

RELATIONSHIP BETWEEN LOW BACK PAIN AND PELVIC FLOOR MUSCLES FUNCTION IN YOUNG WOMEN

Hypothesis / aims of study

Low back pain is a highly prevalent musculoskeletal condition, affecting up to 70–80% of the population at least once during their lifetime [1]. Although the contraction of the pelvic floor muscles (PFM) has been claimed to improve lumbo-pelvic stability, contributing to prevent lower back pain, this relationship is still not clear. Thus the aim of this study was to evaluate the relationship between low back pain and PFM function in young women. The hypothesis of the current study was that the lower the PFM function, the lower would be the physical function of women with low back pain.

Study design, materials and methods

This within-subject correlational study included nulliparous women, aged between 18 and 30 years, without presence or history of pelvic organ prolapse or urinary incontinence. Women were included if they had experienced at least three episodes of low back pain during the year before the study. Exclusion criteria were previous gynaecological and spinal surgeries, hospitalization for severe trauma or car accident, rheumatologic diseases or any neurological conditions known to influence muscle activation. Forty women who met the inclusion criteria (Aged: 23,5±3,2 years; Body Mass Index: 21,1±1,5kg/cm²) had the PFM function evaluated by the same physical therapist using digital palpation and perineometry. The digital palpation was performed using the PERFECT scheme. The women were positioned supine with 45° of hip and knee flexion, and the evaluator introduced one finger up to one third of the vagina. They were then instructed to lift and squeeze the PFM as hard as possible. The strength was measured using the 6-point Modified Oxford Scale. Evaluation of the PFM contraction pressure was performed with the perineometer Peritron 9300 (Cardio Design, Australia). The women were placed at the same position as described above, with the vaginal probe inserted approximately 3.5 cm into the vaginal cavity. They were asked to perform 3-maximum perceived effort contractions of the PFM, holding them for 3-seconds. The participants were instructed not to use abdominal, gluteal and/or hip adductor muscles during the contractions and to perform the “inward and up” movement.

After physical examination, the Brazilian Portuguese Version of the Oswestry Disability Index (ODI) 2.0 was applied. The ODI was developed to assess pain related disability in people with acute, subacute, or chronic low back pain. The ODI covers one item on pain and nine items on activities of daily living. For each item, the scoring increases incrementally by 1 with each response option, from 0 (first response option) to 5 (last response option). A percentage was worked out to get the total score. Greater percentages in this scale mean greater function impairment in people with low back pain.

All statistical analyses were performed using the *SPSS Statistics 17.0* software. The Pearson's correlation coefficients were calculated between the PFM function variables and the ODI total score. The *r*'s values were interpreted using the following guidelines: 0.00-0.19 = none to slight, 0.20-0.39 = low, 0.40-0.69 = modest, 0.70-0.89 = high, and 0.90-1.00 = very high.

Results

The participants score average for the PFM digital palpation was 2,7±0,9 (minimal: 1; maximum: 4). The PFM contraction pressure average was 47,2±25,4 (minimal: 13,0; maximum: 85,9) cmH₂O. The ODI total score average was 24,5±6,1% (minimal: 20%; maximum: 48%), which indicates “moderate disability” related to low back pain. The PFM digital palpation score and the contraction pressure value showed modest negative correlations with ODI total score (*r*=-0,622 and *r*=-0,582, respectively).

Interpretation of results

The results of this study show that there is a correlation between low back pain and PFM function. It was observed that the lower the PFM function, the higher was the pain related disability. Other studies have reported a significant difference in PFM function between women with and without low back pain [2]. However, no studies were found that evaluated the correlation between these variables in young nulliparous women.

It is known that PFM co-activates with abdominal and other core muscles during voluntary exercise to maintain lumbopelvic stability. The contribution of PFM to trunk stability has been explained by feedforward activation of these muscles in response to trunk perturbation similar to the other components of the deep stabilizing muscle system [3]. Therefore, it is possible that the altered PFM function may affect the lumbar-pelvic stability, resulting in low back pain.

Although the PFM is described as an important component of the core stabilizing system, many physical therapists neglect the PFM training in the treatment of patients with low back pain. The results of this study show the importance of PFM evaluation as well as the emphasis on PFM training in patients with low back pain.

Concluding message

In conclusion, the PFM function showed negative correlation with pain related disability in young women with low back pain. Thus, the PFM training should be considered in the development of physical training programs to treat low back pain.

References

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2. Arab AM, Behbahani RB, Lorestani L, Azari A. Assessment of pelvic floor muscle function in women with and without low back pain using transabdominal ultrasound. *Man Ther.* 2010;15:235–239
3. Sapsford RR, Richardson CA, Maher CF, Hodges PW. Pelvic floor muscle activity in different sitting postures in continent and incontinent women. *Arch Phys Med Rehabil* 2008;89(9):1741–1747

Disclosures

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