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# Consideration on The Effect of The Place Where The Cane is Attached on The Standing Motion

**Hideo Hirai\****Faculty of Health Sciences, Hiroshima Cosmopolitan University, Hiroshima, Japan*

**\*Corresponding author:** Hideo Hirai, Professor at Department of Rehabilitation, Hiroshima Cosmopolitan University, Japan.

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**Opinion**

It is well known that aging reduces athletic performance and increases the risk of falls. In the elderly, falls often reduce their physical fitness and gradually shorten their healthy life expectancy. In addition, too much prevention of falls may suppress the activities of the elderly more than necessary, causing them to become frail. In any case, elderly people often fall into a negative spiral due to a fall accident.

According to the 2018 Vital Statistics Survey of the Ministry of Health, Labour and Welfare, there were about 40,000 "accidental deaths" due to death reports, and more than 20% of them were deaths due to "falls". Especially for those aged 65 and over, it reports that it far exceeds the number of fatalities from traffic accidents. It is pointed out that the most common causes of death due to "falls" are falls on the same plane due to slips, trips, and staggers. On the other hand, more than half of the elderly people fall in residential areas such as houses, and the most common cases of falls are in their living rooms or bedrooms.

In other words, it does not mean that the condition of the scaffolding such as stairs and steps on the floor changes, but that a fall accident occurs due to a change in the dynamic balance ability of the elderly themselves on a flat surface.

Taking the above into consideration comprehensively, it is considered that how to prevent falls in the living room in the elderly's life scene is very beneficial for extending the healthy life expectancy of the elderly. It is necessary to consider the degeneration of

human beings and to avoid the risk of falls by paying attention to the characteristics of the elderly in the activities of daily living of the elderly. As a general fall prevention measure, environmental adjustments are made as well as continuous practice of standing up.

The above measures have been taken continuously for a long time and are the main means of fall prevention measures for the elderly. It is necessary to consider fall prevention measures that are adapted to the daily lives of the elderly. In the daily life of the elderly, walking is often accompanied after the standing motion, and inevitably, the elderly often stand up using a cane. Therefore, it is important to consider in which position the cane should be attached to prevent the elderly from falling when standing up.

would like to analyze the measured values of the floor reaction force on the sagittal plane during the standing motion using a floor reaction force meter with and without a cane.

We plan to analyze the force and direction when the COP in the standing motion receives the maximum force in the vertical direction and the force and direction when the COP receives the maximum force in the horizontal direction. And we will investigate the relationship between the cane position and these measurements based on those results.

**Conclusion**

We would like to investigate how the force and direction of the COP when an elderly person stands up with a cane changes

depending on the position where the cane is attached by using a floor reaction force meter.

### **Conflict of Interest**

No conflicts of interest.

### **Acknowledgement**

None.