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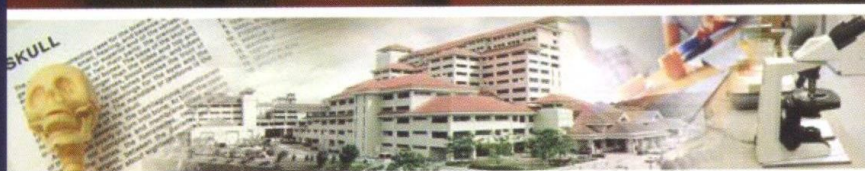


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INFLUENCE OF LEG LENGTH DISCREPANCY IN ACTIVATION OF BACK MUSCLES—CAN IT CONTRIBUTE TO LOW BACK PAIN?

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Background:

Impaired muscle activation and altered back muscle activity were reported consistently among patients with lumbosacral dysfunction and back pain. On the other hand, leg length discrepancy was also quoted to contribute to spinal disorders and lumbosacral dysfunction. However, the influence of leg length discrepancy in altering the motor pattern of back muscles was still not fully understood. But, such a clinical interaction between leg length difference and kinetics of back muscles were highly speculated among clinicians and musculoskeletal physiotherapists. Therefore, the main purpose of this study was to investigate the influence of leg length discrepancy on the muscle activation pattern of gluteus maximus and latissimus dorsi.

Material & Methods:

A total of 28 healthy subjects (13 males and 15 females) participated in this study. The subjects who were free of pain, with no history of any medication and with no known physical deformities were recruited for this study. The clinical measurement of apparent leg length (ALLD) was measured from the bony landmarks between anterior superior iliac spine and lower margin of medial malleolus. Based on the measurement, the subjects were divided into three groups which include normal group (without ALLD), ALLD<1cm and ALLD≥1cm-≤2cm. Surface electromyography was used to record muscle activity of gluteus maximus and latissimus dorsi among the subjects during modified prone hip extension task. The data was analyzed using SPSS version 16.0.

Results:

One Way between groups analysis of variance (ANOVA) showed that there were no significant difference among the groups in the muscle activation of gluteus maximus, $F(2,25) = 0.588$, $p=0.56$, $\eta^2=0.04$ and latissimus dorsi, $F(2,25)=0.763$, $p=0.47$, $\eta^2=0.06$.

Conclusion:

Apparent Leg length discrepancy (≤2cm) was not shown to influence the back muscle activation in this study.

Keywords:

leg length discrepancy, gluteus maximus, electromyography, latissimus dorsi