The Relationship between Near-Fall Experiences and Lower Limb Function and Balance Function

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Abstract

[Purpose] The purpose of this study was to clarify the relationship between near-fall experiences and lower limb function and balance function. [Method] For lower limb function, quadriceps muscle strength, CS-30, and walking time were measured. For static balance function testing, a stabilometer (ANIMA, GRAVICORDER, G-620) was used. One-leg stand time with eyes open was also measured. For dynamic balance function testing, TUG and 10 m obstacle walking time were used. [Results] There was a significant correlation between total trajectory length with eyes open and height and weight. There was also a significant correlation between total trajectory length with eyes closed and height, weight, standing on one leg with eyes open, and quadriceps strength for the 10 m obstacle walking time, CS-30, TUG, and 10 m walking time ($p < 0.05$). When examining the validity of balance function as a factor in near misses of falls (presence or absence), the highest F-value (11.4) was found for total trajectory length with eyes closed. [Conclusion] For static balance function testing, the total trajectory length with eyes closed was useful, and for dynamic balance function testing, the 10 m obstacle walking time was useful.