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Effect of lumbar lordosis angle in adolescent baseball players on the development of lumbar spondylolysis

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Abstract
Background: Lumbar spondylolysis is a stress fracture of the lumbar vertebral arch that occurs frequently in adolescents. Lumbar spondylolysis has a high prevalence in athletes, especially baseball players. When lumbar spondylolysis occurs, restriction of sports activities is inevitable until the bony union is achieved. Therefore, prevention of the onset of lumbar spondylolysis is necessary, and it is necessary to elucidate the risk factors that influence the onset of the disease. An increase in lumbar lordosis angle may influence the development of lumbar spondylolysis because the lumbar lordosis angle increases the compressive stress in the vertebral arch. However, there are no reports on the effect of lumbar lordosis angle and the development of lumbar spondylolysis in adolescent baseball players. Therefore, the purpose of this study was to investigate the effect of lumbar lordosis angle on the development of lumbar spondylolysis in adolescent baseball players.
METHODS: Eligible patients were those who visited the orthopedic clinic from January 1, 2018, to October 31, 2021. The selection criteria were male baseball players aged 11-18 years who visited the clinic, and the exclusion criteria were those whose superior endplate of L1 and superior endplate of S1 could not be identified in the MRI images. The existence of development of lumbar spondylolysis, lumbar lordosis angle, age, and pitching experience of the above patients will be assessed based on electronic medical records and imaging findings. Statistical analysis was performed using logistic regression analysis, with the objective variable being the existence of lumbar spondylolysis and the explanatory variables being the lumbar lordosis angle, age, and previous pitching experience.
Discussion: This study examines the effect of the lumbar lordosis angle on the development of lumbar spondylolysis in adolescent baseball players. An increase in lumbar lordosis angle may influence the development of lumbar spondylolysis and may be a risk factor for the development of lumbar spondylolysis.

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