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## Vaginal cones or balls to improve pelvic floor muscle performance and urinary continence in women post partum: A quantitative systematic review

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## ABSTRACT

**Objectives:** the vaginal use of cones or balls aims to increase muscle performance and thereby prevent or treat urinary incontinence. To date, no systematic review has focused on the effectiveness of these devices specifically during the postpartum period. The objectives of this review were: to compare the effectiveness of vaginal cones or balls for improvement of pelvic floor muscle performance and urinary continence in the postpartum period to no treatment, placebo, sham treatment or active controls; to gather information on effect on perineal descent or pelvic organ prolapse, adverse effects and economical aspects.

**Design:** quantitative systematic review.

**Data sources:** 14 scientific databases (including PubMed and CINAHL) and the world-wide web; experts were contacted for published and unpublished data.

**Review methods:** studies had to be randomised/quasi-randomised trials and have female participants up to one year after childbirth. The intervention is compared to no treatment, placebo, sham treatment or active controls. Outcome measures relate to pelvic floor muscle performance or urinary incontinence. Studies were selected, 'risk of bias' assessed, and data extracted by two reviewers independently with inter-reviewer agreement.

**Main findings:** one study met the inclusion criteria; its original data were re-analysed. In an intention-to-treat analysis, compared with the control group, the cone group showed a statistically significant lower rate of urinary incontinence; compared with the exercise group, the prevalence was similar. However, the validity of the analysis is limited.

**Conclusions and implications:** the evidence gained from this systematic review is very limited. The use of cones may be helpful for urinary incontinence after childbirth, but further research is needed.

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## Introduction

### Background

Pelvic floor muscle training should be a routine recommendation to all women during postpartum care (Abrams et al., 2010; The Joanna Briggs Institute, 2011). An alternative pelvic floor muscle rehabilitation method consists in the vaginal use of cones or balls. To date, no systematic review has focused on the use of these devices specifically during the postpartum period. A Cochrane review looked into the effectiveness of cones or balls for urinary incontinence and included postpartum women (Herbison and Dean, 2013). Another Cochrane review by Boyle et al. (2012) and a systematic review by Mørkved and Bø (2014) looked into the effectiveness of pelvic floor muscle training during and after pregnancy and included cones amongst other forms of training. Urinary incontinence was used as a primary outcome in all three reviews; studies having solely considered pelvic floor muscle strength as an outcome in continent women were excluded from the Cochrane reviews, whereas the use of this outcome is not made explicit in Mørkved and Bø (2014). Pelvic floor muscle strength in continent women as an outcome was used in a systematic review on the prevention of pelvic floor dysfunction around childbirth by Harvey (2003). However, this review also

only included cones amongst other pelvic floor muscle rehabilitation methods, it excluded studies on the treatment of urinary incontinence, and it would now be useful to search for more recent articles to update this review's findings.

Thus, a systematic review was needed which focused on (1) the vaginal use of cones or balls as a pelvic floor muscle rehabilitation method (2) in the postpartum period, and (3) used both pelvic floor muscle performance and urinary (in)continence as primary outcomes to estimate effectiveness of device use.

### Objectives and research question

The objective was to compare the effectiveness of vaginal balls or cones for improvement of pelvic floor muscle performance and urinary continence in the postpartum period to no treatment, placebo, sham treatment or active controls (e.g. pelvic floor muscle exercises). A secondary objective was to gather information on effect on perineal descent or pelvic organ prolapse, adverse effects, and economic aspects.

The research question was developed using the PICO (population – intervention – comparison – outcome)-framework outlined by O'Connor et al. (2011): *Does the vaginal use of cones or balls by women in the postpartum period improve performance of the pelvic floor muscles and urinary continence, compared to no treatment,*

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