



Faculty of Medicine

University of Dhaka

Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence

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Master of Science in Physiotherapy



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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for acceptance of this thesis entitled, “**Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence**”, submitted by Most. Iren Khatun for the partial fulfillment of the requirements for the degree of Master of Science in Physiotherapy.

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List of Abbreviations or Symbols

BHPI	Bangladesh Health Professions Institute
CRP	Centre for the Rehabilitation of the Paralysed
IRB	Institution Review Board
ICIQ	International Classification of incontinence questionnaire
MMT	Manual Muscle Testing
SUI	Stress Urinary Incontinence

Abstract

Background: Stress urinary incontinence (SUI) in female is a common gynecological issue that impedes lifestyle. Exercise had a significant effect; however this has not been determined the exercise frequency and intensity for pelvic floor stabilization in stress urinary incontinence.

Aim: The aim of the study is to determine if maximum repetition of pelvic stabilization exercise impacts upon the management of stress urinary incontinence in female.

Methodology: One arm quasi-experimental study design for 40 patients having SUI and associated musculoskeletal complaints attended at Physiotherapy department of the Centre for the Rehabilitation of the Paralysed (CRP).

Result: The mean age of participants was 48.32 ± 12.04 years. Among the participants, minimum age was 30 and maximum was 75 years. The mean weight was 67 ± 8.4 Kg. 10% of the respondents were prime Para, others were multipara. Majority of the respondents were Housewife (82.5%). 25% (n=10) stated they had leak in urine once a week, 33.5% said they leak urine 2-3 times a week, 15% said they had leaking urine every day, 35% stated they leak urine several times a day and 2.5% said they leak urine frequently. The ICIQ SF total from 5-18 scale was 10 ± 3.6 . Majority of the patient stated they leak urine during cough or sneeze (80%), during physical activity (12.5%) and after urination (7.5%).

Pelvic floor muscle and abdominal strength, and endurance had a positive and significant result in maximum repetition (P .001). Pelvic floor strength has been

significant improvement in week 2 (P .001), and week 3 (P .01). Interference in activities (P .003) and ICIQ total (P .001) had improvement but majority of improvement noted in week 2-3. There was significant improvement in frequency of urine leakage in the first week (P .001), and week 3 (.005) and week 4 (.001).

Conclusion: Pelvic floor exercise with increasing repetition is an effective approach to improve stress urinary incontinence in females. The study had a significant impact on incontinence frequency, amount and associated quality of life for women with stress urinary incontinence with pelvic floor exercise with maximum repetition.

Key Words: Stress Urinary Incontinence, Physiotherapy, exercise, Maximum repetition

1.1 Background

Stress urinary incontinence (SUI), characterized as "objection of compulsory loss of urine on exertion or actual effort (e.g., brandishing exercises) or on wheezing or hacking." Missing are the manifestations of an overactive bladder criticalness, nocturia, and enuresis (Abrams, et al., 2018). Irrespective old enough, 15% to 30% of women are influenced by urinary incontinence in all aspects of their lives physical, mental and social with ensuing weakening in personal satisfaction (Boo, et al., 2017).

Urinary incontinence (UI) is a common problem among adults living in the community. Its incidence increases with age and it is more frequent in women, being particularly common amongst elderly women in residential care. Estimates of the prevalence of urinary incontinence in women vary from 10% up to 40%. Pelvic floor exercise offers a possible reprieve from urinary incontinence. This conservative therapy appears to have no significant side effects and enables improvement in symptoms; it can therefore be considered as a first choice of treatment for urinary incontinence in women. The management of urinary incontinence in women recommends pelvic floor muscle training for at least three months as the primary treatment for urinary stress incontinence (Price, Dawood, & Jackson, 2010).

Kobashi, and colleagues (2017)in the article surgical treatment of female stress urinary incontinence: AUA/SUFU guideline stated Stress urinary incontinence (SUI) is the symptom of urinary leakage due to increased abdominal pressure. The prevalence of SUI has been reported to be as high as 49%, depending on population

and definition, and it can have a significant negative impact on an individual's quality of life and on that of her family and friends.

Ghaderi, Mohammadi, Sasan, Kheslat, and Oskouei (2016) investigated 200 women with LBP and found that 78% of them suffer from stress urinary incontinence (UI). Stress UI is defined as an involuntary leakage of urine during an effort or exertion, or on coughing, sneezing, and laughing. Stress UI has a high prevalence in women, and factors such as age, pregnancy, childbirth, and hormone-related conditions have been reported to increase its prevalence. UI has a negative and undeniable impact on health and quality of life that affects social, psychological, occupational, physical, and sexual activities of the sufferers. The stability system of the spine is composed of the muscular, structural, and neural subsystems, which normally work in harmony and provide mechanical stability. The muscles responsible for the spine stability, surrounding the abdomen and spine as a capsule, work as a synergy. They include the diaphragm superiorly, pelvic floor muscles (PFM) inferiorly, transverses abdominis (TrA) anteriorly, and deep lumbar extensors muscles posteriorly. Among these muscles, PFM has an important role not only in trunk and lumbo-pelvic stability but also in maintenance of continence. The stabilization exercises focusing on pelvic floor muscle is associated with improvement in LBP and UI simultaneously.

Stress urinary incontinence (SUI) is the involuntary loss of urine that occurs with physical exertion and a rise in abdominal pressure. Coughing, sneezing, straining, jumping, and running are events commonly associated with SUI. Mechanisms underlying the development of SUI include pudendal nerve injury during vaginal delivery, incomplete pudendal nerve regeneration after delivery, and loss of muscular,

ligamentous, and fascial support of the urethra and bladder. Symptoms of SUI occur when the anatomic and functional integrity of the urethral sphincter complex cannot resist forces associated with increases in intra-abdominal pressure. Because the levator ani muscles contribute to continence by providing support to pelvic organs and by enhancing urethral closure, pelvic-floor muscle (PFM) exercises have been recommended in the initial conservative management of SUI. Efficacy of PFM exercises in the treatment of SUI and mixed urinary incontinence (symptoms of stress incontinence and urge incontinence) has been supported by the findings of several randomized controlled studies and systematic reviews. Compared with 3% cure and 15% improved continence rates for controls, 16% of women receiving PFM exercise training were cured and that 44% reported 50% to 99% improvement in symptoms.

5. 56% of women who received PFM exercise training perceived their condition as “unproblematic” after treatment compared with only 3% of controls (Borello-France, Zyczynski, Downey, Rause & Wister, 2006).

Henalla et al. (2011) reported that 65% of women who received PFM exercise training had at least a 50% reduction in urine loss on a pad test compared with no reduction in urine loss for the control group. Using biofeedback-assisted PFM exercise training and self-monitoring with bladder diaries were effective.

Goode et al. (2012) found that women with predominant SUI symptoms showed a mean 68.6% reduction in the frequency of incontinence episodes compared with a mean 52.5% reduction in incontinence episodes for controls, which were given comprehensive written instructions in the form of an 8-week self-help behavioural program.

Urinary incontinence (UI) is a common clinical condition worldwide that affects women of all ages and across different cultures and races often increasing as women age. The International Continence Society defined UI as "the complaint of any involuntary leakage of urine UI is not a disease, but rather a symptom resulting from impairment of the bladder or of the sphincter "Mechanism. The most common causes of UI are stress, urge, and mixed. In a British survey, incontinence was estimated to be over twice as prevalent in women (14%) as in men (6.6%). Elderly women are the most affected, with a mean prevalence of 34%; elderly men, instead, report a mean prevalence of 22%. Thus, UI affects more women than men. In general, the overall prevalence rate of UI increases with age. In people older than 65 years, the estimated prevalence of UI ranges from approximately 35% for those who reside in the community to more than approximately 60% for those who live in long-term care facilities (Kwon, Kim, Son, Roh, & You, 2010).

Reynolds, Dmochowski and Penson (2011) stated Stress urinary incontinence is common and affects many women globally. About 50% of women with urinary incontinence report symptoms of stress incontinence, but estimates of the prevalence and incidence are limited by inconsistent methods of measurement between epidemiologic studies in different populations. Longitudinal studies assessing the incidence and natural history of stress incontinence estimate an annual incidence of 4% to 10%. While remission does occur, data on this remains sparse. Stress urinary incontinence (SUI), the involuntary leakage of urine on effort or physical exertion or on sneezing or coughing, is the most common subtype of UI reported by women. Urinary incontinence (UI) is a common health condition that affects women of all

ages and racial and ethnic groups. While all subtypes of UI represent a significant burden to individuals and health care systems.

Pelvic floor muscle training (PFMT) consists of a programme of repeated contractions and relaxations of the pelvic floor muscles taught and supervised by a health professional. PFMT is the most commonly used physical therapy for women with stress urinary incontinence (SUI). The biological rationale for PFMT in women with SUI is twofold. Firstly, an intentional, effective pelvic floor muscle contraction (lifting the pelvic floor muscles in a upward and forward direction) prior to and during effort or exertion clamps the urethra and increases the urethral pressure, preventing urine leakage.³ Secondly, the bladder neck receives support from strong, toned pelvic floor muscles (resistant to stretching), thereby limiting its downward movement during effort and exertion, thus preventing urine leakage. The biological rationale is based on Godec's observation that a detrusor muscle contraction can be inhibited by a pelvic floor muscle contraction induced by electrical stimulation. After inhibiting the urgency to void, the woman can reach the toilet in time to avoid urine leakage (Dumoulin, Hay-Smith, Habée-Séguin & Mercier, 2015).

The technique for best option in the treatment of SUI, as per the International Continence Society (ICS), is pelvic floor muscle training (PFMT). PFMT is a technique dependent on logical proof, characterized by the ICS as rehased particular willful withdrawal and unwinding of explicit pelvic floor (PF) muscles. It is significant not just to prepare the strength and perseverance of the PF muscles however additionally their relaxation (Sultan, et al., 2017). Some creators have applied PFMT in mix with adjustment practices for the administration of SUI. Many

ladies don't cling to the recurrence and force of activity, as indicated by the suggestions of physiotherapists. They practice PFMT less regularly and for more limited periods. The impact of various powers of PFMT on SUI has not been adequately observed in the writing (Kim, Kim & Oh, 2012).

Worldwide, there are insufficient distributed examinations with the objectification of PFMT by methods for 3D ultrasound assessment of PF muscles (Dietz, Shek & Clarke, 2005). In gynaecology and urology, 2D/3D ultrasound (USG) is a standard assessment. Notwithstanding, it is likewise imperative to generalize the aftereffects of physiotherapy treatment along these lines. A few examines have been directed in which 2D USG was utilized for proportions of PF work (e.g., change in levator plate point and decreases in hiatal distance across and bladder neck displacement (Tosun, et al., 2016).

Be that as it may, these assessments don't show the hiatal space and musculus levator ani. Consequently, checking the PF muscle complex at rest, in compression and during the Valsalva move (VM), as well as estimating muscle volume and thickness and imagining muscle harm, is insufficient with 2D imaging (Dietz & Wong, 2011).

Stress urinary incontinence (SUI) involves an involuntary loss of urine that occurs following a sudden rise in intra-abdominal pressure caused by coughing, sneezing, straining, laughing or other physical activities. It happens when the intravesical pressure exceeds the maximum urethral pressure in the absence of detrusor contraction (Camu, et al., 2006). SUI is the most common type of urinary incontinence in women, with risk factors including advancement in age, childbirth, smoking, chronic bronchitis, and obesity (Doughty, 2003).

There are many methods to diagnose SUI. One of them is leak point pressure (LPP) testing, which is originated from extensive video urodynamic studies carried out over many years in a wide variety of patients including those with idiopathic incontinence, stress incontinence and neurogenic conditions (McGurie&Cesperdes, 1996). In addition, the perineometer, via a compressible vaginal catheter that is connected to a manometer, measures the increase of intravaginal pressure that is produced by contraction of the pelvic floor muscles (Frawly et al., 2006).

Obesity has often been suggested as a risk factor for urinary incontinence. Each 5 kg/m² increase in body mass index (BMI) is associated with a 60–100% increased risk of daily incontinence (Hannested, et al., 2003). There are several mechanical and physiological reasons why an increased BMI may be associated with, if not causative of, urinary incontinence (Luber, 2004). The strong association between increasing weight and SUI may be related to the higher resting intra-abdominal and intravesical pressures in obese individuals (Hunskar, 2004). Increased intra-abdominal pressures adversely stress the pelvic floor and affect the neuromuscular function of the genitourinary tract (Cummings&Rodning, 2000).

The increase in intravesical pressure associated with a rise in BMI may reduce the continence gradient between the urethra and the bladder. In this situation, the magnitude of increased intra-abdominal pressure necessary to force urine through the urethra is reduced because the static pressure within the bladder is higher (Bai, et al., 2020). These higher pressures could expose the pelvic floor muscles to a state of chronic stress, and place a chronic stretch on the pudendal nerve (Yamada & Govier, 2006).

1.2 Justification

Pelvic floor exercises (Kegal, 1956) are advised as a first line of treatment for women with SUI. These exercises are designed to strengthen weak perineal and pelvic floor muscles, but their success highly depends on patients' motivation level and compliance with the exercises (Kamel, et al., 2013).

Contraction of the abdominal muscles may provide an efficient mechanism, by which contraction of the pelvic floor muscles is initiated, particularly for patients who have difficulty in learning how to contract those muscles. However, the use of abdominal muscle training to rehabilitate the pelvic floor muscles may be useful in treating SUI (Sapsford & Hodges, 2001). Madill and McLean (2006) found that deep abdominal muscle contraction increased intra-vaginal pressure. Moreover, the pelvic floor muscles act as part of an integrated abdominopelvic unit. The central nervous system ensures appropriate timing of the pelvic floor muscle, automatic response to any change in trunk posture and trunk muscle activity (Richardson, Jull, Hodges & Hides, 1999). Power has proposed that there is a close association between the pelvic floor muscles and abdominal muscles, which may originate from a direct continuation of puborectalis with rectus abdominis in an imperfectly developed foetus (Pit, et al., 2003).

Some studies (Sapsford, et al., 2001) have indicated that abdominal activity and pelvic floor muscle contraction are a normal response to each other. The response of the abdominal muscles to voluntary contraction of the pelvic floor muscles showed a greater amplitude of electromyographic (EMG) activity in transversus abdominis than rectus abdominis and obliquus externus abdominis when the spine was positioned in extension (Sapsford, et al., 2001). When specific isometric abdominal contractions

were performed in the supine position, EMG activity in the pelvic floor muscle contraction increased. In addition, urethral pressure increased with voluntary pelvic floor muscle contraction and isometric abdominal muscle holds (Neumann & Gill, 2002).

So far, only one randomised controlled trial has addressed the effect of abdominal muscle training on SUI. The results showed that additional training of transversus abdominis after pelvic floor muscle training and neuromuscular stimulation did not provide any incremental improvement in SUI. However, the coactivation and coordination of transversus abdominis and the pelvic floor muscles was not targeted (Dumoulin, et al., 2004).

1.3 Aim of the study

The determine if maximum repetition of pelvic stabilization exercise impacts upon the management of stress urinary incontinence in female

1.4 Objectives of the study

- To explore socio-demographics related to SUI.
- To observe the impact of maximum repetition of pelvic floor stabilization exercise upon pelvic floor strength & endurance, transverse abdominis strength and functional disability in stress urinary incontinence patients.
- To observe the changes as per repeated measurement weekly in 4 weeks.

1.5 Hypothesis

Null Hypothesis

There is no effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence compared to usual repetition

Alternative Hypothesis

There is positive effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence compared to usual repetition

$$\mu_{\alpha} = \mu_1 \geq \mu_0$$

μ_{α} = New Method is better than the existing method.

The two-tailed alternative hypothesis (μ_1) assumes that the difference between the true mean (μ) and the comparison value (μ_0) is not equal to zero.

1.6 Operational definition

Stress Urinary Incontinence

Urinary incontinence of the respondents that occurs in stressful activities, cough, sneeze and the degree of incontinence varies from a few drops to large amount.

Conventional Physiotherapy Interventions

Physiotherapy interventions in the study describes as a series of non-invasive procedure such as manual therapy, exercise, electrotherapy, thermotherapy, education and home exercises for managing the low back pain as well as stress urinary incontinence. The approaches are described as a conventional protocol of the Department of Physiotherapy of Centre for the Rehabilitation of the Paralysed (CRP).

Maximum Repetition of Pelvic Floor Stabilization Exercise

A series of increase in repetitions in pelvic floor muscle voluntary contraction, usually increase in exercise repetition as 5 times in a week.

2.1 Urinary Incontinence

Urinary Incontinence is a typical condition that regularly goes under treated. Evaluations of predominance differ contingent upon the populace examined, the estimation period (eg, every day or week by week) and the instruments used to survey seriousness. It is assessed to influence about half of grown-up ladies and 3% to 11% in grown-up men, nonetheless, simply 25% to 61% of those ladies look for care (Minassian, Yan, Lichtenfeld, Sun & Stewart, 2012). This might be because of humiliation, absence of information about treatment choices, or a conviction that urinary incontinence is a typical inescapable piece of aging (Hannestad, Rortveit & Hunskaar, 2002).

Recognizing the arrangement of urinary incontinence can assist with directing treatment, be that as it may, an individual could display manifestations from more than one of the classifications. Stress urinary incontinence is complaint of compulsory loss of pee on exertion or actual effort (for example wearing exercises), or on sniffing or hacking (Barry, Link, McNaughton- Collins, McKinlay & Boston Area Community Health (BACH) Investigators, 2008).

Urinary incontinence (UI) is a typical issue among grown-ups living in the network. Its rate increments with age and it are more incessant in ladies, being especially normal among old ladies in private consideration. Evaluations of the pervasiveness of urinary incontinence in ladies fluctuate from 10% up to 40%. Nonetheless, these figures most likely don't mirror the genuine extent of the issue, due to under-revealing emerging from social humiliation related with the condition. Pelvic floor practice

offers a potential respite from urinary incontinence. This traditionalist treatment seems to have no huge results and empowers improvement in manifestations; it can subsequently be considered as a best option of treatment for urinary incontinence in ladies. In addition, if the result is inadmissible the patient can be eluded for additional assessment and conceivable careful mediation (Temml, Haidinger, Schmidbauer, Schatzl & Madersbacher, 2000).

The National Institute of Clinical Excellence rule No. 40 on the administration of urinary incontinence in ladies suggests pelvic floor muscle preparing for at any rate three months as the essential treatment for urinary pressure incontinence. The rule expresses that pelvic floor practices were discovered to be powerful in the treatment of incontinence in female patients in over half of cases (Smith, Bevan, Douglas & James, 2013).

Overactive bladder (OAB, Urgency) disorder: Urinary earnestness, normally joined by recurrence and nocturia, with or without desperation urinary incontinence, without urinary plot contamination or other evident pathology (Abrams, et al., 2003).

Urinary incontinence stays an overall issue, influencing the two male and females, across various societies and races. As referenced over, the overall pervasiveness is hard to decide because of contrasts in definitions utilized, populace studied, overview type, reaction rate, age, sex, accessibility and viability of health- care, and other factors (Minassian, Drutz & Al-Badr, 2003).

Urinary incontinence, as characterized by The International Continence Society, is the objection of any compulsory spillage of pee. It can result from a wide range of conditions and it is valuable to arrange them in like manner. The most well-known kinds of urinary incontinence in ladies are pressure and urge incontinence. Urinary

pressure incontinence is the grumbling of compulsory spillage of pee on exertion or effort, for example, sniffing or hacking. When urodynamic examines exhibit the compulsory loss of pee during expanded intra-stomach pressure not brought about by a constriction of the detrusor muscle, this is characterized as urodynamic stress incontinence. The compulsory spillage of pee went with by or promptly went before by a powerful urge to pass pee (void), is portrayed as urge incontinence. earnestness, with or without encourage urinary incontinence and normally with recurrence and nocturia, is additionally characterized as overactive bladder disorder (OAB) (Haylen, et al, 2016).

Blended urinary incontinence is when ladies have side effects of the two sorts of incontinence. Generally, one of these is prevalent; that is, all things considered the side effects of urge incontinence, or those of stress incontinence, are generally irksome. Evaluation of the predominance of urinary incontinence in females is in the range of 10% and 40% of the total populations. Variables normally found to influence the predominance of urinary incontinence are: age, sex, race and dwelling in a nursing home. The pervasiveness of urinary incontinence has been accounted for to increment with age. Information from an enormous epidemiological investigation (27,936 Norwegian ladies) recommend a continuous expansion in predominance with age to an early top at around midlife (mid 50s), trailed by a slight decrease or then again adjustment until around 70 years old, when the pervasiveness starts to rise consistently (Haylen, et al., 2016).

This diminishing was discovered to be huge after the age of 36 years and they detailed a 2–4% lessening in the working of the urethra after the age of 40 years. The second top in the rate of urinary incontinence following 70 years old can be clarified by an expansion in direness and urge incontinence, conceivably because of low degrees of

estrogen. There is a racial distinction in the pervasiveness of urinary pressure incontinence, which might be clarified by contrasts in the mass of urethral muscle in various races. Afro-Caribbeans, who are thought to have a low predominance of urinary pressure incontinence, were found to have more noteworthy urethral sphincter limit, as confirmed by higher thickness of urethral striated muscle filaments and higher urethral conclusion pressures both during pelvic compression what's more, at rest. Women of Afro-Caribbean plummet likewise have a bigger levator ani cross-sectional region and muscle strength. This anatomical contrast may clarify the diminished commonness of urinary incontinence in this populace (Howard, Delancey, Tunn, & Ashton-Miller, 2000).

Life occasions having significant ramifications for urinary incontinence are pregnancy, labor and menopause. Pregnancy and vaginal conveyance are viewed as the principle hazard factors for the improvement of urinary incontinence. It appears to be that the commonness of urinary incontinence increments during pregnancy and diminishes following conveyance, albeit baby blues commonness actually remains higher than before pregnancy. Appraisals of the pervasiveness of stressurinary incontinence during pregnancy fluctuate somewhere in the range of 6% and 67%, what's more, from 3% to 38% a few months after conveyance. Urinary incontinence increments with equality and, in primiparas who convey vaginally, it has been related with diminishes in pelvic muscle strength of 22–35% among pregnancy and the baby blues period (Wilson, Herbison & Herbison, 1996).

The pelvic floor comprises of a gathering of 12 striated muscles organized in 3 layers. This strong plate grows from the pubic symphysis to the side dividers of the ileum towards the coccyx. The striated muscle strands of each muscle run a similar way in each muscle yet an alternate way to different muscles of the pelvic floor gathering.

Notwithstanding, when the pelvic floor contracts, it is consistently all at once moving the pelvic support one way (Bo, 2004).

The lone known intentional capacity of the pelvic floor muscle bunch is a mass withdrawal, best depicted as an internal lift and crush around the urethra, vagina and rectum. The capacity of the pelvic floor muscles is to loan underlying scaffolding to the pelvic structures, the urethra, vagina and rectum. Pelvic floor muscle preparing includes the redundant withdrawal of the pelvic floor muscle, which develops fortitude and perineal help, and improves muscle tone. As the pelvic floor is completely made out of striated muscle, the standards of solidarity preparing for striated muscle should be followed when endeavoring to tone and fortify the pelvic floor. The development is a deliberate internal furthermore, upward compression or press of the pelvic floor. The number of withdrawals prescribed across considers goes from 8 to 12 withdrawals three times each day, to 20 constrictions four times each day, to upwards of 200 withdrawals for each day (Bo, Lilleas, Talseth, & Hedland, 2001).

The prescribed stance to be embraced during the recommended practice routine additionally differs and incorporates sitting, bowing, standing, resting and remaining with legs on the back of. The suggested length of the recommended routine shifts generally, from multi week to a half year, with a quarter of a year being most regularly suggested. The National Institute for Clinical Excellence suggests a preliminary of directed pelvic floor works out, comprising of at any rate eight withdrawals multiple times a day for at least three months, as a first-line treatment for urinary incontinence. The International Consultation on Incontinence Committee suggests that directed pelvic floor muscle preparing for ladies with stress incontinence is kept up for 8–12 weeks before reassessment and conceivable reference for

additional administration if the patient has not improved adequately (Abrams, et al., 2010).

The 'Brisk Flick' is a method for use by ladies with encourages incontinence or blended urinary incontinence. This activity includes taking moderate full breaths, while getting the pelvic floor muscles quickly 3–5 times, when the desire to void is felt. This has been found to smother the desire to void. There is proof proposing that it may not be important to keep a deep rooted system of pelvic floor work out, in spite of the fact that this might be wanted. An ideal pelvic floor practice system would change the morphology and position of the muscles to empower subliminal constriction, a system thought to happen in landmass ladies. Furthermore, likewise with strength preparing of skeletal muscle, less exertion would be expected to keep up muscle tone than to assemble bulk at first (Bo, 2004).

2.2 Clinically Relevant Anatomy: Pelvic Floor

The pelvic floor is comprised of the muscles, tendons, and fascial structures that demonstration together to help the pelvic organs and to give compressive powers to the urethra during expanded intra-stomach pressure. The pelvic floor muscles allude to the strong layer of the pelvic floor. It incorporates the levator ani, striated urogenital sphincter, outer butt-centric sphincter, ischiocavernosus, and bulbospongiosus. The urethra, vagina, and rectum go through the pelvic floor and are encircled by the pelvic floor muscles. During expanded intra-stomach pressure, the pelvic floor muscles should agreement to offer help. At the point when the pelvic floor muscles contract the urethra, butt, and vagina close. The compression is significant in forestalling compulsory loss of pee or rectal substance. The pelvic floor muscles should likewise unwind to void (Messelink, et al., 2005).

2.3 Etiology of Stress urinary incontinence

Urethral hypermobility: increments in intra-stomach pressure (eg, from hacking or sniffing) with deficient help of the pelvic floor musculature and vaginal connective tissue to the urethra and bladder neck can prompt incontinence. Pregnancy and vaginal birth, baby blues, weight, persistent hack, ongoing hard work and blockage: if there is an expansion in stomach pressure that is more prominent than the contradicting power of the pelvic floor muscles, it can bring about pressure incontinence (Pirpiris, Shek & Dietz, 2010).

2.4 Clinical Presentation

- Urine Leaking
- Urinary Frequency
- Urinary Urgency
- Nocturia
- Prolapse
- Analytic Procedures

A huge segment of ladies with urinary pressure incontinence can be analyzed from clinical history alone. In a methodical audit acted in 2006, little proof was found to help the utilization of urinary journals, and cushion tests despite the fact that these measures are regular demonstrative appraisals utilized in physical therapy (Martin, Williams, Sutton, Abrams & Assassa, 2006).

2.5 Clinical history

Clinical history taking contrasted and multi-channel urodynamic was found to have 0.92 affectability and 0.56 explicitness for the determination of urinary pressure

incontinence dependent on the presence of stress incontinence symptoms (Martin, et al., 2006).

Pelvic Floor Muscle Function and Strength

Altered Oxford reviewing framework:

- 0 - no constriction
- 1 - glimmer
- 2 - feeble press, no lift
- 3 - reasonable press, unequivocal lift
- 4 - great press with lift
- 5 - solid press with a lift

Palpation

Palpation of the pelvic floor muscles per the vagina in females and per the rectum in male patients (Laycock, 1994; Martin, et al., 2006).

- P - power, may utilize the Modified Oxford reviewing scale
- E - perseverance, the time (like a flash) that a most extreme compression can be maintained
- R - redundancy, the quantity of reiterations of a greatest deliberate withdrawal
- F - quick compressions, the quantity of quick (one second) greatest withdrawals
- ECT - each compression planned, reminds the advisor to consistently overburden the muscle movement for strengthening.

Cushion Test

The 1-hour cushion test was found to have 0.94 affectability and 0.44 particularity for diagnosing any spillage contrasted and multi-channel urodynamics. The 48 hour cushion test was found to have 0.92 affectability and 0.72 explicitness for the determination of urinary pressure incontinence (Martin, et al., 2006). While the 48 hour cushion test is better utilized in clinical examination because of its high reproducibility, the 1-hour cushion test is the normalized technique in a clinical setting. The test includes the patient wearing a pre-gauged cushion, next the patient beverages 500 ml of without sodium fluid in < 15 minutes, resting, after which he/she practices for 30 minutes. The activity would incorporate exercises, for example, strolling, moving up and down a stairway, standing up from sitting, hacking energetically, running on the spot for 1 moment. The cushion is then re-gauged and the subsequent estimation given in grams of pee lost (Krhut, et al., 2014).

Urinary (Voiding) Diary

One investigation found a scale got from a multi-day journal was 0.88 delicate and 0.83 explicit for the finding of detrusor over activity in women. The National Institute for Diabetes and Digestive and Kidney Diseases gives clinicians a simple to utilize Bladder Diary that might be utilized in clinical practice (Krhut, et al., 2014).

2.6 Physiotherapy Management

PFMT for stress urinary incontinence

PFMT has been discovered to be powerful for treating pressure urinary incontinence as well. Also the members revealed an improved QoL. A new audit recommended that coordinating PFMT with self-administration systems way of life changes to keep

a sound weight and quit smoking had a decent result in mellow to-direct pressure urinary incontinence (Titman, Radley & Gray, 2019).

Behavioral Therapy

The focal point of conduct treatment is on way of life changes, for example, liquid or diet the board, weight control, and inside guideline. Instruction about bladder aggravations, similar to caffeine, is a significant thought. Examining entrails propensities to decide whether clogging is an issue as it is critical to teach the patient about staying away from straining (Burgio, 2004).

Education and clarification about typical lower urinary parcel work is additionally included. Patients ought to comprehend the job of the bladder and the pelvic floor muscles. A randomized clinical preliminary analyzed the impacts of a gathering managed social treatment for urinary incontinence in more seasoned ladies and discovered it to be a humbly viable treatment for lessening manifestations of urinary incontinence. The gathering social treatment incorporated a one-time, two hour bladder wellbeing class, including composed material and a sound CD (Diokno, et al., 2018).

Bladder Training

The data assembled from the bladder journal is utilized to direct dynamic for bladder re-preparing, including a voiding plan if important to expand the limit of the bladder for individuals with recurrence issues. Bladder preparing endeavors to break the cycle by instructing patients to void on a timetable, as opposed to because of criticalness. Urge concealment procedures are educated, for example, interruption and unwinding. It is likewise essential to show the patient to get the pelvic floor to cause detrusor

restraint. A deliberate compression of the pelvic floor muscles assists increment with compelling in the urethra, repress detrusor constrictions, and control urinary leakage (Chmielewska, et al., 2019).

3.1 Study design

This was a one arm pretest and repeated posttest design of Quasi-experimental study. The aim of this study was to find out the effectiveness of maximum repetitions of pelvic floor stabilization exercise for treating stress urinary incontinence at CRP-Savar. The researcher has directed the examination with trial gathering with expect to look at in the middle of the study. No blinding or masking done for the study.

3.2 Study Area

The study was conducted in musculoskeletal department of CRP, Savar. These patients came at CRP from all over the Bangladesh from all economic groups for comprehensive rehabilitation, so it reflects the entire population.

3.3 Study population

The patient with low back pain and stress urinary incontinence has been chosen as study population. Primarily 58 subjects have been screened with Low Back Pain and urinary incontinence and from which 40 patients have been confirmed by consultant Physiotherapist based on the inclusion criteria.

3.4 Data collection duration

Data has been collected from November 2019 to February 2020, the posttest of the last patient has been completed in mid-march 2020 before the locked down due to COVID-19 pandemic started.

3.5 Sampling Technique

The study samples have been drawn from the population through hospital-based randomization process. The female patients having low back pain attended at CRP from 1st November 2019 to 20th February 2020 and having stress urinary incontinence have been taken as sample. The examination bunch subjects were considered so that those patients coming to CRP at Savar with in a specific time span. As these patients accomplished in these CRP haphazardly without the decision of CRP expert or the specialist's decision, so they might be considered as a random example.

3.6 Inclusion Criteria

- Diagnosed case of Stress urinary incontinence according to ICD 10 (Reed, et al., 2016). The international Classification of Disease confirms Stress urinary incontinence as Involuntary discharge of urine as a result of physical activities that increase abdominal pressure on the urinary bladder without detrusor contraction or over distended bladder. The subtypes are classified by the degree of leakage, descent and opening of the bladder neck and urethra without bladder contraction, and sphincter deficiency. Also, they explain the SUI should have Loss of less than 50 ml of urine occurring with increased abdominal pressure (Von Gontard, & Hollmann, 2004).
- Age 30-75 years of age; Stothers and Friedman (2011) states SUI are more common in 20-65 years age.
- Prime or multipara both Stothers and Friedman (2011) states SUI can be for both prime or multipara subjects.
- Any surgery in the genito-urinary tract, surgery of genito-urinary tract may cause SUI (Agro& Bianchi, 2018).

- Patient with other musculoskeletal complaints (LBP/ arthritis) as they attended the Musculoskeletal Unit of the Physiotherapy Department.

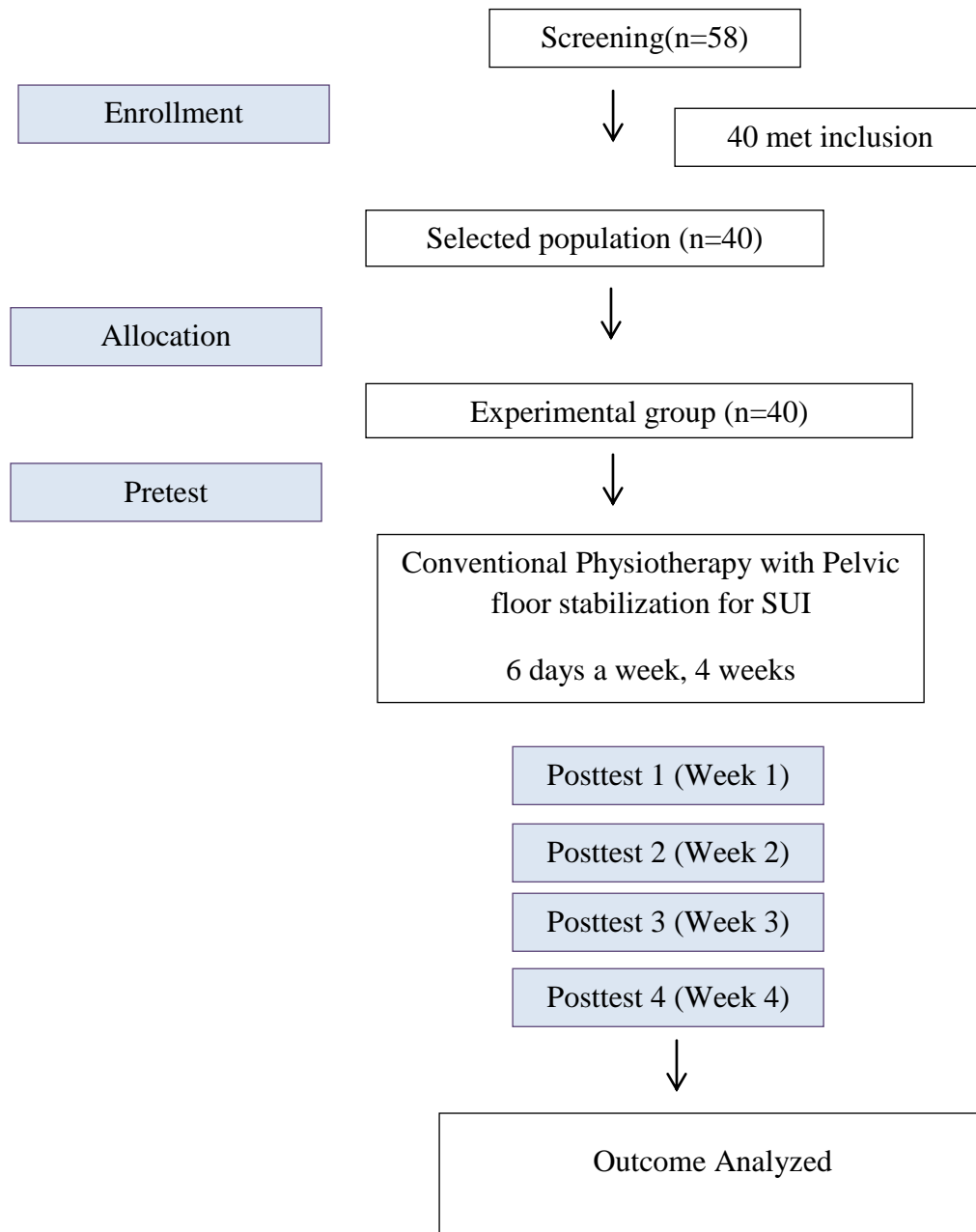
3.7 Exclusion Criteria

- Patients having surgery for incontinence, there may have a bias in the efficacy of surgery of physiotherapy.
- Mixed incontinence as per ICD 10, Involuntary discharge of urine that is associated with an abrupt and strong desire to void along with void with stress, cough or increasing abdominal pressure. It is usually related to the involuntary contractions of the detrusor muscle of the bladder (detrusor hyperreflexia or detrusor instability) (Botros, et al., 2017).
- Carcinoma or critically ill patients and UTI or genitor-urinary infections

3.8 Method of data collection

Screening has been carried out by physiotherapist. Then 40 subjects have been screened with SUI which has been confirmed by consultant Physiotherapist based on the inclusion criteria. A baseline assessment has been done then according to the previous discussed protocol or flowchart that has been provided. After baseline determination, post-test performed every week. The researcher used internationally accepted structured questionnaire for collecting data.

Figure 1: The Template for Intervention Description and Replication (TIDieR)flow chart



3.9 Data collection tools

Researcher used several data collection tools to conduct the study

- Informed Consent
- Structured questionnaire
- Pen, paper, pencil, eraser

3.10 Measurement tools

Researcher completed several measurement tools that were incorporating global outcome measurement tools for incontinence control and pelvic floor strength and weakness

- Pelvic floor & transverse abdominis strength by Manual Muscle testing
- Pelvic floor & transverse abdominis endurance by stopwatch
- International Consultation on Incontinence Questionnaire Short Form (ICIQ SF)
- Structured questionnaire with socio-demographics, range of movement, muscle strength, SUI related data has been documented.

3.10.1 Manual Muscle Testing

Manual muscle tests assess the capacity of the neurological system to adjust the muscle to meet the changing weight of the analyst's test. This necessitates the analyst be prepared in the biomechanical science of muscle work. The activity of the muscle being tried, just as the job of synergistic muscles, must be comprehended.. To accomplish exact outcomes, muscle tests must be performed by an exact testing

convention. The accompanying elements must be deliberately viewed as when testing muscles in clinical and trial setting. One way scientists decide whether a clinical test is steady and repeatable more than a few preliminaries is to determine its reliability. Contingent upon the kind of estimation that is performed, various sorts of dependability coefficients can be determined. In all coefficients, the closer the esteem is to 1, the higher the dependability. The tool is confident as a valid and reliable tool (Cuthbert & Goodheart, 2007).

3.10.2 International Consultation on Incontinence Questionnaire Short Form (ICIQ SF)

ICIQ is a patient reported questionnaire that is valid and reliable for incontinence measurement. There are 4 questions for symptoms in last 1 month, one has the sum 3,4,5 can be called as actual score, where first 2 items are demographic questions. Final score is un-scored and self-diagnostic featured. Scoring enabled by 0-21, where 0 is a least result and 21 is the highest.

The question is valid for 18-64 years and 65 years or above aged respondents. The test retest reliability is .74, correlation coefficients were .93 and .96 respectively (Avery, et al., 2004; Hajebrahimi, et al., 2012; Twiss, Fischer & Nitti, 2007).

3.11 Treatment regime:

Graduate physiotherapists who are expert in treatment of musculoskeletal patient has been involved in treatment of patients. The physiotherapists had the experience have more than two years, in the aspect of musculoskeletal physiotherapy. Researcher arranged service training to share the information. Practical demonstration involved training on the intervention including procedure, dose, intensity, frequency, repetition

and patient position. In addition the types, dose repetition, duration of conventional care including manual therapy, exercise therapy and electrotherapy has been taken permission from head of Physiotherapy department, centre for the rehabilitation of the paralyzed (CRP).

The patients received McKenzie treatment for Low Back pain. The McKenzie therapy included repeated movements typically include flexion in lying or standing; extension in lying or standing; and lateral movements of either side gliding or rotation and manipulative approach to lumbar spine segments (Rosedale, 2004). Patients performed those movements at therapy sessions and at home (Menon, 2009). The repeated movements of McKenzie therapy has been prescribed as 10 repetitions of directed movements, 2-3 hourly in 14 hours of a day and for 4 weeks. Mckenzietherapies were performed by physiotherapists for 10-15 repetitions in a single “on/off” maneuver for 5-7 minutes for 6 sessions in 2 weeks. The control group received manual passive stretching exercise for lumbo-pelvic muscles for 5-7 repetitions per muscle with 10-15 seconds hold performed twice a day for 2 weeks and graded oscillatory mobilization in Maitland concept in 5-7 minutes, 35-40 oscillation per minutes or static segmental mobilizations in Maitland concept for 35-50 second hold for 5-7 times in lumbar spine for 6 sessions in 2 weeks In addition, both groups received analgesics and hot compression in lower back for 10 minutes for 2 weeks, stabilization exercises of lumbo-pelvic segment accompanied with a booklet indicating the proper way to do different activities and lifestyles habits for 4 weeks (Turk & Burwinkle, 2006).

Besides treatment for low back pain, patients received the following pelvic floor exercise three times a day.

3.12 Data analysis

Statistical analysis has been performed by using statistical package for social science (SPSS) version 20. Researcher used pie chart, bar chart, linear line diagram and also percentage.

Descriptive statistics has been performed as per the nature of data. For parametric data mean and standard deviation has been calculated and for non-parametric data frequency distribution has been presented.

Inferential statistics performed as Repeated Measure ANOVA for parametric data to analyze the changes as per weeks, also a week wise comparison enabled using paired t-test. Friedman's ANOVA has been used instead of Repeated Measure ANOVA for non-parametric data and a post-HOC analysis by Wilcoxon test week to week.

The alpha value has been set $P < .05$ and in Post HOC test value calculated as $P < .0125$

3.13 Quality control and confirmation

The specialist had enough learning in the assigned examination, henceforth the investigation zone also, underneath issues had been acutely investigated by him. The arrangement of the study was simply basic, accordingly it empowered a complete answer. The trial was created by the review of literature; pursue the universal acknowledged trial and companion explored for dependable poll. The examiner endeavored to keep away from choice predisposition because of carefully kept up incorporation and exclusion criteria.

The examination was stayed away from strife the determination of the members. The information was gathered by experience physiotherapist who was distinguished

lumbar plate prolapsed patients as a members. The data has been collected by separate data collector employed for the study.

3.14 Ethical issues

The whole process of this research project has been done by following the national guidelines of Bangladesh Medical Research Council (BMRC) and World Health Organization (WHO) Research guidelines. A written approval from Institutional Review Board (IRB) has been obtained. For data collection, a separate approval from Head- Department of Physiotherapy, CRP has been taken. During the data collection procedure- written consent has been taken from the patients. Every participant had to right to proceed or withdrawal from the study anytime.

3.15 Informed consent

Prior to leading examination and interviews with the respondents, it is important to pick up assent from the subjects. For this investigation, researcher has given informed consent structure to each members and disclosed to the subject verbally. Data collector has been referenced those respondents who were completely volunteer and they reserved the privilege to pull back whenever. Researcher assured them that secrecy would be kept up. Data may be distributed in the method for introduction or composing group however they didn't be recognized. The examination results might not have any direct impacts on them however the individuals from lumbar disc herniation and seeking Physiotherapy might be profited from the examination in future. Nobody won't be humiliated by the investigation. Also, whenever the researcher would be accessible to address any extra inquiries concerning the examination.

4.1 Baseline variables

4.1.1 Age of the participants

The mean age of participants was 48.32 ± 12.04 years. Among the participants, minimum age was 30 and maximum was 75 years. From 30-40 years there was 13 respondents (32.5%), 41-55 years there was 17 respondents (42.5%), 56-70 years was 8 (20%) of patients, and there was 2 respondents aged more than 70 years (5%).

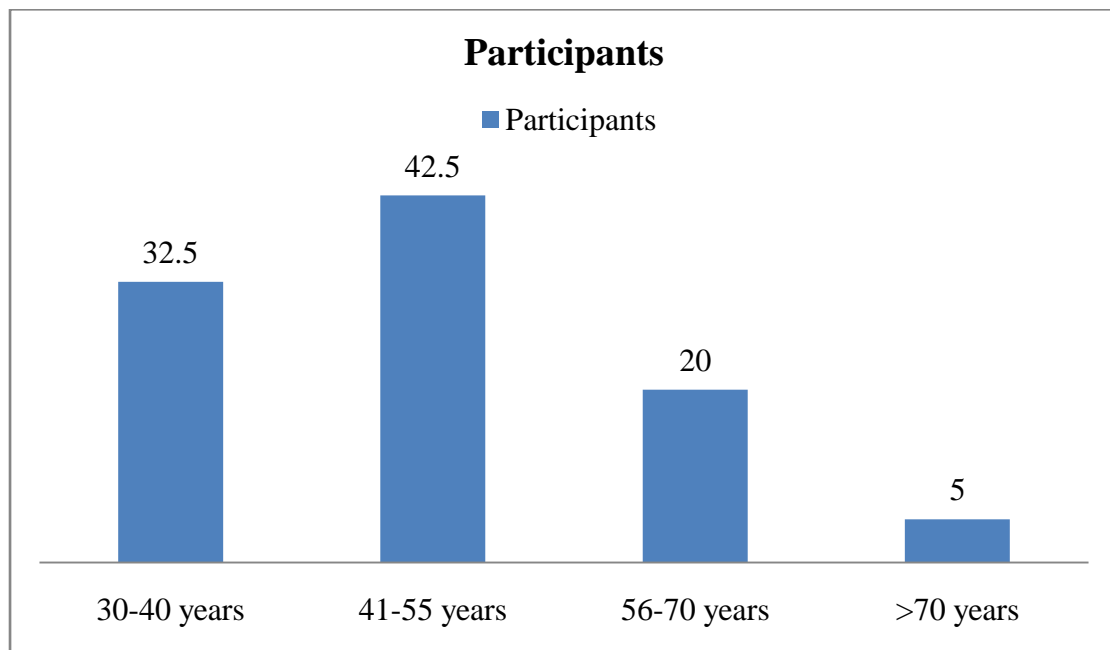


Figure 2: Age distribution

4.1.2 BMI

The Height varied from 152cm to 170 cm. The mean height was 156.5 ± 5.2 cm. The Weight varied from 55 Kg to 90 Kg. The mean was 67 ± 8.4 Kg. The BMI mean was 27.4 ± 3 , majority of the respondents were overweight.

4.1.3 Children

10% of the respondents were prime Para, 40% had 2 children, 17.5% had 3 children, 20% had 4 children, 5% had 5 children, 2.5% had 6 children and 5% respondents had 8 children.

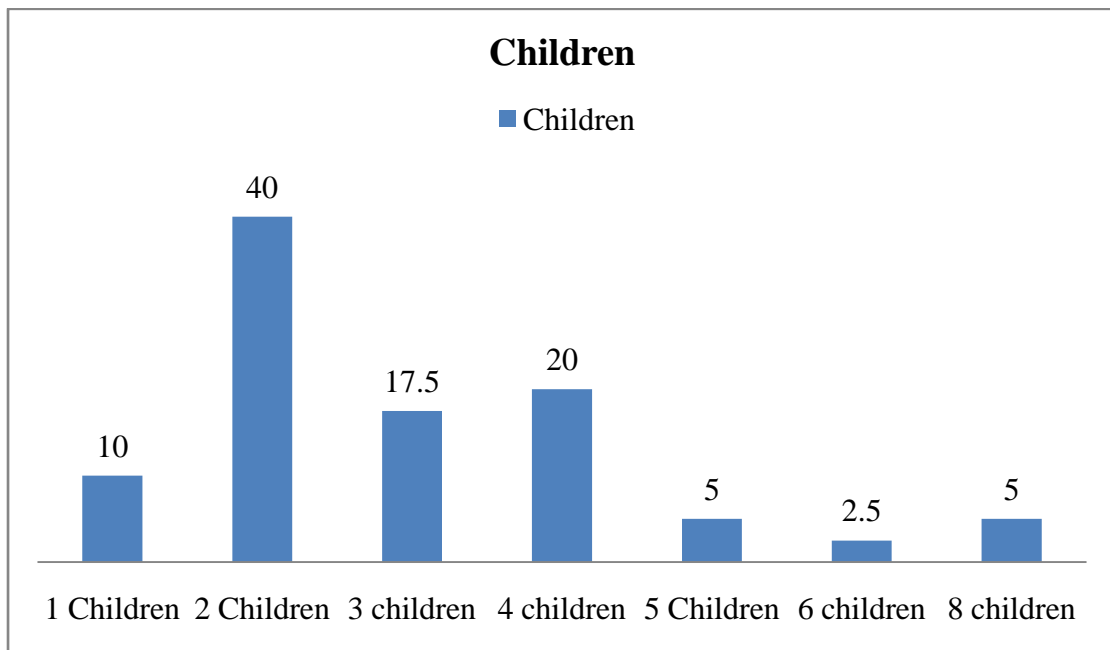


Figure 3: Children

4.1.4 Living Area

Rural resident were (32%) and majority of them were from urban area (68%)

4.1.5 Occupation

There were several occupational women those responded and participated in the study. Majority of the respondents were Housewife (82.5%), there was also Teacher (5%) and other Service holder (12.5%).

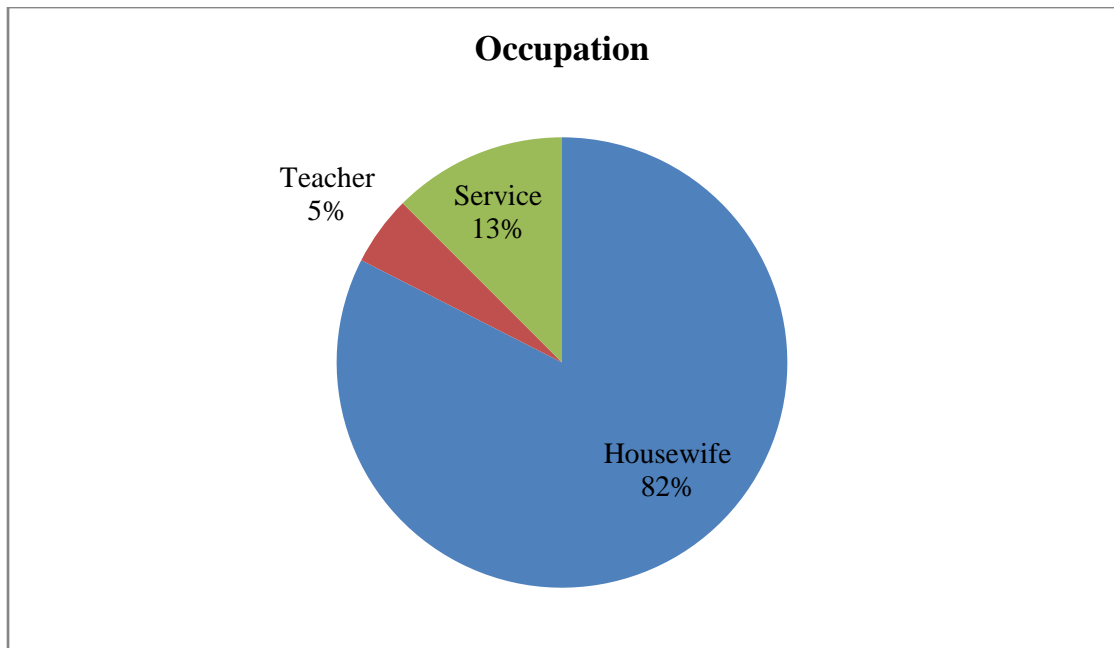


Figure 4: Occupation distribution

4.1.6 Education

Among the respondents 17.5% were Illiterate, majority were primary educated (70%), and 12.5% were graduates.

4.1.7 Co-morbidities

From the participants 35% were suffering from Diabetes Mellitus, 47.5% of people had hypertension, and 17.5% had Diabetes, hypertension and multiple co-morbidities.

4.1.8 Surgery

45% had a gynecological surgery not related with bladder

4.1.9 Muscle Strength

25% of the population (n=10) had Pelvic floor strength 0 in Manual Muscle test, 57.5% had strength 1 and 17.5% had 2 out of 5. Similarly, 4% had Abdominal muscle

strength1, 52.5% had 2, 35% had strength 3 and 2.5% had abdominal muscle strength 4 out of 5.

4.1.10 Endurance

Pelvic floor endurance varied from minimum 0 second to 56 seconds. The mean was 14.45 ± 10.4 seconds. Abdominal muscle endurance varied from a minimum 7 seconds to maximum 47 seconds, the mean was 19.28 ± 10.5 seconds during baseline assessment.

4.1.11 Frequency of leak urine

25% (n=10) stated they had leak in urine once a week, 33.5% said they leak urine 2-3 times a week, 15% said they had leaking urine every day, 35% stated they leak urine several times a day and 2.5% said they leak urine frequently.

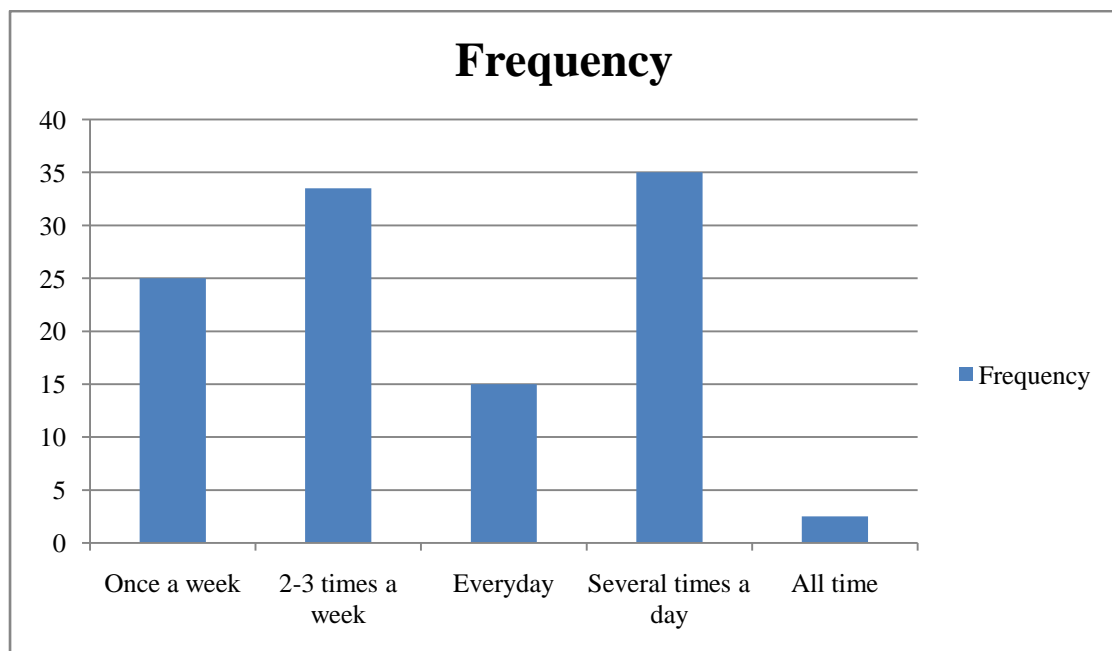


Figure 5: Exercise frequency

4.1.12 Severity of Urine leak and Interference

The amount of leaking urine varies from Small Amount 45% and large amount (55%).

The respondents stated their incontinence interference with their daily living in (0-10 scale) as mean 3.85 ± 2.02 . The ICIQ SF total from 5-18 scale was 10 ± 3.6 .

4.1.13 Activities provoke urine leakage

Majority of the patient stated they leak urine during cough or sneeze(80%), during physical activity(12.5%) and after urination(7.5%).

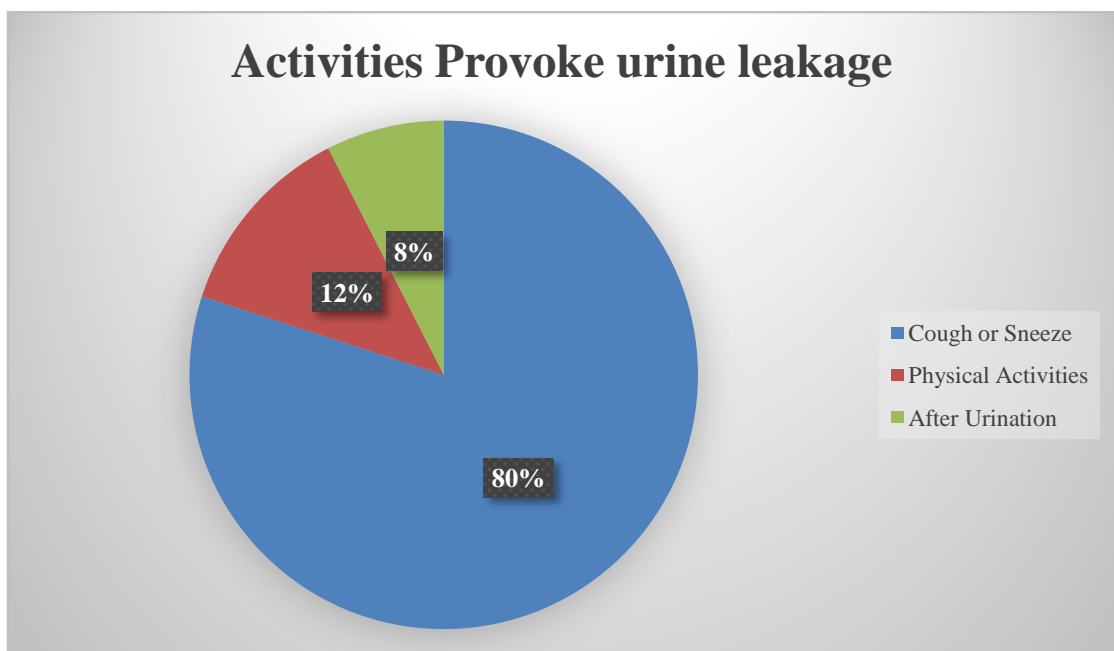


Figure 6: Activities provoke urine leakage

4.2.1 Pelvic Floor and Abdominal Muscle Strength

Pelvic floor muscle strength has a positive and statistically significant result in repetition. Repeated measure ANOVA value .557 (P .001). Similarly abdominal muscle strength has been statistically significant result in relation to increasing repetition.

Variables	W1 10Rep TDS	W2 15Rep TDS	W3 20Rep TDS	W4 25 Rep TDS	Value	P	Effect size	Power
Pelvic floor strength (MMT)	.93±.65	1.1±.54	1.3±.47	1.4±.54	.577	.001	.423	.983
Abdominal muscle strength (MMT)	2.5±.58	3±.86	3.2±.62	3.2±.60	.130	.001	.870	1

Table 1: Pelvic Floor and Abdominal Muscle Strength (ANOVA)

Pelvic floor strength has been statistically significant improvement in week 2 (P .001), and week 3 (P .01). Similar improvement noted in week 2 (P .001) and in week 3 (P .002).

	Pretest to W-1			W-1 to W-2			W-2 to W-3			W-3 to W-4		
	Mean	t	P	Mean	t	P	Mean	t	P	Mean	t	P
	diff.			diff.			diff.			diff.		
Pelvic floor strength	.03±.2	.03	.1	-.25±.4	-3.6	.001	-.15±.4	-2.6	.01	-.07±.3	-1.7	.08
Abdominal muscle strength	-.07±.4	-1.4	.18	-.6±.5	-7.6	.001	-.23±.4	-3.4	.002	-.05±.3	-1	.323

Table 2: Pelvic Floor and Abdominal Muscle Strength (weekwise)

4.2.2 Pelvic Floor and Abdominal Muscle Endurance

Pelvic floor muscle strength has a positive and statistically significant result in repetition. Repeated measure ANOVA value .158 (P .002). Similarly abdominal muscle strength has been statistically significant result in relation to increasing repetition.

Variables	W1 10Rep TDS	W2 15Rep TDS	W3 20Rep TDS	W4 25 Rep TDS	Value	P	Effect size	Power
Pelvic floor endurance (sec.)	16.7±9.1	20.7±8.8	23.25±8.7	25.08±8.3	.158	.002	.842	1
Abdominal muscle endurance (sec.)	23.3±8.9	28.9±9.1	33.6±8.7	37.2±8.8	.173	.001	.827	1

Table 3: Pelvic Floor and Abdominal Muscle Endurance (ANOVA)

Pelvic floor strength has been statistically significant improvement in week 2 (P .001), and week 3 (P .01). Similar improvement noted in week 2 (P .001) and in week 3 (P .002).

	Pretest to W-1			W-1 to W-2			W-2 to W-3			W-3 to W-4		
	Mean diff.	t	P	Mean diff.	t	P	Mean diff.	t	P	Mean diff.	T	P
Pelvic floor endurance (sec.)	-2.3±3.6	-4.1	.001	-3.9±3.6	-6.7	.001	-2.5±2.5	-6.4	.001	-1.8±3.3	-3.4	.002
Abdominal muscle endurance (sec.)	-4±3.5	-7.2	.001	-5.6±4.2	-8.3	.001	-4.6±4.9	-6	.001	-3.5±3.1	-7.1	.001

Table 4: Pelvic Floor and Abdominal Muscle Endurance (week wise)

4.2.3 Incontinence Questionnaire

Interference in activities has been calculated by repeated measure ANOVA. There is statistically significant result in repetition. Repeated measure ANOVA value .323 (P .003) and for ICIQ total also had improvement as value .214 and P .001.

Variables	W1 10Rep TDS	W2 15Rep TDS	W3 20Rep TDS	W4 25 Rep TDS	Value	P	Effect size	Power
Interference	3±1.8	2.1±1.4	1.6±1.1	2±.78	.323	.003	.677	.935
ICIQ SF Total	8.5±3.3	6.3±2.3	5.4±1.9	4.5±1.9	.214	.001	.786	1

Table 5: Incontinence Questionnaire (ANOVA)

Week wise comparison reveals statistically significant improvement of interference in week 2 (P .001), and week 3 (P .003). Similar improvement noted in ICIQ total from week 1 (P .001), week 3 (P .001) and in week 3 (P .001).

	Pretest to W-1			W-1 to W-2			W-2 to W-3			W-3 to W-4		
	Mean diff.	t	P	Mean diff.	t	P	Mean diff.	t	P	Mean diff.	T	P
Interference	.8±1	4.2	.06	.95±1.3	4.6	.001	.47±.9	3.1	.003	-	-	.07
										.37±1.2	1.8	
ICIQ SF Total	1.4±1.8	4.9	.001	2.2±2	6.7	.001	.9±1.6	3.4	.001	.95±1.2	5.2	.001

Table 6: Incontinence Questionnaire (week wise)

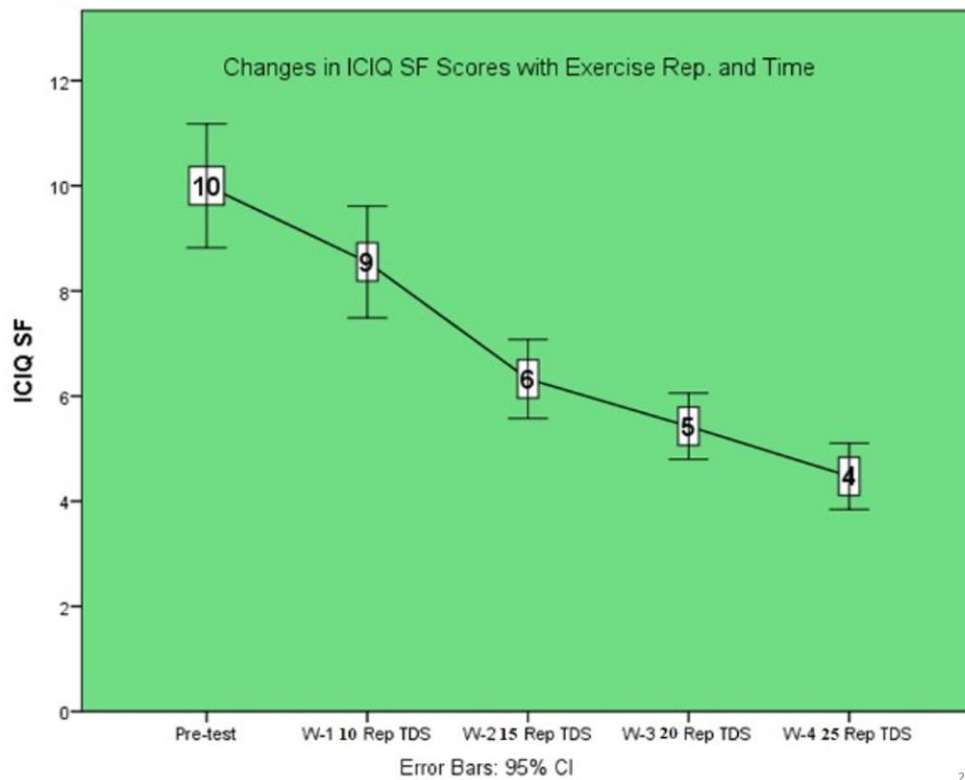


Figure 7: Changes in ICIQSF

4.3 Improve in Urine Leakage

The frequency of urine leakage and provocation of activities has been analyzed by non-parametric Friedman's ANOVA that is alternative to repeated measure ANOVA.

There was statistically significant results in “how often leaks urine” with X^2 84.9 and significant value .001; and amount of urine leaks X^2 95 with significant value .003.

Variables	Pre-test	W1 10Rep TDS	W2 15Rep TDS	W3 20Rep TDS	W4 25 Rep TDS	Chi-square	df	P
How Often leaks Urine	3.98	3.84	2.79	2.42	1.99	84.9	4	.001
When Urine leaks	3.05	3.05	3.05	2.99	2.86	4.0	4	.40
Amount of urine leaks	3.91	3.53	3.14	2.91	1.51	95	4	.003

Table 7: How often urine leakage

In week wise comparison, Wilcoxon test has been employed instead of paired t test. Hence there was significant improvement in frequency of urine leakage in the first week (P .001), and week 3 (.005) and week 4 (.001). The time of urine leakage and amount of leakage in every week.

	Pretest to W-1		W-1 to W-2		W-2 to W-3		W-3 to W-4		Pretest- W-4	
	Z	P	Z	P	Z	P	Z	P	Z	P
How Often leaks Urine	-1.73	.083	-3.85	.001	-2.25	.024	-2.81	.005	-4.08	.001
When Urine leaks	.003	1	.004	1	-1	.317	-1.41	.157	-1.34	.257
Amount of urine leaks	-2.64	.008	-2.65	.008	-2	.046	-4.55	.001	-5.12	.001

Table 8: How often urine leakage (Week wise comparison)

The aim of the study was to determine if maximum repetition of pelvic stabilization exercise impacts upon the management of stress urinary incontinence in female. The Specific objectives were to explore socio-demographics related to SUI and to observe the impact of maximum repetition of pelvic floor stabilization exercise upon pelvic floor strength & endurance, transverse abdominis strength and functional disability in stress urinary incontinence patients. Also researcher observed the changes as per repeated measurement weekly in 4 weeks.

Similar study by Bo, Hagen, Kvarstein, Jørgensen, Larsen, and Burgio, (1990) had the aim of this article is to give an overview of the exercise science related to pelvic floor muscle (PFM) strength training, and to assess the effect of PFM exercises to treat stress urinary incontinence (SUI). Sixteen articles addressing the effect of PFM exercise alone on SUI were compiled by computerized search or found in other review articles. Studies with no statement that correct PFM contraction had been performed were excluded. Kegel's suggestion was to perform 3–500 PFM contractions per day. However, suggestions for effective strength training from the exercise science are 8–12 contractions in three series 3–4 times a week for 15–20 weeks or more. Frequency of training varies between 10 repetitions every waking hour to half an hour 3 days a week. Holding periods vary between 2 and 3 s and 30–40 s. Exercise periods vary between 3 weeks and 6 months. Only a few research groups have used methods to measure PFM strength that were reproducible and valid. Statistically significant strength increase has been found after PFM exercise lasting from 3 to 6 months. In all studies the exercises were conducted with thorough individual instruction, vaginal palpation, feedback and close follow-up. Self-reported

cure and success rates vary between 17% and 84%. Statistically significant improvement has been demonstrated on self-grading instruments, urethral closure pressure during cough, resting urethral pressure, functional urethral profile length, leakage episodes and pad tests with standardized bladder volume. The results of the long-term studies are promising. It is therefore concluded that PFM exercises are effective in treating SUI. They are cost-effective and should be the first choice of treatment. To be effective, PFM exercise has to be thoroughly taught and performed with weekly or monthly follow-up.

In this single arm pretest and repeated measure post-test quasi-experimental study design, 40 subjects having stress urinary incontinence attended in the musculoskeletal unit of Physiotherapy department at CRP completed the study. The mean age of participants was 48.32 ± 12.04 years. Among the participants, minimum age was 30 and maximum was 75 years. From 30-40 years there was 13 respondents (32.5%), 41-55 years there was 17 respondents (42.5%), 56-70 years was 8 (20%) of patients, and there was 2 respondents aged more than 70 years (5%). The Height varied from 152cm to 170 cm. The mean height was 156.5 ± 5.2 cm. The Weight varied from 55 Kg to 90 Kg. The mean was 67 ± 8.4 Kg. 10% of the respondents were prime Para, 40% had 2 children, 17.5% had 3 children, 20% had 4 children, 5% had 5 children, 2.5% had 6 children and 5% respondents had 8 children. Rural resident were (32%) and majority of them were from urban area (68%). There were several occupational women those responded and participated in the study. Majority of the respondents were Housewife (82.5%), there was also Teacher (5%) and other Service holder (12.5%). Among the respondents 17.5% were Illiterate, majority were primary educated (70%), and 12.5% were graduates. From the participants 35% were suffering from Diabetes Mellitus, 47.5% of people had hypertension, and 17.5% had Diabetes,

hypertension and multiple co-morbidities. 45% had a gynecological surgery not related with bladder. 25% of the population (n=10) had Pelvic floor strength 0 in Manual Muscle test, 57.5% had strength 1 and 17.5% had 2 out of 5. Similarly, 4% had Abdominal muscle strength 1, 52.5% had 2, 35% had strength 3 and 2.5% had abdominal muscle strength 4 out of 5. Pelvic floor endurance varied from minimum 0 second to 56 seconds. The mean was 14.45 ± 10.4 seconds. Abdominal muscle endurance varied from a minimum 7 seconds to maximum 47 seconds, the mean was 19.28 ± 10.5 seconds during baseline assessment. 25% (n=10) stated they had leak in urine once a week, 33.5% said they leak urine 2-3 times a week, 15% said they had leaking urine every day, 35% stated they leak urine several times a day and 2.5% said they leak urine frequently. The amount of leaking urine varies from Small Amount 45% and Large amount (55%). The respondents stated their incontinence interference with their daily living in (0-10 scale) as mean 3.85 ± 2.02 . The ICIQ SF total from 5-18 scale was 10 ± 3.6 . Majority of the patient stated they leak urine during cough or sneeze(80%), during physical activity(12.5%) and after urination(7.5%).

Study by Fozzatti and colleagues (2012) aimed to explore stress urinary incontinence is a regular objection in clinical workplaces and studies have demonstrated that ladies who practice high effect sports build up its manifestations. The objective was to assess the predominance of stress urinary incontinence in ladies who go to rec centers and perform high effect activities and associate it with ladies who don't go to exercise centers. Imminent near investigation in which 488 nulliparous ladies of ordinary weight were separated into a Study Group, made out of ladies who went to rec centers, and a Comparative Group, made out of ladies who didn't go to rec centers. Three polls were utilized for the assessment of stress urinary incontinence and the aftereffects of the ICIQ-SF survey were utilized to analyze the gatherings. There was

a huge contrast between bunches on the ICIQ-SF. The normal in the Study Group was 1.68 (+ 3.46) and in the Comparative Group the normal was 1.02 (+ 2.69) ($p = 0.006$). Ladies who go to rec center and perform high effect practices have a higher commonness of urinary incontinence indications, autonomous of the activity methodology, than ladies who don't play out any high effect work out.

Pelvic floor muscle strength has a positive and statistically significant result in repetition. Repeated measure ANOVA value .557 ($P .001$). Similarly abdominal muscle strength has been statistically significant result in relation to increasing repetition. Pelvic floor strength has been statistically significant improvement in week 2 ($P .001$), and week 3 ($P .01$). Similar improvement noted in week 2 ($P .001$) and in week 3 ($P .002$). Pelvic floor muscle strength has a positive and statistically significant result in repetition. Repeated measure ANOVA value .158 ($P .002$). Similarly abdominal muscle strength has been statistically significant result in relation to increasing repetition. Pelvic floor strength has been statistically significant improvement in week 2 ($P .001$), and week 3 ($P .01$). Similar improvement noted in week 2 ($P .001$) and in week 3 ($P .002$). Interference in activities has been calculated by repeated measure ANOVA. There is statistically significant result in repetition. Repeated measure ANOVA value .323 ($P .003$) and for ICIQ total also had improvement as value .214 and $P .001$. Week wise comparison reveals statistically significant improvement of interference in week 2 ($P .001$), and week 3 ($P .003$). Similar improvement noted in ICIQ total from week 1 ($P .001$), week 3 ($P .001$) and in week 3 ($P .001$). The frequency of urine leakage and provocation of activities has been analyzed by non-parametric Friedman's ANOVA that is alternative to repeated measure ANOVA. There was statistically significant results in “how often leaks urine” with X^2 84.9 and significant value .001; and amount of urine leaks X^2 95 with

significant value .003. In week wise comparison, Wilcoxon test has been employed instead of paired t test. Hence there was significant improvement in frequency of urine leakage in the first week (P .001), and week 3 (.005) and week 4 (.001). The time of urine leakage and amount of leakage in every week.

Another examination analyzed the viability of encouraging pelvic floor practices with utilization of bladder-sphincter biofeedback contrasted with preparing with verbal criticism dependent on vaginal palpation in 24 ladies with stress urinary incontinence. Verbal input preparing comprised of educating the patient to press the vaginal muscles around the inspector's fingers and furnishing her with verbal execution criticism. Biofeedback patients got visual criticism of bladder pressure, stomach (rectal) weight, and outer butt-centric sphincter action. The biofeedback bunch improved the strength and specific control of pelvic floor muscles; the verbal input bunch didn't. The two gatherings altogether decreased the recurrence of incontinence. The biofeedback bunch found the middle value of 75.9% decrease in incontinence, altogether more prominent than the 51.0% decrease appeared by the verbal criticism gathering. 12 out of 13 patients in the biofeedback treatment group improved by 60% or better out of the aim. Six patients in the verbal input bunch improved by 68% or better, and five were under 30% improved (Burgio, Robinson, & Engel, 2019).

PFMT has been discovered to be powerful for treating pressure urinary incontinence as well. Also the members revealed an improved QoL. A new audit recommended that coordinating PFMT with self-administration systems way of life changes to keep a sound weight and quit smoking had a decent result in mellow to-direct pressure urinary incontinence (Titman, Radley & Gray, 2019).

A Randomized Controlled Trial in ladies with stress urinary incontinence proposes that the Pelvic floor Muscle Training and Extracorporeal Magnetic Innervation are powerful in improving the pressure urinary incontinence and personal satisfaction in women. Another randomized control study recommended better results with a joined preparing of PFMT and Transversus Abdominis muscle than with PFMT alone in patients with stress urinary incontinence. Nonetheless, the preparation was more successful in the gathering of ladies who had lesser than three vaginal births (Ptak, et al., 2019).

An examination analyzing the preparation boundary for reinforcing the pelvic floor found the best convention to comprise of advanced palpation joined with biofeedback observing and vaginal cones, including multi week preparing boundaries, and ten reiterations for every arrangement in various positions (Oliveira, Ferreira, Azevedo, Firmino-Machado & Santos, 2017).

The study had some limitations, the researcher tried to minimize the limitations yet there were some to mention.

- The study was a quasi-experimental study design with a single group and no control group. Thus the study effect may not be suggested as absolute effect.
- The improvements were mostly prominent up to third week, so the 4th week study had less improvement.
- There were sources of bias, as there was no absolute blinding to the patients and therapists.
- The sample size was another limitation; a bigger sample size might have more absolute result.

Conclusion

Pelvic floor exercise with increasing repetition is an effective approach to improve stress urinary incontinence in females. The study had a significant impact on incontinence frequency, amount and associated quality of life for women with stress urinary incontinence with pelvic floor exercise with maximum repetition.

The improvement of Kegal exercise has been proven effective in the total duration time and separately in every week. The second and third week had more improvement in the incontinence questionnaire scale.

The study finds the maximum 25 repetitions of exercise is effective, so further studies starting from 30 repetition and increasing duration up to 6 weeks are recommended. Hence, for future studies centering on the recommendations are encouraged

- Randomized Control Study with parallel groups
- Female with stress, urge and mixed urinary incontinence.
- Interventions with absolute treatment effect calculation.

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বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
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Ref: CRP-BHPI/IRB/07/2020/397

Date: 23rd July 2020

To
Most. Iren Khatun
MSc. in Physiotherapy
Session: 2018-19, Student ID:111180057
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal “Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence” by ethics committee.

Dear Most. Iren Khatun
Congratulations.

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned dissertation, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation Proposal
2	Questionnaire (English version)
3	Information sheet & consent form.

The purpose of the study is to find out the Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence. The study involves use of a questionnaire to explore that may take 15 to 20 minutes to answer the specimen and there is no likelihood of any harm to the participants. Data collectors will receive informed consents from all participants. Any data collected will be kept confidential. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at **9AM on 28th September, 2019** at BHPI [IRB meeting 22(a)].

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Annexure 2: Data Collection permission

November 9, 2019

To
The Head
Department of Physiotherapy
CRP, Savar, Dhaka-1343

Subject: Regarding permission to collect data from musculoskeletal and neurology unit to conduct a research project.

Sir,

I am a Part II MSc in Physiotherapy Student of Bangladesh Health Professions Institute (BHPI) seeking your permission to conduct my academic thesis entitled "Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise in Stress Urinary Incontinence" supervised by Mohammad Anwar Hossain, Associate Professor, Senior consultant (Physiotherapy) & head of Physiotherapy department of CRP.

It is a one arm prior and post experimental research study. Data will be collected from outdoor patients of Physiotherapy department at CRP for 6 weeks from November 2019 to February 2020. Data collectors will receive informed consents from all participants. Now I am looking for your kind approval to start my data collection. I would like to assure that anything of my research project will not harmful for the participant.

Therefore I look forward to your cooperation by giving me permission for data collection at musculoskeletal and neurology unit, CRP, Savar.


Yours faithfully


(Most. Iren Khatun)

Part-II, M. Sc. in physiotherapy Program
Session: 2018-19
Roll:
BHPI, CRP, Savar, Dhaka-1343

Approved
23/11/19
Mohammad Anwar Hossain
Associate Professor & Head
Physiotherapy Dept., CRP
Savar, Dhaka-1343

Forwarded & Recommended
23.11.19
Prof. Md. Obaidul Haque
Head, Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Savar, Dhaka-1343

Consent
23/11/19


IR
Fitroz Afrayed Mamin
Associate Professor
Dept. of Rehabilitation Science
M.Sc. in Physiotherapy Program
CRP, Savar, Dhaka-1343

2.5 Living place:

1. Urban 2. Rural

2.6 Educational status:

1. Illiterate 2.Primary 3.Secondary
4. HSC passed 5. Graduate & Masters

2.7 Religion:

1. Islam 2. Hindu 3. Christen 4.Boddho

2.8 Smoking/ Jorda

1. Yes 2. No

2.9 Past medical History

1. DM 2. HTN 3. Others 4. More than one condition

Part: 3- Incontinence related questionnaire

3.1 Duration of Incontinence:

3.2 Had any related surgery in abdomen:

Code No:

**“Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise
in Stress Urinary Incontinence”**

Part 4: Pre-Test Assessment

Q 4.1 Pelvic Floor Strength in Oxford Muscle Grading	
Q 4.2 Abdominal Muscle strength in Oxford Muscle Grading	
Q 4.3 Pelvic floor endurance in single contraction	..... Seconds
Q 4.4 Abdominal muscle endurance in single contraction	..... Seconds

Q 4.5 International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)

4.5.1 How often do you leak urine?	0 - never 1 – About once a week or less often 2 –Two to three times a week 3 – About once a day 4 – Several times a day 5- all the time
4.5.2 How much urine do you usually leak?	0 – none 2 – A small amount 4 – A moderate amount 6 – Large amount
4.5.3 Overall, how much does leaking urine interfere with your every day’s life?	
0 1 2 3 4 5 6 7 8 9 10 Not at all A great deal	
Total ICIQ sum	
When does urine leak?	<input type="checkbox"/> Never- urine doesn’t leak <input type="checkbox"/> Leaks before you can go to the

	<p>toilet</p> <ul style="list-style-type: none"><input type="checkbox"/> Leaks when you cough or sneeze<input type="checkbox"/> Leaks when you are asleep<input type="checkbox"/> Leaks when you are physically active/ exercise<input type="checkbox"/> Leaks when you finished urinating and dressed<input type="checkbox"/> Leaks for no obvious reason<input type="checkbox"/> Leaks all the time
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Code No:

**“Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise
in Stress Urinary Incontinence”**

Part 5: 1st week assessment

Q 5.1 Pelvic Floor Strength in Oxford Muscle Grading	
Q 5.2 Abdominal Muscle strength in Oxford Muscle Grading	
Q 5.3 Pelvic floor endurance in single contraction	..... Seconds
Q 5.4 Abdominal muscle endurance in single contraction	..... Seconds

Q 5.5 International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)

5.5.1 How often do you leak urine?	0 - never 1 – About once a week or less often 2 – Two to three times a week 3 – About once a day 4 – Several times a day 5- all the time
5.5.2 How much urine do you usually leak?	0 – none 2 – A small amount 4 – A moderate amount 6 – Large amount
5.5.3 Overall, how much does leaking urine interfere with your every day’s life?	
0 1 2 3 4 5 6 7 8 9 10 Not at all A great deal	
Total ICIQ sum	
When does urine leak?	<input type="checkbox"/> Never- urine doesn’t leak <input type="checkbox"/> Leaks before you can go to the

	<p>toilet</p> <ul style="list-style-type: none"><input type="checkbox"/> Leaks when you cough or sneeze<input type="checkbox"/> Leaks when you are asleep<input type="checkbox"/> Leaks when you are physically active/ exercise<input type="checkbox"/> Leaks when you finished urinating and dressed<input type="checkbox"/> Leaks for no obvious reason<input type="checkbox"/> Leaks all the time
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Code No:

**“Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise
in Stress Urinary Incontinence”**

Part 6: 2nd week assessment

Q 6.1 Pelvic Floor Strength in Oxford Muscle Grading	
Q 6.2 Abdominal Muscle strength in Oxford Muscle Grading	
Q 6.3 Pelvic floor endurance in single contraction	..... Seconds
Q 6.4 Abdominal muscle endurance in single contraction	..... Seconds

Q 6.5 International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)

6.5.1 How often do you leak urine?	0 - never 1 – About once a week or less often 2 – Two to three times a week 3 – About once a day 4 – Several times a day 5- all the time
6.5.2 How much urine do you usually leak?	0 – none 2 – A small amount 4 – A moderate amount 6 – Large amount
6.5.3 Overall, how much does leaking urine interfere with your every day’s life?	
0 1 2 3 4 5 6 7 8 9 10	
Not at all	A great deal
Total ICIQ sum	
When does urine leak?	<input type="checkbox"/> Never- urine doesn’t leak <input type="checkbox"/> Leaks before you can go to the

	<p>toilet</p> <ul style="list-style-type: none"><input type="checkbox"/> Leaks when you cough or sneeze<input type="checkbox"/> Leaks when you are asleep<input type="checkbox"/> Leaks when you are physically active/ exercise<input type="checkbox"/> Leaks when you finished urinating and dressed<input type="checkbox"/> Leaks for no obvious reason<input type="checkbox"/> Leaks all the time
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Code No:

**“Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise
in Stress Urinary Incontinence”**

Part 7: 3rd week assessment

Q 7.1 Pelvic Floor Strength in Oxford Muscle Grading	
Q 7.2 Abdominal Muscle strength in Oxford Muscle Grading	
Q 7.3 Pelvic floor endurance in single contraction	..... Seconds
Q 7.4 Abdominal muscle endurance in single contraction	..... Seconds

Q 7.5 International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)

7.5.1 How often do you leak urine?	0 - never 1 – About once a week or less often 2 – Two to three times a week 3 – About once a day 4 – Several times a day 5- all the time
7.5.2 How much urine do you usually leak?	0 – none 2 – A small amount 4 – A moderate amount 6 – Large amount
7.5.3 Overall, how much does leaking urine interfere with your every day’s life?	
0 1 2 3 4 5 6 7 8 9 10 Not at all A great deal	
Total ICIQ sum	
When does urine leak?	<input type="checkbox"/> Never- urine doesn’t leak <input type="checkbox"/> Leaks before you can go to the

	<p>toilet</p> <ul style="list-style-type: none"><input type="checkbox"/> Leaks when you cough or sneeze<input type="checkbox"/> Leaks when you are asleep<input type="checkbox"/> Leaks when you are physically active/ exercise<input type="checkbox"/> Leaks when you finished urinating and dressed<input type="checkbox"/> Leaks for no obvious reason<input type="checkbox"/> Leaks all the time
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Code No:

**“Effect of Maximum Repetition of Pelvic Floor Stabilization Exercise
in Stress Urinary Incontinence”**

Part 8: 4th week assessment

Q 8.1 Pelvic Floor Strength in Oxford Muscle Grading	
Q 8.2 Abdominal Muscle strength in Oxford Muscle Grading	
Q 8.3 Pelvic floor endurance in single contraction	..... Seconds
Q 8.4 Abdominal muscle endurance in single contraction	..... Seconds

Q 8.5 International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)

8.5.1 How often do you leak urine?	0 - never 1 – About once a week or less often 2 – Two to three times a week 3 – About once a day 4 – Several times a day 5- all the time
8.5.2 How much urine do you usually leak?	0 – none 2 – A small amount 4 – A moderate amount 6 – Large amount
8.5.3 Overall, how much does leaking urine interfere with your every day’s life?	
0 1 2 3 4 5 6 7 8 9 10 Not at all A great deal	
Total ICIQ sum	
When does urine leak?	<input type="checkbox"/> Never- urine doesn’t leak <input type="checkbox"/> Leaks before you can go to the

	<p>toilet</p> <ul style="list-style-type: none"><input type="checkbox"/> Leaks when you cough or sneeze<input type="checkbox"/> Leaks when you are asleep<input type="checkbox"/> Leaks when you are physically active/ exercise<input type="checkbox"/> Leaks when you finished urinating and dressed<input type="checkbox"/> Leaks for no obvious reason<input type="checkbox"/> Leaks all the time
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**স্ট্রেস ইউরিনারি ইনকন্টিনেন্স এ পেলভিক ফ্লোর মাংসপেশির জন্য কিগ্যেল
এক্সারসাইজ
রোগীদের জন্য নির্দেশিকা**

ভূমিকাঃ

স্ট্রেস ইউরিনারি ইনকন্টিনেন্স এ পেলভিক ফ্লোর মাংসপেশির জন্য কিগ্যেল এক্সারসাইজ নির্দেশিকাটি বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই) এর মাস্টার অব সাইন্স ইন ফিজিওথেরাপি প্রোগ্রামের শিক্ষার্থী কর্তৃক গবেষণার উদ্দেশ্যে প্রণীত হয়েছে। নির্দেশিকাটিতে বিএইচপিআই এর শিক্ষক এবং সিনিয়র পিএমডিএস মাস্কুলোস্কেলিটাল, নিউরোলজি ও গাইনোকলজী এন্ড ওম্যান্স হেলথ এ কর্মরত ফিজিওথেরাপি চিকিৎসকগণ তাদের প্রাপ্ত মতামত দিয়েছেন; পাশাপাশি বিভিন্ন ইন্ডেক্সড জার্নালে প্রকাশিত গবেষণা প্রবন্ধ অনুযায়ী এক্সারসাইজ সন্নিবিষ্ট হয়েছে।

স্ট্রেস ইউরিনারি ইনকন্টিনেন্স কি, কেন হয় ও কাদের হয়?

স্ট্রেস ইউরিনারি ইনকন্টিনেন্স মূত্রথলি ও সংবহনের একটি সমস্যা যাতে যে কোন পুরুষ বা মহিলা তাদের পশাব ধরে রাখতে কষ্ট হওয়া, সময়ের আগেই পশাব ঝরে যাওয়া, হাচি বা কাশির সাথে পশাব ঝরা, ফোঁটায় ফোঁটায় পশাব পড়া ইত্যাদি সমস্যায় ভুগে থাকেন। এটি যে কোন বয়সে হতে পারে তবে বয়স বাড়ার সাথে সাথে এটি হওয়ার সম্ভাবনা বেড়ে যায়। এছাড়া মহিলাদের গর্ভধারণের পর, মাসিক বন্ধ হওয়ার পর, নিচের পেটে অপারেশনের পর এবং স্তন্যপায়িতার জন্য এ রোগ হতে পারে। পুরুষদের ক্ষেত্রে বয়স বাড়ার সাথে বা প্রোস্টেট বড় হলে তা মূত্রথলিতে চাপ দিয়ে এ রোগ হতে পারে। তবে পুরুষদের চেয়ে মহিলাদের এ রোগ বেশি হয়।

স্ট্রেস ইউরিনারি ইনকন্টিনেন্স এর চিকিৎসা কি?

প্রথম দিকে উপসর্গ দেখেই রোগটি নিশ্চিত হওয়া যায়, তবে ইউরোলজিস্ট শতভাগ নিশ্চিত হবার জন্য ও অন্য রোগের সম্ভাবনা বাদ দেয়ার জন্য বিভিন্ন প্যাথলজিক্যাল টেস্ট, আল্ট্রাসোনোগ্রাফি, ইউরোলফ্লোমেট্রি, সিস্টোমেট্রোগ্রাম ইত্যাদি দিতে পারেন। এ রোগের চিকিৎসার জন্য নির্দিষ্ট কিছু ঔষধ খেতে হয়, পাশাপাশি ফিজিওথেরাপি চিকিৎসক নির্দেশিত কিছু এক্সারসাইজ করলেই এ রোগ অনেকাংশে নিয়ন্ত্রণ সম্ভব। কিছু কিছু ক্ষেত্রে সার্জারির প্রয়োজন হতে পারে।



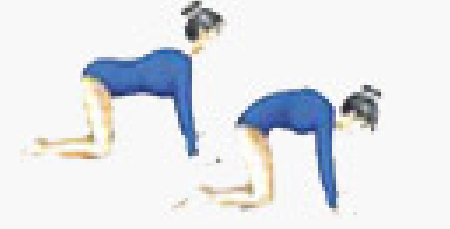
স্ট্রেস ইউরিনারি ইনকন্টিনেন্স এ পেলভিক ফ্লোর মাংসপেশির জন্য কিগ্যেল এক্সারসাইজ কি?




পেলভিক ফ্লোর মাংসপেশির জন্য কিগ্যেল এক্সারসাইজ খুব সহজ কিছু এক্সারসাইজ যা ব্যথা বা পাস্চপ্রতিক্রিয়া বিহীন। যা আপনি ফিজিওথেরাপি চিকিৎসকের তত্ত্বাবধানে ও পরামর্শে ঘরেই করতে পারেন। এটি পেলভিক ফ্লোর মাংসপেশির শক্তি ও সংকোচন ক্ষমতা বাড়ায় যা মূত্র ধরে রাখতে ও ঝরা প্রতিরোধে কার্যকর।

এই নির্দেশিকায় মহিলাদের স্ট্রেস ইউরিনারি ইনকন্টিনেন্স এ পেলভিক ফ্লোর মাংসপেশির জন্য কিগোল এক্সারসাইজ সমূহ নির্দেশিত হয়েছে। আপনি আপনার ফিজিওথেরাপি চিকিৎসক এর কাছ থেকে এক্সারসাইজ সমূহ বুঝে নিবেন ও নির্দেশনা মোতাবেক বাসায় করবেন।

মহিলাদের জন্য স্ট্রেস ইউরিনারি ইনকন্টিনেন্স এ পেলভিক ফ্লোর মাংসপেশির জন্য কিগোল এক্সারসাইজ

নির্দেশিত এক্সারসাইজগুলো ধাপ ১ থেকে শুরু করুন। একটি ধাপ ভালভাবে পারলে তবেই আরেকটি ধাপে যাবেন। এক্সারসাইজগুলোর বার ও ধরে রাখার সময় পরিবর্তন হবে তবে দিনে ৩ বেলা এক্সারসাইজগুলো করতে হবে।

<p>ধাপ ১-</p> <p>ক. আপনি পশ্চাব করার সময় ১ সেকেন্ডের জন্য হলেও ধরে রাখার চেস্টা করুন। আস্তে আস্তে বাড়ান।</p> <p>খ. আপনি বিছানায় চিত হয়ে শুয়ে পড়ুন, দুই হাত সোজা, দুই পা ফাকা করে (কাঁধের দিকে কাল্পনিক লাইন বরাবর)</p> <p>গ. পেটের মাংস ও কোমরের পিছনের মাংস রিলাক্সে রাখুন।</p> <p>ঘ. আপনার পশ্চাবের স্থানের চারপাশটাকে ভেতরের দিকে টানুন, তখন নিশ্বাস স্বাভাবিক রাখুন। আপনি একবার কতক্ষণ টেনে রাখবেন ও প্রতিবেলায় কতবার করবেন তা পরবর্তীতে লিখা আছে।</p>	 <p style="text-align: center;">ধাপ ১- চিত্রে নির্দেশিত</p>
<p>ধাপ ২-</p> <p>ক. আপনি পশ্চাব করার সময় ১ সেকেন্ডের জন্য হলেও ধরে রাখার চেস্টা করুন। আস্তে আস্তে বাড়ান।</p> <p>খ. আপনি বিছানায় চিত হয়ে শুয়ে পড়ুন, দুই হাত সোজা, দুই পায়ের হাটু ভাঁজ।</p> <p>গ. পেটের মাংস ও কোমরের পিছনের মাংস রিলাক্সে রাখুন।</p> <p>ঘ. কোমর উচু করুন, আপনার পশ্চাবের স্থানের চারপাশটাকে ভেতরের দিকে টানুন, তখন নিশ্বাস স্বাভাবিক রাখুন। আপনি একবার কতক্ষণ টেনে রাখবেন ও প্রতিবেলায় কতবার করবেন তা পরবর্তীতে লিখা আছে।</p>	 <p style="text-align: center;">ধাপ ২ - চিত্রে নির্দেশিত</p>
<p>ধাপ ৩ -</p> <p>ক. আপনি পশ্চাব করার সময় ১ সেকেন্ডের জন্য হলেও ধরে রাখার চেস্টা করুন। আস্তে আস্তে বাড়ান।</p> <p>খ. আপনি বিছানায় ঘোড়ার মত হবেন, দুই হাত সোজা, দুই পায়ের হাটু ভাঁজ।</p> <p>গ. পেটের মাংস ও কোমরের পিছনের মাংস রিলাক্সে রাখুন।</p>	 <p style="text-align: center;">ধাপ ৩ - চিত্রে নির্দেশিত</p>

<p>ঘ. আপনার পশ্চাবের স্থানের চারপাশটাকে ভেতরের দিকে টানুন, তখন নিশ্বাস স্বাভাবিক রাখুন। আপনি একবার কতক্ষণ টেনে রাখবেন ও প্রতিবেলায় কতবার করবেন তা পরবরতীতে লিখা আছে।</p>	
<p>ধাপ ৪ - ক. আপনি পশ্চাব করার সময় ১ সেকেন্ডের জন্য হলেও ধরে রাখার চেষ্টা করুন। আস্তে আস্তে বাড়ান। খ. আপনি বিছানায় দুই পা ছড়িয়ে বসুন। দুই হাত সোজা ও পেছনে রাখা থাকবে। গ. পেটের মাংস ও কোমরের পিছনের মাংস রিলাক্সে রাখুন। ঘ. আপনার পশ্চাবের স্থানের চারপাশটাকে ভেতরের দিকে টানুন, তখন নিশ্বাস স্বাভাবিক রাখুন। আপনি একবার কতক্ষণ টেনে রাখবেন ও প্রতিবেলায় কতবার করবেন তা পরবরতীতে লিখা আছে।</p>	 <p>ধাপ ৪ - চিত্রে নির্দেশিত</p>
<p>ধাপ ৫ - ক. আপনি পশ্চাব করার সময় ১ সেকেন্ডের জন্য হলেও ধরে রাখার চেষ্টা করুন। আস্তে আস্তে বাড়ান। খ. আপনি বিছানায় দুই ভাঁজ করে আসন করে বসুন। দুই হাত রিলাক্স করে কোলের উপর রাখুন। গ. পেটের মাংস ও কোমরের পিছনের মাংস রিলাক্সে রাখুন। ঘ. আপনার পশ্চাবের স্থানের চারপাশটাকে ভেতরের দিকে টানুন, তখন নিশ্বাস স্বাভাবিক রাখুন। আপনি একবার কতক্ষণ টেনে রাখবেন ও প্রতিবেলায় কতবার করবেন তা পরবরতীতে লিখা আছে।</p>	 <p>ধাপ ৫ - চিত্রে নির্দেশিত</p>
<p>ধাপ ৬ - ক. আপনি পশ্চাব করার সময় ১ সেকেন্ডের জন্য হলেও ধরে রাখার চেষ্টা করুন। আস্তে আস্তে বাড়ান। খ. আপনি দুই হাত টেবিলে রেখে দুই পা ফাকা করে গোড়ালীর উপর দাড়ান। গ. পেটের মাংস ও কোমরের পিছনের মাংস রিলাক্সে রাখুন। ঘ. আপনার পশ্চাবের স্থানের চারপাশটাকে ভেতরের দিকে টানুন, তখন নিশ্বাস স্বাভাবিক রাখুন। আপনি একবার কতক্ষণ টেনে রাখবেন ও প্রতিবেলায় কতবার করবেন তা পরবরতীতে লিখা আছে।</p>	 <p>ধাপ ৬ - চিত্রে নির্দেশিত</p>

১ম সপ্তাহ	ধাপ ১, ২, ৩, ৪, ৫ ও ৬	সপ্তাহে ৭ দিন, সবগুলো ধাপ মিলে প্রতিবেলায় ১০ বার, দিনে ৩ বেলা
২য় সপ্তাহ	ধাপ ১, ২, ৩, ৪, ৫ ও ৬	সপ্তাহে ৭ দিন, সবগুলো ধাপ মিলে প্রতিবেলায় ১৫ বার, দিনে ৩ বেলা
৩য় সপ্তাহ	ধাপ ১, ২, ৩, ৪, ৫ ও ৬	সপ্তাহে ৭ দিন, সবগুলো ধাপ মিলে প্রতিবেলায় ২০ বার, দিনে ৩ বেলা
৪র্থ সপ্তাহ	ধাপ ১, ২, ৩, ৪, ৫ ও ৬	সপ্তাহে ৭ দিন, সবগুলো ধাপ মিলে প্রতিবেলায় ২৫ বার, দিনে ৩ বেলা
৫ম সপ্তাহ	ধাপ ১, ২, ৩, ৪, ৫ ও ৬	সপ্তাহে ৭ দিন, সবগুলো ধাপ মিলে প্রতিবেলায় ৩০ বার, দিনে ৩ বেলা
৬ষ্ঠ সপ্তাহ	ধাপ ১, ২, ৩, ৪, ৫ ও ৬	সপ্তাহে ৭ দিন, সবগুলো ধাপ মিলে প্রতিবেলায় ৩৫ বার, দিনে ৩ বেলা

প্রয়োজনে যোগাযোগ করুনঃ

মোছা. আইরীন খাতুন, স্নাতোকোত্তর ফিজিওথেরাপি শিক্ষার্থী, বিএইচপিআই

রোগীর এক্সারসাইজ লগ বুক

প্রতিবেলায় এক্সারসাইজের পর টিক চিহ্ন দিন এবং ফিজিওথেরাপি চিকিৎসার সময় এ লগ বুক নিয়ে
আসুন

সপ্তাহ	দিন	সকাল	দুপুর	রাত
১ম	শনিবার			
১ম	রবিবার			
১ম	সোমবার			
১ম	মঙ্গলবার			
১ম	বুধবার			
১ম	বৃহস্পতিবার			
১ম	শুক্রবার			
২য়	শনিবার			
২য়	রবিবার			
২য়	সোমবার			
২য়	মঙ্গলবার			
২য়	বুধবার			
২য়	বৃহস্পতিবার			
২য়	শুক্রবার			
৩য়	শনিবার			
৩য়	রবিবার			
৩য়	সোমবার			
৩য়	মঙ্গলবার			
৩য়	বুধবার			
৩য়	বৃহস্পতিবার			
৩য়	শুক্রবার			

৪র্থ	শনিবার			
৪র্থ	রবিবার			
৪র্থ	সোমবার			
৪র্থ	মঙ্গলবার			
৪র্থ	বুধবার			
৪র্থ	বৃহস্পতিবার			
৪র্থ	শুক্রবার			

প্রয়োজনে যোগাযোগ করুনঃ

মোছা. আইরীন খাতুন, স্নাতোকোত্তর ফিজিওথেরাপি শিক্ষার্থী, বিএইচপিআই