

Abstract

The Effect of BeBo® Training on the Regulation of Pelvic Floor Muscle Function in Nulliparous Women

Introduction

The pelvic floor muscles are essential for maintaining urinary, bowel, and sexual function, as well as for providing stability to the lumbopelvic complex. Dysfunction of the pelvic floor muscles associated with excessive muscle activity and impaired relaxation is an increasingly recognized clinical problem. Despite growing interest in this field, the number of studies evaluating the effectiveness of physiotherapeutic interventions in nulliparous women presenting symptoms of pelvic floor muscle dysfunction remains limited.

Aim

The aim of the study was to evaluate changes in pelvic floor muscle function in nulliparous women presenting symptoms of pelvic floor muscle dysfunction following a BeBo® training intervention compared with a control group.

Material and Methods

Thirty-eight women volunteered to participate in the study. Following a gynecological examination, functional assessment, and verification of the eligibility criteria, 32 participants were enrolled. All participants completed the study protocol and underwent assessments before the intervention (PRE), after its completion (POST), and at follow-up (FOLLOW-UP). The intervention group participated in a 7-week BeBo® training program, whereas the control group did not receive any intervention. The assessment included surface electromyography (sEMG) of the pelvic floor muscles and the transversus abdominis/internal oblique muscle complex, a per vaginam examination according to the PERFECT scheme, palpation assessment, and a self-developed symptom questionnaire. In addition, the short form of the International Physical Activity Questionnaire (IPAQ-SF) was administered at baseline to characterize the study population.

Results

The intervention group demonstrated a significant reduction in resting pelvic floor muscle activity from 20.61 ± 9.80 %MVC before therapy to 5.02 ± 2.71 %MVC after therapy ($p < 0.001$), together with improved post-contraction relaxation compared with the control group. Improved co-activation of the pelvic floor muscles and the transversus abdominis/internal oblique muscle complex was also observed. The per vaginam examination demonstrated significant improvements in muscle endurance, the number of repetitions, and the ability to perform rapid contractions, whereas no significant changes were found in maximal voluntary contraction strength. In addition, a significant reduction in the number of tender points and the severity of palpation tenderness, as well as improvements in urinary, bowel, pain-related, and sexual symptoms, were observed. Most of the treatment effects were maintained at FOLLOW-UP.

Conclusions

The 7-week BeBo® training program improved pelvic floor muscle function in nulliparous women presenting symptoms of pelvic floor muscle dysfunction. The greatest effect of the intervention was observed in the normalization of resting pelvic floor muscle activity and improvement in pelvic floor muscle relaxation, as confirmed by electromyographic analysis. The per vaginam examination demonstrated beneficial changes in most assessed functional and palpatory parameters, although not all analyzed variables reached statistical significance. The intervention was also associated with reductions in pain-related, urinary, bowel, and sexual symptoms. Most of the treatment effects were maintained at follow-up, indicating the durability of the observed improvements. The findings suggest that, in the assessment of women presenting symptoms of pelvic floor muscle dysfunction, particular attention should be paid to resting muscle activity and the ability of the pelvic floor muscles to relax. The BeBo® method may represent a valuable physiotherapeutic intervention for the management of nulliparous women presenting symptoms of pelvic floor muscle dysfunction.