesical neck movement. *Obstet Gynecol*. 2000;95:535–540.
- [17]. Verelst M, Leivseth G. Are fatigue and disturbances in pre-programmed activity of pelvic floor muscles associated with female stress urinary incontinence? *Neurol Urodyn*. 2004;23:143–147.
- [18]. Morkved S, Salvesen KÅ, Bø K, Eik-Nes S. Pelvic floor muscle strength and thickness incontinent and incontinent nulliparous pregnant women. *Int Urogynecol J*. 2004;15:384–390.
- [19]. Morin M, Bourbonnais D, Gravel D, et al. Pelvic floor muscle function in continent and stress urinary incontinent women using dynamometric measurement. *Neurol Urodyn*. 2004;23:668–674.

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