

Roughness and slipperiness of floor surface: Tactile sensation and perception

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Abstract

The slipperiness of floor is one of the risk factors affecting the occurrence of slipping and falling. The purpose of the study was to compare the roughness and slipperiness of five floor surfaces based on tactual sensations from different body segments for human subjects. The perceived roughness and perceived floor slipperiness of five floors based on tactual sensation from 20 male and 20 female subjects were collected and compared. The female subjects tended to give higher subjective ratings on both perceived roughness and slipperiness than their male counterpart. Both index fingertip and palm were more sensitive than foot in the sensation of floor roughness. The differences among fingertip, palm, and foot in the perceived floor slipperiness were not statistically different. The regression analysis results indicated that floor roughness parameter R_a is a better predictor in predicting both the perceived floor roughness and perceived floor slipperiness than the COF of the floor.

Keyword : Slips and falls, floor roughness, floor slipperiness, subjective rating