ABSTRACT FORM

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TITLE	Evaluation of the Knee Proprioception and Muscle Avtivation in Non-contact ACL Injury Risk Position
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TEXT (250 words or 3000 characters maximum spaces included /Arial 10)

Introduction:

The majority of ACL injuries occur with a non-contact mechanism. One of the most common position of non-contact ACL injury is dynamic knee valgus. Poor proprioception and neuromuscular control may induce greater knee abduction, which is thought to be a risk factor for ACL injury. No study has measured joint position sense and muscle activation of the knee in a manner relevant to the mechanism of injury. Therefore, the aim of this study is to measure knee joint position sense and muscle activation in non-contact ACL injury risk position and normal condition.

Materials & Methods:

20 patients who had undergone ACL reconstruction and 20 healthy control subjects participated in the study. JPS was evaluated by reproduction of the angles and EMG recordings were employed to measure of knee muscles activation in non-contact ACL injury risk position and normal condition. The dominant-limb knee of healthy subjects and reconstructed and non-operated knees of the patients were selected for evaluation.

Results:

The results showed less accurate knee joint position sense in non-contact ACL injury risk position, rather than normal condition in the dominant-limb knee of healthy subjects and reconstructed and non-operated knees of the patients. EMG results demonstrated increased VM, VL and LH activation and decreased medial-to-lateral hamstring ratio in risk position compared to normal position in the dominant-limb knee of healthy subjects and reconstructed and non-operated knees of the patients.

Conclusion:

The results of this study suggest that poor neuromuscular control in non-contact ACL injury risk position compared with normal condition may contribute to the increased incidence of anterior cruciate ligament injury.