Journal of Advances and Scholarly Researches in Allied Education
Vol. 18, Issue No. 6, October-2021, ISSN 2230-7540

Impact of Pelvic Floor Muscles Function and Exercises of Women

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Abstract – In modern times, urinary incontinence is a frequent symptom, affecting 7–37% of women aged 20–39 and 9–39% of women over 60. Incontinence is more likely in women who are pregnant or who have given birth naturally. Introduce pelvic floor muscles, describe their function, examine perineum muscles, gauge pelvic floor muscular strength with stretches, and draw a final conclusion in this article.

Key Words – Pelvic Floor Muscles, Exercises, Women, Measuring, Stretching's Exercises

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1. INTRODUCTION

Despite the fact that pregnancy and delivery are a natural process, they may be connected with potentially harmful conditions that put women at risk. When it comes to difficulties of childbirth, pelvic muscle structure is one of the most prevalent and unavoidable. MRI studies have found that 20–26 percent of severe injuries occur during vaginal childbirth, and that roughly 50 percent of pelvic organ prolapse (POP) occurs during childbirth. The pubourethral and external urethral ligaments might become weak and loose after a vaginal birth. Many areas of a woman's QOL, including her emotional, psychological, social, economic, professional, physical, and sexual health, are harmed by POP.

An vital role for the female pelvic floor is played during sexual activity (SF). Sexual dysfunction was seen in 76.3 percent of postpartum women, according to Rezaei et al. (2017). Two-thirds of participants (64.3 percent) reported sexual dysfunction in the first year following delivery, according to Khajehei et al. (2015). Intercourse urinary leakage, vaginal protrusion, and dryness can impair the pleasure of sexual activity for both parties. The clitoris can't get enough blood flow if the muscles are weak. Pelvic floor muscles, particularly the ischiocavernous muscle, are critical for arousal and orgasm. The genital contraction in Levator ani, which involves the pubococcygeous and iliococcygeus muscles, increases sexual pleasure for both parties. Therefore, strengthening the pelvic floor muscles may improve sexual function. When it comes to therapy, there are a few possibilities, and which one is best depends on how severe the symptoms are. One of the most common treatments for pelvic floor dysfunction is pelvic floor muscle training; it can also prevent postpartum pelvic muscles impairment and sexual dysfunction, according to several studies.

The results of studies looking at the impact of pelvic floor exercises on postpartum female sexual function were mixed. A thorough systematic review evaluating the influence of pelvic floor exercises on postpartum women's sexual function and quality of life is still absent, despite the fact that systematic reviews and meta-analyses are the best approach to synthesise the data to date. A meta-analysis of previous studies on exercise and sexual function has never been done, despite a number of studies examining the role of exercise in the general population, in women with urine incontinence, and in pregnant women. So, the goal of this study was to assess the studies that examine the effects of pelvic floor training on postpartum women's sexual function and quality of life.

The Pelvic Floor and Muscles of the Pelvis:

- A moveable pelvic floor supports the abdominal and pelvic organs, as well as the entire pelvis, by acting as a pillar. Muscle, fascia and ligaments make up the skeleton's framework.
- To describe the pelvic floor's features, Zacharine originally used the phrase "pelvic trampoline" in 1980.
- Pelvic floor consists the following from deepest to the most superficial.
- The endopelvic fascia is made up of collagen, elastin, and smooth muscle fibres.

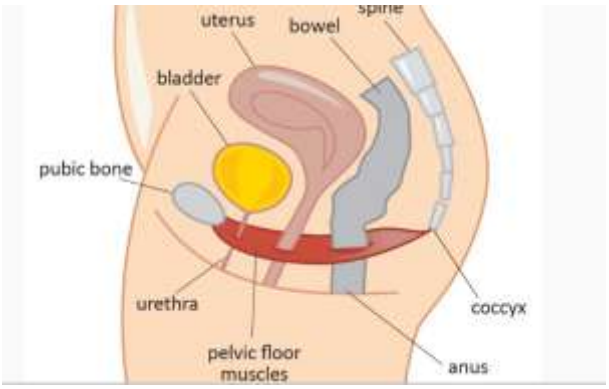
The pelvic organs are attached to the lateral walls of the pelvis via this structure.

When levator ani muscle functions normally, the fascia is not under pressure.

The levator ani muscle: The pubovisceralis and pelvic diaphragm are other names for it (pubococcygeus and iliococcygeus). Muscle fibres with striated patterns make up their structure. Fascia envelops them on both the upper and lower sides. The uro genital hiatus is the only anterior midline cleft. Passage of urethra, vagina, and anorectum occurs here.

The perineal membrane: The triangular ligament is another name for the urogenital diaphragm. To put it another way, both of these structures are located on the same level, yet there is a levator ani that is higher than both of them. When the levator ani muscles relax, it provides extra support.

The external genital muscles: Transverse perineal muscles are made up of the ischaemic ischaemic ischaemic and bulbocavernous muscles. They are sexually significant. There are two parts to the external genitalia.



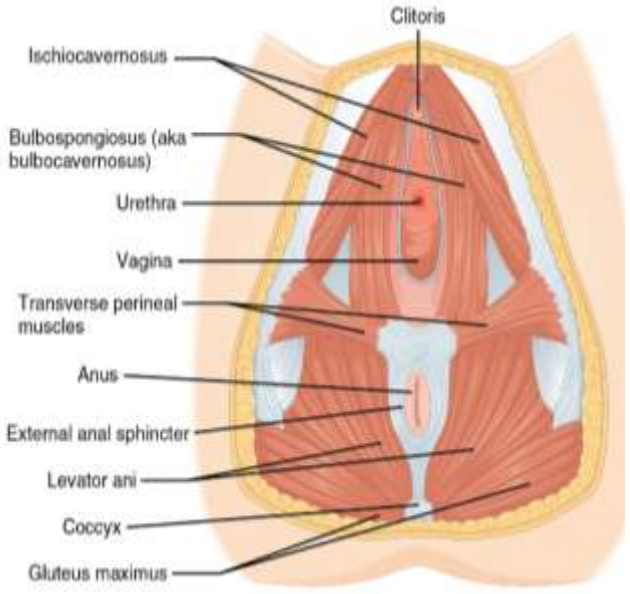
The primary function of the pelvic floor is to act as a solid foundation for the viscera of the abdomen and pelvis. They also aid in the ability to empty, defecate, engage in sexual activity, and give birth. Lifter ani, Ischiococcygeus, Obturator Internus and Piriformis are all key pelvic floor muscles that may be trained with physiotherapy. Neither the vagina nor the anal sphincter are directly involved. The obturator fascia has a linear thickening known as the Arcus Tendineus Fascia of the Pelvis (ATFP).

2. FUNCTION OF PELVIC FLOOR MUSCLES

The urethra, vagina, and rectum all rest firmly on the pelvic floor muscles, which are there to support them.

- It plays a critical function in the support and sphincter control of all pelvic viscera and is essential to maintaining the tone of other pelvic muscles, both smooth and striated.
- It is possible for the pubococcygeus to restore its physiologic tension and function after many years of inactivity and partial atrophy if it is stretched to its full range of motion.
- A portion of the pelvic outflow is protected by the levator ani and coccygei muscle groups. The pelvic viscera and the perineal body are stabilised by the levator ani.
- When you cough or sneeze, the levator ani and coccygei assist keep your bladder and rectum from becoming incontinence because to increased intra-abdominal pressure.
- The contraction of fibres surrounding other holes opposes increased intra-abdominal pressure and prevents any collapse through the pelvic floor during micturition, faeces, and parturition.
- During faeces or parturition, the coccygei push the coccyx forward and support it (child birth).
- These muscles, together with the abdomino-thoracic diaphragm and abdominal muscles, work together to elevate intra-abdominal pressure, which is maintained by levatores as part of the basin-shaped muscular pelvic diaphragm. Active inquiet inspiration like the abdominal diaphragm. Constrain the pelvic floor muscles to contract during expiration, then.

3. MUSCLES OF PERINEUM



1) Ischiocavernosus:

The crus penis or crus clitoris is covered by it. It's smaller in women.

Origin: Ramus ischiae's medial surface (behind attachments of the crus). The lower portion of the perineum

Insertion: As the fibres go forward and spiral over the anterior half of the crus, they are implanted into its sides and underside.

Nerve supply: Perineal branch of the pudendal nerve.

Actions: By squeezing the crus, it helps to keep the penis erect.

2) Bulbospongiosus:

It protects the vestibule bulb in females. The vagina and urethra act as a barrier between the muscles on each side. It covers the bulb of the penis in men. A median raphe connects the muscles of the right and left sides of the body.

Origin: Perineal body and Median raphe over the bulb of the penis.

Insertion: Posterior fibres wrap across the bulb's backside. The perineal membrane is where they are implanted. The bulb and the corpus spongiosus are held in place by the middle fibres, which are inserted into the raphe from the top. The whole penis is covered by the anterior fibres. They are injected into the raphe on the penis's dorsal side.

Nerve supply: Perineal branch of pudendal nerve.

Action:

1. At the end of micturition, it aids in ejecting the final drop or two of pee.
2. Compression of the bulb by middle fibres helps to erect the penis' corpus spongiosum.
3. The deep dorsal vein of the penis is compressed by anterior fibres, which further aids penile erection.

3) Superficial transverse perinea:

On either side of the Anus is a thin slip that runs transversely.

Origin: Medial surface of the roots of the ischial ramus.

Insertion: Intertwined with other muscles that converge on the perineal body.

Nerve supply: Perineal branch of pudendal nerve.

Action: Steadies the perineal body.

4) Sphincter urethrae (External urethral sphincter):

The membrane portion of the urethra is surrounded by it. It extends from the two-ischiopubic rami to the pubic bone. It is pierced by the Urethra.

Origin: The transverse perineal ligament serves as the anterior origin for the superficial fibres. A ring of deep fibres surrounds the urethra.

Insertion: The fibres are put into the perineum. Females' urethra and vagina are home to some of them.

Nerve supply: Perineal branch of pudenal nerve.

Action: By squeezing the membrane urethra, it aids in the ejection of the final few drops of pee at the conclusion of micturition.

5) Deep transverse perinei:

In the superficial transverse perinei, a small slip exists..

Origin: The facial sheath of the pudendal vessels over the ramus of the ischial ramus is the source of this.

Insertion: Into the Perineal body.

Nerve supply: Perineal branch of pudendal nerve.

Action: Steadies the perineal body.

4. MEASURING THE STRENGTH OF PELVIC FLOOR MUSCLES

Professional guidance and hands-on training should be sought from an expert in the field of mental health. Pelvic floor muscle strength can be measured in a variety of methods, including the ones listed below:

Manual Muscle Testing via Vaginal Vagination (PVMMT) It is sometimes referred to as a digital exam. The lady must sign an informed consent document before to the procedure. In the meanwhile, she should be allowed solitude to remove her panties and prepare herself while resting on the sofa. Wearing gloves, a physiotherapist will next separate the labia. Insert the index finger of your dominant hand into the vagina. It is important to observe the wall's texture, discomfort, and the presence of a prolapsed uterus or vagina. Afterwards, the therapist asks the female to do pelvic floor muscle contractions by requesting that she hold the therapist's finger and prevent it from being

released. In order to classify the muscles, there are two main grading methods that may be used:

Modified Oxford grading for PVMMT (Laylock and Chiarelli in 1989)

0 = nil contraction

1 = flicker

2 = weak

3 = moderate

4 = good

5 = strong

Among pelvic floor muscle physiotherapists, this grading scheme is widely recognised. It's a simple, well-known, low-cost, and fast evaluation method. It is less trustworthy because of the ordinal scale and subjective grading, yet the dependability has been demonstrated.

PERFECT scheme(Laylock and Jerwood 2001)

P = Power on 6 point Oxford scale

E = Endurance (Maximum hold time in seconds for maximal voluntary contractions (MVC))

R =Repetition (maximum repetitions of MVC with 4 sec rest time)

F = Fast (No. of 1 second contractions

ECT = Every Contraction Timed PVMMT technique can also be used to teach PFM contractions

Perineometer: It records the PFM activity.

It can be of two types:

1) Pressure perineometer

2) Perineometer for electromyography. When a woman is laying, a condom-encased vaginal probe should be placed. Consent is required here as well. Perform PFM contractions after insertion.

5. PELVIC FLOOR STRETCHINGS EXERCISES

1. Happy Baby

It's easy to modify the Happy Baby Pelvic Floor Stretch to fit varying levels of flexibility. Lie backwards with your feet wider than hip-width apart, and then do happy baby.

It's important to take a deep breath into the rib cage and the lower abdomen. A yoga belt or even a bed sheet wrapped behind the knees can be used to aid grab the legs in the case that you are unable to reach your feet while doing this stretch.

2. Child's Pose

Additionally, the stretch of child's pose may be altered by adding a pillow either behind the knees, or in a front fold of the hips. Breathe into the sides of the ribcage with a light, steady inhalation. Visualize the pelvic floor relaxing, falling, or "letting go."

3. Deep Squat

Squatting down low and holding on to a counter, chair, or even a corner of a room is an effective way

to stretch. Keep your feet on the ground and little wider than your hips apart.

Breathe into the sides of your rib cage while lowering your hips as much as possible. Imagining the opening of the uterus.

4. Cat / Cow Stretch

Begin by kneeling on the floor (all fours). Allow the abdomen to descend toward the floor without moving the shoulders or hips as you inhale and arch the back.

Your spine should be rounded as you exhale and your tailbone should be pushed down as you press your back upward (like an angry cat). Take a breath, exhale, and lower yourself back into the cow stance. Repeat between 10 and 20 times, if necessary.

5. Figure Four Stretch

You'll be working on your hips and your behind muscles while you stretch. The pelvic floor is linked to these muscles. A healthy pelvic floor relies on hip mobility.

Lay on your back and begin. Lift your left knee toward your chest by crossing your right ankle over it. Hold the position for 30 seconds, then swap legs. Repeat on each leg three times.

6. Adductor Stretch

The inner thigh's adductor muscles form a group. On either side, they join to the inner surface of the pelvic bone. People who suffer from pelvic discomfort and vulva or vaginal pain, as well as those who have weak pelvic floor muscles, are more likely to have tight muscles in these areas. Bend the left knee while maintaining the right leg straight as you lunge to the left to do an adductor stretch. Don't allow the left knee to thrust forward beyond the foot of the left foot, as if you were sat down in a chair.

7. Hamstring Stretch

Backside thigh muscles collectively known as the hamstrings. The hip is extended while the knee is bent. In most people who spend a lot of time sitting, they'll be a little tight. The hamstrings attach to the bony portion of the pelvis that you rest your weight on. For this reason, tightness in this area can strain the pelvis and the low back, which can lead to pain in the lower back. Many musculoskeletal problems can be alleviated with regular hamstring stretches. A stool or chair can be used to prop one foot up while keeping the knee straight. Maintain a straight spine by bending forward at the hips and leaning over the extending leg. To complete three sets, hold this posture for 30 seconds and alternate between the two legs. To keep your pelvis and pelvic floor

muscles in good shape, do these exercises 5-7 times a week as part of a regular routine.

6. CONCLUSION

SUI patients benefit from physiotherapy treatment. The quality of life and strength of the pelvic floor muscles of patients who get three months of home physiotherapy treatment are both improved. It has been found that the quantity of leaks and the frequency of micturition have been reduced. As a result, persons with more severe incontinence have a lower quality of life than those with less severe incontinence. A better quality of life is also correlated with an improvement in pelvic floor muscle strength. The frequency of leaks decreases more rapidly in patients with more severe disease. A better quality of life and increased muscular power are the results of physiotherapy treatment for stress urine incontinence.

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