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Relation	



不定形障害物を跨ぐ際の足部軌跡

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Foot Trajectory when Crossing over Irregularly Shaped Obstacles

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論文の要旨

The risk of falling during obstacle crossing is assessed based on clearance, which is the distance between the obstacle and the toe when the toe is directly above the obstacle. The obstacles that are encountered daily have a wide variety of shapes. However, most previous studies on walking over obstacles investigated simple shapes with a single leaf height. In this study, the foot trajectory was evaluated when stepping over irregularly shaped obstacles such as staircase-shaped (Experiment 1) and oblique (Experiment 2) obstacles.

Experiment 1: Sixteen healthy young adults performed obstacle-crossing tasks. The obstacle was staircase-shaped, combined with a rectangular obstacle with a height of 9.0 cm on the contralateral leg side and a rectangular obstacle with a height of 22.5 cm on the ipsilateral leg side. The results revealed that there was greater foot clearance on the ipsilateral side when the obstacle on the contralateral side is higher than the rectangular obstacle.

Experiment 2: Sixteen healthy young adults

performed obstacle-crossing tasks. The obstacles had trapezoidal and rectangular shapes when viewed from the frontal plane. The results revealed that the foot control in the mediolateral direction was adapted to the shape of the obstacle.

The foot trajectory of the lower limb in obstacle avoidance walking was not only determined by the height of the obstacle directly under the foot but may also be influenced by the shape of the opposite leg movement and the shape of the entire obstacle.