



Research

## An education program about pelvic floor muscles improved women's knowledge but not pelvic floor muscle function, urinary incontinence or sexual function: a randomised trial

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KEY WORDS

Pelvic floor  
Physical therapy  
Knowledge  
Health education

ABSTRACT

**Question:** Does an educational program with instructions for performing 'the Knack' improve voluntary contraction of the pelvic floor muscles, reduce reports of urinary incontinence, improve sexual function, and promote women's knowledge of the pelvic floor muscles? **Design:** Randomised, controlled trial with concealed allocation, intention-to-treat analysis and blinded assessors. **Participants:** Ninety-nine women from the local community. **Intervention:** The experimental group (n = 50) received one lecture per week for 4 weeks, and instructions for performing 'the Knack'. The control group (n = 49) received no intervention. **Outcome measures:** The primary outcome was maximum voluntary contraction of the pelvic floor muscles measured using manometry. Secondary outcomes were: ability to contract the pelvic floor muscles measured using vaginal palpation; severity of urinary incontinence measured by the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) scored from 0 to 21; self-reported sexual function; and knowledge related to the pelvic floor. Outcomes were measured at baseline and after 4 weeks. **Results:** The intervention did not significantly improve: maximum voluntary contraction (MD 2.7 cmH<sub>2</sub>O higher in the experimental group, 95% CI -0.5 to 5.9); ability to contract the pelvic floor muscles (RR 2.18, 95% CI 0.49 to 9.65); or self-reported severity of urinary incontinence (MD 1 point greater reduction in the experimental group, 95% CI -3 to 1). Sexual function did not significantly differ between groups, but very few of the women engaged in sexual activity during the study period. The educational program did, however, significantly increase women's knowledge related to the location, functions and dysfunctions of the pelvic floor muscles, and treatment options. **Conclusion:** Education and teaching women to perform 'the Knack' had no significant effect on voluntary contraction of the pelvic floor muscles, urinary incontinence or sexual function, but it promoted women's knowledge about the pelvic floor. **Trial registration:** Brazilian Registry of Clinical Trials, RBR-95sxqv. [de Andrade RL, Bø K, Antonio FI, Driusso P, Mateus-Vasconcelos ECL, Ramos S, Julio MP, Ferreira CH]. An education program about pelvic floor muscles improved women's knowledge but not pelvic floor muscle function, urinary incontinence or sexual function: a randomised trial. *J Physiother* 2018;64:XX-XX] © 2018 Australian Physiotherapy Association. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### Introduction

Literature has indicated that there is a worldwide lack of knowledge among women regarding pelvic floor dysfunctions and treatment options.<sup>1-4</sup> Urinary incontinence is a prevalent condition among women of all ages and has a considerably negative effect on quality of life.<sup>2-5</sup> Latin American women are especially undereducated in relation to urinary incontinence, treatment options and access to treatment.<sup>6</sup>

Strength training of the pelvic floor muscles (PFM) has been shown to be effective in treating urinary incontinence, and is recommended as first-line treatment.<sup>7</sup> Proper instructions for performing PFM contractions is considered crucial to being able to perform PFM training.<sup>8</sup> One idea about how PFM training may be

effective in the prevention and treatment of urinary incontinence is to teach women to contract their pelvic floor muscles before and during activities that cause increased intra-abdominal pressure.<sup>8,9</sup> This type of contraction, called 'the Knack' by Miller et al,<sup>10</sup> reduced urinary leakage when a group of women were instructed to cough as hard as they could. However, it is unclear whether teaching women to contract their PFM before and during different activities of daily life improves their maximum voluntary contraction (MVC) and lessens urinary incontinence symptoms and complaints over time. It may be helpful because increasing awareness of PFM function decreases symptoms in various pelvic floor disorders and increases quality of life.<sup>11</sup>

Educational programs about the PFM can include information about PFM function, dysfunction and options for treatment.

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For women in the community, these programs can facilitate the search for treatment, especially conservative options.<sup>3</sup> However, little is known about the impact of an educational program in combination with instructions for women to perform 'the Knack' on PFM function, urinary incontinence, sexual function and women's knowledge related to the pelvic floor.

Therefore, the aims of this randomised trial were to answer the following questions:

1. Does participation in an educational program with instructions for performing 'the Knack' allow women from the community to improve MVC of their PFM?
2. Does the program enable women with no voluntary PFM contraction to do so?
3. Does the program reduce women's reports of urinary incontinence, improve their sexual function, and increase their pelvic floor knowledge?

## Method

### Design

An assessor-blinded, randomised, controlled trial was conducted with concealed allocation, assessor blinding, and intention-to-treat analysis. Women who expressed interest in participating received verbal and written information, and gave their informed consent before being allocated to a group and before their baseline assessment. Randomisation was performed using computer-generated random numbers to allocate participants to either an experimental group or a control group. A secretary who was not involved with recruitment randomised the eligible participants, who were informed by phone about their group allocation.

### Participants, therapists, centres

The study participants were women who: were living in the local community; were aged  $\geq 18$  years; had never received physiotherapy for pelvic floor dysfunction; and agreed to participate in the study. Exclusion criteria were pelvic organ prolapse greater than Grade 2 on the Pelvic Organ Prolapse Quantification grading system,<sup>12</sup> or any intolerance or discomfort to PFM examination. The study was advertised by posters in the coverage area of the health centre, including the primary care health centres. An assistant researcher not involved with assessments and interventions helped to publicise the project and recruit participants in different locations in the neighbourhood.

The educational program was conducted in a community health centre in Ribeirão Preto, Brazil. The intervention was delivered by internship physiotherapy students in their fifth year of their course. All educational sessions were supervised by two teachers with 20 and 17 years of experience in women's health physiotherapy.

### Intervention

The participants allocated to the experimental group attended an educational program, consisting of four 90-minute lectures offered once a week during 1 month at the community health centre. The lectures included demonstrations of PFM anatomy, function and dysfunction using illustrations, and discussions about risk factors and treatment options available for pelvic floor disorders. The program emphasised how to correctly perform pelvic floor contractions, and promoted PFM awareness. The participants were instructed to contract their PFM during different tasks of daily life that increase intra-abdominal pressure, such as coughing, sneezing, lifting and other physical activities. The education sessions had a maximum number of 10 participants, in order to allow discussions about the topics and interaction

between participants. The team that delivered the program was not involved in assessing or analysing the results.

Participants allocated to the control group received no intervention and were not contacted during the 4-week intervention period.

### Outcomes measures

Study outcome measures were obtained at baseline and after 4 weeks for participants in both groups. A brief explanation of PFM function and how to perform a muscle contraction were given to all participants before the assessment. All PFM measurements were performed by the same physiotherapist, who had 9 years of experience in women's health physiotherapy.

#### Primary outcome

The primary outcome was the pressure generated during a MVC of the PFM, which was assessed using a commercial manometer<sup>a</sup>. The manometer measured vaginal squeeze pressure in cmH<sub>2</sub>O through a conical sensor covered with a medical silicone rubber sheath. The sensor was placed with the middle of the probe 3.5 cm inside the vagina. The device was zeroed and participants were asked to perform three MVCs with a 10-second rest interval between each contraction.<sup>13</sup> Women were instructed to contract their PFM as strongly as they could and to relax as soon as they felt they had performed their MVC. The peak value (highest pressure achieved) of each contraction was registered in cmH<sub>2</sub>O. Only contractions with visible inward movement of the perineum were considered valid.<sup>14,15</sup> The mean of three MVCs was used in the analysis. Women who were unable to perform a correct contraction were not excluded from the study, because the study was intended to evaluate whether their ability to contract would change. However, only participants able to perform a correct PFM contraction were assessed using manometry.

The manometer<sup>a</sup> is reported to be a highly reliable method of measurement,<sup>16</sup> with the manufacturer reporting that 95% of readings are correct to  $\pm 1$  cmH<sub>2</sub>O. The manometer also has high intra-rater reliability for MVC measurement.<sup>17</sup>

#### Secondary outcomes

The ability to perform a correct PFM contraction was assessed using vaginal palpation before manometry measurement.<sup>11</sup> A correct PFM contraction was defined as an inward movement and squeeze around the urethra, vagina and rectum.<sup>14,15</sup>

Symptoms of urinary incontinence were assessed using a validated self-report questionnaire: the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF).<sup>18</sup> This questionnaire has been translated into Brazilian Portuguese, culturally adapted and validated in this language.<sup>19</sup> It consists of four questions aimed at assessing the frequency of urinary incontinence, its perceived cause, and its impact on quality of life. The severity and impact of urinary incontinence on quality of life was measured using the total score of the ICIQ-SF (sum of the scores of questions one, two and three). The range of possible scores on this instrument varies from 0 to 21, where higher scores indicate greater severity.

The prevalence of reports of urinary incontinence in both groups was assessed using the first question of the ICIQ-SF. Women were considered continent if they answered 'never' to the first question, which asks about frequency of urinary incontinence.

Sexual function was assessed using a validated self-report questionnaire: the Female Sexual Function Index (FSFI).<sup>20,21</sup> This is a 19-item, self-reported questionnaire evaluating six domains of women's sexual function in the past 4 weeks. The full scale score is obtained by adding the domain scores. The total score ranges between 2 and 36, with higher scores indicating better sexual function. Individual domain scores were obtained by adding the scores of the items that comprise each domain and multiplying the sum by the domain factor. The full scale score was obtained by adding the domain scores.

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