Characteristics of cutting maneuver in female college soccer players at a high risk of anterior cruciate ligament injury

Magoshi Hirohisa¹, Hoshiba Takuma¹, Fukubayashi Toru²
¹ Graduate School of Sport Sciences, Waseda University
² Faculty of Sport Sciences, Waseda University

The purpose of this study was to examine characteristics of a cutting maneuver in female college soccer players at a high risk of anterior cruciate ligament (ACL) injury.

Thirty female college soccer players participated in this study. A drop vertical jump (DVJ) and a shuttle run cutting (SRC) maneuver were captured with high speed cameras.

The probability of ACL injury risk was calculated using the kinematics variables during DVJ. The knee abduction angle during SRC was calculated using the Frame-DIAS V.

The correlation between the knee abduction angles of SRC and probability of ACL injury risk was evaluated using the Pearson correlation coefficient.

The knee abduction angle was compared between the low-risk group (probability of ACL injury risk < 62%) and high-risk group (≧ 62%).

A moderate positive correlation (r=0.663, p <0.01) was found between the knee abduction angle of SRC and the probability of ACL injury risk. A significantly greater maximum knee abduction angle was observed with the high-risk group than low-risk group (p <0.001).

The results of this study suggested that the athletes who were categorized as being at a high risk of ACL injury might demonstrate increased knee abduction angle during SRC.