



KEY POINT SUMMARY

OBJECTIVES

To explore how patterns in carpets act as visual cues that can aid older people with impaired vision and/or gait.

DESIGN IMPLICATIONS

Carpets have several subjective and objective benefits, one being that they can help provide safer foot travel for all age groups. Carefully selected colors that are not too harsh or too soft can be paired with tasteful designs that help guide the eyes and provide a frame of reference in a straight line of movement— patterns such as these can help improve both the carpet's aesthetic quality and ability to provide safe foot travel.

The design and initial evaluation of visual cues in carpets to assist walking

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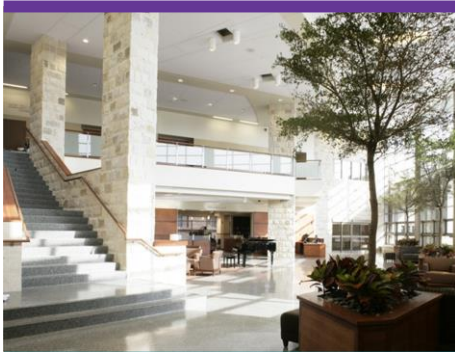
Key Concepts/Context

One way to reduce the occurrence of indoor falls for both elderly people and other individuals is to improve the design of floor coverings so that they can help create a safer walking environment. A growing number of studies are showing that the design of products such as carpets can specifically help older people lead more productive and independent lives by empowering them through safer opportunities for mobility. Carpets can reduce levels of stress and improve the aesthetics of a space, while also providing better traction, greater comfort while standing, lower-impact falls during falling or walking, improved acoustics and thermal qualities, better indoor air quality, and an overall reduction in biocontaminants. However, little attention has been given to how the visual designs of carpets themselves can act as cues to assist with walking.

Methods

An experimental carpet was designed using a set of guidelines to enhance its ability to help with the complex cognitive process of walking. These guidelines address color contrast and saturation, design complexity and placement, and the appropriateness of certain patterns. The result was a carpet with patterning intended to create depth perception without being over-patterned, with a mid-blue colored central area that contrasted with red tips on the peripheral patterns. This carpet was compared with two commercially produced carpets—one that was blue with small flecks of color and one that was dark brown with a yellowish pattern sporadically covering the entire surface, known as the “patterned carpet.” All three carpets had piles of 100% wool in a 6mm high loop construction.

For examination, the three carpets were cut into 1 meter by 4 meter segments and placed parallel to one another, half a meter apart. Twenty adult subjects (10 male and 10 female) between the ages of 18 and 50 participated in the assessment. These participants were not assessed for visual impairments, but they each had driver's



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licenses. Each individual wore a yellow lens face shield to simulate the typical vision of an 80-year-old (in terms of color sensitivity and contrast). Participants put on the face shield before viewing the carpets under fluorescent lighting. The subjects were then briefly interviewed before walking slowly across all three carpets, with the carpet arrangement being randomized for each participant. Findings

The lack of significant decline in cognitive functioning of the residents confounded the results of the study. The researchers were notably surprised and shocked at the lack of variation among residents across the 9-year study period.

Limitations

A relatively small sample size was used in this study, with many of the participants being below the “older” age group that the authors seemed most interested in helping. Only three carpets were used -- one being very plain and another being very busy. This may have disproportionately increased the likelihood of participants preferring the specially designed carpet.

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