ABSTRACT:

A Comparison of the Lesser Pelvis and Hip's Synergistic Muscular Function between Women with Self-Reported Hip Symptoms and a Control Group

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Gauteng 2022

Introduction

The pelvic floor muscles (PFM) and the hip's indiscriminate relationship are shown in their anatomical connection.

Excluding PFM function when managing hip symptoms may lead to essential information being overlooked and missed.

This study investigated Hip and PFM symptoms, quality of life (QoL) and function in young sportswomen, with self-reported hip symptoms, compared to a non-symptomatic hip group and hypothesised to identify differences between groups.

Method

This observational study compared the stated outcomes between two groups of nulligravida sportswomen aged 18-35 years: Group 1 (n=19) with hip symptoms and a non-symptomatic Group 2 (n=19).

The Self-Administered Co-Morbidity Questionnaire (SCQ) and The Hip And Groin Outcome Score (HAGOS) were utilised to screen and select participants. The HAGOS also measured Group1's hip symptoms. The Australian Pelvic Floor Function Questionnaire measured PFM QoL and symptoms. A transverse, transabdominal sonar application measured bladder base (BB) displacement indicating PFM movement. Furthermore, a practical work/rest surface electromyography (sEMG) test showed the balanced function of the hip's posterior synergies.

The Statistical Package for the Social Sciences (SPSS) version 27 and The Mann–Whitney U test was used. The effect sizes were interpreted according to Cohen's (1992) recommendations.

Results

Group 1 reported hip symptoms and PFM symptoms such as incomplete bladder emptying, urgency, frequency and dyspareunia. These symptoms impacted their QoL. Group 2 reported no hip symptoms and fewer PFM symptoms, which had a lesser effect on their QoL. The strength difference between groups for bladder function was medium ($r = -0.340$). No significant differences were found in the bowel and sexual function.

The PFM function sonar assessment showed asymmetry of the BB at rest was evident in Group 1, 53% (n = 19), vs Group 2, 31,6% (n = 19). Furthermore, the caudal displacement of

the BB during a breathing cycle of high-medium effect (r = - 0.467) and a significant difference in the displacement of the BB in a cephalad direction during a voluntary PFM contraction (r = -0.671).

The sEMG, as a measure of hip muscle function, the posterior synergies of the hip, between groups, showed more imbalance between hips in Group 1 vs Group 2. When considering the median value as a measure of central tendency between Group 1, Mdn = 8.4 (n = 19), and Group 2 Mdn = 3.7 (n = 19), a clinically relevant difference is observed and indicates more imbalance between hips in Group 1.

Conclusion

The hip and PFM dynamic relationship in managing young sportswomen with hip symptoms should be considered as differences in PFM symptoms, QoL and significant differences in PFM function were found between Group 1 and Group 2. Furthermore, clinically relevant hip function differences were found between groups.

Health professionals in the sporting environment can utilise the current study's non-invasive measures and procedures during clinical assessment. The outcomes may lead to the holistic management of hip and PFM symptoms, early referral to relevant health professionals and management of load on the PFM and the hip during sports participation.