What problems did the researchers set out to study, and why?

Fall risk among the elderly is high, and fall-related injuries are rising among elderly individuals. It has been theorized that, as motor tasks increase in complexity and difficulty, greater attentional demands are required to complete the task. Therefore, elderly individuals may require greater attentional demands to perform stair ambulation compared to younger adults; however, this analysis has not yet been performed. The researchers set out to use a dual-task approach to compare the attentional demands of a group of elderly adults with those of younger adults during stair ambulation.

Who participated in this study?

Ten healthy adults over 65 years of age and 10 healthy young adults between the ages of 23 and 31 participated in the study. The participants were all in good physical health. Individuals were excluded if their functional performance was below that of age-matched controls, they had poor vision or heart conditions, or they had physical therapy within the preceding 3 months.

What new information does this study offer?

Voice response times were significantly longer for the group of older adults during stair ascent and descent compared with the younger group, indicating that older adults had greater attentional demands for this task.

What new information does this study offer for patients?

Walking on stairs requires more attention than level walking or standing. Older individuals require more attention than younger individuals while going up and down stairs. This information is critical to understanding why older adults have an increased risk of falls on stairs, and it can help in the development of strategies to reduce fall risk.

How did the researchers go about this study?

The researchers recorded voice response times during level standing, stair ascent, and stair decent in this single-site, prospective, observational cohort study design.

How might the results be applied to physical therapist practice?

The data from this trial support the notion that even healthy, high-functioning older adults require more attentional resources during stair ambulation compared with younger individuals. Physical therapists can use this information when designing programs to reduce the risk of falls in older adults.

What are the limitations of the study, and what further research is needed?

The participants in this study were all healthy, and the older group had high scores on functional measures at baseline. Future research should investigate the attentional demands for individuals with conditions that may further increase the difficulty of stair ambulation and should examine effective strategies to improve stair ambulation to reduce the risk of falls in the elderly population.

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