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学位論文題名 (注: 学位論文題名が英語の場合は和訳をつけること)

Effects of a trunk harness on lumbopelvic stability and muscle activity during prone hip extension exercise

体幹ハーネスが腹臥位股関節伸展運動時の腰椎骨盤の安定性と筋活動に及ぼす影響

学位の種類: 修士 (理学療法学)

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注: 1 ページあたり 1,000 字程度 (英語の場合 300 ワード程度) で、本様式 1~2 ページ (A4 版) 程度とする。

Abstract

Background: Abdominal hollowing and abdominal bracing (AB) have been the focus of lumbar stability exercises. However, accurate performance of these exercises is difficult. A trunk harness can help stabilize and alter muscular patterns. The present study aimed to examine the effects of a trunk harness on lumbopelvic stability and muscle activity during prone hip extension (PHE) in healthy individuals and patients with low back pain (LBP).

Method: 16 patients with LBP and 15 healthy individuals performed PHE under control, AB, and harness + AB conditions. Lumbopelvic kinematic data, muscle onset time of the bilateral erector spinae, semitendinosus, gluteus maximus, and difficulty of PHE were evaluated. Repeated-measures two-way analysis of variance was performed for each measurement item.

Results: The lumbar lordosis angle was significantly lower in the AB and harness + AB conditions. The anterior pelvic tilt angle was significantly lower and muscle onset of the gluteus maximus and contralateral erector spinae occurred earlier in the harness + AB condition ($p < 0.05$). The pelvic oblique angle was significantly lower in the AB condition ($p < 0.05$). The difficulty of PHE was significantly lower in the AB and harness + AB conditions ($p < 0.05$) and was significantly lower in the harness + AB condition than in the AB condition ($p < 0.05$).

Conclusion: Wearing the trunk harness could help stabilize the lumbopelvic region and change muscle activity patterns during PHE.