Abstract

Introduction

Adequate pelvic muscle tone ensures proper positioning and function of the urinary bladder, rectum and sexual organs. Current research points to the crucial role of pelvic floor muscles which support the stabilization of the trunk by way of co-activating the transverse abdominal muscle. The aforementioned study results suggest that a search for new concepts incorporating these mechanisms in relation to pelvic floor dysfunction, as well as dysfunction of the lumbosacral complex stabilization is necessary.

Purpose

The aim of the following work was to evaluate the effect of a 3-week pelvic floor training protocol using the Corefit®System on the self-assessment of the condition of the lower urinary tract and the morphology of the transverse abdominal muscle.

Research material and methods

The study included a group of 57 women of 25 to 65 years of age split randomly into two groups: experimental (n=28) consisting of participants who underwent a 3-week rehabilitation period and control (n=29) obliged not to undertake any additional activity for the duration of the experiment. The participants filled out the following questionnaires: CLSS (Core Lower Urinary Tract Symptom Score Questionnaire) and SF-36 (Short Form 36 Health Status Questionnaire) and underwent evaluation of cross-section thickness of the transverse abdominal muscle by means of ultrasonographic imaging. Measurements were taken in the following positions: lying down, sitting comfortably and standing – without muscle contraction (comfortable position), after previous volitional pulling in of the lower abdomen (pulling in the navel towards the spine) and after previous volitional contraction of the pelvic floor muscles using the CoreFit® System (an attempt to bring the ischial tuberosities closer together and simultaneously bring the pubic bone closer to the sacral bone). The assessment was performed pre- and post-experiment.

Results

The rehabilitation protocol used in the study resulted in a statistically significant increase in transverse abdominal muscle thickness in the experimental group: in lying back position on the right side ($p<0.05$) and bilaterally during the pulling in of the navel ($p<0,05$ on the right and $p<0,01$ on the left side) as well as during the contraction of the pelvic floor muscles on both sides ($p<0,001$). The statistical analysis confirmed the significant increase of the transverse abdominal muscle thickness in sitting position after volitional pulling in of the navel ($p<0,05$) and contraction of the pelvic floor muscles on the right side ($p<0,001$). An increase in transverse abdominal muscle thickness in standing position was demonstrated on the right side of the body during the maneuver of pulling in of the navel ($p<0,01$) and during volitional contraction of the pelvic muscles ($p<0,01$). The analysis of the CLSS Questionnaire results presented a lower sum of points in the final assessment in the experimental group in comparison to the initial assessment of this group ($p<0,001$). Also, the analysis of the SF-36 Questionnaire results demonstrated improvements: of physical well-being (health generally considered – $p<0,001$; physical health – $p<0,01$) and mental health (limitations resulting from emotional condition – $p<0,05$; vitality – $p<0,001$; emotional well-being – $p<0,01$; social function – $p<0,001$; mental health – $p<0,001$). The evaluation of correlation between the age of the participants and the achieved results of rehabilitation demonstrated statistically significant relations only with regards to individual measurements.

Conclusions

1. Based on the results of the following study it was found that pelvic floor muscle training using the Corefit®System results in the alteration of transverse abdominal muscle thickness (both at rest and during active contraction) visible in the ultrasound image.
2. Pelvic floor muscle training using the Corefit®System improves the self-assessment of the condition of the lower urinary tract.
3. Pelvic floor muscle training using the Corefit®System improves quality of life with regards to health.
4. The age of the women participating in the study is not a determining factor for the effects of rehabilitation using the Corefit®System.

Key words

Pelvic floor muscle training, transverse abdominal muscle