



Exercise Protocol for Pelvic Floor Muscles Dysfunction in Females: Systemic Review

Himani Dave¹, Ashish Kakkad²

PhD Scholar, Marwadi University, Rajkot, Gujrat. Assistant Professor, SPB Physiotherapy College, Surat, Gujrat¹

PhD supervisor, Professor -Principal and Faculty of Physiotherapy, Marwadi University, Rajkot, Gujrat.
himani.dave111489@marwadiuniversity.ac.in

ABSTRACT

The pelvic floor muscles are under continuous strain throughout the life span. In particular, the pelvic floor of women is subject to tremendous strain during pregnancy and childbirth. In addition, hormonal changes may influence the pelvic floor and pelvic organs; pelvic floor strength also declines with aging. Hence, the pelvic floor muscle needs regular training to stay healthy throughout life. Thus, the need for pelvic floor strengthening is lifelong. Currently, for the strengthening purpose of pelvic floor muscles pelvic floor muscle training (PFMT) protocols, biofeedback-assisted pelvic floor muscle training (BAPFMT), electrical stimulation (ES), perineometer, educators, kegel balls, vaginal cones, and kegel exercises are used commonly. Though, it is not clear that which protocol is best for a particular age group. To date, the efficacy of pelvic floor exercises on different age groups is not yet established and which exercise among all these is most appropriate is also not concluded well. Thus, the main goal of this review was to systematically appraise current literature on the effect of pelvic floor muscle strengthening in females. This systemic review identified seven experimental studies. The studies were conducted between 2003-2021 with a total sample of 448 women. The outcome measures used were peritron perineometer, pad test, quality of life questionnaire, electromyography, duration of labor, modified oxford scale, oswerthry disability index for pain used in studies. Duration of the training may vary from 15-60 mins followed by the rest period in between the sessions. Pelvic floor training requires training of at least 4-12 weeks and minimum 3 sessions are required per week. Training can be more appropriate if done under supervision

Key Words: Pelvic Floor Exercise, Pelvic floor protocol, Pelvic floor rehabilitation, Pelvic floor programme.

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INTRODUCTION

In Women, pelvic floor muscles provide multiple functions; basically, it is a muscular partition that separates the pelvic cavity from the anatomical perineum. It consists of three sets of muscles on both sides which are named pubococcygeus, iliococcygeus, and ischiococcygeus. These are collectively called the levator ani. The main functions of the pelvic floor include: To support the pelvic organs, helps to stabilize the sacroiliac and sacrococcygeal joints, to maintain the steadiness of the perineal body; Deification, urinary and Sexual function [1].

Any abnormality in the muscles may lead to pelvic organ prolapse, urinary and fecal incontinence, and other sensory and emptying abnormalities of the lower gastrointestinal and urinary tracts [2].

Women with pelvic floor disorders usually have complained regarding sexual difficulties; The American Foundation for Urologic Disease recognizes four types of female sexual dysfunctions which contains a decrease in libido, problems with sexual arousal, inability to achieve orgasm, and painful sexual activities [3].

The pelvic floor muscles are under continuous strain throughout the life span. In particular, the pelvic floor of women is subject to tremendous strain during pregnancy and childbirth. In addition, hormonal changes may influence the pelvic floor and pelvic organs; pelvic floor strength also declines with aging. Hence, the pelvic floor muscle needs regular training to stay healthy throughout life. Thus, the need for pelvic floor strengthening is lifelong [4].

Every year Pelvic floor disorders affect millions of females worldwide. At least 11% of women require surgery for pelvic floor disorders in their lifetimes. One in every nine American women undergoes pelvic floor surgeries and most of that requires additional surgery for the same condition [5].

Depending upon multiple research's available on how physiotherapy plays an important role in the non-surgical cure of pelvic floor muscles it was concluded that pelvic floor exercises also help to reduce the chances of surgeries, mental wellbeing and improve quality of life in females with pelvic floor dysfunctions [6].

According to World Confederation for Physical Therapists pelvic floor rehabilitation should include teaching proper contraction, muscle and body awareness, coordination and motor control, muscle strength and endurance, and relaxation. Currently, for the strengthening purpose of pelvic floor muscles pelvic floor muscle training (PFMT) protocols, biofeedback-assisted pelvic floor muscle training (BAPFMT), electrical stimulation (ES), perineometer, educators, kegel balls, vaginal cones, and kegel exercises are used commonly. Though, it is not clear that which protocol is best for a particular age group. To date, the efficacy of pelvic floor exercises on different age groups is not yet established and which exercise among all these is most appropriate is also not concluded well. Thus, the main goal of this review was to systematically appraise current literature on the effect of pelvic floor muscle strengthening in females.

METHODOLOGY

Search Strategy:

- The systemic review was performed to evaluate the various rehabilitation protocols for pelvic floor muscles. For database Science Direct, Research Gate, PubMed, Google scholar, Pedro was searched. Randomized controlled trial, controlled before and after studies, surveys, and cohort study which includes pelvic floor protocol in English were included. Conferences abstracts, Case studies and sample size less than 50 were excluded for the study.
- The combination of keywords was pathology (pelvic floor dysfunction, prolapse, urinary incontinence, pelvic floor tightness, pelvic floor pain); Intervention (pelvic floor rehabilitation, pelvic floor exercises, pelvic floor training, physiotherapy for pelvic floor); population (females, women); and study design (Randomized controlled trial, controlled before and after studies, surveys, cohort study).
- The final search choice included "rehabilitation for pelvic floor, pelvic floor and/ or training, protocol, exercises, rehab and physiotherapy for pelvic floor, pelvic floor rehab/ training for urinary incontinence, prolapse, sexual dysfunction, pelvic pain, antenatal period, postnatal period"

DISCUSSION

Search Strategy results:

The search in databases led to the identification of 347 potentially relevant studies.

Description of studies:

This systemic identified seven experimental studies. The studies were conducted between 2003-2021 with a total sample of 448 women.

Characteristics of the studies:

Sample size varied from minimal to 44 and maximum to 301 women, with a mean age 45.4 ± 3.8 years, ranging from 22 to 65 years. The studies include problem of pelvic floor disorders, urinary incontinence, prolapse, pregnancy, and pelvic floor weakness. Diagnosis was done by using questionnaire, interview, physical examination and signs.

Outcome measures:

Peritron perineometer, pad test, quality of life questionnaire, electromyography, duration of labor, modified oxford scale, oswerthry disability index for pain were used in studies.

Interventions:

In majority of the studies, the program with instructions for contracting pelvic floor muscles. Methods commonly used were digital palpation and teaching the contraction of pelvic floor muscle. Only two studies used biofeedback and electrical stimulation for strength training. One study performed hypopressive exercise along with pelvic floor muscles. All articles have described various position, length and duration of contraction, repetition.

Studies provide combination of maximal and submaximal contractions. For positioning the most common used was supine followed by standing. Regarding the frequency of session minimum two sessions per week was mentioned. Few articles also suggested home protocol for participants. Length of program noted between 4 weeks to 12 weeks.

Cure rates:

A study provided cure rate among 42 women with consideration seventeen females reported decreased sexual desire before the treatment; 5 of these indicated improvement after doing exercises. Four women reported complete relief from pain during sexual activity and, Nine out of 17 women who experienced

dyspareunia prior to treatment reported an improvement. Five of 15 women experienced improvement in reaching climax who complained of difficulty before the treatment in this area [7].

The protocol had provided various phases of pelvic floor rehabilitation includes muscle isolation, discrimination, conditioning, and strengthening, as well as physiological quieting and electrical stimulation for muscle well-being [8].

Total of 301 healthy nulliparous women randomly allocated to a training group (148) and control group (153). Women who underwent pelvic floor muscle training had a lower rate of prolonged second stage labour than women allocated to no training. The duration of the second stage was not significantly shorter it was 40 minutes for those who were exercising and 45 minutes for non-exercising females. ($P = 0.06$) [9].

The study included 47 patients divided in to control group $n = 24$; and intervention group $n = 23$. Pain severity and Oswestry disability index scores were significantly lower in the intervention group than in the control group after 24 weeks. Pain severity and Oswestry disability index scores were significantly lower in the intervention group than in the control group ($P = 0.045$ and $P = 0.034$). There were no significant between-group differences in static or dynamic endurance [10].

Fifty-eight women were randomly assigned to participate in the pelvic floor muscle training group, the hypopressive exercises associated with pelvic floor muscle training (HE and PFMT) group or the control group. The two-treatment group significantly increase pelvic floor muscle function C ($P < 0.001$). The pelvic floor muscle training group was superior regarding endurance ($P = 0.007$). Both groups were superior than control group regarding maximum voluntary contraction, endurance and muscle activation [11].

Here various standardized Pelvic floor muscle protocol for back pain, prolapse, during antenatal and postnatal period, pelvic dysfunction and urinary incontinence were described. The main aim of mentioning the protocol is to provide a particular protocol for complex pelvic floor presentation. This rehabilitation protocol involves pelvic floor stabilizations, isolation of pelvic floor from other muscle groups, discrimination of repetitions and positions, and strengthening strategies [12, 13]. Pelvic floor muscle provides huge part of the body's core, which is the foundation for all balance, stability, movement and flexibility. Pelvic floor muscle contraction plays major role in the female orgasmic response [14, 15]. A study done by Temml et al. reported that 25% of women and 30.5% of men with incontinence faced problems with their sexual lives. The most frequently reported problems were leakage during intercourse (16–38.1%) and dyspareunia (17–40.5%) [16].

According to the International Continence Society, the term "pelvic floor muscles" refers the muscular layer of the pelvic floor, which closes the pelvic openings and supports the pelvic organs during activity [17]. Thus, this muscle group helps to maintain bowel and bladder movements. Therefore, the training of these muscles is first-line treatment and prevention for women with urinary incontinence, and fecal incontinence. This training is also recommended for pelvic organ prolapse prevention and management.

Pelvic floor training has well-established efficacy and safety with a low costing treatment. This training includes use of pelvic floor muscles only or in coordination with other muscle groups such as abdominals [18]. In addition to that Sapsford suggested a new approach that emphasizes the coordination of the diaphragm, deep abdominal muscles and Pelvic Floor Muscle [19]. Abdominal muscle strength also plays an important role during various phases of labour. Improvement in muscle control, strength and flexibility of these muscles contributes along with pelvic floor muscle group. The effect may be seen on the central nervous system, and training of pelvic floor during pregnancy leads to facilitate labour [20-22].

In general, pelvic floor makes a triangle with back and abdominal muscles. Weakness of any one muscle leads to weakness of other muscles also. Thus, pelvic floor dysfunction may result in back pain, dyspareunia, pelvic organ prolapses and urinary or faecal incontinence.²³

CONCLUSION

The study describes that pelvic floor rehabilitation must include anatomical knowledge and learning proper contraction techniques. Pelvic floor strengthening may vary from one position to another that is the reason that it should always start with supine or crock lying. Duration of the training may vary from 15-60 mins followed by the rest period in between the sessions. Pelvic floor training requires training of at least 4-12 weeks and minimum 3 sessions are required per week. Training can be more appropriate if done under supervision. Treatment can be more beneficial if home exercises and life style modifications are also prescribed.

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Conflict of interest:

None

Author's Contribution:

Dr. Himani Dave – Analysis and interpretation of data, Manuscript preparation, Drafting the work, Resources finding.

Dr. Ashish Kakkad – Substantial contribution to the conception of work, Final approval version to be published, Checking of accuracy and integrity of work

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