

Applicability of kegel exercises in different urinary incontinences in women: Systematic review

Luís Felipe M. Pires¹; Matheus André R. da Costa²; Estela U. Vitória²; Mariana G. de Souza²; Larissa Rebeca L. Xavier²; Rodrigo F. de Oliveira¹

¹ Human Movement and Rehabilitation Post graduation Program, Evangelical University of Goiás (UniEVANGÉLICA), Anápolis (GO), Brazil

² Scientific Initiation Program, Evangelical University of Goiás (UNIEVANGELICA), Anapolis (GO), Brazil

Abstract:

Introduction: Urinary incontinence (UI) is the involuntary loss of urine. The condition also happens when there are small daily leaks. **Objective:** The aim of this study was to conduct a systematic review that verified the efficacy of Kegel's exercise in UI in women. **Methodology:** This is a systematic review, in which searches were conducted for articles related to the theme "Kegel Exercise in Urinary Incontinence in Women" in the PubMed, LILACS and SCIELO databases, the search was carried out starting on March 1, 2023 and ending on June 1 of the same year and the selection of articles was for the last 5 years. The inclusion criteria were full-text articles that talked about UI in women and the applicability of Kegel's exercise in treatment and studies with intervention, exclusion criteria were articles from the proposed period and which did not corresponded with the inclusion criteria. Altogether, 191 articles were found, after removal of articles off the subject and repeated 7 studies remained to be evaluated on the PEDro scale, among them 6 were suitable for use in the study. **Results:** To evaluate the articles, the PEDro scale consists of 11 questions containing yes or no answers that help validate the quality of clinical trial studies, the scores of the articles evaluated and elected in this scale of the study was 70%, in all, 6 articles were analyzed by the PEDro scale. **Conclusion:** Finally, it is concluded that the use of kegel exercises for the treatment of UI in women is effective, and should also be used as a method of prevention for possible incontinences, thus strengthening the pelvic floor with the exercises.

Keywords: Urinary Incontinence; pelvic floor; physiotherapy; Kegel; women.

BACKGROUND

According to the International Continence Society (ICS), there are subtypes of urinary incontinence (UI), which: Stress Urinary Incontinence (SUI), caused by loss of urine involuntary after physical exertion such as weight loss and coughing), Mixed Urinary Incontinence (MUI), caused for loss of urine in the course of SUI and Urgency Urinary Incontinence (UUI), which is a loss of urine accompanied by a sudden urinary discharge. It is estimated that 200 million people from the world population may have UI, divided into 31% of our homes and a prevalence of 69% among women⁽¹⁾.

SUI is generally caused by the fracture of the urethral esfíncter or by urethral hypermobility. This prevents the intentional loss of urine when there is an increase in intra-abdominal pressure, such as through physical exercises, coughing, or during the Valsalva maneuver⁽²⁾. UI in women is associated with various risk factors, including advanced age, pregnancy, obesity, estrogen deficiency, and hysterectomy, among others, with a prevalence estimated at between 25 and 45% in all ages⁽³⁾.

Corresponding author: Luís Felipe Martins Pires

E-mail: Luisfelipe1090@gmail.com

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In emergency urinary incontinence (EUI), there is an unintentional increase in blood pressure due to the detrusor muscle contraction. This contraction can be caused by identifiable neurological reasons, such as detrusor muscle dysfunction, also known as neurogenic hyperactivity of the detrusor. Therefore, this contract can also be discovered initially, called idiopathic hyperactivity of the detrusor. Women, as this subtype, frequently relate, during a medical history, to an involuntary movement following a sudden urge or intense urge to urinate. MUI results from a combination of EUI and UUI. This means that this condition has present characteristics of both the urethral strain and the bladder's hyperactivity⁽⁴⁾.

Considered a widely prevalent dysfunction in contemporary society, UI affects approximately 20 to 50% of adult females in every part of their lives, given that, on average, one in each of two females is affected, in comparison with one men. In the Brazilian context, it is estimated that between 30 and 43% of females experience involuntary leakage of urine at a given time. Therefore, these numbers can be underestimated to the extent to which the condition is diagnosed⁽⁵⁾.

In many health areas, physiotherapy is crucial to preventing and treating UI, using exercises to stimulate and re-educate voluntary contraction and strengthen the pelvic muscles. Its importance lies in the support and education of workers, integrating them into multi-professional teams. UI directly impacts the quality of life of women, taking many steps to avoid daily activities to avoid disturbing situations⁽⁶⁾.

For those who are sick and do not seek treatment, maintaining themselves in situations of discomfort and constantly adapting can be attributed to desperation, the presence of depression, and the depression associated with the need to share their condition with others often. The process of denial and avoidance of admitting a condition leads to significant physical and emotional distress for these people⁽⁷⁾.

According to Ponte's study⁽¹⁾, the Kegel exercises were shown to be efficient in the IU treatment, according to the findings of Arnold Kegel, a gynecologist in the 1950s, one of the precursors of using the technique, seeing the muscle training of the Pelvic support to treat urinary incontinence in the female population. The objective is to conduct a systematic review that verifies the effectiveness and applicability of Kegel exercises for different UI in women

METHODS

This is a systematic review in which the PubMed, LILACS, and SCIELO databases were used to search for "Kegel Exercise in Urinary Incontinence in Women" articles. The search for articles was conducted starting on March 1, 2023, and ending on June 1 of the same year; the article selection period was for the last five years. The descriptors used were "Urinary 191 articles were found; after removing off-topic and repeated articles, seven studies remained evaluated on the PEDro scale; six could be used for the study. "Incontinence", "Pelvic Floor", "Physiotherapy", "Kegel", and "Women", which were researched individually and combined.

The inclusion criteria were full-text articles discussing UI in women and the applicability of the Kegel exercise in treatment and intervention studies. The exclusion criteria were articles outside the proposed period that did not meet the inclusion criteria. As shown in the PRISMA 2009 flow diagram (figure 1).

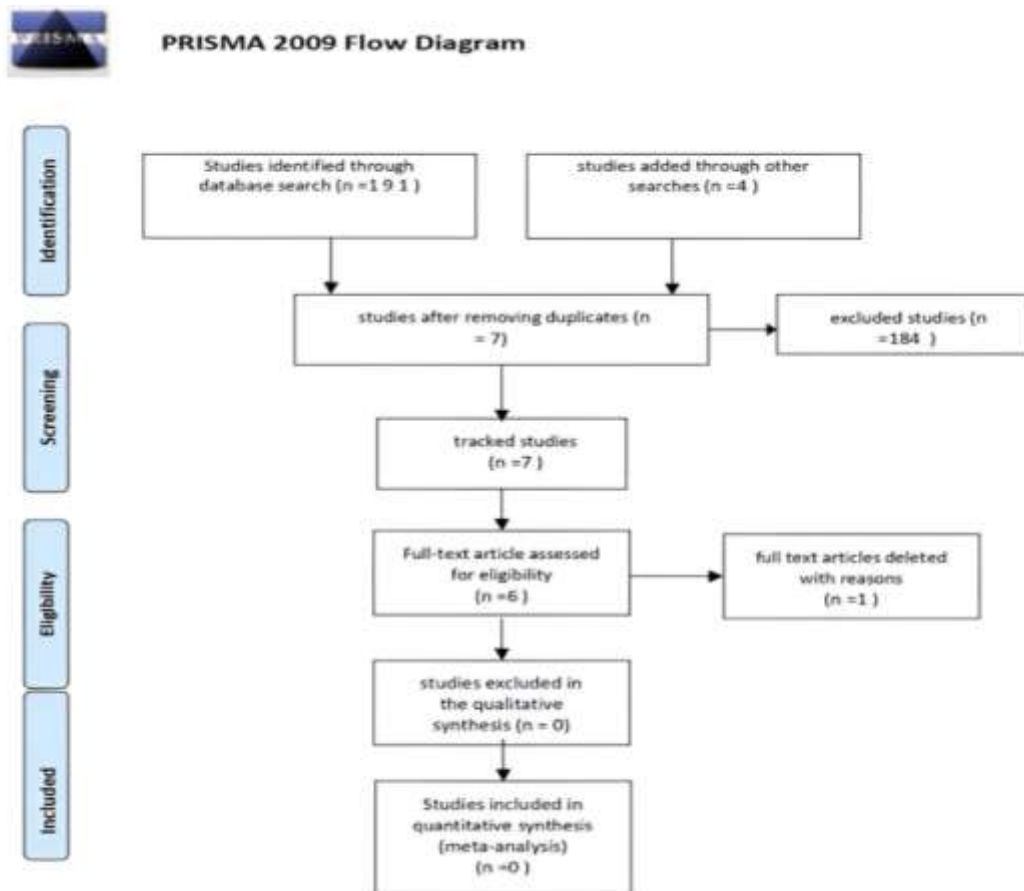


Figure 1. Prisma 2009 Flow Diagram

RESULTS

To evaluate the articles, the PEDro scale was used, which consists of 11 questions containing yes or no answers that help validate the quality of clinical trial-type studies. The scores of the articles evaluated and chosen on this scale are described in Table 1. The articles suitable for use in the present study, their interventions, and conclusion were placed in Table 2, as well as other important information.

Table 1. Results in the PEDro Scale evaluation

| Study | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | Total |
|-----------------------------------------|---|---|---|---|---|---|---|---|---|----|----|-------|
| Aslan et al, 2008 ⁽¹⁴⁾ . | S | N | N | S | N | N | S | S | S | S | S | 77% |
| Aksakal et al, 2014 ⁽¹⁵⁾ . | S | S | N | S | N | N | N | S | S | S | S | 77% |
| Jesus et al, 2015 ⁽¹⁶⁾ . | S | S | S | N | S | S | N | N | S | S | S | 88% |
| Kashanian et al, 2011 ⁽¹⁷⁾ . | S | S | N | S | N | N | S | S | S | S | S | 88% |
| Nilsen et al, 2018 ⁽¹⁸⁾ . | S | N | S | N | N | N | S | S | S | S | S | 77% |
| Ong et al, 2015 ⁽¹⁹⁾ . | S | S | N | S | N | N | N | S | S | S | S | 77% |

Notes*: S= Yes and N= No

Table 2. Characterization, results and conclusion of selected studies

| Author/ year | Groups (n) | Intervention | Conclusion |
|-------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aslan et al. (2008) ⁽¹⁴⁾ . | Control group: 25 Training Group: 25 | Bladder training and Kegel exercises over a period of 6 to 8 weeks and instructions for carrying out the proposed exercises. | In conclusion, bladder training and kegel exercises in elderly women were considered effective in reducing urinary complaints, increasing the strength of the pelvic floor muscles and increasing the quality of life of elderly women, which were validated through the pad test, palpation digital and the King Health questionnaire. |
| Asksal et al. (2014) ⁽¹⁵⁾ . | SUI Group (Urinary Stress): 38 cond wence: 34 | Kegel exercise, consisting of 10 sets of contractions per day, over a period of 8 weeks. | It is concluded that kegel exercises at home were proven effective by scales such as Oxford, incontinence impact questionnaire, urogenital discomfort inventory and the patient's overall impression of improvement, with an increase in pelvic floor muscle strength and a decrease in loss of urinates on exertion or stress. |
| Jesus et al. (2015) ⁽¹⁶⁾ . | Sphere group: 35 Control group: 30 | Kegel exercises with vaginal spheres, 1 hour sessions for 6 months. | Both treatments improve incontinence, but the vaginal bead exercise group had an early improvement. To validate the results, tests such as ICIQ-SF (international Consultation on Incontinence Questionnaire - Short Form) and the pillow test were used. |
| Kashanian et al. (2011) ⁽¹⁷⁾ . | Assisted pelvic floor muscle training group=41 pelvic floor muscle training group= 50 | Use of Kegel exercise assisted by the Kegel Master device and Kegel alone, twice a day for 12 weeks. | kegel exercises with or without the kegelmaster do not show a difference in effectiveness, however both methods are effective in treating urinary incontinence in women. Three global IQOL (Incontinence quality of life) questionnaires were used. IIQ (impact incontinence), UDI (Urogenital Distress Inventory) to validate the effectiveness of the treatment. |
| Nilsen et al. (2018) ⁽¹⁸⁾ . | Group A: 24 women group B: 36 women | Kegel exercises using an intravaginal mechanical vibration device. Training consisted of maximal contractions of the pelvic floor muscles for 5 seconds. training 5 minutes a day. | From the training carried out there was an improvement in the strength developed in the pelvic floor muscles after 4 and 6 weeks, which significantly reduced the amount of urinary leakage. To analyze the results, the Shapiro-Wilk test, the McNemar test and the scores from the incontinence questionnaire were used. |
| Ong. et al. (2015) ⁽¹⁹⁾ . | control group: 19 Vibrance Kegel device group (VDK) = 21 | Pelvic floor muscle exercises and treatment with a biofeedback device were performed to strengthen the pelvic floor muscles in monthly 20-minute sessions for 16 weeks. | From the training carried out there was an improvement in the strength developed in the pelvic floor muscles after 4 and 6 weeks, which significantly reduced the amount of urinary leakage. To analyze the results, the Shapiro-Wilk test, the McNemar test and minute sessions for 16 weeks. scores from the incontinence questionnaire were used. |

DISCUSSION

This study seeks to evaluate the effectiveness and applicability of Kegel exercises in different forms of female UI, considering the varied approaches presented in previous research. The treatment of UI, especially SUI, is approached through different techniques, such as biofeedback, electrical stimulation, vaginal cones, vaginal ball, individual or group therapy, and Kegel exercises, as discussed by Nilsen⁽⁸⁾.

Physiotherapy plays a fundamental role in treating UI by promoting body perception, restoring and improving the function of the perineal muscles, and normalizing muscle tone. This approach helps women regain urinary continence, resulting in a significant improvement in quality of life. Treatment protocols are adaptable to women of different age groups, always considering individual characteristics to achieve positive and satisfactory results in the face of this dysfunction⁽⁹⁾.

Nilsen⁽⁸⁾ explained that after applying regular pelvic floor muscle training, a reduction in urine leakage was observed over 4-6 weeks, with this result being more significant in the group that received training for six weeks. This result comes from using mechanical oscillations superimposed on the kegel exercise. It demonstrates the benefits generated to participants with a significant reduction in SUI and an increase in voluntary pelvic floor strength.

The study addresses specific subtypes of UI, such as SUI and UUI. It highlights the importance of implementing preventive physiotherapeutic interventions to strengthen the pelvic floor muscles⁽¹⁰⁻²⁰⁾. In this context, the functioning of the bladder, involving the filling and emptying processes, is complex and depends on the coordination of several muscles, sympathetic and parasympathetic structures, and somatic and sensory nerves. They emphasize that any failure during these physiological performances can lead to a possible occurrence of UI⁽¹¹⁾.

In the study, Abu Raddaha⁽¹²⁾ highlighted the positive impacts of the Kegel physical training program on female UI. Researchers found that implementation of the Kegel exercise program significantly improved symptoms associated with urinary incontinence in women. Cross et al.⁽¹³⁾, conducted the study were all participants received a personalized prescription of Kegel exercises aimed at strengthening, relaxation, temporal control, or maintenance. The results confirmed the superiority of supervised Kegel exercises with biofeedback in reducing stress UI compared to unsupervised exercises.

By integrating the findings of these studies, this work aims to contribute to a more comprehensive understanding of the effectiveness of Kegel exercises in treating UI in women, considering different approaches and results presented in the scientific literature.

CONCLUSION

Given the results presented, it can be inferred that the Kegel exercise effectively treats UI in women. This conclusion is supported by validation in several tests covered in the articles analyzed in this study. Furthermore, the simplicity and low cost of this training stand out, consolidating its position as a widely used approach since its discovery.

Author contribution: LFM: Responsible for the article structure and final review. MARC: Responsible for the structure and search in the PEDro and Scielo scale databases. EUV: Responsible for searching the Lilacs and PUBMED databases. MGS: Responsible for searching the Lilacs and PUBMED databases. LRLX: Responsible for searching the Lilacs and PUBMED databases. RFO: Responsible for guidance and supervision and structure and final reviewer.

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